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Trade liberalization and manufacturing employment

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Foreword

This paper is an output of the work on “global economic integration and employment policy” being carried out by the Employment Strategy Department. It focusses on the changing patterns of global trade flows and their consequences for manufacturing employment and wages in industrialized and developing countries. These are issues of considerable current interest for national policy makers, international organizations and the academic community alike. Although the issues have received much attention from researchers in recent years, the knowledge-base remains inadequate and no widely accepted conclusions have emerged. This paper, which is based on substantive empirical analysis, is expected to contribute to the developing knowledge-base and the ongoing international debates.

The main findings of the paper can be briefly stated as follows. In spite of the wide-spread adoption of trade liberalization policies, significant advances in transport and communication systems and rapid growth of cross-border capital flows, world trade and GDP have recorded decelerating growth over the past two decades. The reason very probably lies in the fact that a large majority of the developing countries, given their inadequate physical and social infrastructure, have been unable to benefit from trade liberalization. Analysis of the changing pattern of world trade shows that the really significant recent development is the emergence of a handful of developing economies as important exporters of manufactures. The employment and labour market effects of trade liberalization, therefore, have basically been felt in industrialized economies and in a handful of developing economies. In the case of industrialized economies, growth of manufactured imports from developing countries has had a small adverse effect on manufacturing employment but virtually no effect on wages. Thus unemployment and growing wage inequalities cannot really be attributed to trade. On the other hand, in those developing economies which emerged as important exporters of manufactures to industrialized countries, growth of trade had a large positive effect on manufacturing employment and wages. In some of these economies, moreover, growth of trade was also associated with declining wage inequality. Thus, on balance, the global effects of trade liberalization on manufacturing employment and wages appear to have been significantly positive even though there have been job-losers in both industrialized and developing economies. This means that the popular apprehensions about the effects of trade liberalization, though not wholly unfounded, are grossly exaggerated. The challenges that must be confronted, the study suggests, are those of enabling many more developing economies to benefit from trade liberalization and providing social assistance to job-losers in both industrialised and developing countries.

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1. Introduction

It is widely believed that trade liberalization has been a major cause of the growing inequalities between skilled and unskilled labour in industrialized countries. Since the late seventies, gaps between skilled and unskilled labour in terms of wages and/or unemployment rates have been widening in these countries. This has also been a period when barriers to international transactions have been progressively falling. Many economists argue that these developments are causally linked. Trade liberalization, the argument runs, has led to a shift of production base for unskilled-labour-intensive manufactures from industrialized to developing countries, thereby causing a decline in the demand for unskilled labour in the former. This has led either to a decline in the wages of unskilled labour or, if there are wage rigidities, to a rise in the unemployment rate of unskilled workers. There is also a fear (not always openly expressed) that these developments may not be just one-off in nature. Given the radically different age-structures of population, labour force growth will be much faster in developing than in industrialized countries in the foreseeable future. This will mean a declining trend in the ratio of skilled to unskilled workers in the world labour force. Given such a trend in an increasingly globalized world, many fear that it will be difficult to halt the decline in the fortunes of unskilled workers in industrialized countries.

The argument, derived from the standard theories of international trade, appears plausible enough but is not in fact strongly supported by the empirical evidence available so far.¹ There is virtual consensus among economists that two-way trade in manufactures between the industrialized countries of North America and Western Europe and the developing countries of Asia and Latin America has been growing since the mid-eighties; that less skilled workers in the industrialized world have been facing either declining real wages or rising unemployment or both; and that the growing gaps between skilled and unskilled workers in these countries are not adequately explained by the supply-side developments in their labour markets. But there is no consensus on the idea that the changes in trade patterns in fact explain the labour market developments. In the first place, there are controversies on appropriate methodology of using the available statistical data for assessing the effects of trade on labour markets. Secondly, most of the estimates (irrespective of the methodologies used) show the effect of trade to have been rather small.² Thirdly, the observed movements of relative prices do not seem to suggest trade as a major cause of labour market changes. Finally, a competing hypothesis, which focuses on the nature of autonomous technological change, appears to perform better in some respects in explaining the labour market developments.

For economists, therefore, the question of linkage between trade liberalization and the growing inequalities between skilled and unskilled workers in industrialized countries remains an open one. In popular perception, however, such a linkage tends to be treated as something already

¹ The literature is large, but it will suffice here to mention a few of the relevant studies. See Wood, 1994 and 1998; Slaughter, 1998; and Collins, ed., 1998. Useful summaries of the issues and the arguments are available in Wood, 1995; IMF, 1997; and ILO, 1995.

² Only one study (Wood, 1994) concludes that a large part of the change in the fortunes of the unskilled workers in industrialized countries is explained by trade in manufactures with developing countries.

firmly established.³ Moreover, while economists (both proponents and opponents of the argument) are virtually unanimous in suggesting that the real solution to the problem (to the extent that it exists) lies in “skilling the unskilled”, popular concerns have led to demands for protectionism and for global implementation of minimum environmental and labour standards.⁴ Meanwhile, labour market policies in many industrialized countries have increasingly been geared to cheapening unskilled labour for the employers through various forms of wage and employment subsidies, reform of social security and unemployment benefit systems, and flexibilization of labour markets.⁵

What is remarkable in all this is that debates on the subject have been largely about the effects of trade liberalization on labour markets in industrialized countries. The rather obvious implications of the same argument - that trade liberalization has had the effect of boosting manufacturing employment in developing countries and that unskilled workers in developing countries are the main beneficiaries of the process - have so far received inadequate attention in investigative work.⁶ Yet empirical substantiation of these propositions is obviously important for a balanced assessment of the ‘rights’ and ‘wrongs’ of trade liberalization. It is worth noting in this context that there are in fact serious apprehensions among policy-makers in many developing countries about the employment effects of trade liberalization. By emphasising global competitiveness, many feel, trade liberalization may encourage growth of capital intensity in the manufacturing sector as a whole, thereby reducing its capacity to generate jobs. Export-oriented manufacturing in developing countries is also often associated with low wages and poor working conditions and this too is a matter of concern.

³ Statements from well-known economists have sometimes served to deepen popular apprehensions. Here is a statement from Paul A. Samuelson: “As the billions of people who live in East Asia and Latin America qualify for good, modern jobs, the half billion Europeans and North Americans who used to tower over the rest of the world will find their upward progress in living standards encountering tough resistance.” Paul A. Samuelson quoted in Bhagwati and Dahejia, 1994.

⁴ Nobody doubts that achievement of minimum labour standards in all countries of the world and prevention of competitive debasement of labour standards are most desirable goals. What is open to doubt is the desirability of linking the attainment of these goals with trade. Doubts arise not only because quick implementation of “labour standards conditionalities” is virtually impossible (obviously, improving labour standards is not like adjusting budget deficits or exchange rates) but also because it is not at all clear what such “conditionalities” are expected to achieve. As we shall see below, gains from trade arise not from differences among countries in absolute labour standards but from differences in relative labour standards (for skilled vis-à-vis unskilled labour) which are determined by country-level labour supply conditions. In the most unlikely case where universal implementation of minimum labour standards actually serves to equalize relative labour standards across countries, trade based on comparative advantage will simply not occur. If, on the other hand, such action only raises labour standards for all types of workers without affecting relative labour standards, neither the nature nor the labour market effects of trade relations between industrialized and developing countries will change. In particular, the possibility of competitive debasement of labour standards will not be eliminated. In reality, therefore, implementation of minimum labour standards for all countries will either serve as a protectionist measure or leave the problems of unskilled workers in industrialized countries unaddressed.

⁵ See Standing, 1999 for a discussion of some of the schemes currently in operation in industrialized countries.

⁶ One of the few to have done such work is Wood (1994). Even in his study, however, the analysis of developing country situations suffer from many more limitations than the analysis of industrialized country situations.

These concerns and apprehensions, together with the unresolved controversies, define the backdrop for this paper. Its main objective is to study the effects of trade in manufactures between industrialized and developing countries on employment and wages in manufacturing. Though the main focus of the paper is on developing countries, the experiences of two important industrialized countries are also examined. Since the effects of trade in the two types of countries are thought to be symmetrical, it seems sensible to study them together. The reason for focussing on manufactures is that the theoretical predictions apply only to trade in competing products and this effectively means trade in manufactures.⁷ Moreover, it is the growth of trade in manufactures that gave rise to the current apprehensions and controversies. Trade between industrialized and developing countries, after all, is nothing new. What is new is the expansion of manufactured exports from developing countries. It is this development which explains why free trade, so strongly advocated by the industrialized countries for so long, has suddenly become a source of concern in those very countries.⁸

It is appropriate to state here that the paper focuses on trade liberalization and not on globalization. Expansion of trade is only one aspect of what is known as globalization; there are other equally important aspects such as growth of capital and technology flows. But capital and technology flows are considered in this paper only in so far as they contribute to expansion of trade or modify the effects of trade on labour markets. As the recent economic crisis of East Asian and Latin American countries have shown, however, growth of capital flows has created serious problems of economic instability, particularly for developing countries; these problems, in turn, have thrown up important analytical and policy issues. Investigations into such issues lie outside the scope of this paper.

