

THE EFFECT OF PROTECTION ON MANUFACTURED EXPORTS
FROM DEVELOPING COUNTRIES

G. A. HUGHES AND D. M. G. NEWBERY

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Centre for Economic Policy Research
6 Duke of York Street
London SW1Y 6LA

Tel: 01 930 2963

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ABSTRACT*

The growing pressures for protection in industrialised countries against manufactured exports from developing countries appear to threaten the rapid rate of growth and market penetration of these countries' exports. An examination of the evidence suggests that whilst protection appears to have reduced the rate of growth of imports of manufactures from the Newly Industrialised Countries, the largest four appear to have successfully switched products and markets. A second group of medium middle income countries have done very well despite protection. A model consistent with this experience is provided, which describes the acquisition of exporting expertise by newcomers.

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G. A Hughes & D. M. G. Newbery
Faculty of Economics
Cambridge University
Sidgwick Avenue
Cambridge
CB3 9DD
0223 358944

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SUMMARY

From 1960 to 1975 LDC exports of manufactures grew at 12.3 per cent p.a. in real terms, compared with 8.8 per cent p.a. from industrialized countries, and the share of manufactures in merchandise of middle income LDCs rose from 11 per cent to 37 per cent from 1960 to 1981. Thus the industrialized countries experienced the deflationary impact of the two oil shocks as LDCs were becoming important exporters of labour-intensive manufactures, which were increasingly perceived as a threat to employment in the depressed labour markets of the late 1970's. As unemployment rose, so the calls for protection grew louder. In order to examine the effect of more restrictive trade policies on the manufactured exports of LDCs we collected data on trade and GNP for a sample of 37 LDCs for which manufactured goods exports were important. The sample was divided into four groups - Newly Industrialised Countries (NICs), medium middle income countries, large poor LDCs with substantial manufacturing sectors, and small middle income countries. The data shows that the NICs had higher growth rates of manufactured exports than group two in the late 1960's but the pattern was reversed in the 1970's. The three possible explanations are (i) that the large size of NIC exports became demand constrained, (ii) that protection directed against the NICs was effective, or (iii) that supply constraints limited NIC exports. The poor performance of groups 2 and 4 can best be explained by supply constraints. Looking more carefully at the various NICs over shorter time periods and at the destinations of their exports, we find that the top 4 NICs increased their exports to non-industrialized countries very rapidly, and did rather better than the NICs as a whole and than all LDCs, especially from 1977-1980. The five ASEAN countries followed a similar pattern, but did much better. We conclude that protectionism may be part of the reason for the switch in destination, but because of the flexibility of the leading NICs, it had a relatively small adverse impact on their export performance once they had adjusted, and that it may even have helped the second group of countries by reducing competition from the NICs.

(ii)

A detailed study at the commodity level reveals that exports from industrial countries to LDCs are still larger than imports from them for most goods, that imports from LDCs represented a small share of consumption and of incremental consumption from 1973 to 1981, except for clothing. We attempt to predict future shares of LDC manufactured exports in OECD consumption in 1990 assuming past trends continue, and find that except for clothing, shares remain below 10 per cent. If import penetration is kept below 10 per cent for each category we find that LDCs could still sustain an 11 per cent p.a. rate of growth of manufactured exports, with beneficial effects on their ability to import from the OECD and service their debt. The alternative scenario in which OECD countries press for further protection against LDCs appears to have very high costs both for the industrialized countries and for LDCs.

I Background

From 1950 to 1973 world income grew at an unprecedented rate, and world trade grew even faster as trade restrictions were gradually dismantled. The 1973 and 1979 oil price shocks and the consequent deflationary policies taken by industrial countries lowered the rates of growth of both income and trade, and produced the worst recession the developed countries have seen for fifty years. In the two decades before the first oil price shock trade between developed countries grew faster than exports from less developed countries (LDCs), but this largely reflected the greater importance of manufactures in developed country trade. World trade in manufactures grew at 8.9% p.a. from 1960-1975, compared to total merchandise which grew at 7.1% p.a..² However, LDC exports of manufactures grew at 12.3% p.a., compared to 8.8% from the developed countries, even though overall LDC merchandise exports only grew at 5.9% p.a.. Thus the dynamic element in world trade was manufactures, and here LDCs, starting from a low base, experienced more rapid growth than the industrial countries.

Whilst the share of manufactures in merchandise exports of industrial countries rose gradually from 66 per cent in 1960 to 72 per cent in 1981, for middle income developing countries the share rose from 11 per cent to 37 per cent.³ Thus the industrialized countries experienced the deflationary impact of the two oil shocks as the developing countries were becoming increasingly important exporters of manufactures. These manufactured exports were of relatively labour-intensive goods⁴ in which LDCs have an obvious comparative advantage. In the period before 1973 when the industrial countries

²At 1975 prices. Source WDR 1978 Table 13. These figures thus approximately describe pre oil shock growth rates. All figures for growth rates in this paper are real growth rates.

³WDR 1983, Table 10.

⁴See Balassa (1983) for evidence on the labour intensity of LDC exports. This is not to deny that there were many other reasons for comparative advantage, such as access to cheap raw material. See the detailed studies in Cable (1983).

experienced tight labour markets imports of labour intensive goods allowed them to reallocate labour to higher valued alternatives and thus to raise the level and rate of growth of output. The period after 1973 was, in many industrial countries, a period of slower growth and rising unemployment, and in such an environment the rapidly growing trade in labour intensive goods was perceived as a threat to employment rather than an opportunity for comparatively advantageous reallocations of labour. As unemployment increased, so the calls for protection grew louder. Clothing and textile imports from developing countries were increasingly subject to tariffs and quotas, and the Multifibre Agreement (MFA) consolidated the gradual emergence of "voluntary" export restraints (VERs) and orderly marketing arrangements (OMAs) of earlier periods.

Martin Wolf (1983) has argued that the structure of decision making in the European Community has the unfortunate consequence of making common commercial policy reflect the wishes of the most protectionist member, because in cases of disagreement such a member can prevent the adoption of any common policy at all. Faced with the threat of collapse, more liberal members will acquiesce in the interests of preserving harmony, and enjoy the advantages subsequently to be reaped by its own producer lobby without apparently denying its liberal sentiments. Moreover, sectoral policies which were originally supposed to be temporary measures to protect industries in crisis have endured and become more restrictive over time. Paradoxically, the more successful the Community is at liberalising internal trade, the more likely it is that some countries will experience a crisis in some sector, and hence it seems likely that protectionist pressures which externalise internal Community problems will continue to increase.

Vincent Cable (1983) cites further evidence for the increase in protectionism during the 1970's. For example Page (1980) concluded that between 1974 and 1979 the share of EEC manufacturing imports wholly "managed"

(i.e. subject to quotas or voluntary export restraints) rose from 0 to 13 per cent, whilst 34 per cent of imports of manufactures from LDCs were wholly managed. Approximately the same numbers apply to the OECD countries as a whole. Cable also notes that a substantial number of goods were tabled as exceptions to the Tokyo round of tariff negotiations, many of which apply primarily to imports from LDCs. Whilst the weighted average of EEC import tariffs is less than 7.5 per cent, the following items, amongst others, attract higher duties.

