TRADE AND EMPLOYMENT

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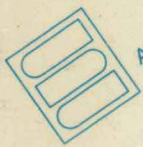
International Labour
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Trade
and employment

A study of the effects
of trade expansion
on employment in developing
and developed countries

H. F. Lydall

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PREFACE

The World Employment Programme, launched officially in 1969, represents the International Labour Organisation's major contribution to the International Development Strategy of the Second United Nations Development Decade. The aim of the World Employment Programme is to provide national policy makers and planners with practical guidelines that will enable them to accelerate the rate of growth of productive employment. The activities organised within the framework of this Programme comprise comprehensive and exploratory employment missions, an ambitious research effort and regional and country employment teams.

Although recognising the importance of the international factors, the World Employment Programme has been concerned primarily with reorienting *national* development strategies to generate fuller employment and greater equality in income distribution. It is, however, clear that national efforts and measures, no matter how well conceived, can be all too easily negated by an adverse external environment. For most developing countries the attack against poverty and unemployment can be assisted immeasurably by a favourable international framework. Its importance has recently been underscored by the adoption, at the Sixth Special Session of the General Assembly of the United Nations, of the Declaration on the Establishment of a New International Economic Order.

Within the ILO, the recognition of the interdependence between the objectives of fuller employment and equitable income distribution, on the one hand, and the operation of the international economic system, on the other, led to the unanimous adoption of a resolution at the 59th Session of the International Labour Conference concerning the convocation of a Tripartite World Conference on Employment, Income Distribution and Social Progress and the International Division of Labour. Similarly, in its research work, the World Employment Programme is devoting more resources to studies on the employment effects of the operation of the world economic system, including the international division of labour, the migration of workers and the activities of multinational enterprises.

Trade and employment

The present study by Professor H. F. Lydall, of the University of East Anglia, is one of the first results of these research activities. The main purpose of the study, which was carried out within the Economic Analysis Programme of the ILO, is to estimate the likely effects on employment in developed and developing countries respectively of an increase in exports of selected products from developing to developed countries. It highlights the very great contribution that trade liberalisation can make to the expansion of employment in developing countries, and its findings should be of great interest at a time when the world community is discussing the content and shape of the New International Economic Order.

ACKNOWLEDGEMENTS

CONTENTS

INTRODUCTION AND SUMMARY
OF PRINCIPAL RESULTS

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INTRODUCTION

At its 184th Session, in November 1971, the Governing Body of the International Labour Office requested the Director-General to arrange for the preparation of a study or studies aimed at: "(i) identification of the goods from the developing countries, liberalisation of the import of which into industrialised countries, in accordance with the relevant principles of the International Development Strategy of the United Nations, would have the greatest impact on the employment situation in the developing countries; (ii) assessing the effect on employment of increases or decreases in the importation of such goods by the industrialised countries; (iii) assessing the order of magnitude of the employment effects in both developing and industrialised countries."

Since the results of this study were desired by the end of 1973, it was necessary to limit its scope in certain respects. It was clear that the heart of the project should be the preparation of estimates of the likely effects on employment in developed and developing countries respectively of an increase in exports of selected products from developing countries to developed countries. The request of the Governing Body proposed that the products to be covered in the study should be those the "liberalisation of the import of which . . . would have the greatest impact on the employment situation in the developing countries". On a literal interpretation, this wording might suggest that the study should include a rather extensive investigation of the likely effects on trade patterns of a liberalisation by developed countries of their imports from developing countries. Since, however, such an investigation would have drawn resources away from the central task of estimating the employment effects of a change in trade patterns, it was decided to select the products for inclusion in this study mainly on the basis of prior information about the types of product which developing countries can supply most competitively to developed countries. Most of these types of product are at present restricted in their access to developed country markets either by tariff or by non-tariff barriers, and it is reasonable to assume that, if these barriers were reduced, there would be a substantial increase in exports of these products from developing countries to developed countries.