2. Trade and manufacturing employment: The basic trade-theoretic argument

The argument that growth of two-way trade in manufactures between industrialized and developing economies - a relatively recent development - hurts unskilled workers in developed economies is derived from a textbook Heckscher-Ohlin-Samuelson-Stolper framework, with two countries (North and South), two factors (skilled and unskilled workers) and two goods (skill-intensive and unskilled-labour-intensive manufactures). Both North (industrialized countries) and South (developing countries) are assumed to have access to similar technologies. Labour is assumed to be completely immobile across national frontiers and the main difference between the two countries is assumed to lie in the skill composition of the labour force. North has a higher

⁷ When developing countries export primary products and import manufactures, as they have traditionally done, trade is in non-competing products. Trade in services is now growing, but there is a long way to go before two-way trade in services begins to generate significant labour market effects.

⁸ As Freeman observes, "In the 1960s and 1970s, many in the third world feared that trade would impoverish them, or push them to the periphery of the world economy; virtually no one in advanced countries was concerned about competition from less-developed countries. In the 1980s and 1990s, by contrast, most of the third world has embraced the global economy; whereas many in the advanced world worry over the possible adverse economic effects of trade." Freeman, 1995, p.15.

proportion of skilled workers in its labour force than South and hence has a potential comparative advantage in the production of skill-intensive manufactures. Correspondingly, South, with its relatively abundant supply of unskilled workers, has a potential comparative advantage in the production of labour-intensive manufactures.⁹

In the initial situation, characterized by trade barriers, both types of goods are produced in both countries in proportions determined by the composition of domestic demand. The relative prices and wages are determined by the domestic labour supply conditions in each of the countries. Thus the relative wage of skilled labour and the relative price of the skill-intensive good are higher in South than in North.¹⁰ Abolition or lowering of trade barriers under such conditions leads to a fall in the relative price of labour-intensive manufactures in North and to a fall in the relative price of skill-intensive manufactures in South, and each country moves towards specialization in the production of the good in which it has comparative advantage. Thus, in North, the production of skill-intensive manufactures expands and the production of labour-intensive manufactures contracts; the opposite happens in South.

In North, therefore, the demand for skilled labour rises and that of unskilled labour falls. So the relative wage of skilled labour will rise. Moreover, either the real wage of unskilled workers will fall so that technological adaptations lead to a lowering of the ratio of skilled to unskilled workers employed in the production of skill-intensive manufactures or, if labour market institutions and regulations prevent downward flexibility of wages, the rate of unemployment of unskilled workers will rise.

In South, the demand for unskilled labour rises and that of skilled labour falls. The result is a rise in the relative wage of unskilled labour and skilled workers must either accept unemployment or a lower real wage (so that skill-intensity of labour-intensive manufactures rises to ensure employment of surplus skilled workers).

It would seem, therefore, that South has a lot to gain and North has something to lose from free trade in manufactures. In South, employment-intensity of manufacturing output rises, employment opportunities for unskilled workers increase and wage inequality declines; all of these changes can be regarded as desirable. In North, on the other hand, all the changes seem to be undesirable: employment-intensity of manufacturing output falls, employment opportunities for unskilled workers decline and wage inequality rises.

A few qualifying remarks need to be added in order to put these conclusions in proper perspective. First, the argument is only that free trade leads to a convergence of relative prices and wages, not that it leads to an equalization of absolute prices and wages.¹¹ Absolute prices and wages can be (and generally are) substantially higher in North to start with and trade need not necessarily alter this. Second, although trade leads to a rise in wage inequality in North and to a fall in wage inequality in South, the result is not necessarily higher inequality in North compared

⁹ The standard Heckscher-Ohlin model in fact considers labour and capital as the two factors of production and the comparative advantage is either in capital-intensive goods or in labour-intensive goods. But now capital, both as machines and as finance, is highly mobile; hence it seems inappropriate to suppose that supply of capital in relation to labour can be a source of comparative advantage or disadvantage (though such a statement needs to be qualified, as we shall see later).

¹⁰ There is no need to assume away the possibility that all prices and wages may be lower in absolute terms in South than in North.

¹¹ The reference here is to some standard results in trade theory attributed to Stolper and Samuelson, 1941; and Samuelson, 1948 and 1949.

to South; all that happens is that a tendency towards North-South convergence in wage inequality is generated. It must not be forgotten that wage inequality is assumed to have been higher in South to start with. Finally, it is important to remember that the employment effects of trade liberalization as stated above are relevant only when trade is based on comparative advantage. Not all trade is explained by the factors emphasized by the Heckscher-Ohlin model. Much of the trade between North and South, for example, involves non-competing products; North exports manufactures and South exports primary products.

3. Some doses of realism

3.1 Non-traded goods

The standard model focuses exclusively on traded goods sectors. This obscures an important fact: many of the non-traded goods constitute part of the capital stock. Infrastructure - both physical (transportation, communications, electricity) and social (education, health, legal framework, institutions of financial and labour markets) - is a large part of the capital stock in any country. A country with a low level of infrastructure development is thus capital-poor. Moreover, although capital, as machines and as finance, is internationally mobile, this mobility cannot benefit countries with undeveloped infrastructure. In principle, machines and finance could flow into the infrastructure sector. In practice, this is unlikely; infrastructure takes a long time to construct and is not product-specific so that returns to investment are uncertain. Thus a country which is poor in terms of infrastructure development is most unlikely to attract capital flows; such a country is not only presently capital-poor but is also likely to remain so. Trade liberalization is most unlikely to enable such a country to emerge as an exporter of manufactures.

These observations suggest that trade liberalization need not open up fresh opportunities for many developing countries which are poor in terms of infrastructure development; sound macroeconomic policies, openness and fiscal incentives are not enough. As we shall see below, a large majority of the developing countries has in fact remained unaffected by the recent episodes of trade liberalization. All this, however, does not alter the effects of trade liberalization, predicted by the standard model, on employment and wages in the countries which are in a position to expand manufactured exports.

3.2 Surplus labour and dualism in developing countries

One assumption employed in deriving the conclusions above is that labour markets in industrialized and developing countries are similar; indeed, both types of countries are assumed to have full employment. These are extremely inappropriate assumptions. In the real world, developing countries have surplus labour and dualistic economic structure. There are large gaps in wages and working conditions between what might be called formal and non-formal sectors in these countries. Labour costs and relative wages of unskilled labour are substantially higher in the formal sector where government regulations and institutions of collective bargaining usually play a significant role in determining wages and employment conditions. In the non-agricultural sector as a whole, on the other hand, there is substantial excess supply of unskilled workers in relation to demand. Most unskilled workers work in the low-productivity non-formal sector where

they face serious underemployment and earn very low wages, and where government regulations and institutions of collective bargaining are conspicuous by their absence.¹²

One consequence of this kind of labour market dualism is that neither the ratio of skilled to unskilled workers nor the relative wage of unskilled workers in South's formal sector can be assumed to be significantly lower than those in North's aggregate economy. South's formal manufacturing sector has been built through import substitution under protectionist policy regimes. It uses technologies imported from North and its employment conditions are governed by regulations and institutions rather than by forces of demand and supply. Not surprisingly, it usually produces skill-intensive import-competing goods for sale in the domestic market rather than labour-intensive goods for export to North. It is true that there has been growing involvement of transnational corporations (TNCs) in formal manufacturing sectors of developing countries in recent periods. But such TNC investment has really been geared to supplying skill-intensive goods to markets of individual or groups of developing countries. In order to realize economies of scale in production, large-scale facilities for production of components and for assembly operations are set up in a group of countries located in close geographical proximity of one another. Thus arises trade among TNC subsidiaries and this largely intra-industry trade generally shows up as trade among developing countries. Only in a few cases (eg. post-NAFTA Mexico-US trade) does such trade show up as trade between industrialized and developing countries.¹³

The point is that, as a general rule, South's formal manufacturing sector is typically import-competing. It enjoys no comparative advantage vis-à-vis North's manufacturing sector and is not in a position to export its products to North. This means that South's exports of labour-intensive manufactures originate basically in the non-formal sector, at least in initial stages. This explains why export-oriented manufacturing production is so often associated with low wages and poor working conditions.¹⁴ In these circumstances, North-South trade in manufactures would have the predicted unfavourable effects on employment and wages of unskilled workers in North but could conceivably fail to generate the predicted beneficial effects in South.