Table 1 - EEC Exceptions to Tokyo Round Negotiations

Item	Tariff %	Item	Tariff %
Lorries	22	Undergarments	13
Rubber and plastic footwear	20	Knitted socks	13
Semi-conductors	17	Knitted fabrics	12
Bicycles	17	Leather gloves	10
Stainless steel cutlery	17	Cotton and synthetic fabrics	10
T.V. picture tubes	15	Synthetic fibres	7.5-10
Pile fabrics	14	Synthetic yarns	8-9
Tufted Carpets	14	Cotton yarns	4-9
Non-metal slide fastners	14	Leather footwear	8
Outer garments	10.5-14		

Source: Cable (1983, p.42)

Faced with such widespread evidence of increased protectionism, and calls for further restrictions on developing country trade, it is easy to become pessimistic about export prospects for LDCs. But the fact that protection may have increased during the past decade does not by itself imply that export prospects facing LDCs have dramatically deteriorated. Before any such conclusion is warranted it is necessary first to look at the effect of protection on manufactured exports, and then to try and assess how vulnerable these exports might be to future restrictions.

II LDC Exports of Manufactures, 1965-80⁵

Table 2 shows that manufactured goods were the most dynamic component of developing country exports throughout the period 1965-80, though the sharp decline in the growth of world trade after the first oil shock affected LDC exports for manufactured goods as well as developed country exports.⁶ In both sub-periods - 1965-73 and 1973-80 - the rate of growth of total LDC manufactured exports was over 50% higher than the aggregate growth of manufactured exports, whereas for each category of primary products LDC exports grew more slowly than total world trade. As a result the market share of LDC exports rose substantially for manufactured goods between 1965 and 1980 whereas for food and raw materials the market share of LDC exports fell equally substantially. The anomalous pattern for fuels is, of course, the outcome of large relative price movements outweighing small volume shifts. These changes have meant that the share of manufactured goods in total LDC exports increased from 11% in 1965 to 18% in 1980 even when oil exports are included. If oil exports are excluded the share of manufactured goods in total non-oil exports increased from 14% in 1965 to 41% in 1980.⁷

⁵The analysis in this section is based primarily on data from the UN Yearbook of International Statistics (various issues) supplemented by data from the World Bank National Accounts databank, the UN Yearbook of National Accounts Statistics, OECD Foreign Trade Statistics, and the Statistical Yearbook of the Republic of China for recent data on Taiwan's exports.

⁶Because of the difficulties involved in obtaining suitable data over the period for centrally planned economies, Table 2 covers the trade between market economies and the discussion should be understood to refer to this group. For developing market economies exports to centrally planned economies represented less than 10% of total exports throughout the period and this share was only 3.6% in 1980. See also 7 below.

⁷The World Bank in its Commodity Trade and Price Trends 1982-3 gives the share of manufacturers exports in non-oil exports of LDCs as 16%, 31% and 52% in 1960, 1970, and 1980 respectively, substantially above the UN figures cited in the text, and an illustration of the problems of obtaining consistent data.

Table 2 - Export Performance 1965-80

SITC	Primary Products			Manufactures			
	Food	Raw Materials	Fuels	Chemicals	Machinery	Other	All Manufactures
	0+1	2+4+68	3	5	7	6+8-68	

% Annual Growth Rates of Exports (at 1970 prices) to:

A. All Market Economies

1. From All Market Economies

1965-73	5.6	5.9	9.2	12.9	11.1	10.4	11.0
1973-80	4.2	3.4	-0.2	6.9	5.7	5.6	5.8

2. From Developing Market Economies

1965-73	4.0	5.0	9.1	12.0	27.8	15.8	17.1
1973-80	1.7	1.6	-1.2	11.9	15.0	8.5	10.3

B. Developed Market Economies

1. From All Market Economies

1965-73	5.8	5.3	9.8	13.5	11.8	11.0	11.7
1973-80	2.9	2.7	-0.5	5.9	4.4	4.5	4.6

2. From Developing Market Economies

1965-73	4.2	4.1	9.5	11.1	40.6	16.7	18.5
1973-80	0.5	0.7	-1.4	12.5	12.9	8.1	9.4

% Composition of Exports from Developing Market Economies to:

A. All Market Economies

1965	27.7	28.0	32.7	1.4	1.2	8.6	11.2
1980	8.9	8.7	63.7	1.8	5.0	11.3	18.1

B. Developed Market Economies

1965	28.3	30.5	32.1	0.9	0.4	7.5	8.8
1980	8.7	8.7	67.0	1.1	3.6	10.2	14.9

Exports from Developing Market Economies as % of Total Exports to:

A. All Market Economies

1965	36.2	34.3	73.2	4.5	1.0	7.9	4.4
1980	28.6	27.8	80.5	7.2	6.0	16.1	10.1

B. Developed Market Economies

1965	36.2	33.4	69.8	3.1	0.4	6.8	3.6
1980	28.3	25.5	77.8	4.9	4.6	14.1	8.6

Source: UN Yearbook of International Trade Statistics 1981.

Notes: The growth rate estimates are sensitive to the method of price deflation used. For this table the data is primarily obtained from Special Table D in the source which gives trade flows and unit value indices (1970=100) for each matrix element (i.e. from country group to country group, by SITC, by year). The UN grouping of developing market economies includes certain OPEC countries such as Libya, Kuwait, Qatar, Saudi Arabia which are excluded from the developing country category by other sources. Manufactured goods are those classified under SITC categories 5-8 excluding 68 (non-ferrous metals).

The same pattern emerges when looking at LDC exports to the industrial market economies, though the slowdown in the general growth of imports into these countries and in the growth of LDC exports of primary products to them after 1973 is more marked than for all market economies. One consequence of this change in relative growth rates is that, whereas before 1973 LDC exports of manufactured goods to the industrial countries were growing more rapidly than their total exports of manufactures, this pattern was reversed - albeit only slightly - after 1973. Nonetheless, by comparison with the general growth of imports of manufacturers by the industrial countries the developing countries continued to do well so that their market share increased from 3.6% in 1965 to 8.6% in 1980.

In order to build up a fuller picture of the manufactured export performance of different countries we have collected detailed data on trade and national income for a sample of 37 developing countries. The sample was chosen to include all developing countries for whom exports of manufactured goods comprised more than 10% of total exports in 1980 and all 'large' exporters of manufactured goods. For reasons of data availability centrally planned economies - in effect China and Cuba - were excluded, but - despite its disappearance from official international statistics after 1978 - Taiwan has been included since it is now the largest developing country exporter of manufactured goods. These countries have been divided into four categories on the basis of their importance as exporters of manufactured goods and other characteristics.

The first group includes all of the newly industrialised countries (NICs) with the exception of India which is sometimes regarded as a NIC but seems more appropriately combined with the other large, poor Asian countries such as Pakistan, Bangladesh and Indonesia. Exports from the NICs and especially from the subgroup of four Far Eastern countries - Hong Kong, Korea, Singapore and

Taiwan - have been one prime target of the protectionist measures adopted by the developed countries during the past decade. Tariffs on manufactured goods might be expected to affect all LDC exporters equally, but the characteristic mode of protection of the past decade has been selective quota restrictions and 'voluntary' export restrictions directed at the most successful and largest exporters. Hence, one would expect both importers and export-oriented producers to diversify by buying from/investing in other countries whose exports are not subject to such restrictions. The main beneficiaries of this process might be expected to be middle income countries with significant manufacturing sectors which have the skills and infrastructure required to produce exportable manufactured goods. These countries are included in the second group.

The third and fourth groups provide an interesting contrast to the first two. The large, poor countries in group 3 have manufacturing sectors of substantial size - even where they generate a small fraction of GDP - and most of them have considerable experience of exporting goods. In addition, their low levels of income per capita mean that real wage rates are very low in these countries which, it is alleged, enables them to undercut domestic producers of labour-intensive goods in the developed countries. Because of these fears countries such as India, Pakistan and Egypt have been excluded from some of the trade benefits offered under the Generalised System of Preferences and other preferential trading arrangements designed to help the poorest developing countries. The final group includes a number of very small, middle income countries - most from the Carribean and Central America. Their size means that they are at a disadvantage when economies of scale are important, but on the other hand it means that any plausible rate of growth of manufactured exports from these countries would have had a negligible impact on the markets in the

developed countries. Thus, they had little to fear from export restrictions and, being middle income countries, they should have had the capacity to develop significant export-oriented manufacturing industries.