As regards manufactured and semi-manufactured products, a major source of information about the export potential of developing countries was the series of studies made by the United Nations Conference on Trade and Development (UNCTAD), and especially a study published in 1970 in which certain groups of products were suggested as being promising lines of export by developing countries at their present stage of development.[1] After consideration of this and other information it was decided to select 12 groups of manufactured and semi-manufactured products to constitute a fairly representative sample of products of special interest to developing countries. This sample contained some processed foodstuffs, some textiles, clothing and footwear products, some light engineering and metal products, and one or two other manufactured products of special interest.

The list of the 12 manufactured and semi-manufactured product groups included in the study is given in table 1. The first column contains the groups of products originally selected for inclusion, while the next two columns show the corresponding three-digit industries in the International Standard Industrial Classification.[2] In some cases these industries cover a wider range of products than those listed in the first column of the table, as is inevitable given the fact that industries nearly always produce a wide range of products. But, since the statistical data required for an analysis of the kind undertaken in this study can be obtained only from industry sources, it was necessary for operational purposes to work with industries rather than with more narrowly defined product groups. The implicit assumption is that the technical and economic coefficients derived from more widely defined industries can be applied, at least approximately, to major sections of their products.

It was the original intention that this study should also cover two primary products, namely rice and sugar. But it turned out that the methods appropriate for estimating employment requirements in agriculture are different from those which can be used in manufacturing. Consequently, it is hoped that the estimates of employment effects of trade liberalisation on primary products will form the basis of a separate report to be published at a later date.

Existing tariff and non-tariff barriers to the import of these 12 groups of products from developing countries vary between different developed countries and between product groups.[3] As is well known, there are severe import restric-

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[1] See UNCTAD: *Trade in manufactures of developing countries: 1969 review* (New York, United Nations, 1970; Sales No.: E.70.II.D.7), pp. 48 et seq.

[2] Because the most suitable data for this analysis relate to the year 1963 or thereabouts, the first revision of United Nations: *International standard industrial classification of all economic activities*, Statistical Papers, Series M, No. 4, Rev. 1 (New York, 1958; Sales No.: 58.XVII.7) was used rather than the later version introduced in 1968.

[3] The introduction of the generalised system of preferences by most major developed countries—but not, so far, the United States—has reduced tariff barriers on imports from developing countries of most of the products covered in this study. However, the schemes operated by the European Economic Community and Japan impose ceilings on imports of preferential items and are consequently expected to be of limited value in their present form as an incentive to the expansion of exports from developing countries.

Table 1. Manufactured products included in the study

Product group	Corresponding industry		
	ISIC[1] No.	Description	Short title of industry[2]
Meat preparations	201	Slaughtering, preparation and preserving of meat	Processed meat
Woven textiles	231	Spinning, weaving and finishing of textiles	Textiles
Knitwear	232	Knitting mills	Knitwear
Footwear	241	Manufacture of footwear	Footwear
Clothing	243	Manufacture of wearing apparel, except footwear	Clothing
Made-up textiles	244	Manufacture of made-up textile goods, except wearing apparel	Made-up textiles
Veneers and plywood	251	Sawmills, planing and other wood mills	Wood products
Vegetable oils	312	Vegetable and animal oils and fats	Oils and fats
Non-ferrous metals	342	Non-ferrous metal basic industries	Non-ferrous metals
Sundry metal products	350	Manufacture of metal products, except machinery and transport equipment	Sundry metal products
Electrical goods	370	Manufacture of electrical machinery, apparatus, appliances and supplies	Electrical goods
Precision instruments	391	Manufacture of professional, scientific, measuring and controlling instruments	Precision instruments

[1] United Nations: *International standard industrial classification . . .* (1958), op. cit.   [2] These short titles are used hereafter for convenience. They must always be understood to refer to the corresponding official ISIC industry group.

tions on imports of cotton textiles (including cotton clothing) from developing countries in most of the developed countries; and similar restrictions exist in certain developed countries on imports of footwear. Tariff and non-tariff barriers to the import of certain processed and unprocessed foodstuffs are also considerable in most developed countries. On the other hand, the barriers to imports of engineering products, such as metal products, electrical goods and precision instruments, are not normally very great. But the potential of developing countries to expand such exports is so important that it seemed useful to include them in the study, especially since the employment effects of an expansion of such exports would be likely to be extensive. Two other groups of products (veneers and plywood, non-ferrous metals) were included because of a combination of considerations, which suggested that an increase in their export might improve employment opportunities in certain developing countries.

