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THE EXPANSION OF MANUFACTURED EXPORTS IN DEVELOPING COUNTRIES: AN EMPIRICAL ASSESSMENT OF SUPPLY AND DEMAND ISSUES

by

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THE EXPANSION OF MANUFACTURED EXPORTS IN DEVELOPING COUNTRIES:

AN EMPIRICAL ASSESSMENT OF SUPPLY AND DEMAND ISSUES[*]

I. Introduction

Economist's thinking about the role of international trade in the
process of economic development exhibits a cyclical behaviour. The
classical thinking, which held sway until the 1930s, emphasized the
crucial role of trade in promoting growth through the optimal alloca-
tion of resources made possible by the exploitation of international
comparative advantage. By the 1950s, after years of frustration and
disappointment in attempting to foster development on the basis of
primary commodity exports, many economists, particularly those asso-
ciated with the Latin American experience, rejected the logic of the
classical argument, maintaining instead that underdevelopment is a
fundamental problem of transforming the structure of an economy and
not of merely achieving marginal optimality in the allocation of
resources. Furthermore, imperfections of the international trading
framework, such as increasing oligopolistic competition, discriminatory
pricing on world markets and product differentiation, discredited
deeply the idea of an export-led growth for developing countries. The
economic consequence of the new viewpoint was a fundamental rejection
of the market mechanism in favour of direct intervention and control
of economic decision-making. The main tactic of this strategy was to
force the substitution of imports with domestic production by control-
ling investment decisions and protecting the domestic market from
international competition. By the mid-1960s, however, this strategy,
or at least the tactics employed to pursue it, had proved unsuccess-
ful (in terms of sustained growth, adequate expansion of industrial
employment and removal of severe balance of payments constraints), in
many instances only exacerbating problems they were designed to cure.

At the same time an exclusive group of small, developing economies was demonstrating that the classical wisdom still held some merit - trade could be an engine of growth. As a result of the failure of the import-substitution strategy, on the one hand, and the success of several export-oriented industrialization experiences, on the other, there emerged in the late 1960s and early 1970s a "new orthodoxy", maintaining that trade, specifically the export of labour-intensive manufactures, was a viable avenue to industrialization, but allowing an activist governmental role in promoting export expansion. Once again, within only the last few years, a revival of anti-trade sentiment has begun to emerge. However, in contrast to the earlier movement which perceived supply constraints to be the primary limitations to export-led growth, the new wave of skepticism emphasizes obstacles on the demand side. This notion is expressed most commonly by the so-called "fallacy of composition argument": "if all small countries adopt ... [export promotion] policies on the assumption that their individual impact upon the world market for labour-intensive manufactures will be small, the total impact may nevertheless be large and may generate the market barriers which each alone could successfully have avoided."[1]

There are (at least) three crucial empirical issues involved in the current debate on the role of trade in economic development:

(1) Is an export-oriented approach (specifically, specialization in labour-intensive manufactures) the "best" way to foster industrialization?

(2) Is export performance responsive to governmental promotion efforts?

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[1]G.K. Helleiner, "Manufactured Exports from Less Developed Countries and Multinational Firms", Economic Journal, Vol. 83, March 1973, p. 27. Also expressed for example in P. Streeten, "Trade Strategies for Development: Some Themes for the Seventies", in: P. Streeten (ed.), Trade Strategies for Development (New York: John Wiley & Sons, 1973), p. 17.

(3) Is a lack of demand the ultimate obstacle to the
     expansion of manufactured exports in LDCs?

The first question is the most profound one, but it is also the
least interesting. Certainly there is no one "best" way to achieve
economic development in all countries, nor is there any panacea for
the problems of LDCs. The role of trade in development is bound to
be different in different countries, yet it is likely to be one,
if not the most important, element in all. The second and third
questions are of far more immediate relevance. Although both have
been heavily discussed in the literature, few attempts have been
made to assess them empirically. This is the purpose of the
present paper.

In assessing the question of how effective economic policy is in
promoting export expansion (from here on when speaking of exports we
mean exports of manufactures) we draw on empirical evidence that emerged
from 15 country-studies undertaken at the Institut für Weltwirtschaft,
Kiel, during recent years.[1] The Kiel project was conceived as an exten-
tion of the work initiated by the O.E.C.D. country-study project which
provided the first comprehensive empirical analysis of the broad issues
of trade and industrialization.[2] The aim of the Kiel project was to take

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[1] The countries studied were: Brazil (Tyler); Colombia (Wogart); Egypt
(Girgis); Hong Kong (Riedel); India (Banerji); Israel (Pomfret); South
Korea (Stecher); Malaysia (Hoffmann); Mexico (Müller-Ohlsen);
Pakistan (Mujahid); Singapore (Lotz); Spain (Donges); Taiwan (Riedel);
Turkey (Müller-Ohlsen); Yugoslavia (Chittle). A complete bibliography
of the Project publications is given in Appendix Table A-1. Taken as
a whole, these countries, in the early 1970s, accounted for 57 percent
of LDCs' gross national product, 54 percent of LDCs' population and
75 percent of both LDCs' manufacturing value added and LDCs' manufactured
exports. (LDCs are defined according to O.E.C.D. and World Bank). For
distinct inter-country differences in economic variables which are
important for the purpose at hand, see Appendix Tables A-2 and A-3.

[2] I. Little, T. Scitovsky and M. Scott, Industry and Trade in Some
Developing Countries: A Comparative Study (Oxford University Press
for the O.E.C.D., 1971). Additional empirical research on these lines
was sponsored by the World Bank and the National Bureau of Economic
Research: See B. Balassa and Associates, The Structure of Protection
in Developing Countries (Baltimore/Md., London: The Johns Hopkins
University Press, 1971); J.N. Bhagwati, A.O. Krueger, Foreign Trade
Regimes and Economic Development, publication in two separate volumes,
forthcoming.

a more narrow focus, examining primarily the role of manufactured
export expansion in the industrialization process with a view of
assessing the export potential of developing countries. Within these
terms of reference, however, each author was free to define
the issues and to pattern his analysis according to the special
circumstances and data availability in the country concerned. As a
result, each country study will have to speak for itself and many
of the most interesting results coming out of these studies are not
readily comparable.[1] However one area that was treated comparably
in most of the studies was the description and analysis of the impact
of economic policy affecting the external sector as it evolved over
the last two decades. These results and descriptive information are
brought together here in an attempt to determine whether any common
patterns or generalizations can be established concerning the effective-
ness of government policy in stimulating export expansion.

The question of the demand for manufactured exports of LDCs was
not examined in depth in any of the country studies, however. In order
to assess this issue we bring together fragmentary empirical evidence
emerging in the literature in several areas concerning the location,
size, growth and trade restrictions in the major markets for LDCs'
exports of manufactures.

II. Economic Policy and Export Expansion in a Sample of LDCs

In attempting to establish whether any common generalizations
emerge from the Kiel Project country-studies concerning the impact of
government policy on export expansion, we proceed in the following
way. First, we profile the evolution of major post-war policies affecting
the external sector in the Sample countries, exploring whether any

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[1]Lessons for policy-making purposes can nevertheless be drawn. See
J.B. Donges, "Conditions for Successful Import Substitution and
Export Diversification in LDCs: A Summary Appraisal", in: H. Giersch
(ed.), The International Division of Labour - Problems and Perspectives
(Tübingen: J.C.B. Mohr, 1974), pp. 336-356.

common patterns can be traced and trying to ascertain actual
turning points in the direction of policy. If such turning points
are apparent, we then examine whether (manufactured) export
performance (i.e. growth) reflects these discernible shifts in
policy. And we summarize the results of estimation of so-called
"export-functions" -- quasi export supply functions -- for several
of the Project countries with a view of demonstrating which domestic
economic policies or, more accurately, sets of economic policies
are most effective. Third, we describe the pattern of international
specialization to which such policies have laid the groundwork.
And finally, the (supply) potential of the Project countries to
increase their manufactured exports is appraised.

The Configuration of Economic Policies

A profile of post-war industrialization and trade policies in the
Sample countries is provided in Table I. The table is constructed from
descriptive information provided in the individual country-studies and
is intended to reveal major policies adopted and to indicate in
general when they became effective and/or were discontinued. No doubt
we have erred, in some instances associating with a given country a
policy that may not have been important, and in other cases overlooking
policies that more astute country-specialists would consider major.
In order to avoid a lengthy discussion of economic policy in each
country we have chosen, no doubt at some risk, in favour of a
concise presentation in this form.

Shifting through the table one observes several notable aspects
of economic policy common to most of the Sample countries:

(1) All countries, with the exception of Hong Kong and to a
    lesser extent Singapore and Malaysia, have relied extensively
    on governmental intervention.

Table I

A PROFILE OF MAJOR POST-WAR INDUSTRIALIZATION AND TRADE POLICIES IN THE KIEL SAMPLE COUNTRIES

Area	Type of polices		Countries concerned
PRODUCTION	i)	Industrial licensing system under which establishment, expansion and both sectoral and geographical alteration of industrial activities require governmental approval.	Brazil, Egypt (since 1957), India, Mexico, Pakistan, Spain (relaxed since 1963), Taiwan (gradually lifted after 1954).
	ii)	Selective promotion (generally by tax incentives) of industries designated as "essential", "desirable" or "pioneering".	All countries but Hong Kong.
	iii)	Creation of industrial estates.	India, Korea (since 1966), Malaysia, Singapore, Spain (since 1964), Taiwan (since 1965), Turkey (since 1963).
	iv)	Price controls (at times) on selected industrial goods required as inputs by "priority sectors".	Brazil (since 1965), Colombia, India, Malaysia, Mexico, Pakistan, Spain, Turkey, Yugoslavia.
	v)	National plans for economic development over three and more years (indicative for the private sector, compulsory for the public sector).	Brazil (since 1964), Colombia, Egypt (since 1957), India, Israel (since 1958), Korea, Malaysia (since 1955), Mexico, Pakistan, Spain (since 1964), Turkey (since 1963), Yugoslavia.
	vi)	Direct government investment in industry (public enterprises).	All countries but Hong Kong, Israel, Korea and Singapore.
FACTOR MARKET	i)	Minimum wage legislation (including high social charges and severance pay regulations).	Brazil, Colombia, Egypt, India, Malaysia, Mexico, Pakistan (since 1969), Spain (since 1963).
	ii)	Interest rates ceilings and/or credit rationing (not determined by business cycle considerations).	Brazil (relaxed since 1964), Egypt (since 1957), Korea (relaxed since 1965), Mexico.
	iii)	Tax benefits for business income derived from investment such as several years lasting tax holidays, reduction of income or profit tax, tax exemptions or ceilings, loss-carry-forward provisions, allowances for accelerated depreciation (not determined by business cycle considerations).	All countries but Hong Kong and Yugoslavia, at varying degree.
	iv)	Exemption from, or reduction of, customs tariffs on capital goods which are not domestically produced.	Brazil (since 1957), Egypt, Korea, Malaysia, Mexico, Taiwan, Turkey.
FOREIGN INVESTMENT	i)	Prohibition of private foreign investment.	Yugoslavia (until 1967).
	ii)	Investment proposals subject to government approval.	Colombia, Egypt, India, Korea, Malaysia (since 1973), Mexico, Spain (until 1959), Turkey, Yugoslavia (since 1967).
	iii)	Requirement of domestic majority ownership and constraints on profit remittances abroad and capital repatriation.	Colombia, Egypt (gradually liberalized after 1967), India (selective), Mexico, Spain (until 1959), Yugoslavia (since 1967).
	iv)	Exclusion of foreign investment from certain ("key" and/or "inessential" and/or "saturated") industries.	Brazil, Colombia, Egypt, India, Mexico, Pakistan, Spain, Turkey, Yugoslavia (since 1967).
	v)	National treatment with virtually no foreign exchange restrictions and domestic ownership requirements.	Brazil, India, Israel, Korea, Pakistan, Singapore, Spain (since 1959), Turkey.
	vi)	Direct subsidies and tax incentives.	Korea, Malaysia, Mexico, Taiwan.