It is not difficult to see that the initial conditions of employment and labour supply in South's non-formal sector could easily pre-empt the possibility of wage increases for unskilled workers. There is no reason to suppose that emergence of export-oriented manufacturing is sufficient to tighten the non-formal labour market; the scale and pace of growth of such manufacturing would clearly matter. It might seem, however, that employment opportunities for non-formal sector workers would increase irrespective of what happens to wages. But even this

¹² These observations remain valid even if we accept Wood's (1994) point that unskilled workers are those with basic general education and not those who are illiterate. The illiterate workers, according to Wood, "are generally unsuited to manufacturing and other modern activities, which require at least literacy or primary schooling". (p.49)

¹³ Strictly speaking labour market effects of this kind of trade is not under investigation here.

¹⁴ It should be emphasized that non-formal sector, as defined in this paper, is one where government regulations and collective bargaining institutions do not play any significant role in determining wages and working conditions. It includes traditional as well as modern manufacturing enterprises which are often referred to as "small and medium enterprises" in the literature. To keep things in perspective, it should be said that wages and working conditions in export-oriented manufacturing, generally speaking, seem poor when compared to those in formal manufacturing but seem at the same time substantially better when compared to the rest of the non-formal sector.

is not certain. Since South's formal sector is engaged in producing import-competing products in which North has potential comparative advantage, trade liberalization could adversely affect the output of that sector. This could mean redundancy not only for skilled workers but for unskilled workers as well. Since the redundant unskilled workers from the formal sector are likely to move into the non-formal sector in search of work, it cannot even be argued *a priori* that employment opportunities (at the prevailing wages) for unskilled workers would necessarily improve as a result of trade liberalization. In principle, wage inequality could still decline since declining demand for skilled workers could put downward pressure on their wages. But, as already noted, wages of skilled workers (who are mostly in the formal sector) in South are determined by government regulations and collective bargaining rather than by forces of demand and supply. Trade liberalization, therefore, is most unlikely to reduce wage inequality except when it stimulates export-oriented manufacturing to such an extent that excess supply of unskilled labour in the non-formal sector is wiped out so that wages of unskilled workers begin to rise rapidly.

3.3 International labour mobility

In the real world, labour is not immobile across national frontiers as assumed by the Heckscher-Ohlin model. International migration exists, though the scale is not perhaps large enough to warrant a relaxation of the assumption. Indeed, one of the major contrasts between the current period of globalization and an earlier period (1880-1914) lies precisely in the area of international migration. In the earlier period, massive migration of mostly unskilled workers from the-then labour-surplus economies of Europe (Denmark, Ireland, Italy, Norway and Sweden in particular) to labour-scarce economies of the New World (Argentina, Australia, Canada and the United States in particular) helped the economic transformation of both sets of countries.¹⁵ The current period offers no such opportunities.

In today's world, flows of both types of labour typically are (and will continue to be) from South to North for relatively obvious reasons; wages of both skilled and unskilled labour are substantially higher in North (and will remain so in the foreseeable future). In fact, even though the overall level of international migration has remained fairly stable in the post-war period, the level of North-North migration has been declining while that of South-North migration has been rising at least since the mid-sixties.¹⁶ But South-North flow of unskilled labour has been increasingly restricted by North mainly because it has been viewed as a cause of unemployment, wage decline and social disruptions. Only the United States, alone among the industrialized countries, still receives a substantial inflow of unskilled migrants from developing countries. There are much less restrictions on South-North flow of skilled workers; this flow is substantial and has very probably been rising. One recent study¹⁷ shows, for example, that 56 per cent of the migrants from developing countries in the United States had a secondary education and another 36 per cent had tertiary education; the percentages are similar for the migrant population in Western Europe, Canada and Australia. This type of migration, often dubbed "brain-drain", is a source of concern in South.

¹⁵ See Williamson, 1998.

¹⁶ See Skeldon, 1997, and Zlotnik, 1998.

¹⁷ Carrington and Detragiache, 1998.

In recent years, rapidly declining costs of travel and telecommunication have brought into existence a new kind of mobility - mobility of skills - that does not involve migration. Professional skills can now be made available through consultancy services, periodic short visits of experts, electronic mail, video conferences, etc.; none of this requires the experts to reside in a particular country. Flow of skills of this type can in principle be either North-South or South-North precisely because permanent migration is not involved. The existence of such flows, however, essentially facilitates transfer of technology and hence justifies the assumption that all trading economies have access to similar technologies.¹⁸ Analytically, these flows are quite distinct from actual migration of skilled workers and can be left out of account in considering the effects of international mobility of labour.

Effects of international migration depend on its scale. Emigration of unskilled workers from labour-surplus South can potentially make it labour-scarce; this benefits unskilled workers in South and strengthens the tendency for wage inequality to decline.¹⁹ In North, however, immigration of unskilled workers can clearly accentuate the unfavourable effects of trade liberalization on employment conditions of unskilled workers by augmenting supply at a time when demand is falling.²⁰ This also has the effect of strengthening the tendency for wage inequality to rise.

South-North migration of skilled workers has quite different effects. The increased demand for skilled workers in North in the wake of trade liberalization can, in principle, be met through immigration from South. This could have the effect of moderating the growth of wage inequality in North. The effect on unskilled workers in North is likely to be inconsequential. On the one hand, the ready availability of skilled workers from South would help expand production of skill-intensive goods in the short run and thus create immediate opportunities for redeployment of some of the redundant unskilled workers from the import-competing sector. On the other hand, there is little need now for technological adaptations in the export-oriented sector that could facilitate absorption of some of the redundant workers from the import-competing sectors.

But South-North migration of skilled workers has unfavourable consequences for South.²¹ In the first place, it reduces the already low ratio of skilled to unskilled workers. This may not always matter in the short run but can obviously constrain economic transformation in the medium-term. In the short run, such migration counters the effect of any decline in demand for skilled workers resulting from trade liberalization. Given the prevailing labour market conditions in South, this may actually increase wage inequality.

The conclusions that follow from this brief discussion are as follows. International mobility of skilled workers is potentially good for North because it curbs the growth of wage inequality without hurting unskilled workers; it is potentially bad for South because, apart from worsening the skill composition of the work force, it might actually increase the already high wage inequality. International mobility of unskilled workers, on the other hand, is potentially bad for North because it hurts unskilled workers and thereby amplifies the growth of wage inequality; it is potentially good for South because it benefits unskilled workers there and hence can reduce wage inequality. Given

¹⁸ See Wood, 1994 for an elaboration of the point.

¹⁹ The experiences of countries such as Denmark, Ireland, Italy, Norway and Sweden in the late nineteenth and early twentieth centuries illustrate the point. See Williamson, 1998 for a discussion.

²⁰ At least one study argues that immigration may have been a more important cause of declining wages of unskilled workers in the United States than trade liberalization. See Borjas, Freeman and Katz, 1996.

²¹ See Haque and Kim, 1995 for an analysis.

that skilled workers are far more internationally mobile than unskilled workers in today's world, it can be said that international migration tends to counter the effects of trade on wage inequality in both North and South. It can also be said that the current pattern of international migration has the effect of widening the North-South gap in terms of skill composition of labour force.

3.4 Aggregate employment in manufacturing

In order to understand the effect of trade liberalization on aggregate employment in manufacturing, the question of gains from trade needs to be probed. In textbook expositions, lowering of trade barriers automatically allows both countries to attain higher consumption levels, i.e., global aggregate demand for (and hence production of) both goods rises. But this is only a possibility, not a certainty. That trade-induced specialization increases global productive potential is not in doubt. But it is certainly not obvious that such specialization also increases global demand. Since lowering of trade barriers leads to changes in both relative prices and income distribution, the net effect of trade on global demand for the products involved cannot in fact be predicted.

Some simple examples illustrate the point. Suppose that skilled workers consume only skill-intensive goods while unskilled workers consume only labour-intensive goods. In North, incomes of the skilled workers increase but the relative price of the skill-intensive good also rises so that the effect on domestic demand for the skill-intensive good is ambiguous. In South, the relative price of the skill-intensive good falls but incomes of the skilled workers also decline so that, once again, the effect on demand for the skill-intensive good is ambiguous. Exactly similar arguments can be made in the case of the labour-intensive good.

What these simple examples suggest is that trade liberalization can conceivably be associated with stagnation or even decline in the global demand for the goods involved even though the export sectors of participating countries will experience demand growth. This means that manufacturing employment at the global level could decline. If this happens, manufacturing employment will also decline in North where the employment elasticity falls as a result of trade liberalization (because of the declining weight of labour-intensive manufacturing in total manufacturing); job losses in labour-intensive sectors cannot be fully neutralized by job gains in skill-intensive sectors. Manufacturing employment in South, where the employment elasticity should rise as a result of trade liberalization (because of the growing weight of labour-intensive manufacturing in total manufacturing), may still increase; the likelihood that job gains in labour-intensive manufacturing would exceed job losses in skill-intensive manufacturing is strong. But the magnitude of such gains is unlikely to be large when global demand for the labour-intensive good falls.