Aggregate growth rates of manufactured exports from the four groups of countries to all countries are given in Table 3. The share of the NICs in the total manufactured exports of the sample countries rose rapidly during 1965-73 and more slowly in the later sub-period, while the share of the group of medium middle income countries rose rapidly in 1973-80 period. These changes were accompanied by a dramatic decline in the share of traditional manufactured exports from the group of large, poor countries. As in Table 2 the aggregate growth rates for all countries in Table 3 confirm the large drop in the growth of manufactured exports after 1973. The aggregate growth rates for sample countries are slightly lower than those in Table 2 because the coverage of manufactured exports from the sample countries includes exports to all countries - i.e. centrally planned economies as well as market economies - and, as noted above, LDC manufactured exports to centrally planned economies have been growing at a substantially lower rate than those to the market economies.

More detailed comparisons of growth rates by group and sub-period show that the NICs achieved a higher growth rate than the countries in group 2 during the latter half of the 1960s. This pattern was reversed in the 1970's and especially in the second half of the decade so that over the period 1973-80 the medium, middle income countries achieved a growth rate nearly twice that of the NICs. There are three possible explanations for this change:

Table 3 - Aggregate Growth Rates of Manufactured Exports by LDC Group,
1965-80

	NICA ^a	Medium, Middle Income ^b	Large/Medium, Poor ^c	Small, Middle Income ^d	All Countries
	1	2	3	4	
% Share of Total Manufactured Exports^e of Sample Countries					
1965	72.6	4.7	20.4	2.5	100.0
1973	81.6	5.9	9.9	2.6	100.0
1980	82.6	8.6	6.6	2.2	100.0
% Annual Growth Rates of Total Manufactured Exports of Countries in Each Category					
1965-70	16.2	12.9	4.9	16.8	14.1
1970-73	20.1	31.4	7.8	17.0	19.1
1973-77	7.9	11.7	5.1	8.8	7.9
1977-80	10.2	18.8	-0.7	2.7	9.8
1965-73	17.6	19.5	6.0	16.8	15.9
1973-80	8.9	14.7	2.6	6.2	8.7

- Notes: (a) Argentina, Brazil, Greece, Hong Kong, Israel, Korea, Mexico, Portugal, Singapore, South Africa, Taiwan, Yugoslavia.
- (b) Chile, Colombia, Malaysia, Morocco, Peru, Philippines, Thailand, Tunisia, Turkey.
- (c) Bangladesh, Egypt, India, Indonesia, Pakistan, Sri Lanka.
- (d) Costa Rica, Dominican Republic, El Salvador, Guatemala, Honduras, Jamaica, Jordan, Nicaragua, Paraguay, Uruguay.
- (e) Manufactured goods are defined as for Table 2.

- (i) The NICs had become sufficiently large exporters of manufactured goods in absolute terms by 1973 that it was no longer possible for them to continue to achieve growth rates very much higher than the overall growth of world trade in manufactured goods, whereas this did not affect the countries in group 2.

- (ii) Protectionist moves in the industrial countries were indeed beginning to limit the export performance of the NICs at whom they were aimed, whereas the medium, middle income countries with a much lower share of manufactured exports were not hampered in this way.

- (iii) the NICs had been so successful in expanding their exports of manufactured goods that any surplus labour - or other resources - had been absorbed into employment with the effect that further growth pushed up real wages and hence reduced the competitive advantage of the NICs compared to both the industrial countries and the other middle income countries.

In simple terms these explanations may be characterised as the world demand model, the protectionist model and the supply model. To decide which of them provides the most plausible explanation requires more detailed evidence of the kind examined below, but it seems probable that all three factors contributed to the change.

The experience of the large, poor countries in increasing their exports of manufactured goods over the period 1965-80 was most disappointing. Individual countries - e.g. Indonesia - achieved very rapid rates of growth but only from tiny initial levels and as a whole the countries in this group

performed substantially worse than both other developing countries and the general level of world trade in manufactured goods. The group of small, middle income countries performed substantially better than the large, poor countries but their growth rates were consistently well below those of the medium, middle income countries during the 1970's. This can hardly be ascribed to the impact of protectionism in the industrial countries since this should have favoured the smaller countries. Hence, we conclude that supply considerations must be the major explanation of the difference between the performance of the countries in groups 2 and 4, since most of the usual supply factors - economies of scale, availability of technical, financial and marketing skills, size of home market, etc - favour the countries in group 2.

It is important to recognise that the groups were very far from being homogenous in their growth performance so that aggregate growth rates can give a somewhat misleading picture. To counter this Table 4 gives a cross classification of countries by growth performance and group. Since it is possible for countries to achieve very high growth rates starting from low bases and because we are most interested in the ranking of different groups of countries, the table divides countries into three categories of export performance - high, medium, low - which, for each sub-period include the top third, middle third and bottom third of the sample ranked according to their growth rates of manufactured exports. The table demonstrates in a striking manner the substantial dispersion of performance within each group of countries; this is supported by the high coefficients of variation for the mean growth rate in each group. Nonetheless, the figures confirm that after 1973 the successful countries in terms of manufactured export growth were predominantly medium, middle income countries whereas up to 1973 the NICs provided the largest share of high performers. Other cross-tabulations show

that in the period 1965-70 the high growth countries were mostly either NICs or small, middle income countries while by the late 1970's (1977-80) the NICs were again doing well - 4 high growth countries by comparison with 6 from group 2 - whereas none of the small, middle-income countries came in the high growth category. This resurgence by the NICs and the poor performance of the small, middle income countries would seem to suggest that, once the NICs had been able to diversify away from their original pattern of manufactured exports, protectionist measures by industrial countries had little effect on the overall growth of manufactured exports from the larger countries with more highly developed manufacturing sectors.

Table 4 - Manufactured Export Performance by LDC Group, 1965-80

Export Performance (based on ranking of export growth rate)	No. of countries by group			
	NIC	Medium, Middle Income	Large, Poor	Small, Middle Income
	1	2	3	4
A. <u>1965-73</u>				
High growth	5	4	1	2
Medium growth	3	4	1	4
Low growth	4	1	3	4
B. <u>1973-80</u>				
High growth	1	6	2	3
Medium growth	7	2	0	3
Low growth	4	1	3	4

Since most discussions of the effects of protectionism on LDC manufactured exports have centred upon the NICs, we have examined their performance in more detail. The group of NICs adopted in the paper is quite heterogeneous, varying from city states whose exports are higher than their GDP to large countries

with exports equal to a small fraction of GDP. The share of manufactured goods in merchandise exports varies from 24% (Argentina) to 97% (Hong Kong), and their dependence upon manufactured exports to industrial countries also varies widely. To illustrate the considerable diversity of experience and circumstances of the NICs Appendix Table A1 gives a variety of indices of manufactured export performance for the 12 countries making up our group of NICs. The table also includes Spain and India, which have sometimes been treated as NICs in other studies, and four ASEAN countries which provide an interesting contrast with the top four Far East NICs.

Inspection of the figures for different countries suggests that the top 5 countries in terms of manufactured exports in 1980 were very successful in expanding their exports of manufactured goods to countries other than the industrial market economies during 1977-80. For these countries the aggregate growth rate of manufactured exports to all countries was 13.2% over this period whereas it was only 9.1% for manufactured exports to the industrial market economies. On the other hand the other 7 NICs had an aggregate rate of growth for manufactured exports to the industrial countries of 6.2% but one of only 4.2% to all countries. The difference between the performance of the top 5 NICs in industrial countries and elsewhere, which is significantly greater than the difference between the rates of growth of aggregate manufactured imports into the two regions, might be interpreted as indicating the impact of protectionist policies in the industrial countries. Alternatively, the fact that the export growth of these 5 countries outstripped that of the other 7 NICs, who were not subject to serious restrictions on their exports, in industrial country markets could be taken as support for the view that protectionism has had little overall impact. In this case the difference

between the performance of the two groups of NICs in the rest of the world would reflect the underlying dynamism and competitiveness of the 5 NICs in increasing their market share at the expense of developed country exporters.