(continued)

Area	Type of Policies	Countries concerned
IMPORTS	i) Import licensing combined with quotas and/or, at times, with prohibitions of certain imports (considered either as luxury or as locally available).	All countries but Hong Kong and Singapore, at varying degree. Gradual liberalization in Brazil (after 1957), Colombia (after 1967), Israel (after 1962), Korea (after 1960), Spain (after 1959) and Taiwan (after 1958).
	ii) Tariffs (generally ad-valorem) and other price measures (such as indirect taxes, surcharges or prior-deposit requirements), generally with escalating rates from lower to higher levels of fabrication.	All countries but Hong Kong, at varying degree.
	iii) Multiple exchange rates.	Brazil (1953-57), Colombia, Egypt (1957-62), Israel (1952-55), Korea (until 1964), Spain (until 1959), Taiwan (until 1963), Turkey (until 1960), Yugoslavia (until 1961).
EXPORTS	i) Licensing for exports (totally or partly) with or without minimum export price requirements.	Brazil (until 1964), Colombia (since 1973), Egypt (since 1959), India, Malaysia (until 1969), Pakistan, Spain (until 1959), Taiwan (until 1958), Turkey (gradually liberalized after 1958), Yugoslavia.
	ii) Taxes and/or customs duties on exports.	Egypt, India, Malaysia, Mexico, Pakistan, Spain (until 1959), Taiwan (until 1954).
	iii) Fixing of export targets.	Korea (since 1962), India (since 1970).
	iv) Remissions and compensation of tariffs on imported products used in finished exports and exemptions from indirect taxes on domestic production.	All countries, mostly starting in the early sixties.
	v) Export vouchers for import replenishment with premiums on their resale, priority allocation of foreign exchange to exporters for the importation of necessary input, or foreign exchange retention quotas.	Colombia, Egypt (temporarily since 1960), India, Korea (until 1960), Mexico, Pakistan, Taiwan (until 1963), Turkey (since 1968), Yugoslavia (since 1966).
	vi) Income tax concessions for earnings from export (including special depreciation allowances).	Brazil (until 1971), Colombia (since 1967), India (since 1960), Israel (since 1965), Korea (since 1961), Malaysia, Mexico (since 1958), Pakistan (since 1963), Singapore, Taiwan (since 1960), Turkey (since 1969).
	vii) Export credits (at preferential conditions) and credit insurance.	All countries but Hong Kong and Singapore, at varying degree and starting in the sixties.
	viii) Exchange-rate policy of gradual devaluation ("sliding peg").	Brazil (since 1968), Colombia (since 1967), Israel (since 1975), Korea (since 1965).
	ix) Establishment of export processing zones.	Colombia (since 1970), Hong Kong, India (since 1972), Korea (since 1970), Malaysia (since 1972), Mexico (since 1962), Singapore, Taiwan (since 1966).
	x) Participation in international free-trade area.	Brazil (since 1961), Colombia (since 1961 and 1969), Hong Kong, India, Israel (since 1975), Malaysia, Mexico (since 1961), Pakistan, Singapore, Turkey (since 1964).
	xi) Government assistance to marketing abroad.	All countries, at varying degree and generally beginning in the sixties.

Source: Elaborated from information provided by the authors of the country studies.

(2) Governments have intervened both directly through
controls on investment and trade and indirectly
through taxes, subsidies and other measures affect-
ing market prices both of factors and products.

(3) Reliance on direct controls appears to have been more
pervasive in the first decade (generally the 1950s)
than during the latter decade. Most countries appear
to have moved, in some cases gradually (e.g. India,
Israel, Colombia, Egypt, Yugoslavia and Mexico) in
others more or less abruptly (e.g. Taiwan, Spain, Brazil,
and South Korea) toward a greater reliance on the market
mechanism, as tempered of course by continued governmental
intervention.

(4) The aim of economic policy also appears to have shifted
away from the single-minded devotion to import substitu-
tion which was characteristic in most of the Sample
countries (e.g. Brazil, Mexico, Spain, India, Colombia,
Egypt and to a lesser extent Taiwan and South Korea).
Changes in economic policy in the 1960s took the form
of either (i) reducing the detrimental effects on the
export sector of policies aimed at other objectives (as
in e.g. India, Mexico, Yugoslavia and to a lesser extent
Spain) or (ii) of outright promotion of export expansion
(as in e.g. Taiwan, South Korea, Brazil (after 1968),
Malaysia, Pakistan and Colombia (after 1967)).

The literature on the experience of import substitution
strategy which emerged in the late 1960s reads like a catalogue of
horrors, listing in detail for country after country the excesses of
the strategy and how many of the key policies (e.g. protection) only
acted to exacerbate problems they were designed to relieve (e.g.
balance of payments). Evidence available in the Kiel country-study
project, as well as that coming out of a similar project carried out

under the auspices of the N.B.E.R., suggests that export promotion policies have likewise entailed in many instances excessive resource costs, although, as the N.B.E.R. results also indicate, "the economic cost of incentives distorted toward export promotion appears to have been less than the cost of those distorted toward import-substitution, and the growth performance of the countries oriented toward export promotion appears to have been more satisfactory than that of the import-substitution oriented countries."[1]

Our purpose here, however, is not to assess the economic costs of export promotion policy,[2] but rather to ascertain whether such a policy is effective in stimulating export growth. As we observe in going through Table I, most countries in our Sample if not aiming to promote export expansion directly have at least tried to reduce the debilitating impact on the export sector of policies aimed at other objectives. Although it is rather difficult to determine the precise turning point of economic policy in individual countries since in some instances the changes move very gradually, a review of the information presented in Table I suggests the following schedule of change in policy-orientation in the Sample countries:

	Country	Year
1.	Brazil	1966
2.	Colombia	1967
3.	Egypt	1965
4.	India	1967
5.	Israel	1962

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[1] J.N. Bhagwati and K.O. Krueger, "Exchange Control, Liberalization and Economic Development", The American Economic Review, Vol. 63 (May 1973), p. 420.

[2] For Brazil [11], Egypt [19], India [26], Israel [31], and Spain [57] it has been found that the policy encouragement has tended to go to industries whose exports involve higher costs to the economy than the earnings they yield (number in brackets refer to Table A-1). The opposite seems to hold for Taiwan [59].

Country	Year
6. Mexico	1965
7. Pakistan	1959
8. Spain	1959
9. South Korea	1961
10. Taiwan	1961
11. Turkey	1968
12. Yugoslavia	1966

The Policy Impact on Export Performance

In order to determine whether economic policy has had an
impact on export performance, albeit on the basis of circumstantial
evidence, we examine whether the (logarithmic) time trend of manu-
factured exports exhibits shifts in intercept or slope at times
associated with policy reorientation. This is accomplished by
estimating the following trend function:

$$\ln (E_t / P_t) = a + b t + c D + d (D \cdot t) + e_t$$

where

E_t = value of manufactured exports in year t.

P_t = export price deflator, generally a unit value index.

t = year, with the initial year varying from country to
country but generally 1954-73.

D =} $\begin{cases} 0 & \text{for years prior to policy change} \\ 1 & \text{for years after the policy change} \end{cases}$

and where e_t is an unexplained residual assumed to have the
necessary properties. Estimating the trend function in its fully
unrestricted form (as specified above) yields the same results as
performing separate regressions for the two subperiods, before and

after the policy change, although the unrestricted version yields
a more efficient estimate. In this form the coefficients a and b
indicate the intercept and trend parameters in the early period (i.e.
over which D = 0), whereas c and d indicate change in intercept
and slope between the two subperiods. A significant positive value
for d is interpreted as evidence that policy change has had a
positive influence on export performance (i.e. increased export
growth rate).

The results of estimation of the trend function for the twelve
Sample Countries in which a distinct policy shift was apparent (i.e.
excluding Hong Kong, Malaysia and Singapore) are presented in Table II.
The policy (dummy) variable for each country was defined according to
the above schedule of policy turning points. Examining the table we
find that in 8 out of 12 of the Sample Countries a strong association
between change in economic policy and change in export performance
is observed. The exceptions are Colombia, Israel, Egypt and
Yugoslavia. The unexpected results for Colombia and Israel appear,
on closer inspection of the historical series, to derive from the
fact that both countries started industrial export expansion from an
exceptionally low base in the 1950s. The results with regard to
Egypt and Yugoslavia may derive from the fact that, as Girgis [19]
and Chittle [69] show, both countries have relied heavily on bilateral
state trading arrangement rendering the connection between policy
and performance rather weak. Despite these exceptions the strong
association between policy reorientation and improved export
performance does suggest that government has leverage. Moreover, we
observed that in those countries where government made the greatest
efforts to encourage export activities (Taiwan, South Korea, Spain,
Pakistan, Brazil) increases in export growth are the highest.[1]

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[1]In addition to Table A-3, see the comparative study by J.B. Donges,
"Die Entwicklungsländer als Anbieter industrieller Erzeugnisse",
Die Weltwirtschaft, 1971, No. 1, pp. 41 sqq.

Table II

TIME TREND OF MANUFACTURED EXPORT GROWTH IN SAMPLE COUNTRIES

(t-statistics in parentheses)

Country	time period	Independent Variables				$\overline{R}^2$ F	D.W.
		Constant	t	D	D · t		
1. Colombia	1954-73	-13.596 (-10.796)	0.189 (9.067)	2.357 (0.597)	-.033 (-.579)	.940 101.1	0.809
2. Pakistan	1950-73	1.569 (1.160)	-.026 (-1.073)	-9.347 (-6.014)	.155 (5.634)	.881 58.1	1.492
3. Turkey	1950-73	1.474 (1.401)	-.049 (2.675)	-23.729 (-3.526)	.359 (3.742)	.659 15.8	0.782
4. Taiwan	1953-73	.755 (0.629)	.048 (2.298)	-10.121 (-7.334)	.164 (6.980)	.979 350.5	1.689
5. S. Korea	1952-73	-7.270 (-3.098)	.066 (1.580)	-21.469 (-7.541)	.369 (7.649)	.982 378.9	1.464
6. Spain	1950-73	-.346 (-.034)	.003 (.169)	-10.258 (-7.841)	.182 (7.847)	.978 349.9	1.523
7. Egypt	1954-73	-9.216 (-10.357)	.144 (9.567)	3.087 (1.631)	-.049 (-1.732)	.945 104.6	1.187
8. India	1951-73	1.206 (2.917)	.010 (1.454)	-3.557 (-2.011)	.049 (1.951)	.208 2.929	1.860
9. Brazil	1950-73	-10.298 (-8.638)	.151 (7.323)	-7.098 (-1.667)	.112 (1.803)	.930 102.8	1.110
10. Mexico	1954-73	-1.804 (-2.875)	.042 (3.921)	-6.626 (-5.641)	.100 (5.608)	.943 104.2	1.948
11. Israel	1952-73	-11.744 (-16.667)	.192 (15.435)	4.276 (4.494)	-.069 (-4.432)	.987 352.0	1.364
12. Yugoslavia	1952-73	-8.282 (-26.911)	.154 (29.502)	3.884 (4.299)	-.060 (-4.535)	.991 838.1	1.585

Source: Data extracted from Country-study publications.

Although this exercise provides prima facie evidence that economic policy is effective in stimulating export growth, it suggests nothing about which policies have been most effective. Singling out the importance of individual policies is of course a difficult, if not impossible task, since individual measures are often introduced simultaneously and many are intangible and defy quantification. Nevertheless, an effort was made in a number of the country-studies to measure the main determinants of export performance and in so doing establish where government's leverage is likely to be greatest. The determinants of export performance were analyzed by estimation of so-called "export functions" which consist primarily of supply variables, a "small-country" assumption having been made to the effect that the country faces a perfectly elastic demand for its exports in world markets.[1]

The basic model estimated was of the form:

$$\ln E_t = a + b \ln R_t + c \ln I_t$$

where

E_t = manufactured exports in year t, in most instances deflated

R_t = exchange rate, variously defined

I_t = index of industrial production

In this form the regression model resembles an export supply function, with R measuring movement along the function and I accounting for shifts in the function. The price variable R was measured in various

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[1] A formal elaboration of this function is given in W.G. Tyler, "Methodological Notes on Analyzing the Manufactured Export Performance in Less Developed Countries", Kiel Discussion Papers, No. 28, February 1973, pp. 4 sqq.

ways in the individual country studies according to data availability.
In general the variable was termed the "real effective exchange rate"
and was computed as

$$R = r \cdot P_w / P_d$$

where

r = formal exchange rate (domestic currency per US-$)
vis-à-vis major trading partner(s), weighted in most
cases by export shares

P_w = "world price", or price received by exporters;
often defined as weighted average of wholesale prices
of manufactures in major importing countries or as the
unit value index of exports. In several instances
(Brazil, Colombia and Israel) the variable was ad-
justed to include domestic subsidies received for
exporting

P_d = domestic wholesale price of manufactures.