The observations above do not take account of the second-order effects of trade liberalization. In the case of South, if trade liberalization stimulates export growth, then this may ease the "foreign exchange constraint" and thus stimulate growth of the manufacturing sector as a whole.²² It is also possible for this growth effect to be dominant so that employment increases in all industries including import-competing industries. It is difficult to hypothesize this kind of a growth effect in the case of North since a binding "foreign exchange constraint" cannot be plausibly assumed.

Another possibility that must be reckoned with is that, in the wake of trade liberalization, capital from North may flow into the import-competing sector in South through activities of TNCs.

²² See Chenery and Strout, 1966, for elaboration on the notion of "foreign exchange constraint".

This possibility is strong if there are large domestic or regional markets to exploit. Such capital flows also create possibilities of employment growth in the manufacturing sector as a whole.

When these second-order effects (which would generally be lagged) are taken into account, it does seem that aggregate manufacturing employment cannot but substantially increase in South. This has two important implications. First, it can no longer be asserted that trade liberalization reduces the demand for skilled workers in South. Second, a decline in South's demand for the skill-intensive good exported by North becomes unlikely. On the whole, therefore, trade liberalization should increase global aggregate demand for manufactures, although a temporary decline cannot be ruled out since adjustment lags are involved.

3.5 A summing-up

There are good reasons to think that growth of trade in manufactures with developing countries will reduce real wages and/or employment of unskilled workers, increase wage inequality and reduce employment elasticity in the manufacturing sector of industrialized countries. It is much harder to find good reasons to expect symmetrical labour market consequences of trade in developing countries. The only theoretical conjecture that can be made with some confidence is that the employment elasticity in manufacturing will rise. Given the existence of substantial surplus labour and dualistic labour markets in these economies, growth of trade in manufactures may neither increase wages of unskilled workers nor reduce wage inequality. International mobility of labour, given its current characteristics, could counter the growth of wage inequality in North but further reduces the possibility of decline in wage inequality in South.

The effect of trade on aggregate employment in manufacturing cannot be predicted *a priori* for either industrialized or developing countries. The only thing that can be said is that the probability of aggregate employment rising is significantly higher for developing countries because growth of exports increases the employment elasticity in manufacturing, eases the "foreign exchange constraint" and may induce capital inflows from North.

It is worth emphasising that trade in this context refers to trade based on Heckscher-Ohlin comparative advantage. Labour market effects of trade in manufactures arising in response to consumer tastes for variety or from attempts by TNCs to reap benefits of increasing returns to scale may well be different and are not being explored in this paper.

4. The changing pattern of world trade²³

That a process of trade liberalization has been under way since the late seventies can hardly be doubted. Both natural and policy barriers to trade have been falling.²⁴ There have been fairly dramatic improvements in transport, telecommunication and information technologies. Most governments have pursued trade liberalization policies. Tariffs have increasingly replaced quantitative restrictions and import duties have been declining in most countries of the world (Figure 1) since the late seventies; these processes, moreover, were bolstered by the agreements

²³ The discussion in this section is based on the statistical data presented in Appendix Tables 1.1-1.15.

²⁴ Evidence and discussions are available in UNCTAD, 1997 and 1999; IMF, 1997; World Bank, 1999; and WTO, 1998.

from the Uruguay Round of GATT negotiations and the establishment of WTO in 1994. Since the mid-eighties, global capital flows have also shown a particularly sharp rise. As Figure 2 indicates, growth of flows of foreign direct investment was far sharper during 1985-95 than during 1970-85.

The surprise is that these rather dramatic changes do not seem to have induced any dramatic change in the growth of world trade. World exports grew faster than world GDP throughout the period 1960-96. As Figure 3 shows, however, though the share of exports in world GDP showed a rising trend, this was a steady, long-term trend. No significant deviation from the long-term trend is observed either in the eighties or in the nineties. Manufactured exports also grew faster than other exports during 1960-96, but this trend too has been steady and long-term in character (Figure 4). Thus both the rate and the pattern of growth of world trade appear to have been roughly the same in the eighties and the nineties as they had been in the sixties and the seventies.

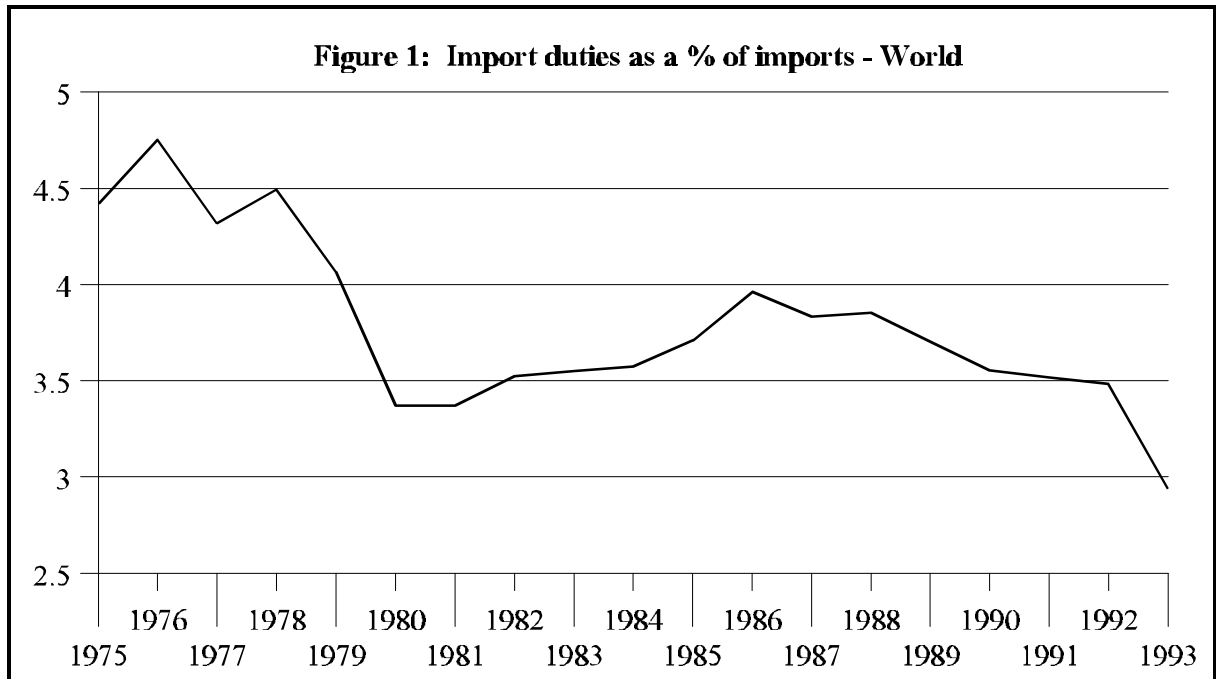
It must also be noted that throughout the period 1960-95, the growth of world GDP has been steadily decelerating. This means that the rising share of exports in GDP did not necessarily mean accelerating or even stable growth of world trade. In fact, since the share of exports in GDP grew at a steady pace over the long run, it is fairly obvious that the growth of world exports has been decelerating in much the same way as the growth of world GDP. Increasing liberalization of trade apparently has had no stimulating effect either on the growth of world exports or on the growth of world GDP. One is left wondering why trade-related issues have received so much attention in recent years.

Things begin to look different once attention is focussed on trade relations between industrialized and developing countries. Since the beginning of the eighties, the degree of export-orientation (as measured by the share of exports in GDP) of the *industrialized* economies²⁵ has changed little while the *developing* economies²⁶ have become increasingly export-oriented. By the mid-nineties, the *developing* economies were far more export-oriented than the *industrialized* economies. A consequence was that, since the late eighties, the *developing* economies steadily increased their share in world merchandise exports while the share of the *industrialized* economies declined. More significantly, the share of manufactures in merchandise exports increased at a faster rate for the *developing* economies than for the *industrialized* economies throughout the eighties and the nineties. Thus the share of the *developing* economies in world export of manufactures steadily increased – from 12 per cent in 1980 to 25 per cent in 1996 – while the share of the *industrialized* economies steadily declined – from 83 per cent in 1980 to 72 per cent in 1996.