In order to allow further comparison of the performance of the NICs in industrial countries and the rest of the world Table 5 gives rates of growth of manufactured exports in three sub-periods between 1970 and 1980 for different groups of NICs and also for the ASEAN countries. Though it is very difficult to measure the severity of protectionist restrictions, it is generally agreed that the four Far Eastern countries who form the NICs (4) group have been the prime target of import restrictions on textiles and other manufactured exports from the developing world. The NICs (10) group is included because the OECD study of manufactured exports from NICs - OECD (1979) - focused on these countries even though Spain was graduated to the status of an industrial country by the World Bank in 1982. The ASEAN countries, which include Singapore, provide a useful indicator of the relative performance of manufactured exports from NICs and other middle income countries in similar circumstances. The ASEAN countries were able to achieve much higher rates of growth of manufactured exports to both the industrial countries and to all countries than either the four Far Eastern NICs or all developing countries.

The figures reinforce our point about the substantial difference between the growth rates of exports to industrial and other countries for the NICs, especially the largest exporters among them, whereas for all developing countries combined the difference between the growth rates is insignificant. This implies that developing countries other than the NICs were able to expand

Table 5 - Comparison of Rates of Growth of Manufactured Exports from the
NICs and other LDCs

Group	Period	% Annual Growth Rates of Manufactured Exports to:	
		OECD ^a	All Countries
NICs (4) - Hong Kong	1970-73	32.5	25.6
Taiwan, Korea, Singapore	1973-77	5.2	9.9
	1977-80	8.9	12.5
NICs (10) - NICs (4)	1970-73	29.6	21.8
plus Brazil, Yugoslavia,	1973-77	5.2	8.6
Portugal, Greece, Mexico, Spain	1977-80	8.9	10.2
NICs (12) - as group 1 defined in Table 2	1970-73	28.2	20.1
	1973-77	5.8	7.9
	1977-80	8.2	10.2
ASEAN countries -	1970-73	35.9	38.0
Indonesia, Malaysia,	1973-77	11.1	10.1
Philippines, Singapore, Thailand	1977-80	17.4	21.0
All Developing Market Economies	1970-73	23.0	19.7
	1973-77	7.5	11.2
	1977-80	9.2	8.9

Note: (a) The growth rates of manufactured exports to the OECD are calculated from cif import values reported by OECD countries. There is a relatively minor inconsistency between the UN's group of industrial market economies and the OECD since the latter includes Greece, Portugal and Turkey which are developing countries. More seriously there are some major discrepancies between estimates of manufactured exports to the industrial countries derived from the two sources which can be ascribed to differences in timing, valuation basis or coverage - e.g. imports of manufactured goods from Mexico to the OECD were valued to \$4.1 billion in 1980 whereas according to the UN Mexico's total exports of manufactured goods only amounted to \$2.28 billion in 1980. Obviously in such cases the problem lies in the different classification conventions adopted by exporting and importing countries, and it is not possible to reconcile such discrepancies with the data available.

their manufactured exports to the industrial countries much more rapidly than those to the rest of the world. As a result the aggregate decline in the growth rate of manufactured exports between 1973-77 and 1977-80 was accompanied by an increase in the rate of growth of manufactured exports to the industrial countries. Table 3 showed that the rate of growth of all manufactured exports from both NICs and the medium, middle income group of countries accelerated

after 1977, so that the aggregate decline reflected a very weak manufactured export performance in markets other than the industrial countries by the small middle income and low income countries during the 1977-80 period. On the other hand these countries as a group achieved a growth rate of 11.7% in their exports to the industrial countries which was only slightly lower than the rate of 13.9% achieved by the medium, middle income countries as a group and was substantially better than the growth rate achieved by the NICs.

The conclusion which may be drawn from the figures in Tables 2-5 is that, as a result of either protectionist measures or because of their larger share of the market, the NICs were not able in the late 1970s to sustain the very rapid increase in their share of the manufactured imports of the industrial which they had achieved in the early 1970's. Nonetheless, even during 1977-80 the rate of growth of manufactured imports from the NICs into the OECD countries was 1.5 times the rate of growth of all manufactured imports. At the same time the NICs were able to redirect their efforts and to achieve higher rates of growth of manufactured exports to the rest of the world. The other developing countries, especially the medium middle income countries, were able to achieve overall rates of growth of manufactured exports to the industrial countries at least twice the associated rate of growth of manufactured imports during the same period, while their manufactured exports to the rest of the world grew less rapidly. Hence, it seems possible that protectionism in the industrial countries did restrict the export performance of the NICs during the late 1970's but there is no evidence during this period for a similar restrictive effect for other developing countries.

In order to identify any other factors which might explain differences in the manufactured export performance of developing countries we have examined a number of economic characteristics of the sample of countries discussed above. These were divided into the three growth categories for the two sub-periods

1965-73 and 1973-80 and then we tested for significant differences between the mean values of the variables for the three categories. The results of this analysis of variance are shown in Table 6. Despite the apparently large differences between the category means for some variables, the F-values indicate that few of the differences are statistically significant because of the large degree of within-group variance. For the 1965-73 growth rates only the growth rate of manufacturing output differs significantly across manufactured export growth categories with a strong positive correlation between the two. It is, of course, possible to construct models which would justify casual relationships such that a rapid growth of manufacturing output induces a rapid growth of manufactured exports or vice-versa. However, there seems little stability in the relationship since it is countries in the medium export growth category in 1973-80 which had the highest mean growth rates of manufacturing output in both sub-periods.

One result relevant to an assessment of the impact of protectionist policies is that countries in the high export growth category tend to have low ratios of manufactured exports to total exports. This association is highly significant for the later time period and, though not significant at conventional test levels, it holds for the earlier period as well. Of course, this may be a trivial consequence of the fact that countries who have only recently begun to export manufactured goods can easily achieve very high initial rates of growth. However, by 1973 few of the countries in the sample could be described as novices to the business of producing manufactured goods and of these only Honduras, Indonesia and Jordan appear in the high export growth category. This is supported by the small difference between the average ratios of manufacturing output to GDP for the three categories. Thus, one must

Table 6 - Economic Characteristics of Developing Countries by Export Growth Categories, 1965-80

Variable a	Average Values by Manufactured Export Growth Category			
	High Growth	Medium Growth	Low Growth	F Value ^b
<u>1965-73^c</u>				
GDP per person (\$)	489	469	581	0.34
Manufacturing Output per person (\$)	105	83	142	1.02
Total Population (million)	29.8	10.8	53.3	0.81
Manufactured Exports as % of Total Exports	12.5	18.6	30.4	2.16
Manufactured Exports as % of GDP	1.3	8.6	4.2	1.52
Manufacturing Output as % of GDP	18.8	16.5	21.5	2.01
% Annual Growth of Manufacturing Output 1965-73	11.6	8.3	5.5	6.83
% Annual Growth of Manufactured Export 1965-73	35.7	16.4	7.4	
<u>1973-80^d</u>				
GDP per person (\$)	478	983	669	3.08
Manufacturing Output per person (\$)	103	237	157	2.86
Total Population	30.9	12.9	69.5	1.05
Manufactured Exports as % of Total Exports	13.3	49.1	36.5	9.17
Manufactured Exports as % of GDP	2.2	18.2	5.3	5.20
Manufacturing Output as % of GDP	19.0	23.3	20.7	1.27
% Annual Growth of Manufacturing Output 1965-73	7.3	11.5	6.6	4.53
% Annual Growth of Manufacturing Output 1973-80	6.4	7.4	3.8	2.19
% Annual Growth of Manufactured Exports 1965-73	20.4	21.7	17.4	0.23
% Annual Growth of Manufactured Exports 1973-80	21.1	9.1	0.0	

Notes: (a) All dollar values are obtained by converting local current price values to constant 1973 prices and then using the 1973 dollar exchange rate.