Given this definition of R, the coefficient b is more appropriately
considered a price substitution parameter indicating the price elasticity
of exporting versus supplying of the domestic market. A significant,
positive estimated coefficient implies that producers are responsive
to marginal financial incentives to export. The coefficient with
respect to industrial production, c, indicates the degree of export
bias associated with industrial expansion in a given country.

Although the country studies employed the "small country"
assumption in order to avoid consideration of world demand, a similar
assumption vis-à-vis the domestic market was not generally made.
However, rather than estimate a simultaneous model of export supply
and domestic demand, the studies chose the approach of including a

domestic demand variable in the single-equation export function.
This variable was included in order to pick up "recession-boom"
effects which are suggested by the classical "vent-for-surplus"
theory of trade. Accordingly, the basic model was extended to

$$\ln E_t = a + b \ln R_t + c \ln I_t + d \ln U_t$$

where

U_t = capacity utilization, defined as deviations from
the semi-log time trend of industrial production
($\ln I_t = a + \delta t + e_t$; $U_t = e_t + 100$).

Aside from the problems of simultaneity, inclusion of the
"recession-boom" variable, U, seems to be unfortunate because it
violates the necessary assumption of independence between explanatory
variables. Since U, in this case, is defined in terms of I, it
becomes difficult to accurately interpret the value or significance
of the regression coefficients. In fact, one observes, in those
instances where alternative specifications of the model were
presented, that the sign or significance of the coefficient of U
changed when included together in the model with I as opposed
to when run without I included. Therefore, in summarizing the
country study estimation results we shall avoid interpreting the
"recession-boom" coefficient. We note, however, that the presence
of U did not seriously distort the coefficient of I since the
latter was in all cases a far more dominant variable.

The estimation results with respect to the exchange rate
variable and the industrial production variable are presented in
Table III. In presenting the results we have elected not to
describe the exact definition of variables or precise specifica-
tion of the model employed in the individual studies, although
a number of variations in both regards are involved. We are
bound to point out, therefore, that because of such unexplained

Table III

EXPORT-FUNCTION ESTIMATES IN SAMPLE COUNTRIES

C o u n t r y	Time period analyzed	Estimated exchange rate parameter	Estimated production index parameter	Explanatory power of the model (R^2)
Brazil [Tyler, 11]	quarterly 1963-72	1.328**	.578	.95
Egypt [Girgis, 19]	1950-71	3.012	1.069**	.89
Colombia [Wogart, 14]	1951-54	-0.06*	2.79	.96
Israel [Pomfret, 31]	1952-71	0.50	1.60[a]	.99
Mexico [Müller-Ohlsen, 40]	1950-70	0.685**	0.661	.92
Spain [Donges, 55]	1959-71	0.74	1.72	.85
Taiwan [Riedel, 60]	1953-73	0.592	1.189	.98

Notes: a : production index is measured by capital stock in the manu-
facturing sector rather than industrial production index.

*: indicates not statistically different from zero.

**: indicates not statistically different from one.

Sources: Appendix Table A-1.

differences the individual results may not be strictly comparable.
Nevertheless, a considerable degree of uniformity is apparent in the
results. We find, first of all, that the model in every case was able
to explain about 90 % of the variation in the dependent variable,
exports. In every case, except Colombia, the exchange rate variable
proved significant and of the expected sign. There is, however,
little consistency among the various estimates concerning the

absolute value of the exchange rate coefficient, which may indeed reflect differences in definition of R. Likewise, little consistency is observed with regard to the shift parameter (industrial production). In this case, differences stem not from variation in definition of the variable, but rather more likely from differences in economic structure and government policy in the various countries. Not surprisingly we find the greatest export bias to industrial growth in the smallest and most export-oriented of the Sample countries (Colombia, Israel and Taiwan, with Spain being somewhat of an exception in this regard).

Although the country studies established that manufacturers are responsive to relative prices in export and domestic markets, they did not determine to what extent changes in export supply resulted from movement in relative prices and to what extent from shifts in the supply function. An exception was the case of Taiwan [60], where it was found that shifts in the export supply function accounted for 85 percent of the explained increases in export supply. We suspect that a similar conclusion would emerge if the same analysis was performed on the other countries, particularly those that have experienced a recent export boom (South Korea, Brazil and Spain).[1]

The major finding to emerge from the estimation of the export function is that export supply is responsive to financial incentive. This result underlines the importance of establishing and maintaining an appropriate exchange rate if a country should embark on an export-oriented strategy of development. It also suggests that tax and

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[1] Using Tyszynski's "constant market share analysis" we found that improved supply competitiveness accounts for more than four fifths of the absolute increase of manufactured exports in South Korea and Brazil and for almost three fifths of that in Spain (period of examination: 1960-73). The comparable figure for Taiwan is 79 percent. These ratios are remarkably higher than the one which Banerji found for the LDCs as a whole (27 percent in 1962-70). See his "The Export Performance of Less Developed Countries: A Constant Market Share Analysis", Weltwirtschaftliches Archiv, Vol. 110 (1974), No. 2, pp. 458 sqq.

subsidy incentives, if not perfectly rational in terms of welfare,
should nevertheless be effective in stimulating export growth.
It should be recalled, however, that the estimated price parameter
only measures substitution between domestic and export markets;
no doubt price incentives created or destroyed by governmental
policy also have a substantial impact on investment decisions which
are captured in the industrial production (supply shift) variable.
The export functions, therefore, although providing interesting
information concerning the price elasticity of substitution between
alternative markets, leave much to be desired as an explanation of
which policies are most effective. It is probable that the efforts
to single out policies is futile in any case, since numerous measures
working in conjunction are generally required to achieve a desired
policy objective. It is also possible, particularly in the case of
a general liberalization of economic policy which one observes
in most of the Sample countries in the 1960s, that entrepreneurs
are impressed less by the provision of positive financial incentives
than by the expressed intent of government not to impose additional
negative incentives.

The Pattern of International Specialization

The responsiveness of export activities to economic policies
reflects itself in the large array of different products which the
Sample countries have been selling abroad since the shift of the
industrialization strategy occurred. Although many items are still
quite small in value in most of the countries studied, together
they can be taken as an indicator of the significant potential
developing countries have to become internationally competitive. As
only some of the country studies (e.g. Egypt, Israel, Spain) have
analyzed in depth the specialization pattern which emerged after
policies were changed, we have extended this analysis and shall
combine here the evidence for all 15 countries into one common
picture.

The analytical tool which we have used to approach this issue, is Balassa's concept of "revealed comparative advantages" (RCA)[1] in combination with the changes over time of the Sample countries' shares in world exports. Balassa's RCA-concept rests on the assumption that a country's imports indicate which of the domestic industries are non-competitive, while the country's exports points to the industries which display comparative competitiveness. Hence, by comparing the export-minus-import balance of any single product category with the trade balance of the whole industry, it becomes possible to identify the manufacturing activities in which industrializing countries can be expected to have (actually) comparative advantages in international trade.

At least three objections can be made to this method, which should be briefly discussed before reporting on the results of the computations. One is that the RCA indices can describe the trade patterns that have taken place, but they cannot tell whether those patterns are optimum ones. It is possible to infer what developing countries can do in the field of industrial expansion, not what they should do on theoretical grounds. The latter prescription can only be made, if at all, on the basis of individual country studies in which particular factor endowments can be taken into account. A second objection is that export prices are assumed implicitly to be the same to all markets of destination and that imports of LDCs are all influenced in the same way by protective measures, transport costs, taste structure, traditional ties and the like. We rejected the inclusion of these factors, since the lack of reliable data would only have permitted guesswork. The third possible objection is that the RCA indices themselves are highly sensitive to the choice of years and the level of aggregation. As to years, they may reflect cyclical conditions; we tried to neutralize at least partly this eventuality by using two-years-averages. As to aggregation, a high degree leads to as meaningless results as a very low degree. The

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[1]See his article "Trade Liberalization and Revealed Comparative Advantage", The Manchester School of Economic and Social Studies, Vol. 33 (1965), No. 1, pp. 99 sqq.

appropriate commodity breakdown is the one, in which exports and imports of a specific product category are comparable with each other, i.e., have an elasticity of substitution among each other above zero. It was felt that disaggregation down to the three-digit (in some instances four-digit) commodity groups of SITC is appropriate for the purpose at hand.

The following formula has been used to calculate revelaed comparative advantages for the sample under consideration:

$$(RCA)_i = \sum_j \left[\left(\frac{x_{ij} - m_{ij}}{x_{ij} + m_{ij}} : \frac{\sum_i x_{ij} - \sum_i m_{ij}}{\sum_i x_{ij} + \sum_i m_{ij}} \right) - 1 \right] \cdot \frac{x_{ij} + m_{ij}}{\sum_j (x_{ij} + m_{ij})}, \quad \begin{array}{l} i=1 \ldots 119 \\ j=1 \ldots 15 \end{array}$$

with the expression within brackets times $\left\{ \begin{array}{l} +100 \text{ for } \sum_i x_{ij} - \sum_i m_{ij} > 0 \\ -100 \text{ for } \sum_i x_{ij} - \sum_i m_{ij} < 0 \end{array} \right.$

where

x	=	exports
m	=	imports
i	=	SITC commodity group
j	=	country .

A value larger than zero indicates that the industrial activity in question is more competitive than the average industrial activity of the Sample countries taken as a whole, and vice versa. We have distinguished in principle 119 commodity categories which cover reasonably well the whole manufacturing industry. In fact, however, some commodity groups have been excluded, because of the lack of data or, more importantly, an obviously sporadic nature of the trade relations between the country in question and the rest of the world. The computations have been made, for the sake of international comparisons, for two periods: 1962/63 and 1972/73. Prior to the early sixties most manufactured exports from the Sample countries were too small by value to be

worth considering in this inquiry; and more recent years could, for statistical reasons, not be included into the analysis.

The results for the 15 countries combined are given in Table IV, columns 1 and 2. They reflect the weighted average of the countries' revealed comparative advantages, the weights being the ratio of every country's trade volume to the sample's total. According to these results, the Sample countries as a whole have been increasing the number of manufacturing activities in which they are at a competitive advantage: from 36 items in 1962/63 to 53 ten years later. As it was precisely since the early sixties, that, after Hong Kong and Singapore, the other 13 countries in the sample also began to gear industrialization towards export expansion, it is reasonable to regard the noteworthy increase of relative competitiveness as a consequence of the implementation (with varying degree from one country to the other) of export promotion measures.