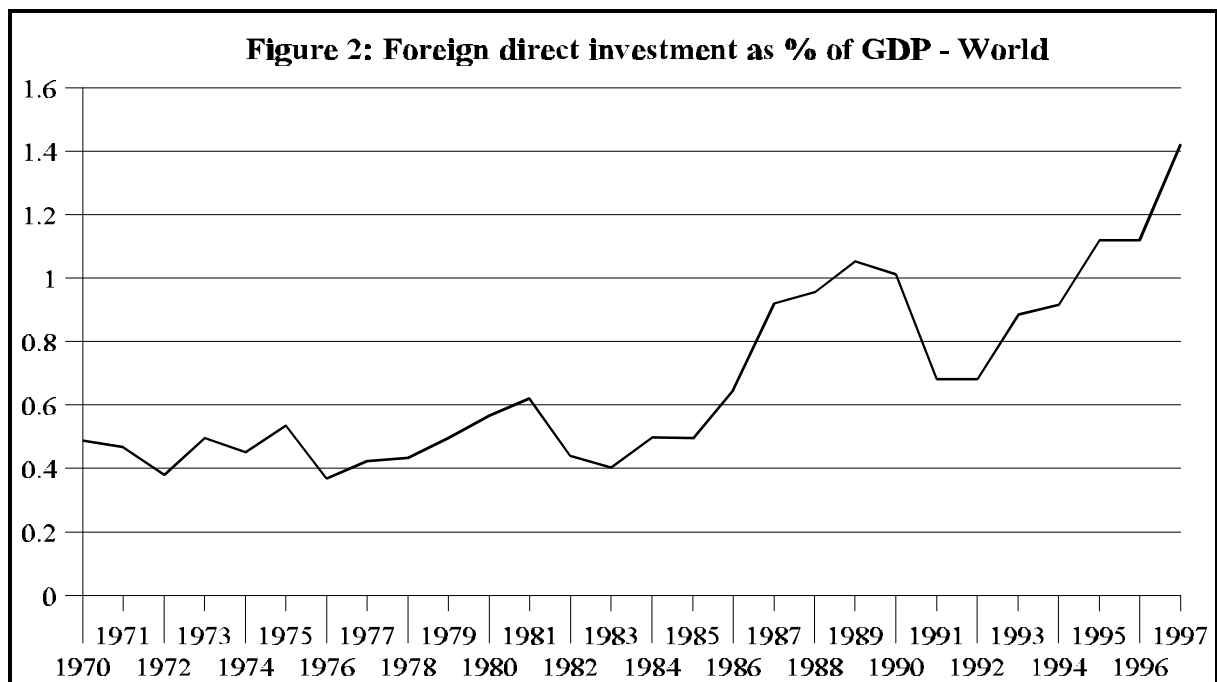
Three further observations can be usefully added. First, throughout the eighties and the nineties, trade liberalization was occurring basically in the *developing* economies since the *industrialized* economies were already very open by then (though the use of non-tariff restrictions such as anti-dumping measures showed a tendency to rise in the latter). Second, the *developing* economies received an increasing share of global inflows of foreign direct investment particularly in the nineties; this share rose from 23 per cent in 1970 to 31 per cent in 1995 and further to 38 per cent in 1997. Correspondingly, the share of the *industrialized* economies declined from 76 per cent in 1970 to 63 per cent in 1995 and further to 55 per cent in 1997. Third, the two groups also

²⁵ The *industrialized* economies are defined, here and throughout the rest of the paper, to include Australia, Austria, Belgium, Canada, Denmark, Finland, France, Germany, Greece, Iceland, Ireland, Italy, Japan, Luxembourg, Netherlands, New Zealand, Norway, Portugal, Spain, Sweden, Switzerland, United Kingdom and United States.

²⁶ The *developing* economies are defined, here and throughout the rest of the paper, to include all countries of Asia-Pacific except Japan, Australia and New Zealand, and all countries of Latin America and Africa.



differed significantly in terms of growth performance. The *industrialized* economies were experiencing decelerating growth while the *developing* economies sustained more or less steady growth. Decelerating global economic growth basically reflected decelerating growth in the



industrialized economies.



It would appear that globalization is really about changing trade relations between the *industrialized* and the *developing* economies rather than about rapid expansion of world trade as such. Even this proposition, however, turns out to be incorrect on closer inspection. For, much of the observed changes in trade relations actually reflect shifts in the position of a small number of *developing* economies (henceforth referred to as the *Group of 13* economies) in the global market place.²⁷

The performance of the *Group of 13* economies in terms of export expansion was indeed very impressive. Between 1970 and 1995, the share of exports in GDP increased from just 8 per cent to 31 per cent and the share of manufactures in total exports increased from 22 per cent to 66 per cent. Their share in total exports from the *developing* economies increased from 39 per cent in 1970 to 74 per cent in 1995, that in merchandise exports increased from 33 per cent in 1980 to 72 per cent in 1996 and that in manufactured exports increased from 73 per cent in 1980 to 88 per cent in 1996. Their share in total flow of foreign direct investment into *developing* economies rose from 47 per cent in 1970 to 82 per cent in 1995. Though a few of these economies suffered economic fluctuations, on the whole they sustained higher growth than the rest of the world throughout the period 1960-95.

The recent episodes of trade liberalization and globalization, therefore, have been associated with dramatic changes not so much in economic relations between the *industrialized* and the *developing* economies as in economic relations between the *industrialized* economies and a few dynamic *developing* economies. The nature of economic relations between the *industrialized* economies and the rest of the developing world (i.e., excluding the *Group of 13* economies) – henceforth referred to as the *other developing* economies – remains largely unaltered. For the latter, the share of exports in GDP remained stable between 1975 and 1995. They made little progress in increasing manufactured exports and consequently remained exporters of primary products and importers of manufactures. The international division of labour between them and the *industrialized* economies underwent no major qualitative change.

An analysis of the changing patterns of trade in manufactures provide additional insights. Till the late-eighties, the importance of trade in manufactures among the *industrialized* economies was rising and, correspondingly, the percentage of manufactured exports from the *industrialized* economies going to the *developing* economies was declining. The trends were in the opposite direction in the nineties. The result was that in 1996, the shares of manufactured exports from the *industrialized* economies going to, respectively, the *industrialized* (70 per cent) and the *developing* economies (26 per cent) were roughly the same as in 1980. An important change had nevertheless occurred. Since the late-eighties, the *Group of 13* economies became increasingly important destinations for manufactured exports from the *industrialized* economies; correspondingly, the percentage of these exports going to the *other developing* economies remained virtually constant.

The share of manufactured exports from the *Group of 13* economies going to the *industrialized* economies increased till 1987 and then declined fairly steadily while the share going to the *other developing* economies declined till 1987 and then remained roughly stable. Most remarkably, trade in manufactures among the *Group of 13* economies was growing at a consistently

²⁷ The thirteen *developing* economies are: Argentina, Brazil, China, Hong Kong (China), India, Indonesia, Republic of Korea, Malaysia, Mexico, the Philippines, Singapore, Taiwan (China) and Thailand. Several of these countries and regions are now regarded as industrialized, and the Republic of Korea and Mexico are members of the OECD.

rapid pace since the late-eighties. By 1996, the share of manufactured exports from the *Group of 13* economies going to the *industrialized* economies was 55 per cent, the share going to the *Group of 13* economies was 36 per cent and the share going to the *other developing* economies was only 7 per cent.

It is worth noting that the pattern of trade between the *Group of 13* economies and the *other developing* economies has come to resemble that between the *industrialized* economies and the *other developing* economies. It is evident from the indicators of balance of trade in manufactures that the *other developing* economies export mainly primary commodities to both groups and import mainly manufactures from both groups. Between the *industrialized* economies and the *Group of 13* economies, on the other hand, trade now occurs basically in manufactures and this trade has been roughly balanced since the mid-eighties.

What these facts very clearly bring out is that, for empirical investigation into the issues with which this paper is concerned, it is adequate to focus on the group of *industrialized* economies on the one hand and a group of just thirteen *developing* economies on the other. Globalization has not meant explosive growth of world trade, nor has it meant a radical change in the age-old international division of labour between the *industrialized* and the *developing* economies. It has only underlined the emergence of a small number of the *developing* economies as important players in the world economy.

The fact that a large majority of the *developing* countries derived little benefit from trade liberalization is sometimes referred to as marginalization. It needs to be said that the term has a special meaning in the current context. It is not that a large majority of the *developing* countries are getting poorer, nor that their exports have ceased to grow. But they have been unable to shift their export-base from primary commodities to manufactures; the most likely reason is the low level of infrastructure development.²⁸ They are getting marginalized in the sense that the importance of their exports in the world economy is declining.

5. Trade and manufacturing employment: Empirical analysis

5.1 Database and methodology

The empirical analysis that follows is concerned with labour market effects of trade in manufactures between the industrialized economies and the Group of 13 economies. The first step in this analysis is identification of typical items of export and import for both groups of economies. This is particularly important in the context of this paper. Given that the theoretical propositions at issue apply (strictly speaking) only to trade in manufactures between countries at different levels of development, use of general indices such as the degree of export-orientation or of import penetration for classifying industries or products for purposes of empirical analysis would clearly be inappropriate. As noted above, a large part of the world trade in manufactures takes place among countries that are structurally similar; labour market effects of such trade, which is not based on Heckscher-Ohlin comparative advantage, are not under investigation here. Serious efforts

²⁸ The theoretical basis for this argument has already been stated. Empirical substantiation, though obviously important, is not attempted here.

were, therefore, made to identify the typical items traded between the industrialized economies and the Group of 13 economies.