Given the list of products to be covered in the study, the next problem was how to proceed with the investigation of the employment effects of an increase in the export of these products from developing countries to developed countries. To avoid burdening the inquiry with very complex questions about the responsiveness of trade flows to changes in tariff and non-tariff barriers, it was decided to proceed on the assumption that, by some method, a liberalisation of trade

between developed and developing countries would lead to an exact replacement of a given value of output of one of the selected groups of products in a developed country by an equal value of imports of products of the same type from developing countries. To take a particular example, it was assumed that an increase in imports by a developed country of footwear from developing countries valued at factory prices in these countries at $1 million would induce a reduction in output of footwear in the developed country to a value of exactly $1 million.[1] Whether and how such an exact replacement would occur are important problems; but they are problems in the area of international trade. Our study starts from the point where that matter häs been settled. Assuming that the replacement has taken place, we wish to know what are the effects of this replacement on employment in the importing and exporting countries respectively.

If $1 million of output of a given product X in country A is replaced by $1 million of imports of the same prôduct from country B, there is likely to be a long chain of repercussions on employment in each country. In principle, it would be necessary to consider each link in this chain separately before one could reach a final judgement on the total effects on employment in each country (and indeed in other countries). In practice, however, it is not possible to follow through all these repercussions over an indefinite period of time, and we were obliged to limit ourselves to considering some òf the more immediate effects.

In this study we have considered four sets of effects, which correspond to four "stages" in the analysis. In the first stage, there is a fall in activity in the industry which "produces" product X in country A and a corresponding increase in activity in the same industry in country B. These changes in activity within corresponding industries in each country produce what we have called the "initial" effects on output, employment and value added within each country. For example, a rise in imports of footwear into country A from country B will have the initial effect of reducing employment in the footwear factories in A and increasing employment in the footwear factories in B, while at the same time there will be corresponding changes in the amount of value added in each country's footwear factories. The estimation of the size of each of these initial effects constitutes the first stage of our analysis.

However, the industry which "produces" product X is only the industry which does the final part of the work on product X. If, as before, the product under consideration is footwear, the industry which "produces" footwear is normally thought of as the footwear industry. But the process of manufacturing shoes is only the final process in making shoes. The total value of a pair of shoes includes the value not only of the final manufacturing process but also of the leather, rubber, plastic, nails, glue, thread, fuel, electricity, transport and other inputs which are used by the shoe factory in making shoes. And each of these inputs in turn is either produced in some other domestic industry, where there

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[1] The corresponding values in the two countries are assumed to be at factor cost, i.e. exclusive of all indirect taxes and subsidies.

are not only initial effects on value added and employment but also requirements of inputs from other industries, or is imported. Hence, the value of a pair of shoes can be shown to be composed not only of the initial value added in the footwear industry itself but of value added in many other industries throughout the economy, together with the value of imports of materials, components and services which are used by the domestic industries in producing a pair of shoes. Similarly, the domestic labour requirements for producing a pair of shoes must include not only the initial labour used within the shoe factory but also the labour used to make the raw materials and components from which the pair of shoes is made, the labour used to make the materials and services needed to produce these materials, and so on indefinitely.