Looking at the whole scale in 1972/73, it becomes clear that on the top of the list of products in which the Kiel Sample countries keep or have developed a comparative advantage are cotton and non-cotton fabrics, footwear, textile clothing, tanneries, canned fruit, household equipment, jewellery and wood products. They all fall into the category of relatively labour- and/or raw material-intensive products. The same holds for other commodities, albeit revealing a lower comparative advantage, such as meat and fish preparations, building material, cutlery, made-up textile articles, works of art, perfumery and cosmetics, and leather manufactures. What is interesting as well is the fact that the Sample countries now also possess, on average, comparative advantage in a number of light engineering products. Domestic electrical equipment, metal containers, telecommunication apparatus are the most prominent examples. These (and other) commodities are instances of typical product-cycle goods whose technical requirements have become sufficiently standardized to be produced competitively by semi-industrialized countries of the type

Table IV

REVEALED COMPARATIVE ADVANTAGES AND WORLD MARKET SHARES OF THE SAMPLE COUNTRIES[a]
COMBINED BY MANUFACTURED COMMODITY GROUPS, 1962/63 AND 1972/73

Commodity Group[b]		Revealed comparative advantages[c]		Sample's share of world exports[d]		Category of specialization[c]
		1962/63	1972/73	1962/63	1972/73	
	Food, beverages and tobacco industry					
011-013	Meat preparations	+ 1.82	+ 4.74	10.5	13.9	I
022-024	Manufacture of dairy products	- 3.46	- 5.15	2.3	1.0	
053	Canned and preserved fruit	+ 5.39	+ 5.17	29.7	34.5	III
054.6+055	Canned and preserved vegetables	+ 1.91	+ 3.19	24.7	30.7	I
031.1-3 +032	Fish preparations	+ 0.09	+ 4.58	21.6	21.1	II
042.1, 2	Manufacture of rice	- 0.25	+ 2.11	12.9	17.5	I
046	Flour, meal and groats of wheat	- 5.15	- 0.93	2.6	3.7	
047	Flour, meal and groats of other cereals	- 6.96	- 2.81	1.9	3.4	
048.1	Cereal preparations	- 3.88	- 0.49	3.1	2.7	
061.1,2, 5 + 062	Sugar factories, refineries and confectionary	+ 5.21	+ 2.93	34.0	35.1	III
072.2, 3 + 073	Cocoa and chocolate preparations	+ 5.17	+ 2.45	19.7	19.1	III
411.3	Animal oils and fats	- 6.36	- 5.65	0.5	0.7	
421.5	Olive oil	+ 0.62	+ 2.11	71.8	70.7	II
091.4 + 099	Other food preparations	- 1.85	+ 0.57	4.4	6.4	I
•111	Non-alcoholic beverages	+ 0.63	+ 2.74	3.2	4.4	II
112	Alcoholic beverages	- 4.85	- 1.63	6.7	7.3	
122	Tobacco manufactures	+ 4.37	+ 0.29	7.9	6.6	III
	Textile, shoe and leather industry					
651	Textile yarn and thread	+ 1.04	+ 2.39	10.6	14.8	I
652	Cotton fabrics	+ 6.19	+ 7.09	28.1	32.3	I
653	Non-cotton fabrics	+ 2.12	+ 1.05	18.7	10.9	III
654	Tulle, lace etc.	+ 0.75	+ 1.94	10.3	6.2	II
655	Special textile fabrics	- 0.16	- 0.17	5.0	5.4	
656	Made-up textile articles	+ 4.94	+ 3.85	43.3	32.7	III
657	Floor coverings, tapestries etc.	+ 3.53	+ 4.05	11.3	8.6	II
841	Textile clothing	+ 4.92	+ 6.85	20.6	29.5	I
842	Fur clothing	+ 0.63	+ 2.78	2.6	15.5	I
851	Footwear	+ 5.75	+ 7.42	14.5	23.2	I
611	Tanneries & leather finishing plants	+ 5.48	+ 6.11	26.1	26.5	II
612	Leather manufactures	+ 2.73	+ 3.74	6.2	14.6	I
613	Fur skins	+ 0.12	+ 0.80	1.3	9.2	I

(continued)

	Commodity Group[b]	Revealed comparative advantages[c]		Sample's share of world exports[d]		Category of specialization[c]
		1962/63	1972/73	1962/63	1972/73	
	Wood industry					
631	Veneers, plywood boards etc.	+ 0.78	+ 5.03	18.3	29.9	I
632	Wood manufactures	+ 1.03	+ 5.67	19.2	13.3	I
821	Furniture	+ 1.26	+ 5.06	11.7	8.8	II
633	Cork manufactures	− 1.32	− 2.49	25.13	19.9	
	Paper industry					
641	Paper and paperboard	− 5.69	− 4.73	0.9	1.3	
642	Paper manufactures	− 4.26	+ 0.96	4.8	3.8	II
892	Printed matter	− 0.12	+ 1.20	7.2	9.6	I
	Chemical industry					
512	Organic chemicals	− 4.79	− 5.23	1.9	2.3	
513	Oxygen, nitrogen and metallic oxides	− 3.19	− 4.81	6.3	5.9	
514	Other inorganic chemicals	− 3.13	− 3.12	4.0	4.8	
515	Radioactive and associated materials	− 2.27	− 4.08	0.5	0.01	
531	Synthetic organic dyestuffs	− 6.06	− 5.23	0.4	1.0	
532	Dyeing and tanning materials	− 4.53	− 5.52	2.9	2.8	
533	Pigments, paints, varnishes	− 3.22	− 2.52	3.2	4.0	
561	Manufactured fertilizers	− 5.80	− 1.72	2.8	4.1	
571	Explosives and pyrotechnic products	− 4.07	− 1.13	4.3	7.6	
581	Plastic materials	− 5.74	− 4.42	0.6	1.3	
599	Other basic industrial chemicals	− 5.38	− 5.41	3.5	2.9	
541	Medicinal & pharmaceutical products	− 4.81	− 3.55	4.2	4.6	
551	Essential oils, perfume & flavour materials	+ 1.55	− 0.06	5.2	2.4	
553	Perfumery and cosmetics	+ 2.33	+ 3.76	6.1	5.7	II
554	Soaps, cleaning & polishing preparations	− 1.80	− 1.54	3.9	4.1	
521	Mineral tar and crude chemicals	− 3.25	+ 1.21	3.0	9.9	I
	Rubber industry					
621	Materials of rubber	− 4.65	− 4.15	1.6	2.6	
629	Rubber articles	− 1.72	− 1.72	5.4	8.1	

(continued)

Commodity Group[b]		Revealed comparative advantages[c]		Sample's share of world exports[d]		Category of specialization[c]
		1962/63	1972/73	1962/63	1972/73	
	Non-metallic minerals industry					
661	Cement and fabricated building materials	+ 1.60	+ 4.17	16.3	15.8	II
662	Clay construction materials	− 4.88	− 2.95	4.1	5.1	
664	Glass	− 5.29	− 0.44	2.0	5.3	
665	Glassware	− 3.81	+ 0.10	4.3	6.0	I
666	Pottery	− 1.34	+ 1.20	1.9	1.9	II
667	Worked pearls and precious stones	+ 3.52	+ 0.40	28.8	19.6	III
663	Other mineral manufactures	− 2.66	− 0.99	1.7	3.4	
	Iron and steel basic industry					
671	Pig and cast iron,	− 2.34	− 1.05	7.6	10.0	
672	Ingots	− 5.03	− 3.33	1.6	3.4	
673	Bars, shapes etc.	− 1.79	− 0.75	2.2	5.1	
674	Universals, plates and sheets	− 5.88	− 3.66	1.5	2.4	
675	Hoop and strip	− 6.09	− 6.16	0.2	0.3	
676	Rails and construction material	− 5.85	− 2.65	3.8	13.0	
677	Wire	− 3.72	− 4.77	1.7	1.4	
678	Tubes, pipes and fittings	− 4.88	− 1.92	3.3	3.6	
679	Castings and forgings	− 5.92	− 1.13	5.8	3.1	
	Non-ferrous metal basic industry					
681.2	Silver and platinum (worked)	− 3.74	− 1.65	3.0	3.4	
682.2	Copper and alloys (worked)	− 5.00	− 4.09	4.2	6.2	
683.2	Nickel and alloys (worked)	− 6.57	− 6.72	0.01	0.1	
684.2	Aluminum and alloys (worked)	− 5.02	− 2.93	1.4	2.3	
685.2	Lead and alloys (worked)	− 5.56	− 4.57	8.0	9.0	
686.2	Zinc and alloys (worked)	− 5.10	− 5.08	6.6	7.5	
687.2	Tin and alloys (worked)	− 4.72	− 4.75	7.3	7.8	
689	Miscellaneous non-ferrous metals (worked)	− 6.40	− 5.32	1.3	1.7	
	Fabricated metal products industry					
691	Finished structural parts	− 4.82	− 1.53	2.2	4.8	
692	Metal containers	+ 1.15	+ 2.65	5.6	6.5	II
693	Wire products	− 5.39	− 0.37	3.1	5.7	
694	Nails, screws etc.	− 4.24	− 0.19	4.3	4.2	
695	Hand tools	− 5.72	+ 1.76	1.6	4.8	I
696	Cutlery	− 0.40	+ 4.09	2.4	8.7	I
697	Household equipment	+ 2.00	+ 5.61	10.2	14.3	I
698	Other metal manufactures	− 3.94	− 0.62	5.6	6.6	

(continued)

Commodity Group[b]		Revealed comparative advantages[c]		Sample's share of world exports[d]		Category of specialization[c]
		1962/63	1972/73	1962/63	1972/73	
	Machinery and transport equipment					
711	Non-electrical power generating machinery	− 5.88	− 5.15	1.3	1.7	
712	Agricultural machinery & implements	− 4.88	− 3.48	1.1	1.3	
714	Office machines	− 1.28	+ 2.29	0.6	3.0	I
715	Metalworking machinery	− 4.88	− 3.51	1.0	2.4	
717	Textile and leather machinery	− 5.61	− 4.76	1.0	2.4	
718	Machines for special industries	− 3.58	− 5.89	1.2	1.6	
719	Other non-electrical machines and parts	− 3.59	− 5.46	1.2	1.8	
722	Electric power machinery	− 5.98	− 4.60	1.6	3.6	
723	Electricity distributing machines	− 3.12	− 2.68	9.1	8.4	
724	Telecommunications apparatus	− 5.68	+ 2.64	1.3	7.3	I
725	Domestic electrical equipment	− 2.99	+ 3.35	1.3	4.2	I
726	Electrical apparatus for medical purposes	− 6.25	− 5.22	0.3	0.5	
729	Other electrical machinery	− 3.07	+ 2.41	1.9	5.9	I
731	Raiway vehicles	− 0.55	+ 2.61	5.0	9.2	I
732.1,6	Motor cars	− 1.33	− 1.06	0.8	0.9	
732.2-5, 7	Buses and lorries and tractors	− 0.73	− 0.19	0.3	0.3	
732.9	Motorcycles	+ 0.52	+ 1.63	1.0	1.9	II
733.1	Bicycles	+ 1.41	+ 2.42	1.3	2.5	II
733.3-4	Other non-motor vehicles	− 3.99	+ 1.43	0.2	0.4	II
734	Aircrafts	− 5.76	− 5.67	0.5	0.9	
735	Ships and boats	− 5.14	− 3.50	8.4	7.7	
	Other manufacturing industry					
861	Scientific, medical and controlling instruments	− 6.05	− 4.33	1.1	1.8	
862	Photographic supplies	− 6.30	− 1.23	0.6	1.2	
863	Developed cinematographic films	+ 1.57	+ 1.55	11.4	15.1	III
864	Watches and clocks	− 6.12	− 2.96	1.2	3.4	
891	Musical instruments	+ 1.89	+ 3.15	1.5	2.0	II
893	Articles of artificial plastic materials	− 0.67	+ 2.60	5.7	11.4	I
894	Toys, sporting goods etc.	− 1.63	+ 3.95	14.6	19.7	I
895	Office and stationary supplies	− 3.99	− 0.42	3.2	5.0	
896	Works of art	+ 5.76	+ 3.84	8.2	4.7	II
897	Jewellery	+ 2.97	+ 5.20	8.9	12.4	I
899	Other manufactured goods	− 4.19	+ 2.53	32.3	26.8	II

[a] Brazil, Colombia, Egypt, Hong Kong, India, Israel, Korea (South), Malaysia, Mexico, Pakistan, Singapore, Spain, Taiwan, Turkey and Yugoslavia.

[b] According to SITC.

[c] For method see text.

[d] OECD-countries plus sample countries.

<u>Source:</u> Computed from <u>United Nations</u>,Commodity Trade Statistics, various issues, supplemented by national trade statistics. − OECD, "Statistics of Foreign Trade (Trade by Commodities), various issues.

forming our Sample, particularly Spain, Yugoslavia, Taiwan and
India.[1]

Additional insights into the emerging pattern of specialization
can be obtained if the RCAs are put into a dynamic dimension. One way
of doing so is the analysis of the development of the Sample's share
in world exports. We chose this approach on the grounds that there
is a positive and statistically significant association between RCAs
and the export shares: the Spearman's rank correlation coefficient
is 0.644 and 0.684 for 1962/63 and 1972/73 respectively. The commodities
which show positive RCAs in 1972/73 were grouped into three
distinguishable categories as follows:

(1) Category   I ("leading sectors") includes all products whose
    RCA are higher (or equal) in 1972/73 than (to) in 1962/63
    and whose incremental share in world exports is larger than
    that of all manufactured products together (1.5 percentage
    points);

(2) Category   II ("latercomers") includes all products with the
    RCA pattern of category I, but with below average incremental
    share in world exports;

(3) Category III ("matures") includes all products whose RCA are
    lower in 1972/73 than ten years earlier, regardless of the
    incremental share in world exports.