The methodology and the database used to identify the typical items of export and import for the economies under consideration can be briefly described as follows. From the detailed statistics on value and direction of trade available from UN sources, the major manufactured items (at 4-digit level of classification) which the *industrialized* economies export to the *Group of 13* economies and those which the *Group of 13* economies export to the *industrialized* economies were first identified.²⁹

A parallel exercise was carried out to categorize industries (at 4-digit level of disaggregation) as export-oriented or import-competing or others; the index used for the purpose was “net exports (exports – imports) as percentage of output”. The UNIDO database on demand-supply balance for 4-digit level industries was used for the purpose of this exercise.³⁰ A significant positive value for the index was taken to indicate export-orientation and a significant negative value was taken to indicate import-competition.³¹

The list of export-oriented industries for each of the economies, emerging from the second exercise, was then compared with the list of important export items for the economy concerned, emerging from the first exercise, and a final list of export-oriented industries was derived from this comparison. Similarly, the list of import-competing industries for each of the economies, emerging from the second exercise, was compared with the list of export items of trading partners (the *industrialized* economies in the case of the *Group of 13* economies and *vice versa*), emerging from the first exercise, and a final list of import-competing industries was derived from this comparison. This methodology ensured exclusion of industries exporting to or competing with imports from other economies within each of the two groups from the lists of “export-oriented” and “import-competing” industries.³²

²⁹ The detailed (at 4-digit level of industrial classification) statistics on value and direction of trade have been compiled in a convenient format by STATCAN – the Statistical Office of Canada. These statistics were used to compute, for each of the *Group of 13* economies, total manufactured exports to the *industrialized* economies and the share of each of the 4-digit items in the total. Similar calculations were done for the manufactured exports of the *industrialized* economies to the *Group of 13* economies. The items were then arranged in descending order of importance (as indicated by the share of each of the items in total manufactured exports) and a cut-off point was chosen for each case. The items selected in this manner generally accounted for between 70 and 80 per cent of total manufactured exports. The exercise was carried out for four years – 1980, 1985, 1990 and 1995 – and the items commonly appearing in at least two of these four years were finally chosen as the typical items of export.

³⁰ The database provides information on values of output, export and import for each of the 4-digit industries.

³¹ Cut-off points had to be defined for determining significance or insignificance of the values of the index. For the purpose, two ratios were used as rough guidelines – the ratio of exports to output and the ratio of imports to output for the entire manufacturing sector. The underlying idea is that trade orientation of a particular branch of manufacturing can be defined only with reference to trade orientation of the manufacturing sector as a whole. It would obviously be absurd to use the same cut-off points for Korea (Rep) and China.

³² It needs to be stated, however, that although both sets of data were available at 4-digit level of disaggregation, they did not use the same classification scheme. Consequently, judgements on rough comparability of the categories had to be made. Though such judgements cannot obviously guarantee full accuracy, all efforts were made to reduce the level of inaccuracy. The final lists of export-oriented and import-competing industries for individual countries are presented in Appendix 2.

In the exercises described above, “food, beverages and tobacco” industries and petroleum-related industries were deliberately left out of account. The reason is that these tend to be resource-based industries and trade in them does not necessarily reflect comparative advantage in Heckscher-Ohlin sense. Keeping the analytical possibilities in view, manufacturing industries in each of the economies were finally classified into five groups: “food, beverages and tobacco”, “petroleum and related”, “export-oriented”, “import-competing” and a residual group called “others”.

This five-fold classification of industries is used together with a different database – the UNIDO database on industrial statistics – to analyse the effects of trade in manufactures on labour. This database provides information on employment, wages, output and value added for 4-digit manufacturing industries for a large number of countries. Unfortunately, however, reasonably complete data are available only for some of the relevant developing economies – India, Indonesia, Korea (Rep), Malaysia and the Philippines. In the case of the *industrialized* economies too, the data on France, Germany and the United Kingdom were inadequate. Given these limitations, the analysis using data for 4-digit manufacturing industries is carried out for seven economies – India, Indonesia, Japan, Korea (Rep), Malaysia, the Philippines and the United States.

The UNIDO database on industrial statistics, however, also provides information for 3-digit manufacturing industries and reasonable amounts of data are available for Argentina, China, Mexico, Taiwan (China) and Thailand. Given the importance of the economies concerned, it seemed sensible to use these data. For the purpose, the five-fold classification of 4-digit manufacturing industries had to be translated into a five-fold classification of 3-digit manufacturing industries. This could be done only by applying a sort of “majority principle” – a 3-digit industry was placed in one of the five categories if a majority of the corresponding 4-digit industries belonged to that category. It is obvious that there is a loss of accuracy involved. This cannot be helped. It has to be accepted that the results derived from the analysis of 3-digit manufacturing industries are somewhat less reliable than those derived from the analysis of 4-digit manufacturing industries.

It will be noted that Hong Kong (China) and Singapore are being left out of account. This is deliberate. One reason is that, being essentially port cities, these are rather exceptional cases. Another reason is that it is quite difficult in practice to classify industries in the requisite categories. In both cases, substantial parts of trade involve imports for re-export, but the available data do not distinguish imports for re-export from other imports or re-exports from other exports.

5.2 Factor content of exports and imports

The point of departure for analysis of labour market effects of trade is the hypothesis that developing countries export unskilled-labour-intensive manufactures to industrialized countries while industrialized countries export skill-intensive manufactures to developing countries. Empirical investigation, therefore, should begin by substantiating this hypothesis. The problem that arises in this context is that the database used in this paper provides information only on the number of workers employed in individual 3-digit or 4-digit industries. A proxy measure of labour-intensity or skill-intensity, therefore, had to be devised.

In order to derive such a proxy measure, we need to make an assumption: that, across industries, output per worker rises as the ratio of skilled to unskilled workers employed in production rises. Such an assumption is widely used and both theoretical reasoning and empirical evidence lend it plausibility. Workers working with more and better machines produce more, but they also need to be more skilled if they are to work with more and better machines. This is why

skill-intensity and capital-intensity are expected to move together while skill-intensity and labour-intensity are expected to move in opposite directions. However, work-motivation and management efficiency are also important determinants of labour productivity. This means that, for any given level of skill-intensity, there can be wide variations in labour productivity across enterprises. It is important to bear this in mind. But unless there are reasons to expect systematic biases in work-motivation and management efficiency across industries, output per worker can still be taken as a good enough proxy for labour-intensity or skill-intensity.

The hypothesis, then, is that, compared to import-competing industries, export-oriented industries have a lower labour productivity in developing economies and a higher labour productivity in industrialized countries. This hypothesis is broadly supported by the estimates of the ratio of output per worker in export-oriented industries to that in import-competing industries for the economies under study presented in Table 1. These figures show that, in general, the export-oriented industries are more labour-intensive (or less skill-intensive) than import-competing industries in developing countries and that the reverse is the case in industrialized countries.

Table 1: Ratio of labour productivity in export-oriented industries to that in import-competing industries, average 1989-91

4-digit classification	
India	0.51
Indonesia	0.37
Korea, Republic of	0.71
Malaysia	0.67
Philippines	0.31
Japan	2.48
USA	1.77
3-digit classification	
Argentina	0.96
China	0.98
Mexico	1.01
Taiwan, China	0.56
Thailand	0.52

Note: For Argentina, the estimates refer to the period 1989-90.
Source: Author's estimates based on data from the UNIDO database on industrial statistics.