The estimation of these inter-industry, or "linkage", effects constitutes the second stage of our analysis. The linkage effects are estimated by means of input-output methods and, so far as domestic effects are concerned, they include both the effects on industries other than the final-processing industry (in which the initial effects made themselves felt) and any "feedback" effects on the final-processing industry itself. For example, the production of leather—or of other materials used in making shoes—may require an input of footwear. The total effects within the domestic economy up to this point, therefore, include: first, the initial effects on the final-processing industry; second, possibly some further "feedback" effects on the same industry; and third, other inter-industry effects on other industries.[1]

Apart from its effects on the domestic economy, an initial increase in the output of product X will usually have some effect on imports and exports. For example, an increase in the output of shoes may induce an increase in imports of leather, or of hides to make leather. Alternatively, if the country producing the shoes is normally an exporter of leather, or of hides, the effect may be to reduce its exports of these products by diverting them into the manufacture of shoes. When there are import (or negative export) leakages of this sort, the total effect of an original increase in the output of a given product on employment within the producing country's domestic economy will be less than it otherwise would be; and part of the effect will be transferred to other countries, which supply the additional imports or which are forced to do without the withheld exports.

Now the developing country which made the original exports of product X will have earned additional foreign exchange. The value of its net earnings of foreign exchange will be equal to the gross value of its exports of product X minus the value of any imports induced, or exports forgone, as a result of the exports of product X. These net foreign exchange earnings may be used for various purposes, ranging from the purchase of additional imports to the

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[1] In some input-output studies the first and second groups of effects are added together and called "direct" effects, while the third group of effects is called "indirect" effects. In this study it has been more convenient to call the first group of effects "initial" effects and the combined second and third groups of effects "linkage" effects.

repayment of debts, or even the export of capital to other countries. But it seems plausible to assume that the bulk of such net earnings of foreign exchange will be used to finance additional imports. Part of the foreign exchange may be needed to finance the import of capital equipment to expand production capacity, as a direct consequence of the increase in exports of product X. But if there is excess capacity in the country's industry to start with, or if the expansion of its exports encourages an inflow of capital to help to finance the expansion of its industrial capacity, most of the net foreign exchange earnings may be available to finance general imports of goods and services. In that case, it should be possible to expand aggregate demand (and hence employment) within the developing country by a multiple of the value of its exports of product X. For example, if the net foreign exchange earned by exporting $1 million of product X is $700,000; if all of this is available to finance general imports; and if the marginal propensity to import into the developing country is 0·25; then aggregate demand can be expanded within the country by a further $2·8 million. We call this the "multiplier" effect, and the estimation of the amount of extra employment created within developing countries by this secondary expansion of demand represents the third stage of the analysis.

Finally, we need to estimate the net repercussions of all these changes on the situation in the developed country which originally imported an additional amount of product X. The first effect, as we have assumed, will have been a reduction in the domestic output of X exactly equal to the value of the increased imports of X. This reduction in output will have had corresponding employment effects, both initial effects within the industry "producing" product X (the final-processing industry) and linkage effects throughout all the industries of the importing country. Some of these effects may, however, have been softened by foreign trade leakages, either through reduced imports of commodities no longer required to produce the reduced value of X, or through increased exports of such commodities, which have been diverted from use in domestic industry. In addition, on the assumption that developing countries spend the whole of the net proceeds of their increased exports to developed countries on additional purchases from these countries, there will be an "expenditure" effect on the exports of the developed countries. In that case, the net balance of trade of the developed countries as a group will be unchanged by the increase in their imports of product X, since the increase in their imports of X will be exactly offset by exports of other commodities. These exports will normally create a demand for employment in industries which are different from those which suffered a decline in employment as a consequence of the fall in output of product X, so that there will need to be a net shift of workers, and other resources, within the developed countries from one group of industries to another group of industries. The estimation of these expenditure effects—and hence the net employment effects—within the developed countries constitutes the fourth stage of the analysis.

The effects estimated in the first stages of the analysis, i.e. the initial effects and the linkage effects, are called "primary" effects. The effects which are

estimated in the third and fourth stages of the analysis, i.e. the multiplier and expenditure effects, are called "secondary" effects.