(b) Test of the hypothesis of equal means with 2,33 d.f.. The 5% significant value of this F distribution is 3.29, the 1% value is 5.32.

(c) The variables, other than growth rates, are for 1965.

(d) The variables, other than growth rates, are for 1973.

conclude that, as developing countries become increasingly dependent on exports of manufactured goods, they are likely to find it more difficult to sustain high rates of manufactured export growth either because of protectionism or because further market penetration requires skills, capital

equipment and a technological capacity which can only be acquired gradually. In no sense should this be interpreted as favouring an autarkic approach to economic development but it does mean that the Far Eastern model of export-led growth may be difficult to emulate.

The export performance of different manufactures, 1970-80

Protection is typically targeted at particular commodities, and hence the natural way to investigate the impact of protectionist measures is to compare the rates of growth of different commodities to see what effect, if any, the measures had. Indeed, as Hughes and Krueger (1982) argue, it is difficult to see how else to measure the impact of non-tariff barriers. There are two problems with this approach - one surmountable, the other less so. The first difficulty is that we at present have data only for the decade 1970-1980, and, as Table 5 makes very clear, growth rates were very different in the three sub-periods, being much higher up to 1973. Since protectionist measures increased in severity towards the end of the period, it becomes important to examine rates of growth by sub-period. The problem then is that small errors in measured levels of exports magnify into large errors in the growth rate, and it becomes very difficult to detect significant trends, or changes in trends, for the intrinsic noise in the data.

The second problem is that it is hard to construct a counterfactual. Even if observed growth rates are high, might they not have been higher without protection? Despite these limitations, Table 7 nevertheless shows some interesting results. The NICs obviously dominate the production of almost all categories of manufactures, except basic metals (where group 2 is important) and textiles, where group 3 is relatively important. There are quite striking differences in textile export growth rates in the lower part of the table. Thus the medium, middle income countries have more than double the export growth

rate of textiles of the NICs (though starting from a very small base). The large poor countries and the small middle income countries both have poor export performances in textiles.

Table 7 - Shares and Growth Rates of Manufactured Exports by LDC Group and Industrial Origin, 1970-80

Industrial Origin (ISIC)	LDC Group				All Countries
	NIC	Medium, Middle Income	Large/ Medium, Poor	Small, Middle Income	
		1	2	3	

% Composition of Total Manufactured Exports of Sample Countries, 1970

31. Food, Drink, Tobacco	13.8	6.7	2.3	2.7	25.5
32. Textiles	13.6	0.6	5.4	0.8	20.4
33. Wood Products	2.3	0.9	0.0	0.2	3.5
34. Paper products	1.5	0.3	0.1	0.1	2.0
35. Chemicals	8.0	1.1	0.7	1.3	11.2
36. Non-Metal Minerals	0.7	0.2	0.1	0.1	1.1
37. Basic Metals	6.8	9.3	0.9	0.1	17.0
38. Metal Products	11.4	0.4	0.9	0.2	13.0
39. Misc. Manufactures	5.8	0.3	0.3	0.1	6.5
All Manufactures	63.9	19.8	10.7	5.5	100.0

% Annual Growth Rates of Exports, 1970-80

31. Food, Drink, Tobacco	5.2	4.6	3.1	-0.5	4.4
32. Textiles	10.5	23.6	3.7	4.6	9.7
33. Wood Products	5.8	10.2	35.0	-0.1	7.8
34. Paper Products	9.1	9.7	-0.4	9.4	9.0
35. Chemicals	12.8	13.9	17.0	4.0	12.5
36. Non-Metal Minerals	15.3	11.7	4.0	7.6	13.6
37. Basic Metals	7.0	0.2	4.9	20.7	3.8
38. Metal Products	15.7	26.8	8.1	6.0	15.8
39. Misc. Manufactures	19.1	24.9	5.5	9.9	18.9
All Manufactures	11.7	7.3	6.0	3.3	10.0

Note: (a) Manufactured goods are here defined as those originating from enterprises classified under ISIC 31-39.

It is also notable that textiles, wearing apparel and leather goods grew at the same rate as all manufactured goods, despite the concentration of protection in this category.⁸ What is even more interesting is that textile

⁸Imports of textiles into industrial countries grew slightly faster than imports of all manufactured goods, reinforcing this observation.

exports from the four Far East NICs (Korea, Taiwan, Hong Kong and Singapore) to industrial countries grew even faster, at 13.2% p.a., close to their total export growth rate of 14.4% p.a. as shown in Table 8. Taking the decade as a whole, it is often hard to detect the effect of the Multifibre Agreement, though it might be more apparent in the period after 1977.

Table 8 - Manufactured exports from Far East NICs^a to Industrial Countries

<u>1970-80</u>			
US \$ billion			
ISIC	1970	1980	Real Growth rate % p.a. ^b
32 Textiles etc.	1.43	14.0	13.2
33	0.23	1.75	10.0
34	0.02	0.34	24.2
35 Chemicals etc.	0.36	5.00	17.5
36	0.02	0.50	27.8
37	0.03	1.24	29.1
38	0.63	12.45	22.2
39	0.34	2.47	9.7
32-39	3.06	37.75	14.4

Source Hughes and Krueger (1982, Table 9), and hence not directly comparable to Table 7, which covers exports to all countries.

Note a) Korea, Taiwan, Hong Kong, Singapore

b) Deflated by FOB Manufacturing Unit Value Index

Hughes and Krueger (1982) investigated the behaviour of exports from different developing countries to the U.S.A., the E.E.C. and Japan at the three digit level within category 32, and found that the four Far East NICs increased their share of imports of each category (clothing, textiles, and footwear) in most years in the U.S.A., experienced ceilings in their import shares into the E.E.C. after 1976, and lost shares in Japan after 1976. Part of the

explanation for this continued dynamism in the face of protection appears to be that the NICs switched to more favourable export markets and raised the quality and hence value of their textile exports.

Hughes and Krueger also note that the principal expansion of labour intensive exports came from three New Exporting Countries (NECs) of South East Asia - Malaysia, Phillipines and Thailand - whilst a whole range of smaller NECs also experienced rapid growth in the export of labour intensive goods.

Table 9 - The Relative Importance of trade in Manufactures to developing and industrial countries 1977-81

	Exports to LDCs X (%)			AX (%)	
	Total Production P			AP	
	1973	1978	1981	1973-8	1978-81
Iron and Steel	3.5	5.0	6.5	7.3	17.5
Chemicals	3.4	4.6	4.9	5.9	5.8
Other Semi Manufactures	1.1	2.5	3.0	6.5	5.2
Engineering Products	3.7	7.0	8.7	11.2	15.9
Textiles	2.8	3.6	5.0	5.6	17.2
Clothing	0.9	1.7	2.6	3.2	12.2
Other Consumer Goods	1.2	2.3	3.3	3.6	7.8
Total Manufacturing	2.9	5.2	6.4	8.5	11.3
	Imports from LDCs M (%)			AM (%)	
	Total Consumption C			AC	
	1973	1978	1981	1973-8	1978-81
Iron and Steel	0.4	0.5	1.0	0.7	4.8
Chemicals	0.4	0.6	0.7	0.7	1.0
Other Semi manufactures	1.0	1.6	1.5	3.4	1.1
Engineering Products	0.5	1.0	1.5	1.6	3.8
Textiles	1.3	2.7	3.0	6.1	6.3
Clothing	6.0	10.9	14.4	19.6	41.5
Other Consumer Goods	1.4	2.4	3.3	3.5	7.5
Total Manufacturing	0.9	1.5	2.0	2.4	3.8

Source: Balassa (1983, Table 4)

Table 9, which is taken directly from Balassa (1983), provides some insight into trade performance during the latter part of the decade when protectionism became apparently more severe, though it is taken from a different source and is not directly comparable with the earlier tables.