The corresponding quantification is provided in columns 3, 4 and 5
of Table IV. Out of the 53 products revealing a comparative advantage
at the end of the period under consideration, 27 belong to category I,
18 to category II and 8 to category III. It is noteworthy again that

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[1]See F. Wolter, "Engineering Exports of Developing Countries",
 Kiel Working Papers, No. 29, March 1975.

our Sample countries seem also to be developing for product-cycle
goods a competitive edge over imports from industrially more advanced
countries. Electrical and transport equipment are cases in point.
This may lead us to expect that manufactured exports from developing
countries need not remain limited to labour-intensive and/or
natural-resource-based Heckscher-Ohlin goods. Provided that the
industrialization process keeps momentum in the framework of adequate
economic policies, that both improved education systems and on-the-job
training result in upgrading skills of domestic workers, and that
physical capital as well as appropriate technology from abroad is
available, then today's industrializing countries have good prospects
for diversifying out of the simple labour-intensive items and for
including more and more skill- and capital-intensive goods in their
export bundle. The process which is now under way is still concentrated
on the less sophisticated items. Particularly chemicals, basic steel
products, and non-electrical engineering, which generally are
characterized by a high degree of complexity, are not yet on the list
of candidates for efficient export specialization. But while revealing
a comparative disadvantage (in some cases diminishing) there already
are tendencies towards increasing world market shares: pigments, manu-
factured fertilizers and explosives are examples in the field of
chemicals; ingots, bars, sheets and rails in the field of basic steel
industry; and wire products, agricultural machinery, textile machinery
in the field of non-electrical engineering products. This experience
indicates that there is in fact an ample and quantitatively significant
export potential; the degree to which it can be used is, as we
have stated, largely a function of appropriate domestic economic policies.

An Appraisal of the Manufactured Export Potential

The preceding analysis lends itself as a point of departure for
assessing the manufactured export potential of the Sample countries
combined up to 1985. The knowledge of the export potential helps the
exporting countries to appraise the contribution to further industrial

development, which manufactured export expansion can make. And it gives importing countries, basically the highly developed ones, an idea about how competitive pressure from abroad may increase in years to come.

If only economic factors are taken into consideration, there are two approaches to estimating the export potential, one ideal and one pragmatic. The ideal approach would be to estimate by simultaneous solution and for each individual country in the Kiel Project the equilibrium export patterns by commodity cn the basis of forecasts about production, domestic demand, world trade and technological innovations. We do not use this approach because the data available and their reliability do not permit attaining a degree of accuracy which warrant the enormous computational work involved. We will adopt instead a less sophisticated and more pragmatic approach, which requires much less knowledge about the future and which notwith- standing its simplicity is likely to provide roughly the orders of magnitudes we are looking for.

This approach rests upon the proposition that the Sample countries will follow effective domestic policies to make the best use of opportunities offered by the world market. In assessing the export potential totally and for major groups of commodities as dis- tinguished in Table IV, two variants have been calculated:

- The first one is a "no change" variant. We assume that the industrial production and manufactured export tendencies of the period 1962/63-1972/73 will continue to manifest themselves in the period 1972/73-1985.

- The second variant is to provide for a temporary slackening of industrial growth reflecting the adjustment need caused by the oil price explosion. We assume that the rates of growth of manufac- turing production will be constant in absolute terms for the

remainder of this decade and resume in 1980 the path which appeared in 1962-63-1972/73. The incremental export-to-output ratio is supposed to remain constant over the whole projection period.

The trend values for production and export growth are equivalent to the annual compound rates of the base period, which were calculated logarithmicly in order to neutralize the effect of low initial values. Where fresh official estimates were available at the time of this writing (for instance for Colombia, Malaysia, Spain and Yugoslavia) the results of extrapolation were, somewhat arbitrarily, adjusted.

The results are shown in Table V. In 1972/73 the 15 countries supplied manufactured exports of almost $ 37 billion. This total export capacity is expected to rise to $ 156 billion (alternative I) or $ 129 billion (alternative II) by 1985, representing a 4.3 or 3.5-fold increase respectively, with an annual average rate of growth of 12.8 or 11.1 percent respectively. If processed food, beverages and tobacco manufactures are excluded, the annual rate of increase becomes 14.3 or 12.5 percent respectively. Both alternatives come out with a significant change in manufactured export structure. While the share of the more traditional items (such as processed agricultural products, textiles, footwear and leather manufactures) will decline, machinery and transport equipment will sharply increase its weight in the export assortment. The root of this development lies, as we have seen, in the recent past. The estimates are, in addition, consistent with Banerji's |24| findings based on international cross-section analyses showing that in the process of industrialization the share of machinery and transport equipment in total manufactured exports typically tends to increase.

Whether or not the estimates of manufactured exports potential will be realized in practice is a matter of conjecture. It will essentially depend on whether or not the assumptions made prove themselves to be realistic. In addition, there is no way of taking into account the influence on the export potential of non-economic factors.

Table V

THE POTENTIAL OF MANUFACTURED EXPORTS OF THE SAMPLE COUNTRIES COMBINED BY 1985

Industries[a]	Export value (billion $)			Annual rate of increase 1972/73-1985 (%)		Shares in total (%)		
	1972/73	1 9 8 5		Alternative I	Alternative II	1972/73	1 9 8 5	
		Alternative I	Alternative II				Alternative I	Alternative II
Food, beverages and tobacco	8.64	16.95	13.53	5.8	3.8	23.6	10.9	10.5
Textiles, shoes and leather products	10.21	35.79	34.33	11.0	10.6	27.9	23.0	26.6
Wood products	1.28	8.18	6.23	18.3	14.1	3.5	5.3	4.8
Paper products	0.61	2.43	2.34	12.2	11.8	1.7	1.6	1.8
Chemicals	1.80	11.81	8.71	17.0	14.0	4.9	7.6	6.8
Rubber manufactures	0.37	2.40	1.70	16.9	13.5	1.0	1.5	1.3
Non-metallic mineral manufacures	1.64	6.88	6.65	12.7	12.4	4.5	4.4	5.2
Iron and steel	1.24	6.39	5.54	14.6	13.3	3.4	4.1	4.3
Non-ferrous metals	0.85	1.62	1.32	5.5	3.7	2.3	1.0	1.0
Fabricated metal products	0.99	4.83	4.40	14.1	13.2	2.7	3.1	3.4
Machinery and transport equipment	6.45	41.95	32.16	16.9	14.3	17.6	27.0	25.0
Other manufacturing	2.48	16.32	11.98	17.0	14.0	6.8	10.5	9.3
T O T A L	36.59	155.55	128.89	12.8	11.1	100.0	100.0	100.0

[a] Defined as in Table IV.

Source: Calculated from United Nations, Yearbook of National Account Statistics, New York, various issues. - Idem, The Growth of World Industry, New York, various editions. - Idem, Commodity Trade Statistics, various issues. - Information provided by the authors of the country studies.

For example, it is impossible to predict with any accuracy the eventual outcome of the current demands for radical changes in the political system of Spain, or the future development of political relations between Egypt and Israel, or the long-run political stability in South Korea and Taiwan in the aftermath of the Viet-Nam war. If these, and other, unsettled problems cause fundamental disturbances within the economies, the impact on the export capacity clearly will be adverse. In this perspective, the export potential envisaged here might indicate a maximum. However large the projected magnitude may appear to be, it is not beyond attainment as explained in the next section on grounds of import absorption capacity of the industrial countries.

III. Market for Manufactures of Less Developed Countries

Despite the success of a growing number of countries in promoting economic development by expanding exports of manufactured goods, a great deal of skepticism prevails among economists and practitioners, especially in the LDCs, concerning the viability of this activity as an avenue for growth. This skepticism extends beyond the notion of manufacturing for export as a full-blown development strategy to negate even the idea that it can play a complementary role in the development process. The basis for such pessimism does not fully rest on the perception of unmitigable supply constraints, nor on the notion that LDCs are incompetitive in world markets, many LDCs have revealed themselves to possess comparative advantage in a wide range of goods. The basis for this skepticism derives, instead, to a large extent from the problems perceived on the demand side -- that tariff and non-tariff barriers are restrictive, that the markets for goods in which LDCs are competitive have already been absorbed by the firstcomers, that successful emulation by any more than a few small LDCs will provoke protectionist sentiments in market countries further, that no matter how successful developing countries might be in overcoming constraints in supplying manufactured goods for export, their efforts will inevitably be frustrated by uncertainty of demand.

The question of whether or not demand is the ultimate obstacle
to manufactured export expansion is essentially an empirical issue.
Indeed, a good amount of empirical work has been done on separate
aspects of the issue, and much of it in recent years. The questions
involved are:

(1) Where are the prime markets for LDC manufactures?

(2) How large are these markets and how thoroughly penetrated
are they?

(3) What is the growth potential of these markets and how
stable are they?

(4) How restrictive are trade barriers to LDC exports of
manufactures, and what are the prospects for increased
or diminishing protection in the future?

Since any credible recommendation to LDCs to expand exports of
manufactures must come to grips with these questions, we shall attempt
to briefly pull together the results of recent empirical work, upon
which some judgement of the issues can be made.

Market Location

The dominance of the high-income, industrialized countries as
markets for LDC exports is revealed in Table VI. In 1973 developed
countries accounted for 75 percent of total LDC exports; in manufac-
tures (SITC 5-8) their share of LDC exports was almost equally as
large (71 percent). It is not surprising, of course, that the
developed countries play a preponderant role in LDC trade. The very
divergence in incomes in the two country-groups provides the basis
for trade between them. The greater this divergence, the greater are
the gains from trade. And, of course, the greater the gains, the less
trade restricting are transportation costs, tariff duties and other
market and non-market costs associated with international trade.

Table VI

GEOGRAPHICAL DISTRIBUTION OF LDC EXPORTS

(mill. US-$)

SITC Group	LDC Exports of: To:	World	DEVELOPED COUNTRIES Total	U.S.A.	Europe	Japan	Other	Less Developed Countries	Socialist Countries
0 - 9	Total								
	a) Value 1973	108,790	81,430	21,520	40,810	14,960	4,140	21,410	4,790
	b) Percentage share		74.9	19.8	37.5	13.8	3.8	19.7	4.4
	c) Compound Annual Growth 1969-73	22.4	22.8	23.4	19.8	30.9	21.0	21.7	16.3
0 + 1	Food, Beverages & Tobacco								
	a) Value 1973	20,640	14,980	4,380	8,480	1,660	460	3,660	1,810
	b) Percentage share		72.6	21.2	41.1	8.0	2.2	17.7	8.8
	c) Compound Annual Growth 1969-73	15.4	15.4	11.0	12.8	27.4	13.2	15.2	13.3
2 + 4	Fuels, Oils and Fats								
	a) Value 1973	60,160	46,750	9,590	24,560	10,270	2,330	10,570	2,135
	b) Percentage share		77.7	15.9	40.8	17.1	3.9	17.6	3.6
	c) Compound Annual Growth 1969-73	24.0	24.8	32.0	21.5	29.3	17.1	22.0	18.4
5	Chemicals								
	a) Value 1973	1,720	740	220	360	115	45	910	64
	b) Percentage share		43.0	12.8	20.9	6.7	2.6	52.9	3.7
	c) Compound Annual Growth 1969-73	21.0	22.3	16.4	23.5	31.0	29.5	21.7	5.3
7	Machinery & Transport Equipment								
	a) Value 1973	4,600	2,890	1,960	550	195	185	1,620	35
	b) Percentage share		62.8	42.6	11.9	4.2	4.0	35.2	0.8
	c) Compound Annual Growth 1969-73	45.0	50.3	50.1	49.6	70.5	90.0	34.1	33.6
6 + 8	Other Manufactured Goods								
	a) Value 1973	20,630	15,510	5,180	6,660	2,640	1,030	4,310	730
	b) Percentage share		75.2	25.1	32.3	12.8	5.0	20.9	3.5
	c) Compound Annual Growth 1969-73	21.8	21.5	20.2	16.8	38.6	30.6	22.8	18.5

Source: United Nations, Monthly Bulletin of Statistics, July 1975.

Among the developed countries, the United States constitutes the
largest single market for LDC exports, alone accounting for 20 percent
of the total developed country imports from LDCs. U.S. imports from
LDCs of goods in which the latter find their greatest comparative
advantage, light, labour-intensive manufactures, are even more sig-
nificant, accounting for over 50 percent of total (see Appendix Table A-4).
The U.S., in addition to being the largest market in absolute size,
is the greatest importer from LDCs on a relative basis, with the
exception of Japan. In 1970, U.S. imports of labour-intensive manufac-
tures from LDCs constituted 24 percent of total US imports of such
goods. In Europe, only the United Kingdom and West Germany import on
any significant scale from LDCs.