The above paragraphs give only a brief outline of the methods employed in this study. Further details will be found in subsequent chapters, especially in Chapter 2. It is nevertheless hoped that the above outline will be sufficient for an understanding of the following summary of the principal results of the study.

SUMMARY OF PRINCIPAL RESULTS

The results of the four stages of the analysis are summarised below. Before we proceed with these summaries, however, it is necessary to draw attention to three important assumptions which underlie the whole study. We conclude this chapter with some general remarks about our results and their implications.

Three assumptions

It has been necessary in this study, as it is in any practical empirical study, to make a number of simplifying assumptions. In most cases these are designed to limit the area of research so that resources may be concentrated on those aspects of the problem which are believed to be of primary importance. The main assumptions made, and the reasons for making them, are described in Chapter 2; but attention should be drawn from the beginning to three of these assumptions.

The employment effects of an increase in a country's exports or imports of a particular product inevitably depend on the special characteristics of that country. Hence, complete estimates of such effects can be made only by means of a comprehensive case study of the situation in that country. But case studies are very time-consuming and by their nature do not normally yield general conclusions. It was therefore decided to follow an alternative procedure in this inquiry: namely to classify countries by some index of their degree of development and to make estimates of the employment effects of changes in the trade of "typical" countries at various levels of development. The index of development used was gross domestic product (GDP) per head, expressed in United States dollars. Hence the estimates given below show the systematic influence of differences in GDP per head on labour requirements per unit of output in different industries (and also, for some purposes, the influence of population size).

The first important assumption is therefore that, on the average, countries with a given GDP per head respond in a predictable way to changes in their imports or exports, even though the response of each individual country in such a group is likely to differ from the average response. The use of this method also implies a belief that estimates prepared on this basis will be useful to individual countries and to the international community in considering the likely effects of employment, in developing and developed countries respectively, of a liberalisation of imports from the former to the latter group of countries.

The second important assumption is that measures of the value of output, value added, GDP and so forth can be compared in a meaningful way when converted into United States dollars at official or other prevailing exchange rates. There are well-known criticisms which can be made of such a procedure; but these criticisms are not thought to invalidate the use of this procedure in this case. It is not necessary to regard GDP per head in dollars as being an accurate measure of economic development, provided that it is a useful approximate *index* of economic development. The results of the study themselves suggest that this is the case, and also that dollar values of industrial output, value added and the like are, on the average, meaningful comparative measures of the volume of real product in given industries in different countries.

The third important assumption is that estimates of average labour requirements per unit of output or value added can be used to forecast the effects of changes in output or value added on the number of persons employed in a given industry or country. An objection which may be made to this assumption is that what is really needed are estimates of incremental labour requirements per unit of output or value added, and that incremental requirements are likely to differ from average requirements. More specifically, it may be argued that, when there is an increase in exports from a developing to a developed country, the enterprises which produce the exports in the developing country are likely to be above the average for that industry in their labour productivity, while the enterprises in the developed country which feel the greatest effects of the new imports are likely to be below the average for that industry in their labour productivity.[1]

There is probably a measure of truth in this contention, although we do not have any firm evidence on the matter. Some allowance for this effect has been made in our estimates for the developing countries, by using wherever possible data relating only to larger establishments (usually those employing either five or more, or ten or more, workers); but no similar adjustment could be made in the opposite direction for the developed countries. It is possible, therefore, that the figures given below of the effects on employment in the developed countries of an increase in their imports from developing countries are under-estimates.

Initial effects

In principle, we were concerned in this stage of the analysis to estimate the effects on employment in each of our 12 final-processing industries of a change in its gross output worth $1 million at factor cost. But in order to focus attention on the differences in labour requirements per unit of output in the final-processing industries it was convenient to ignore, at this stage, variations between countries in the proportion of value added to gross output in these industries.

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[1] Labour productivity (i.e. output per person engaged) is the reciprocal of labour requirements per unit of output, and it is sometimes convenient to make comparisons of productivity even although the ultimate objective is to estimate differences in labour requirements per unit of output.