There are some odd cases, however, and some comments on these are in order. In the two Latin American countries included in the sample, the gap in skill-intensity between export-oriented and import-competing industries is negligible. Since there are no strong reasons to suppose that work-motivation and management efficiency are consistently superior in export-oriented industries, the conclusion must be that the manufactured exports of the two Latin American economies are no more labour-intensive than their manufactured imports from the *industrialized* economies. Indeed, an inspection of the typical items of export of these countries shows that certain skill-intensive industries figure prominently among the export-oriented industries. One explanation lies in the fact that the export-oriented industries in these countries are dominated by TNC subsidiaries so that much of the exports fall into the category of intra-TNC trade. In the case of Mexico, for example, there is evidence to suggest that skill-intensity in *maquiladora* enterprises is higher than that in other manufacturing enterprises.³³ Studies have shown, moreover, that even in the non-*maquiladora* sector, most of the export-oriented enterprises are TNC subsidiaries and that these tend to employ a relatively larger quantity of skilled labour than the domestic enterprises which produce mainly for the domestic market.³⁴ It has also been argued that, in Latin America in general, labour-intensive industries had been more heavily protected than skill-intensive industries so that one of the effects of trade liberalization has been a relative decline of labour-intensive industries.³⁵ Whatever the explanation, it seems clear that the basic premise of the standard trade-theoretic argument does not hold in the cases of Argentina and Mexico. Thus we have no reason to expect the labour market effects of trade liberalization in these countries to be as predicted by theory. These cases, therefore, are not pursued any further in the rest of this paper.³⁶

The other odd case is China. In this case too, export-oriented industries do not appear, at first sight, to be significantly different from the import-competing industries in terms of labour- or skill-intensity. In terms of specific items, however, China's exports and imports are not very different from Thailand's or India's. This directs attention to the fact that China's exports are produced almost exclusively by foreign capital in special economic zones while the import-competing products are largely produced by state enterprises that are known to be inefficient and overstaffed.³⁷ Given these conditions, it can be plausibly argued that though China's export-oriented industries are in fact more labour-intensive than its import-competing industries, this is not reflected in the relative labour productivity of the export-oriented industries because work-motivation and management efficiency are systematically poorer in import-competing industries.³⁸

³³ See Feenstra and Hanson, 1997. *Maquiladora* enterprises are set up by TNCs in the areas bordering the United States. They process inputs imported from the United States and other industrialized countries for re-exports to those countries. Trade liberalization and NAFTA have led to a rapid growth of such enterprises.

³⁴ See, for example, Alarcon and Zepeda, 1997.

³⁵ See Ravenga, 1995; Wood, 1997; Lora and Oliviera, 1998; and Harrison and Hanson, 1999.

³⁶ The limitations of the available statistical data also prevents further meaningful explorations. The available UNIDO data on Mexico exclude information on *maquiladora* enterprises while those on Argentina only cover the period 1980-1991. Many of the trade liberalising reforms in Argentina were implemented in the post-1991 period.

³⁷ See World Bank, 1997.

³⁸ This argument, as we shall see, is strongly supported by all the other findings on China's experience.

5.3 Trade and employment

A priori reasoning suggests that growth of trade in manufactures between industrialized and developing countries should increase the employment elasticity in manufacturing in the latter and reduce it in the former. Trade is expected to increase the share of export-oriented industries and reduce the share of import-competing industries in manufacturing output. This means a rise in the employment elasticity in developing countries (because export-oriented industries are more labour-intensive than import-competing industries) and a fall in the employment elasticity in industrialized countries (since import-competing industries are more labour-intensive than export-oriented industries).

The reference periods used in constructing Table 2, which presents the estimates of employment elasticity, have been based on the observed behaviour of manufactured exports from the countries concerned. For most of the countries (including the United States of America), accelerated growth of manufactured exports commenced in the second half of the eighties. For Japan and Korea, however, export growth was steady throughout the eighties and the nineties and reflected long-term trends.

Table 2: Employment elasticity: manufacturing sector

	Period 1	Period 2	The full period
4-digit classification			
India	-0.28 (81-86)	0.35 (87-94)	0.16 (81-94)
Indonesia	0.60 (81-87)	0.72 (88-96)	0.73 (81-96)
Korea, Republic of	0.50 (81-89)	0.00 (90-95)	0.22 (81-95)
Malaysia	-0.28 (81-87)	0.85 (88-95)	0.65 (81-95)
Philippines	-	0.00 (88-97)	-
Japan	-	-	0.20 (85-93)
USA	0.00 (88-95)	0.00 (90-96)	-
3-digit classification			
China	0.27 (80-86)	0.53 (87-96)	0.44 (80-96)
Taiwan, China	-	-	-
Thailand	-	0.77 (86-94)	-

Note: The elasticities are estimated by dividing the rate of growth of employment by the rate of growth real output. In the case of Taiwan, China, no estimates could be derived because real output growth could not be estimated (for lack of a suitable deflator). In the cases of the Philippines and the USA, employment growth during the relevant periods was statistically insignificant.

Source: Based on the estimates presented in Table 3 and Appendix Table 1.17.

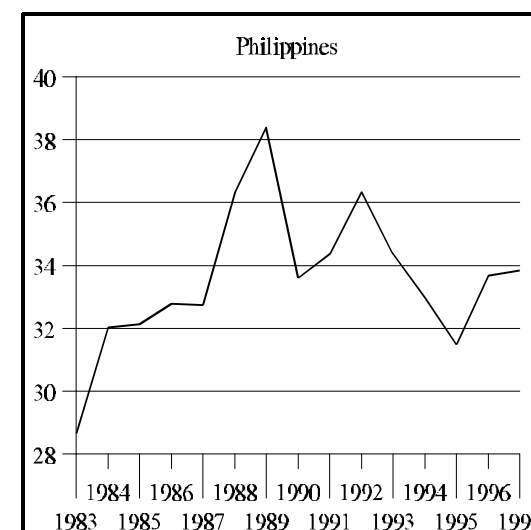
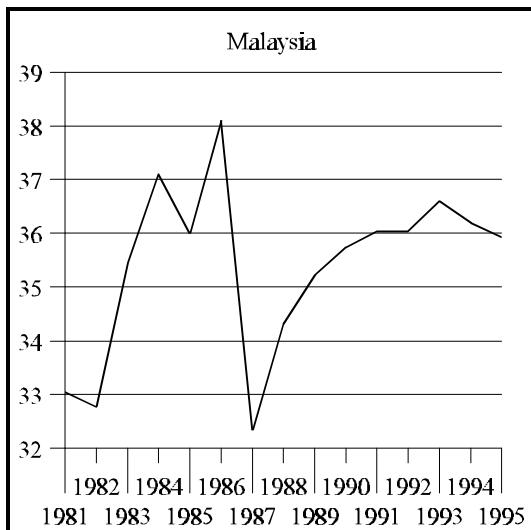
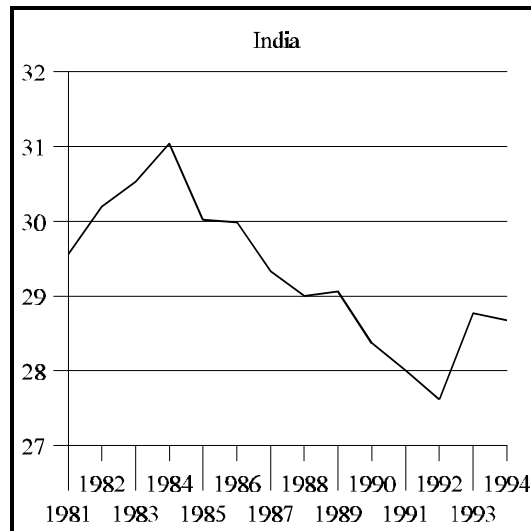
The experiences of China, India, Indonesia and Malaysia provide direct support to the proposition that trade increases the employment elasticity in manufacturing in developing countries; in all these cases, there was a significant rise in the employment elasticity in the second period – the period when growth of manufactured exports accelerated. Even in the case of Thailand, though a two-period comparison is not possible, the high value of the elasticity observed for the period of trade expansion is an indication of positive effect of trade. Such effects are not observed in the cases of the Republic of Korea and the Philippines. In the case of Korea, the periodization is almost certainly inappropriate; a comparison of the experience in the seventies with that in the eighties might have been more appropriate. By the end of the eighties, the commodity composition of Korea's exports was changing. In some of the traditional labour-intensive manufactures, the country ceased to enjoy comparative advantage and was developing export capability in some of the (traditionally) import-competing industries. These changes seem to have signalled the beginning of a “de-industrialization” phase – an indication that Korea's economy was ready to join the ranks of mature industrialized economies. In the case of the Philippines, the export performance was rather erratic.