The importance of the U.S. and Japan, and to a lesser extent the
U.K. and West Germany, as markets for LDC exports of manufactures, as
compared with other high-income developed countries, is not attributable
to differences in trade restrictions, nor to differences in potential
gains from such trade. The primary reason for the differences can be
traced to the countries direct participation in manufacturing for export
in developing countries (export-oriented direct foreign investment) and
the existence of appropriate marketing outlets for LDC manufactures.
The importance of direct foreign investment as a source of capital,
provider of labour-intensive technology and stimulant to export in
LDCs is well recognized.[1] However, large retail organizations play
an equally important role (some contend more than equal[2]), not only
in marketing output, but also in identifying sources of production and
supplying "R & D" inputs by providing product specification enabling
LDC producers to keep abreast of changing tastes in the market countries.
Given the increasing popularity of low-cost retailing in the industrialized
countries, and the evident profitability of such adventures, one would
expect this kind of activity to spread in the future.

[1] G.K. Helleiner, "Manufactured Exports from Less Developed Countries and
Multinational Firms", op.cit., pp. 21 sqq.

[2] A. Hone, "Multinational Corporations and Multinational Buying Groups:
Their Impact on the Growth of Asia's Exports of Manufactures - Myth and
Realities", World Development, Vol. 2, February 1974, pp. 145-149.

Market Size and Penetration

In 1965 Hal B. Lary wrote: "Imports from less developed countries of many of the light consumer manufactures ... have scarcely scratched the surface of the market."[1] The point remains valid today, despite the very rapid expansion of LDC exports of these goods since 1965. Nevertheless, one frequently encounters the notion that firstcomers have captured the market for labour-intensive manufactures in the developed countries leaving little room for those who might emulate their success. This is, in fact, the central premise of the"fallacy of composition"-argument. Evidence, however, does not bear out this contention. With the exception of leather and "miscellaneous manufactures", imports (from all countries) amount to less than 10 percent of the U.S. domestic market, aggregated on an ISIC 2-digit level (see Appendix Table A-5).

The point is made more convincing by examining the markets on a more disaggregated level. Table VII shows the U.S. market situation in the 3-4 digit ISIC groups in which LDCs have "revealed comparative advantage" (as given in Table IV). Of this group, imports from all countries constitute more than 20 percent of the U.S. market in seven branches: sugar refining, textiles n.e.s., rubber footwear, radio and T.V. sets, motorcycles and bicycles, dolls and artificial flowers. Of this group, the LDC share exceeds 20 percent only in sugar refining, textiles n.e.s., dolls and plastic flowers. In all other branches, with the exception of rubber footwear and plywood, the LDC share of the U.S. domestic market can only be regarded as insignificant. In European markets the degree of LDC penetration is even less than in the U.S.A. In Germany, for example, LDC imports constitute approximately 5 percent of total domestic market for manufactured goods.

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[1]H.B. Lary, Imports of Manufactures from Less Developed Countries (New York: Colombia University Press for NBER, 1968), p. 114.

Table VII

MARKET SHARE OF SELECTED IMPORTS IN THE UNITED STATES

Industries[a]	1971 Total Imports (m. $)	Imports from Japan 1971	1971 L.D.C. Imports (m. $)	1971 Domestic Market (m. $)	1971 Total Imports Percent of Domestic Market (%)	Japan Percent of Domestic Market	1971 LDC Imports Percent of Domestic Market (%)	Growth of Total Imports Percent of Domestic Market 1964/66-71 (%)	Duty Percent Total Imports (%)
Meat preparations	1 137.5	0.029	288.6	23 369.0	4.9	0.0	1.2	5.8	5.2
Canned fruit and vegetables	198.1	16.2	92.9	8 742.1	2.3	0.2	1.1	3.9	14.0
Dehydrated food products	13.5	3.4	7.0	484.3	2.8	0.7	1.4	-0.0	13.2
Rice Milling	6.8	0.024	0.086	268.9	2.5	0.1	0.03	22.7	6.6
Sugar refining	809.8	0.0	754.3	3 659.8	22.1	0.0	20.6	2.1	7.5
Confectionery products	52.9	0.4	2.9	2 477.2	2.1	0.02	0.1	1.1	8.8
Cotton weaving and finished prod.	170.9	37.5	87.8	3 388.3	5.0	1.1	2.6	8.6	13.7
Sythetic weaving mills	186.8	114.1	4.3	4 183.8	4.5	2.7	0.1	5.0	26.8
Yarn excl. wool	24.2	5.9	11.5	1 916.9	1.3	0.3	0.6	-4.3	13.5
Thread mills	8.1	1.6	0.3	313.3	2.6	0.5	0.1	20.1	20.0
Textile goods nes	228.6	1.3	193.2	640.0	35.7	0.2	30.2	-6.6	1.4
Apparel	1 568.4	295.6	942.0	28 179.2	5.6	1.0	3.3	13.0	28.5
Fur goods	6.9	0.127	0.7	187.9	3.7	0.1	0.4	28.7	12.0
Leather	781.9	64.1	139.6	5 929.7	13.2	1.1	2.4	16.5	11.3
Shoes excl. rubber	513.2	7.5	43.7	3 397.3	15.1	0.2	1.3	23.9	10.8
Rubber footwear	239.6	86.4	100.7	758.0	31.6	11.4	13.3	16.0	12.6
Veneer & plywood	308.6	54.1	205.9	2 580.5	12.0	2.1	8.0	2.8	15.4
Prefabr. wood	128.4	18.5	43.0	3 403.6	3.8	0.5	1.3	N.A.	10.2
Printing	182.3	28.9	14.2	26 731.4	0.7	0.1	0.1	7.0	1.6
Glass containers	6.5	0.7	1.0	1 927.7	0.3	0.04	0.1	11.1	7.4
Cutlery	44.0	14.8	1.6	403.7	10.9	3.7	0.4	6.7	20.1
Handtools	75.2	37.1	9.5	987.3	7.6	3.8	1.0	12.2	9.3
Household cooking equipment	103.0	46.3	2.9	3 592.2	2.9	1.3	0.1	19.7	7.1
Radio & T.V. receiving sets	1 294.6	968.3	208.0	5 187.8	25.0	18.7	4.0	18.8	7.1
Telephone & telegraphic app.	79.5	30.5	0.5	4 254.2	1.9	7.2	0.01	11.2	9.8
Radio & T.V. Comm. equipment	391.7	159.7	138.7	8 607.1	4.6	1.9	1.6	26.4	7.0
Semiconductors	712.3	215.4	333.4	11 556.7	6.2	1.9	2.9	21.5	6.4
Electronic components	149.8	48.7	56.9	4 328.6	3.5	1.1	1.3	13.2	8.2
Motorcycles, bicycles & parts	626.2	472.4	8.6	1 089.7	57.5	43.4	0.8	6.6	6.7
Musical instruments & parts	70.4	39.7	4.8	546.4	12.9	7.3	0.9	5.1	13.5
Games & toys	135.0	46.0	65.4	1 516.6	8.9	3.0	4.3	10.4	19.3
Dolls	79.0	17.9	56.7	247.1	32.0	7.2	22.9	13.1	21.0
Sport and athletic goods	174.8	55.3	26.3	1 130.8	15.5	4.9	2.3	15.4	11.3
Costume jewelry	46.9	12.1	19.4	514.0	9.1	2.4	3.8	2.0	23.4
Artificial flowers	46.5	2.5	39.0	129.5	35.9	1.9	30.1	-1.1	12.3
Precious metals & jewelry	82.8	13.6	27.0	1 601.0	5.2	0.8	1.7	5.3	20.9

[a] SITC-groupings as in Table IV.

Source: Trade Relations Council of the U.S., Employment, Output, and Foreign Trade of U.S. Manufacturing Industries, 1958-71.

In addition to the fact that these markets are far from saturated with imports, Table VII reveals that most of the penetration which has occurred is largely from developed, high-income countries, of which Japan is the primary contributor. This would indicate that significant (demand) potential exists for LDCs to expand their exports of manufactures without increasing import penetration in developed-country markets by replacing developed countries currently supplying these markets. Such a process of country-substitution in exporting labour-intensive manufactures to developed-country markets has been on-going for some time, particularly in Asia. In the 1960s Hong Kong captured, as Riedel [21, chapter 2] shows, a significant share of the traditional Japanese market in the U.S. in textiles, electronics and plastic goods, only to partially "lose" these markets later in the decade and in the 1970s to Taiwan and South Korea. In fact, Hong Kong did not "lose" at all in any real sense since the colony at the same time found new comparative advantage in more capital and skill-intensive branches. The point is that the expansion of LDC exports of manufactures to developed countries does not necessarily imply a pari passu increase in the penetration of developed-country markets since considerable potential for country substitution prevails.

It should be further noted that the statistics presented in Table VII do not adequately reveal the range of potential export products for LDCs. Synthetic hair pieces (wigs), for example, is but one seemingly insignificant product falling under SIC code 39. Yet in 1970, Hong Kong exports of wigs (over U.S.-$ 150 million) exceeded the total value of exports from many developing countries. In other words, for many LDCs to succeed in manufacturing for export a very limited number of goods within the broad range of commodities in which most LDCs possess a potential comparative advantage could be of considerable consequence to their balance of payments position. Moreover, the range of manufactures in which LDCs possess comparative advantage is increasing and will continue to increase, particularly as the operation of multinational manufacturers and retailers expand in the developing countries in the future.

Market Growth

In addition to the expanding market potentials which LDCs might expect to gain from out-competing developed country suppliers of goods in which they possess their greatest comparative advantage, the market for these goods is itself growing and thereby providing further expansion opportunities. In recent years several empirical investigations of import demand in developed countries for labour-intensive commodities have been undertaken. Appendix Table A-6 summarizes the results of two studies which attempted to estimate import demand functions by commodity for the U.S. and West Germany. As the table indicates, the import demand of each of the commodities examined is income elastic, implying that demand for these goods will expand more than proportionally with increasing income. The average income elasticity of demand of the goods investigated in Table A-6 is 3.0, implying that a 3 percent per annum growth of per capita income in developed countries will provide a 9 percent per annum growth of the LDC export markets.

Analogous to import demand function estimation in market-countries, the market growth potential of LDC exports can be analyzed by estimating the "export demand functions" of developing countries. There is perhaps no better case for such an investigation than Hong Kong, since the colony is the largest exporter of manufactures among developing countries, exports almost exclusively to developed country markets, and possesses no competing domestic market to complicate the estimation model. The following estimate of income and price elasticities for Hong Kong exports of manufactures was obtained from annual data, 1959-74 (t-ratios in parentheses):[1]

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[1]Quantum and Unit Value indexes were provided by Dr. M.E. Morkre of Hong Kong University. Other data were obtained from published country sources.

$$\ell n \ Q_t \ = \quad \underset{(-11.827)}{-7.105} \ - \ \underset{(-4.225)}{-0.611} \ \ell n \ \left[\frac{P_t \cdot r_t}{P_t^x} \right] \ + \ \underset{(34.929)}{3.153} \ \ell n \ Y_t$$

$$R^{-2} \ = \ .989 \qquad\qquad D.W. \ = \ 1.026$$

where

Q_t = quantum exports in year t, $t = 1959\text{-}74$

P_t = unit value of Hong Kong exports in year t

r_t = trade weighted average exchange rate
(domestic currency per US-$, ℔ -Sterling and D-Mark)
in year t.

P^x = trade weighted average of wholesale price of manu-
factures in Hong Kong's principle market countries
(U.S., U.K., F.R.G.) in year t.

Y_t = trade weighted average real income in market countries
in year t.

These results are consistent with those reported in Table A-6 with regard to income elasticity of demand. They are, however, along with those reported above, subject to severe methodological and conceptual qualifications. Aside from the obvious problems of comparability between price series, the estimates suffer from identification bias since both export-demand and import-demand estimates ignore the supply forces which are operating simultaneously. Since we have suggested above that it is supply constraints which are most prominent factors to export expansion, all we can reasonably infer from these results is that an expansion of imports three times in excess of the growth of income is not inconceivable, as past experience

bears witness. This in itself is of some interest, however, given the general pessimism with which expansion of LDC exports of manufactures to high-income countries is viewed.