First, it demonstrates that except for textiles, exports from industrial countries are still large relative to imports from developing countries for most manufactured goods. Second, although imports from LDCs have been growing fast, they still represent a small share of apparent consumption in the industrial countries. Third, the share of imports from LDCs in incremental consumption in DCs (AM/AC) increased in all categories except 'other semi-manufactures' in the period 1978-81 compared to 1973-78. Part of the explanation for the fall in the growth rate of manufactures from LDCs must therefore be the recession in the industrialised countries, which may be temporary (though the protectionist measures which it precipitated may not be so easily reversed). Fourth, the incremental shares of imports from LDCs are small for all categories except clothing, which rose from 19.6% to 41.5% in the second sub-period. Even without protection, one would expect demand factors to cause a fall in clothing import growth rates.

An assessment of the effects of protection on developing countries, 1970-80

The main conclusion which can be drawn from the observed experience of the 1970's is that the NICs were able to sustain high rates of growth of manufactured exports despite protectionist moves. However, there is some evidence that protection forced the largest four (Far East) NICs to switch some of their exports from industrial countries to other destinations, perhaps thereby allowing other developing countries to enjoy high rates of growth of exports to industrial countries, or perhaps displacing them from other markets.

The second conclusion is that there is a group of medium middle income

countries which has enjoyed higher export growth than the NICs during this period, though the large poor traditional exporters and the small middle income exporters have performed relatively poorly. Supply factors are the obvious explanation for the different performances of the non-NICs, whilst protection and demand factors are arguably important explanations for the decline in NIC export growth rates to industrial countries after 1977-8.

This raises the interesting possibility that protection may have assisted the second rank exporters, both by restraining the market shares of the most successful NICs, and by raising the profitability of exporting manufactures for those countries well placed to benefit. The reason for the increased profitability is that quotas and other export constraints, unlike tariffs, raise the price level in the importing country and generate rent for countries lucky enough to receive a quota or be exempt from the restrictions.

In their stimulating paper Hughes and Krueger (1982) raise a number of interesting questions worthy of further study: "Would Korea have moved up-market in textiles more rapidly or more slowly in the absence of the MFA? Would Mauritius have entered the international textile market sooner or later in the absence of the MFA? Did VER's (Voluntary Export Restraints) keep the NICs of the Far East exporting the same commodities longer than they otherwise would have?".

In the appendix we present a simple model which can address some, though not all of these questions. We consider a multinational company (MNC) which can choose whether to stay in the NIC or move to a New Exporting Country (NEC) and set up there. Countries can start exporting a particular product once they acquire the necessary experience or expertise required, provided they have favourable factor prices. Experience can be accumulated by learning-by-doing, but expertise can be transferred by MNCs. The model can thus account for the observed phenomenon that it is not sufficient to have low labour costs in order

to be a successful exporter. The model also shows that while the effect of quotas on the NICs may raise or lower the profitability of continued exporting, and so by itself does not give unambiguous predictions, when the alternative of moving to NEC was initially present and almost attractive, the quota will make the NEC unambiguously more attractive than remaining in the NIC (unless movement costs are very large). The model predicts that there will be an acceleration in the diversification away from NICs and towards the next rank countries, the NECs.

Of course, there are a variety of other responses open to firms in the NICs, of which the most obvious are to upgrade their products, redirect their exports, or change their product. Depending on the relative cost of these alternatives which will in turn depend on the relative specificity of the product and marketing expertise, these may be more or less attractive than the option modelled in the appendix.

The incentives to export in the 1970's were several and powerful - the increase in oil prices forced oil importing LDCs to increase exports to finance their oil imports, whilst the IMF and the World Bank continued to press for outward looking or export oriented development strategies. The lesson of the decade was that such strategies not only were associated with higher growth rates, but were a characteristic of countries which successfully weathered the oil price shocks. The success stories of the NICs began to be more widely appreciated, and to be imitated or stimulated elsewhere. Some of the NECs were very successful, some of the older exporters of manufactures, such as India and Pakistan, were less so, and the evidence suggests that supply factors, rather than demand conditions, were the main determinant of export success, except for the leading NICs.

If protectionism appears to have had little effect on aggregate developing country performance, there is now considerable evidence that it has visited high costs on the industrial countries. Detailed studies of different industries in a wide range of industrial countries suggest that protection is a very costly and relatively ineffective way of protecting workers in the declining industries, at best slowing the inevitable adjustment somewhat. In some cases protection encouraged the substitution of labour saving equipment in the industrial countries which resulted in a large fall in the labour force, whilst in other cases employment fell as the industries continued their inevitable decline. Moreover, protection cannot protect export markets, which, as Table 9 shows, remain quantitatively important for most manufactured products. Although employment fell in import competing industries, the industrial countries retain a surplus in trade in manufactured goods with developing countries, and the employment gains resulting from the increase in developed country exports to LDCs appear to have exceeded the employment losses by a substantial amount. For example Balassa estimates the net employment gains to the industrialized countries in 1981 to be 1.47 million (Balassa, 1983, Table 6), with only clothing experiencing a fall in employment. Given the excess capacity in the industrialized countries in the later part of the period, the exports to LDCs made possible by their imports would enable a balanced budget multiplier process to increase GDP in the developed countries. Thus this growth in manufactured trade was comparatively advantageous, and despite costly attempts to limit its effect, it appears to have allowed the successful exporting LDCs to weather the oil shocks remarkably well, whilst mitigating the recession in the developed countries.

III Future Prospects

Table 10 shows the possible consequence of continued growth in LDC manufactured exports (excluding food, drink and tobacco) at past rates, and projects the implied import penetration shares on a pessimistic view of developed country consumption growth. Table 11 gives the World Bank's projection of exports of developing countries in 1990.

The World Development Report makes less optimistic forecasts of manufactured export growth rates, and forecasts a significant resource gap of \$276 billion (current) in 1995 or 2.7% of GNP. If the past growth rates of exports continue, this resource gap could be substantially smaller (or growth in LDCs faster). Is it feasible? The most obvious place to look for constraints are sectors of high projected import penetration, but only ISIC 32 and 39 have shares over 10 per cent. Even if both were kept down to 10 per cent, total exports could still be \$352.8 b or \$38b more than the WDR forecast (at constant prices) halving the possible extra contribution,⁹ but still generating an 11% p.a. real growth rate for manufactured exports.

High export growth rates in the LDCs increase their ability to service their debt, to adjust to high oil prices and to maintain their demand for exports from the industrialized countries which are predominantly manufactured goods. If protection is effective at cutting their growth rates, then the possibility of debt default increases, and the world loses a valuable expansionary stimulus.

⁹This is not strictly correct, as increased exports of manufactures by developing countries would both require and enable them to import more, so the effect on the resource gaps would be smaller. In any case, it is more sensible to start from constraints limiting the type of the trade deficit (credit worthiness, interest payments, etc.) and then see what, if anything, this implies for sustainable exports and imports.