Market Barriers

The commercial policy of developed countries is probably the most widely proclaimed deterrent to LDC trade in manufactures. Certainly there is no question that tariff barriers discriminate against LDCs. Developing countries face trade barriers on 47 percent of their non-fuel exports to developed countries.[1] Raw materials, which account for 56 percent of developing country exports, face barriers on 27 percent of their value, whereas food and manufactures encounter barriers on 68 percent of their value. Moreover, tariff levels are higher for LDCs than for developed country exports. The average "most favoured nation" (m.f.n.) tariff on dutiable non-fuel trade is 15 percent for developing country exports, whereas it is 10 percent for developed country exports. In addition to tariff barriers, non-tariff barriers are applied to 23 percent of developing countries' non-fuel exports, the majority being applied in the areas of food, textiles and leather goods.

It is well documented that one of the primary motives of commercial policy in the industrialized countries is to project or subsidize labour, in particular relatively unskilled, immobile labour. As we know from the Stopler-Samuelson theorem, the imposition of a tariff on a commodity increase the real return to the factor used intensively in its production. It is therefore not surprising, given the political leverage of organized labour, that one finds the structure of tariff levels in developed countries positively correlated

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[1]The statistics quoted in this paragraph were obtained from UNCTAD, "Trade Barriers Facing Developing Countries", Preliminary Findings, unpublished, August 1974.

with the degree of labour-intensity of production across industries.[1]
Moreover, it has been argued that in the process of trade policy
liberalization stemming from the Kennedy Round the structural bias
against LDCs has been intensified as tariff reductions have been more
modest in the branches in which LDCs are most competitive, and
because greatest substitution of non-tariff protection has occurred
in these branches.[2]

Although there is no question that commercial policy of developed
countries is biased against LDCs, the question remains as to just how
detrimental this protection is to the expansion of LDC exports -- that
is, are tariffs a binding constraint. One way to evaluate this
question is to determine how responsive LDC exports to developed
countries have been to previous tariff reductions. Analysis of the
early 1950 GATT negotiations (Annecy Round 1950 and Torquay Round 1951)
revealed that tariff concessions had in general a negligible impact on
LDC exports.[3] Although the Geneva Round (1956) and Dillon Round (1961)
do appear to have had an impact on total imports in developed countries,
their impact on imports from LDCs seems to have been minor.[4] U.S. con-
cessions at the Dillon Round appear to have influenced primarily LDC

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[1]See, for instance, M. Constantopoulos, "Labour Protection in Western
Europe", European Economic Review, Vol. 5, December 1974, pp. 313-328. -
B.N. Vaccara, Employment and Output in Protected Manufacturing Industries
(Washington, D.C., Brookings Institution, 1960). - J.B. Donges, G. Fels,
A.D. Neu et al., "Protektion und Branchenstruktur der westdeutschen
Wirtschaft", Tübingen: J.C.B. Mohr 1974 (Kieler Studien No. 123).

[2]J. H. Cheh, "United States Concessions in the Kennedy Round and Short
Run Labour Adjustment Costs", Journal of International Economics, Vol. 4,
November 1974, pp. 323-340. - G. Fels, "Assistance to Industry in
West Germany", Kiel Working Papers, No. 14, March 1974.

[3]L.B. Krause, "United States Imports and the Tariff", American Economic
Review, Vol. 49, May 1959, pp. 542-51.

[4]M.E. Kreinin, "Effect of Tariff Changes on the Prices and Volumes of
Imports", American Economic Review, Vol. 51, June 1961, pp. 310-24. -
J.M. Finger, "GATT Tariff Concessions and the Exports of Developing
Countries - United States Concessions at the Dillon Round", Economic
Journal, Vol. 84, September 1975, pp. 566-75.

exports of "non-LDC-type" goods. While on the other hand, it is maintained that, "LDC exports of the LDC basket of goods to the United States were not significantly influenced by the tariff concessions ..." because" ... the cost differences between the United States and LDC suppliers is so large that a tariff concession equivalent to .5 percent of f.o.b. price is not a significant additional export incentive."[1]

UNCTAD analysis of the effects of the Kennedy Round reductions similarly found that LDCs responded more strongly to tariff cuts on "non-LDC-type" goods than to cuts in which they have their strongest comparative advantage. Comparing rates of increase of imports between commodity groups receiving small tariff reductions and those receiving large tariff cuts, UNCTAD concluded that tariff elasticities range from (minus) 5-10, from which it is asserted that" ... one can definitely put aside the argument that developing countries do not respond to marginal incentives of tariff reductions."[2] Elasticities derived in this manner are, however, extremely dubious since no account is taken of either supply or demand factors at work, other than to assume that they are the same in both groups. Moreover, these "elasticities" are at complete divergence with the price elasticities in Table A-6. It is, of course, possible that "tariff elasticities" could differ from other price elasticities if the announcement effect of tariff changes is very strong. However, it is difficult to imagine that the announcement effect could be strong enough to account for such a difference. When one considers the tremendous cost differentials between LDCs and the developed countries in producing labour-intensive manufactures -- the fact that developed country labour costs are on average 8 times greater than in LDCs (see Table VIII) -- it is difficult to imagine that existing tariff levels could be an obstacle, or for that matter that marginal tariff reductions could be much of an incentive to LDCs to expand their exports of manufactures.

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[1]Finger, op. cit., p. 572.

[2]UNCTAD, op. cit., p. 44. Results are published in J.M. Finger, "Effects of the Kennedy Round Tariff Concessions", Economic Journal, Vol. 86, March 1976, pp. 87-95.

Table VIII

AVERAGE HOURLY EARNINGS IN LDC ESTABLISHMENTS PROCESSING OR ASSEMBLING
U.S. MATERIALS, AND ESTIMATED EARNINGS FOR COMPARABLE JOBS IN THE U.S.
BY PRODUCT GROUP, 1969

	Foreign $ / hr.	U.S. $ / hr.	Ratio of U.S. to foreign wages
Clothing	.31	2.66	8.9
Consumer elect.	.31	2.66	8.9
Office machinery	.35	3.07	8.7
Semi-conductors	.42	2.91	6.9
Toys, dolls, models	.38	2.59	6.8

Source: Compiled from data submitted by U.S. firms to the U.S.
Tariff Commission, reported in U.S. Tariff Commission,
Economic Factors ... TC 339.

IV. Concluding Remarks

The evidence presented here and, with more details, in the Kiel
Project country studies leads us to give clear answers to the two relevant
questions raised in the Introduction of this paper. First, domestic
economic policies which are geared to integrate the industrialization
process of developing countries into the world economy do work. It is
not to be expected that after a long phase of import-substituting
industrialization, an overspill from import substitution to exports
will occur automatically. But by means of consequent export promotion

measures potential comparative advantage can be translated into a rapid and diversified expansion of manufactured exports. Therefore, developing countries must not wait for actions undertaken by industrialized countries in order to become exporters of manufacturers at a reasonable scale. If the trend in outward-looking policies of LDCs is maintained in the foreseeable future, the patterns of world trade will undergo an important restructuring -- with LDCs increasingly supplying industrialized countries with manufactured products.

Second, there must not be any effective limit on the demand side to the expansion of manufactured exports in LDCs. The market for these countries' exports of manufactures is large, growing and contains great potential for LDCs competing along lines of comparative advantage (understood in a dynamic sense). Tariff barriers do not appear to be restrictive, given the great divergence in production costs in those areas where LDCs have comparative advantage. Non-tariff barriers do constitute an obstacle, in the case of quotas an unsurmountable one, but they are confined to a few traditional industries. There is no strong evidence of a proliferation of non-tariff barriers accompanying the past expansion of LDC exports of non-textile manufactures. Moreover, given the diversity of the market in terms of product and geography, and the fact that LDCs account for such an insignificant share of most markets in developed countries, there is little reason to believe that barriers will necessarily be raised in the future. The concern in developed countries about the employment implications of expanded trade with LDCs appears very much overdone. First of all, it has been shown that the developed countries' "revealed capacity to adjust" (as measured by rates of normal expansion and contraction of employment in different branches) is greater than anything which would be required if all developed countries prescribed to a full GSP scheme.[1] Secondly,

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[1] J.M. Finger, "The Generalised Scheme of Preferences - Impact on the Lower Countries", Bulletin of Economic Research, Vol. 25, May 1973, pp. 43-54.

a study of West Germany has shown that normal cyclical fluctuations
in aggregate demand will have a greater impact on employment in the
Federal Republic than that which will occur if current rates of expan-
sion of imports of manufactures from LDCs continue.[1] Nevertheless,
developed countries continue to impose tariffs while at the same time
placating the developing countries with promises of concessions and
special favours. Many developing countries at the same time, prefer
to ignore the experience of their small group of superlative develop-
ment performers, and instead to find a scapegoat for their failures
in clichés such as the fallacy of composition argument.

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[1]H. Dicke, et al., Beschäftigungswirkungen einer verstärkten
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2. W.G. Tyler: "Trade in Manufactures and Labor Skill Content: The Brazilian Case", Economia Internazionale, Vol. 25 (1972), pp. 314-334.

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SELECTED INDICATORS ON MARKET SIZE AND PRODUCTION ORIENTATION OF THE SAMPLE COUNTRIES, 1973[a]

	Unit	Brazil	Colombia	Egypt	Hong Kong	India	Israel	Korea (South)	Malaysia	Mexico	Pakistan	Singapore	Spain	Taiwan	Turkey	Yugoslavia
Population	millions	101.1	23.8	35.6	4.2	575.0	3.2	32.9	11.8	56.0	68.9	2.2	34.7	15.4	37.9	21.0
Gross national product	billions US-$	63.2	10.0	9.3	4.9	69.0	9.7	12.4	6.4	48.4	6.3	4.0	61.6	9.1	20.4	20.7
GNP per capita	US-$	625.0	419.5	260.6	1175.0	120.0	3053.0	375.8	545.0	864.2	91.5	1847.4	1773.2	586.6	536.5	989.8
Manufacturing value added per capita	"	124.3	77.3	50.7	300.2	11.8	563.5	84.3	72.6	223.8	12.7	970.6	447.7	136.3	106.6	261.6
Gross domestic investment as proportion of GNP	percent	20.2	20.1	12.3	25.7	16.5	31.8	26.2	18.6	21.3	14.0	26.4	23.7	25.3	18.6	24.1
Manufacturing employment as proportion of total labour force	"	11.0[b]	15.4[c]	13.5[b]	46.1[c]	9.5[b]	24.1	13.9[b]	8.8[b]	16.7[b]	12.0[b]	19.7[b]	13.5	18.7	8.4	17.7[d]
Agriculture and mining as proportion of GDP	"	17.7[e]	31.1	31.2	2.6[c]	48.8[d]	5.8[e]	29.2	35.7	11.5	36.4	2.7	13.5	16.4	27.3	18.4
Manufacturing as proportion of GDP	"	24.6[e]	19.4	21.6[f]	32.1[c]	13.4[d]	23.6[e,f]	24.3	15.4	25.4	15.5	26.2[f]	26.7	29.8	23.6[f]	30.1[f]
Construction, electricity and transportation as proportion of GDP	"	9.9[e]	12.9	10.0	11.5[c]	11.4[d]	22.1[e]	12.6	10.8	9.8	12.1	8.9	14.6	12.6	13.3	21.6
Trade and other services as proportion of GDP	"	47.8[e]	36.6	37.2	53.8[c]	26.4[d]	48.5[e]	33.9	38.1	53.3	36.0	62.2	45.2	41.2	35.8	29.9
Manufactured exports[g] as proportion of total exports	"	20.9	33.5	34.8	76.7	48.4	45.2	86.2	42.0	46.0	56.0	92.0	79.4	95.2	31.0	77.6
Manufactured exports[g] as proportion of manufacturing output	"	4.6[c]	6.2[c]	11.9[b]	66.8[c]	5.7[c]	13.3[c]	24.8[c]	13.4[c]	4.0[c]	4.0[b]	30.9	13.0	52.6	4.1[c]	19.8[e]
Manufactured imports[g] as proportion of domestic available manufactured supply	"	10.9[c]	16.7[c]	23.8[b]	70.7[c]	7.8[c]	32.2[c]	26.6[c]	36.1[c]	10.8[c]	7.0	48.0	17.1	46.5	21.5[c]	26.5[c]

[a] All value at current prices. – [b] 1970. – [c] 1972. – [d] 1971. – [e] Shares are related to net domestic product. – [f] Including mining. –

[g] Including processed food, beverages and tobacco manufactures; excluding unwrought metals.