Table 10 - Import Penetration of Developing Countries by Commodity Groups

ISIC	Imports into industrial countries 1980 \$b	Share of apparent industrial consumption % 1980	Growth rate 1970-80 % p.a. (real)	Projected ^a imports 1990 \$b (1980 \$)	Projected ^a 1990 share in consumption %
(1)	(2)	(3)	(4)	(5)	(6)
32	31.4	10.5	10.7	86.8	24.2
33	5.6	3.6	7.7	11.8	6.3
34	1.6	0.5	12.5	5.2	1.4
35	37.5	3.8	12.1	117.5	9.9
36	1.5	1.1	14.1	5.6	3.4
37	15.1	4.1	1.7	17.9	3.8
38	28.5	2.1	18.4	154.3	9.6
39	13.1	8.0	9.4	7.6	16.3
32-39	124.3	3.3 ^b		406.7	9.3 ^b

Notes: a) Assuming 2% p.a. growth in total consumption and rate of growth of exports at 1970-80 rate.

b) Calculated from projected total consumption of groups 32-39.

Source: Hughes and Krueger (1982, Table 6). The growth rate is calculated using the FOB Manufacturing Unit Value deflator, not the GDP deflator suggested by the authors.

Table 11 - Exports of Developing Countries 1980-1990

Exports	1980 \$ billion	
	1980	1990
Non-fuel primary products	126	163
Fuels	163	224
Manufactures	130	315
Non-factor services	78	144
Totals ^a	512	846
Extra manufactures projected from Table 10 ^b		111
In current \$		184

Source a) WDR 1983 Table 3.4

b) From Table 10, scaled up by factor 130/124.3 to reflect different coverage.

One of the most encouraging developments of the past decade or more has been the increasing realisation by a wider range of developing countries that liberalization can work, that removing the impediments to exports (and to trade more generally) has in many cases lead to rapid export growth rates, and the flexibility needed to withstand the disturbances of the 1970's. If the developed countries continue to tighten the protectionist screw in the coming years, and if this has a perceptible effect on export growth rates, then the developing countries may once again conclude that export pessimism, not optimism, is the realistic assessment, and will once more turn inward, with the consequent escalation of controls, protection, and intervention which characterized the early post-war period, and which have been extensively documented (see, for example, Little, Scitovsky and Scott, 1970). The costs of this would be high, not only for the developing countries, but also for their trading partners, who are now more heavily dependent on the developing countries for markets than ever before.

AppendixA model of the effect of quotas on the transfer of technology todeveloping countriesIntroduction

One distinctive feature of the 1970s was the fall in manufactured export growth rates in the NICs and a rise in that of the second tier of medium middle income countries. Can this be explained by the particular form that protectionism often took - that of export quotas limiting access and the growth rates of exports of particular commodities by particular countries? This appendix examines the effect of quotas on the NICs, and on the diffusion of exporting expertise amongst this second tier of countries.

It presents a very simple model to address such questions, and attempts to capture a number of features of the production and trade of manufactured goods which are argued to be important, and which represent departures from the standard models of international trade. The following list might be called the "stylised facts of exporting manufactured goods".

1. Efficient production of manufactured goods requires experience or expertise. Experience or "learning-by-doing" (Arrow, 1962) increases with cumulative production or investment (the two being essentially indistinguishable). Expertise may be provided by Multinational Companies (MNC's).
2. Breaking into a new export market involves fixed costs (of establishing contacts, a distribution network, a reputation for reliability etc.).

3. There is a maximum rate of growth of production of a single management team (Penrose, 1959).

4. Labour costs per unit of product depend on wage rates and labour productivity, the latter rises with learning. Both differ across countries.

The Model

Multinationals have limited managerial capacity, which embodies expertise, and in this model are the only source of such expertise. If they locate in a New Exporting Country (NEC) which previously lacked experience, they transfer technology and start the local process of learning, and hence acquiring experience. As experience increases, the country gradually develops the capacity to start its own locally owned export production, and so becomes capable of earning rents on such production. Initially, NEC's have abundant labour of low productivity supplied at a constant wage. Eventually, if they are successful and graduate to NIC's, the labour becomes more productive and its wage rises. At this point the country captures rents in the form of higher wages from MNC's, as well as from its own production. In this model we concentrate on the initial stage in the process, that of attracting MNC's to set up and so start the industrial phase of development. (This is not to deny that there may be alternative routes to the same goal).

Technology Transfer to NEC's

Consider the investment decision of an MNC in a particular NEC. The maximum initial level of production will be limited by, amongst other things, the size and complexity of the manufacturing sector, the availability of skilled labour, transport infrastructure, etc. The following variables can now be defined:

- q maximum initial production scale (units p.a.)
- p world price (marginal production is exported)
- v capital-gross output ratio (value terms)

- s fraction of revenue reinvested
 g maximum feasible rate of growth of production
 w wage rate, constant
 ϕ labour required/unit output
 r discount rate, $r > g$
 K_t capital stock at t
 F set up cost for exporting
 e opportunity cost of expertise per unit of initial capacity

Learning-by-doing implies that ϕ is a function of cumulative total production, or, more simply, of cumulative investment, K. Let

$$\phi = aK^{-\mu} = aK_0^{-\mu} e^{-\mu g t}, \quad \mu > 0. \quad (1)$$

Profits available for repatriation at t are

$$((1-s)p - w\phi_t)q_t. \quad (2)$$

Investment out of retentions in steady growth is

$$\dot{K} = spq_t = \frac{spK_t}{v} = gK_t \quad (3)$$

so

$$sp = vg \quad (4)$$

The present discounted net value of investment in the NEC is

$$V = \int_0^{\infty} ((1-s)p - w\phi)q_t e^{-rt} dt - K_0 - F \quad (5)$$

$$= \frac{(p - vg)}{r - g} q - \frac{awK_0^{-\mu} q}{r - (1 - \mu)g} - K_0 - F$$

$$V = \left[\frac{p - vg}{r - g} - \frac{awK_0^{-\mu}}{r - (1 - \mu)g} - v \right] q - F \quad (6)$$

since $K_0 = vq$. Simplifying, this becomes

$$V = \psi(p)q - F \quad (7)$$

where

$$\psi(p) = \frac{p - rv}{r - g} - \frac{aw(vq)^{-\mu}}{r - (1 - \mu)g}. \quad (8)$$

If one unit of managerial expertise is required per unit of initial capacity (and any overheads can be added to the fixed costs F) then the present value of rent per unit of expertise is

$$\frac{V}{q} = \psi(p) - \frac{F}{q}.$$

If the opportunity cost of expertise is e then it will be unattractive to invest in any country for which the maximum initial capacity, q , is smaller than q^* , where q^* solves

$$\psi(p) - \frac{F}{q^*} = e$$

or

$$q^* = \frac{F}{\psi(p) - e}. \quad (9)$$

Countries will then be ranked in order of decreasing attractiveness to MNC's, and whether a particular NEC will attract technology transfer will depend on its size (in the relevant sense), the price of the product, p , the supply price of expertise, e , the productivity of its labour and the wage rate (a and w), and the extent and type of its export linkages with other countries (which will affect F). Cheap labour is neither necessary nor sufficient for success in exporting manufactured goods in this model.

Relocation of MNC's from NIC's to NEC's

An MNC currently operating in a NIC can continue production, in which case its current management team remains tied to the NIC, or it can sell out to a local producer and transfer its expertise elsewhere. The following additional variables define the model:

- Q current output,
- γ rate of growth of demand, $\gamma < g$,
- λ expertise/unit of output, $\lambda < 1$,
- W wage costs per unit of output, constant,
- α discount factor when selling firm, $\alpha < 1$.

wage costs are assumed constant because increases in productivity are assumed to be offset by increasing wage rates, reflecting the tight labour market conditions of the NIC's. If the firm sells, the present value of the current capital stock, assuming no subsequent expansion, is

$$\left(\frac{p - W}{r}\right) Q$$

but it is assumed that only a fraction of this, α , would be realised. The net advantage of staying rather than moving is

$$V^S = \frac{\{(1 - s)p - W\}Q}{r - \gamma} - \frac{\alpha(p - W)Q}{r} - \lambda Qe \quad (10)$$

But $sp = v\gamma$, so

$$V^S = \left[\frac{p - v\gamma - W}{r - \gamma} - \frac{\alpha(p - W)}{r} - \lambda e \right] Q. \quad (11)$$

The effect of quota restrictions

Quotas have two effects on NIC's - they reduce the rate of growth of demand, γ , and possibly raise the market clearing price, p . This effect on V^S can be found by differentiating:

$$\frac{\partial V^S}{\partial p} = \frac{r - \alpha(r - \gamma)}{r(r - \gamma)} > 0 \quad (12)$$

$$\frac{\partial V^S}{\partial \gamma} = \frac{p - r\gamma - W}{(r - \gamma)^2} > 0 \quad (13)$$

(since $p - W > r\gamma$ if further investment is to be justified).

Thus lowering the growth rate will tend to encourage MNC's to move (at constant e) whilst raising the price (by the shadow price of the quota) will discourage movement. Fig. 1 graphs $V^S = 0$ and shows two possibilities. If the quota moves the firm from A to B, the MNC leaves, but if the movement is to C it stays.

In general the quota will affect the opportunity cost of experience, and it is possible to derive sharper conclusions if the alternatives facing the MNC are to stay in the NIC or move to the NEC.

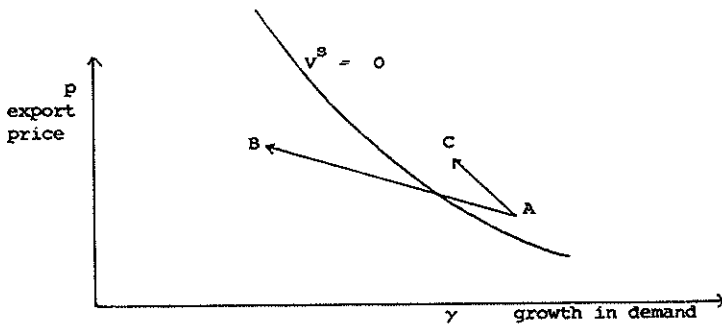


Fig. 1 - Effect of quota on MNC's location decision

Suppose before the quota the MNC were on the margin of indifference between staying and moving to a NEC of "size" q . This gives an expression for the opportunity cost of experience, e , from (11) and (9):

$$e = \frac{v^s}{\lambda Q} = X = \frac{V}{q} = \psi(p) - \frac{F}{q} \quad (14)$$

where

$$X = \frac{1}{\lambda} \left[\frac{p - v\gamma - W}{r - \gamma} - \frac{\alpha(p - W)}{r} \right].$$

This can be solved for q :

$$q^* = \frac{F}{\psi - X} \quad (15)$$

For any set of parameters, particularly p and γ , equation (15) defines the margin at which technological transfer will next occur. In Fig. 2, this value of q defines the threshold at which developing countries graduate to become NEC's, as a result of growth in GNP, increases in the size of the industrial sector, and improvement in the skill and commitment of the labour force. Country A reaches the threshold at time t_1 , country B at t_2 etc.

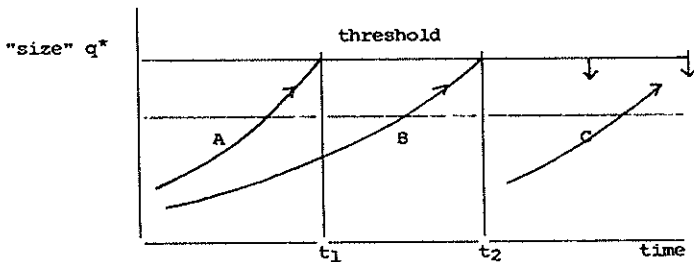


Fig. 2 - Graduation from LDC to NEC

Now we ask what happens to q^* as the quota is imposed. If the quota has no effect on the growth rate of NEC exports (which have not yet reached the limit set by the quota), then

$$\frac{dq^*}{dy} = \frac{F}{(\psi - \chi)^2} \frac{d\chi}{dy} = \frac{F}{(\psi - \chi)^2} \frac{1}{\lambda Q} \frac{dV^S}{dy} > 0$$

so a fall in the allowed NIC export growth rate unambiguously lowers the threshold, and hence will cause a shift of MNC investment to potential NEC graduates.

The effect of a rise in the export price p is given by

$$\frac{dq^*}{dp} = - \frac{F}{\lambda(\psi - \chi)^2} \left[\frac{\lambda}{r - g} + \frac{\alpha}{r} - \frac{1}{r - \gamma} \right]$$

If λ and/or α are high (near 1), then this will be negative so a rise in p will lower the threshold and cause MNC's to relocate to potential NEC graduates. Only if λ and α are both small will this effect be thwarted - that is if it is expensive to leave (low α) and would not release much managerial talent (low λ).

Conclusions

If the premises of the model are accepted then it seems that restrictive quotas such as the MFA cause MNC's to cease production in the NIC's earlier than they might have, and to switch to NEC's earlier. Given the considerable benefits this gives the favoured NEC, some of the harmful effects of protectionism may be somewhat allayed.

Table A1 - Manufactured Exports from NICs

Country ^a	% Share of Manufactures in Total Exports		Value of Manufactured Exports (US \$ billion)	%Growth Rates of Manufactured Exports to:			
	1973	1980		All Countries			OECD
	1973	1980	1980 ^b	1965-73	1973-77	1977-80	1977-80
Hong Kong	92.7	91.1	18.0	15.1	5.2	11.3	7.4
Taiwan	83.9	88.2	17.5	38.0	8.1	14.6	14.1
Korea	84.3	89.7	15.7	42.6	19.4	7.9	4.0
Singapore	44.3	46.7	9.0	17.1	8.6	20.9	14.5
Brazil	19.6	37.2	7.5	26.1	12.7	19.0	11.3
Yugoslavia	62.9	72.8	6.5	8.4	7.2	6.8	-0.3
South Africa	39.7	19.5	5.0	9.0	4.0	-7.9	3.3
Israel	73.4	81.9	4.5	12.2	10.2	8.5	8.7
Portugal	68.9	70.5	3.3	11.7	-8.5	17.1	15.5
Greece	36.9	47.4	2.5	29.8	13.3	7.3	8.9
Mexico	40.2	14.6	2.3	15.8	-2.1	6.4	7.1
Argentina	22.5	23.2	1.9	24.2	4.4	-2.0	-0.0
Spain	62.0	71.7	14.9	24.4	9.7	12.1	9.9
India	52.7	56.2	4.6	2.7	10.7	-3.9	0.6
Indonesia	1.8	2.3	0.5	79.9	17.2	24.9	25.6
Malaysia	11.5	18.1	2.3	15.9	14.1	20.5	16.3
Philippines	10.9	21.1	1.2	16.5	12.2	17.8	23.8
Thailand	16.3	25.0	1.6	27.7	10.7	23.5	18.2

Notes: (a) The countries listed all had manufactured exports of at least \$1 billion in 1977. The first 12 (Hong Kong - Argentina) are listed in rank order of their manufactured exports in 1980. Spain is regarded as an industrial economy by the World bank but is included as a NIC in some studies, while India came between South Africa and Israel in the general list but has been excluded from the group of NICs in the study.

(b) World Development Report 1983, Table 13. The figures for India, Mexico and South Africa are for 1979 while that for Taiwan relates to total exports rather than manufactured exports.

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