Table A-3   -   Selected Indicators on Economic Growth, Industrialization and Export Expansion in the Sample Countries, 1960-73

(Annual compound rates of change %)

	Brazil	Colombia	Egypt	Hong Kong	India	Israel	Korea (South)	Malaysia	Mexico	Pakistan	Singapore	Spain	Taiwan	Turkey	Yugoslavia
Gross domestic products[a]	7.1	5.5	4.3	9.0	3.4	9.6	9.3	6.2	6.8	6.1	10.1	7.3	10.1	6.1	5.9
GDP per capita[a]	4.1	2.3	1.8	6.5	1.1	6.1	6.9	3.6	3.2	2.4	7.6	6.2	7.0	3.6	4.9
Manufacturing value added[a,b]	8.0	6.4	7.5	8.9	2.9	9.4	15.2	11.0	7.7	7.7	19.3	7.4	14.7	8.8	4.3
Manufactured exports[c]	33.5	30.5	11.4	17.6	6.9	18.0	63.6	7.1	15.6	15.6	15.8	22.9	41.8	21.2	17.2
Incremental export-ratio[d]	0.105	0.170	0.180	3.400	0.169	0.620	0.969	0.352	0.102	0.686	1.478	0.220	0.547	0.058	0.383
Incremental capital-output-ratio[e]	2.8	3.7	3.5	2.5	5.3	3.1	2.3	2.7	2.9	2.5	1.9	3.8	2.5	2.7	5.0

[a]Constant prices.   -   [b]For Egypt, Israel, Turkoy and Yugoslavia, this includes mining.   -   [c]Refers to SITC 5-8 (values in US-$).   -

[d]Absolute increase of manufactured export value divided by absolute increase of manufacturing value added.   -

[e]Share of real gross investment in GNP divided by the increase of real GNP.

Source : As Table A-2.

Product		USA[a]	United Kingdom	West Germany	France	Nether-lands	Belgium-Luxem-burg	Japan[a]	Aus-tralia	New Zealand[a]	Canada	Sweden[a]	Den-mark[b]	Norway[a]	Austria	Total imports
Leather and leather manu-																
factures	A	34.61	31.50	26.75	24.25	1.05	1.93	12.65	0.86	0.59	0.68	2.93	1.28	—	0.94	140.02
	B	114.52	77.96	197.68	70.24	40.76	29.92	27.17	7.56	1.78	39.38	24.22	25.57	18.05	26.38	695.19
	C	30.2	40.4	13.5	34.5	2.6	6.5	46.6	11.4	33.2	1.7	12.1	5.0	—	3.6	20.1
Wood and cork manufactures																
	A	190.91	33.02	17.02	9.33	5.86	1.75	19.31	8.26	—	12.13	0.85	2.93	0.63	0.21	302.21
	B	496.03	260.47	161.11	76.17	76.73	38.08	116.44	18.57	3.53	56.82	44.02	44.71	33.24	15.93	1,441.85
	C	38.5	12.7	10.6	12.3	7.7	4.6	16.6	44.5	—	21.4	1.9	6.6	1.9	1.3	21.0
Textiles	A	374.10	134.66	144.54	27.47	24.98	15.86	85.61	64.71	35.60	46.50	10.54	9.64	3.62	5.86	983.69
	B	1,391.21	615.35	1,427.89	563.80	668.66	469.91	258.82	326.51	122.73	470.85	351.98	230.56	161.73	244.98	7,304.98
	C	26.9	21.9	10.1	4.9	3.7	3.4	33.1	19.8	29.0	9.9	3.0	4.2	2.2	2.4	13.5
Non-metallic mineral manu-							•									
factures	A	103.55	8.48	16.10	15.32	1.14	39.19	54.77	4.35	0.13	3.40	0.24	0.60	0.23	0.29	247.79
	B	1,010.45	917.61	527.84	339.25	286.74	486.80	198.07	91.33	18.73	210.29	120.29	68.96	55.43	64.50	4,396.29
	C	10.3	0.9	3.1	4.5	0.4	8.1	27.65	4.8	0.7	1.6	0.2	0.9	0.4	0.5	5.6
Sanitary plumbing, heating and lighting fixtures and																
fittings	A	12.72	1.87	0.86	0.38	0.65	0.23	0.27	0.60	0.18	1.14	0.66	0.33	0.35	0.13	20.37
	B	58.20	24.04	63.69	84.30	64.59	44.50	5.81	6.69	1.33	38.74	19.88	19.47	14.84	14.05	460.13
	C	21.9	7.8	1.4	0.5	1.0	0.5	4.7	9.0	13.5	2.9	3.3	1.7	2.4	0.9	4.4
Furniture	A	14.96	0.56	1.38	0.41	0.61	0.13	1.01	1.05	—	1.44	0.14	0.17	0.11	—	21.97
	B	261.02	37.48	145.38	155.26	148.47	75.24	7.80	6.67	0.41	32.97	41.82	28.33	29.96	31.18	1,001.99
	C	5.7	1.5	1.0	0.3	0.4	0.2	13.0	15.7	—	4.4	0.3	0.6	0.4	—	2.2
Travel goods, handbags etc.																
	A	36.51	3.60	4.28	0.50	7.37	0.23	4.22	2.79	—	2.67	0.91	0.59	0.51	0.14	64.32
	B	119.41	13.77	36.78	11.15	13.43	11.91	10.10	6.81	0.23	11.45	10.43	4.67	7.34	6.43	263.91
	C	30.6	26.1	11.6	4.5	54.9	1.9	41.8	41.0	—	23.3	8.7	12.6	7.0	2.2	24.4
Clothing	A	655.44	129.43	148.81	13.86	26.49	3.63	47.47	16.07	0.59	55.29	44.36	13.13	12.99	6.25	1,173.81
	B	1,520.68	310.63	1,029.84	261.12	464.33	221.20	122.32	41.15	3.57	170.40	258.16	88.52	144.23	75.66	4,711.81
	C	43.10	41.7	14.5	5.3	5.7	1.6	38.8	39.1	16.5	32.5	17.2	14.8	9.0	8.3	24.9
Footwear	A	77.35	27.89	9.56	3.07	1.73	0.92	1.36	3.30	0.19	11.94	2.21	1.70	0.96	0.89	143.07
	B	757.91	97.38	245.06	68.95	63.24	64.88	13.44	17.88	2.07	70.94	63.53	27.16	32.92	17.64	1,543.00
	C	10.2	28.6	3.9	4.5	2.7	1.4	10.1	18.5	9.2	16.8	3.5	6.3	2.9	5.1	9.3
Musical instruments etc.	A	16.36	1.04	0.43	—	0.14	0.14	2.23	0.26	—	0.48	—	—	—	—	21.08
	B	569.03	93.50	137.10	92.89	136.22	55.10	39.33	35.11	6.79	79.96	46.88	20.41	22.18	19.93	1,354.43
	C	2.9	1.1	0.3	—	0.1	0.3	5.7	7.7	—	0.6	—	—	—	—	13.50
Total	A	1,516.51	372.05	369.73	94.59	70.02	64.01	228.90	102.25	37.28	135.67	62.84	30.37	19.21	14.71	3,118.33
	B	6,298.46	2,448.19	3,972.37	1,723.13	1,963.17	1,497.54	799.30	558.28	161.17	1,181.80	981.21	558.36	513.92	516.68	23,173.58
	C	24.10	15.20	9.31	5.49	3.57	4.27	28.64	18.32	23.13	11.48	6.40	5.44	3.77	2.85	13.50

A = imports from LDCs (millions of US-dollars); B = imports from world (millions of US-dollars); C = percentage of A in B.

[a] 1971. — [b] 1969.

Source: Taken from R. Banerji, "The Export Performance of Less Developed Countries ...", op. cit., p. 447-481.

Table A-5

MARKET SHARE OF SELECTED IMPORTS IN THE UNITED STATES

ISIC Group	INDUSTRY	1971 Total Imports (m. $)	Imports from Japan 1971 (m. $)	1971 L.D.C. Imports (m. $)	1971 Domestic Market (m. $)	1971 Total Imports Percent of Domestic Market (%)	Japan Percent of Domestic Market	1971 L.D.C. Imports Percent of Domestic Market (%)	Growth of Total Imports Percent of Domestic Market 1964/66-71 (%)	Duty Percent Total Imports (%)
20	Food	3 776.5	108.3	1 454.6	103 905.6	3.6	0.1	1.4	3.9	7.6
21	Tobacco	20.9	0.006	5.2	3 915.8	0.5	0.0	0.1	16.6	15.5
22	Textile	1 247.5	318.7	397.3	22 967.3	5.4	1.4	1.7	1.5	17.2
23	Apparel	1 568.4	295.6	942.0	28 179.2	5.6	1.0	3.3	13.0	28.5
24	Lumber and wood	1 306.7	76.3	322.3	15 624.6	8.4	0.5	2.1	3.7	4.9
25	Furniture	277.3	37.1	25.3	9 961.8	2.8	0.4	0.3	21.6	5.1
26	Paper	1 616.2	17.1	8.7	26 009.8	6.2	0.1	0.03	-0.9	0.5
27	Printing	182.3	28.9	14.2	26 731.4	0.7	0.1	0.1	7.0	1.6
28	Chemicals	1 458.8	216.7	193.5	49 274.1	3.0	0.4	0.4	8.4	8.1
29	Petroleum	1 736.3	21.2	1 454.4	28 139.5	6.2	0.1	5.2	4.6	2.2
30	Rubber	799.1	225.5	174.0	21 265.0	3.8	1.1	0.8	16.9	8.3
31	Leather	782.0	64.1	139.6	5 929.7	13.2	1.1	2.4	16.5	11.3
32	Stone, Clay, Glass	560.1	140.2	45.7	18 649.6	3.0	0.8	0.2	4.9	13.9
33	Metal Industry	4 445.2	1 161.4	518.6	56 005.2	7.9	2.1	0.9	6.9	5.0
34	Fabr. Metal Products	853.8	303.7	51.8	41 457.6	2.1	0.7	0.1	9.7	7.3
35	Machinery	2 614.4	471.6	79.5	50 517.9	5.1	0.9	0.2	11.4	5.7
36	Electrical Machinery	2 987.9	1 451.4	615.9	49 225.9	6.1	2.9	1.3	16.8	10.3
37	Transport	8 556.3	1 600.5	47.8	87 255.3	9.8	1.8	0.1	26.0	2.2
38	Instruments	735.3	258.3	21.5	11 686.4	6.3	2.2	0.2	6.0	14.4
39	Miscellaneous	1 191.5	272.1	461.8	10 722.7	11.1	2.5	4.3	7.3	12.4
01	Total Manufactures	36 689.5	7 844.2	6 187.8	672 661.4	5.4	1.2	0.9	9.9	6.9
02	Total Non-durable Goods	13 145.7	1 278.9	4 786.2	314 693.0	4.2	0.4	1.5	5.3	9.7
03	Total Durable Goods	23 544.4	5 776.1	2 194.3	357 968.2	6.6	1.6	0.6	13.2	5.3

Source: As Table VII.

Table A-6

IMPORT DEMAND ELASTICITIES IN THE U.S.A. AND WEST GERMANY

FOR SELECTED COMMODITIES

U. S. A.			West Germany (non-EEC)		
Commodity	Price Elasticity	Income Elasticity	Commodity	Price Elasticity	Income Elasticity
Cotton Products	-1.17	1.37	Clothing	-0.75^x	3.50
Man-made fibre textile products	-0.99	6.86	Textile industry	-0.44^x	1.49
Leather	-0.74	1.69^x	Leather goods	-1.55	1.04
Footwear	-0.79^x	3.98	Shoe industry	-1.71	3.31
Plywood	-0.51^x	2.39	Plastic goods	-1.19	5.01
Electronics machinery and equipment	-0.92	3.39	Music, sporting goods and toys	1.04^x	5.36
House electronic equipment	-0.71^x	7.74	Electronics	-0.85	3.48
Photographic equipment	-1.08	2.86			

Note: ^{x} not significantly different from zero.

Source: For the U.S., estimates from quarterly data 1964-70 reported in M.E. Kreinin, "Disaggregated Import Demand Functions - Further Results", Southern Economic Journal, Vol. 40, July 1973, pp. 20-21. For Germany, estimates from annual data 1962-72, reported in Hans H. Glismann, "Die gesamtwirtschaftlichen Kosten der Protektion", Kiel Discussion Papers, No. 35, October 1974, pp. 6-7.