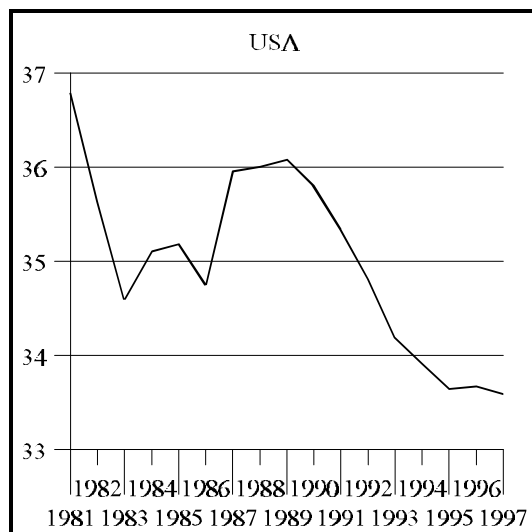
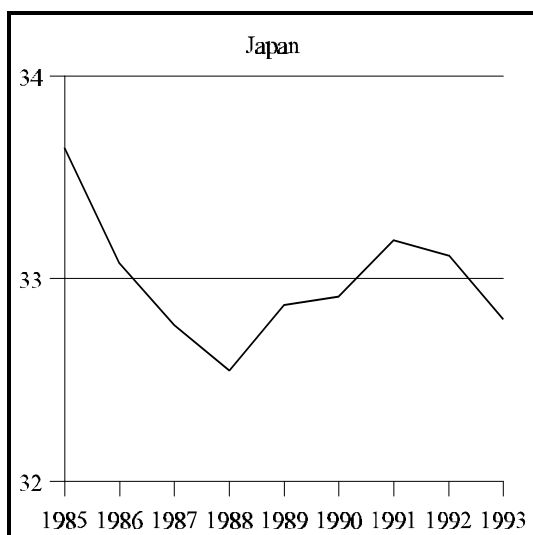
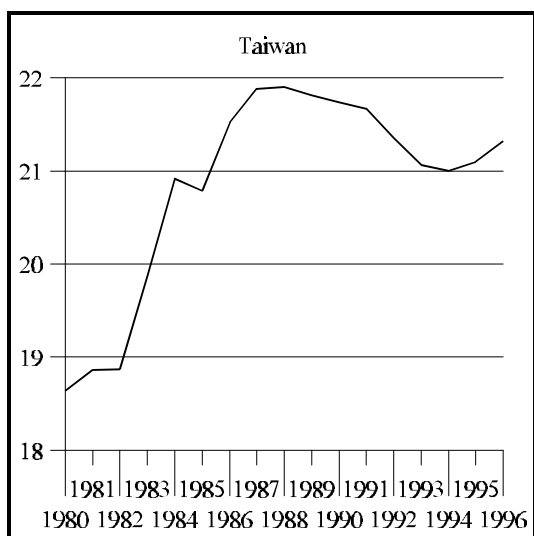
On the other hand, the evidence does not suggest any clear trend in the employment elasticity in manufacturing in the two industrialized countries. In the case of Japan, two-period comparison was not possible; however, given its fairly high value for the whole period, the employment elasticity is unlikely to have declined. In the United States, too, the employment elasticity cannot be said to have declined, but here the manufacturing sector seems to have experienced jobless growth - at least since the late-eighties.

The changes in the employment elasticity in manufacturing, it may be recalled, are expected to result from changes in the output composition in manufacturing. Thus in both developed and developing countries, the share of export-oriented manufactures in total manufacturing output is expected to rise and the share of import-competing manufactures is expected to fall. These changes would obviously imply corresponding changes in the shares of export-oriented and import-competing industries in total manufacturing employment.

The inter-temporal movements in the share of export-oriented industries in total manufacturing employment in the sample economies, graphically presented in Figure 5, suggest a number of conclusions. First, they confirm that, in the cases of China, Indonesia and Malaysia, the observed rise in the employment elasticity is attributable to trade liberalization. In the case of India, however, the share of export-oriented industries in total manufacturing employment has actually been declining; the observed rise in the employment elasticity, therefore, cannot be attributed to export growth. Second, the case of Taiwan (China) clearly provides another example of how trade in manufactures raises the employment elasticity in manufacturing in developing countries. Third, in the case of the Philippines, the share of export-oriented industries in total manufacturing employment fluctuated a great deal but on the whole tended to decline. Thus the employment elasticity in manufacturing probably also declined. Fourth, in the Republic of Korea, too, the share of export-oriented industries in total manufacturing employment declined, but there are no surprises here.

Figure 5: Share of export-oriented industries in total manufacturing employment





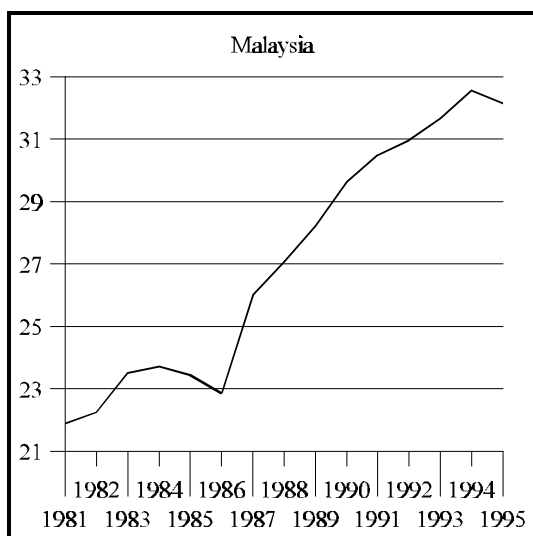
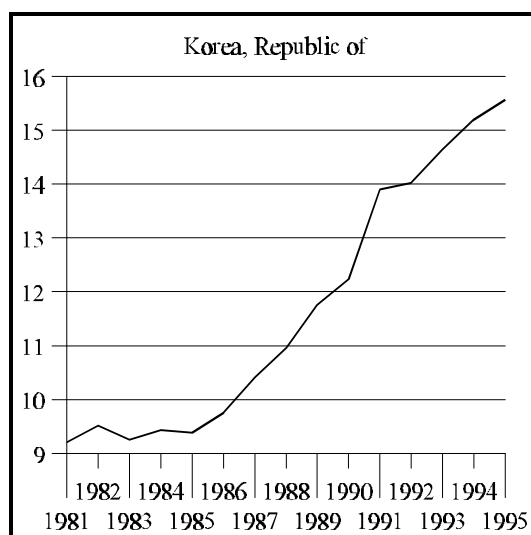
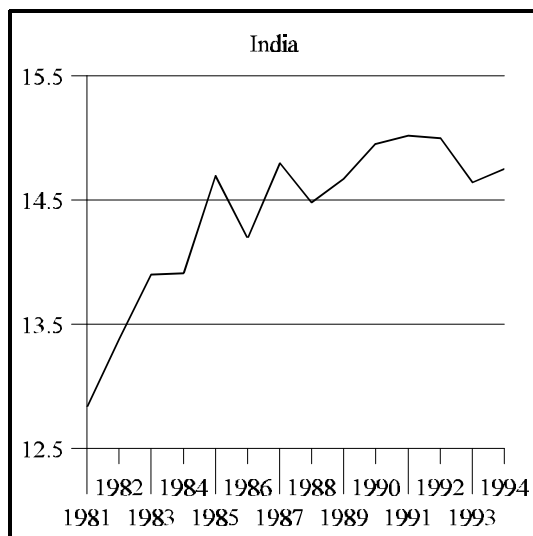
Finally, in both Japan and the United States, the share of export-oriented industries in total manufacturing employment declined (the decline was much milder in Japan) even though the export performance of both countries was good. This is contrary to expectation; the effect of trade liberalization seems to have been neutralized by other developments. At any rate, the trends in the employment elasticity remain unclear in both cases.

The movements in the share of import-competing industries in total manufacturing employment are graphically presented in Figure 6. In the two developed economies (Japan and the United States), this share declined as expected. But the really striking aspect brought into focus by the graphs is that, contrary to expectation, the share has been rising in most of the developing economies included in the sample; the exception is China where the share declined as expected. A closer inspection reveals some variations across countries. Thus in the Philippines, the share of import-competing industries was rising precisely during the period when the share of export-oriented industries was falling. In Indonesia too, the share of import-competing industries was falling for part of the period when the share of export-oriented industries was rising. In the case of Korea (Rep.), the evidence is consistent with the idea that the comparative advantage has been changing. But these variations should not obscure the really important point: while trade in manufactures with industrialized countries may have adverse effects on employment growth in import-competing industries in developing countries, these are neither necessary nor lasting; simultaneous growth of employment in export-oriented and import-competing industries is in fact quite typical. In industrialized countries, in contrast, the effect of trade with developing countries on employment in import-competing industries seems to be necessarily adverse.

It thus appears that there is an important asymmetry between developing and industrialized economies: trade can actually stimulate employment growth in import-competing industries in developing economies while it necessarily has an adverse impact on employment in import-competing industries in industrialized countries. This asymmetry is demonstrated even more clearly by the estimates of average annual growth rates of employment in the manufacturing sector as a whole and in its various segments in different periods presented in Table 3.³⁹ In the sample developing economies, trade liberalization seems to have universally stimulated employment growth in the import-competing industries; there is no case where employment growth in import-competing industries slowed down in the wake of trade liberalization. In fact, it is quite clear that trade liberalization generally led to an acceleration of employment growth in all branches of manufacturing. In some cases, as in India, the share of export-oriented industries in total manufacturing employment declined not because there was no acceleration in employment growth in export-oriented industries but because the acceleration was greater in other branches of manufacturing; the employment elasticity in manufacturing increased in India essentially because of the acceleration in the growth of “food, beverages and tobacco” industries (which are less labour-intensive than export-oriented industries but more labour-intensive than import-competing and other industries). In both Japan and the United States, on the other hand, employment in the import-competing industries consistently declined.

³⁹ No data relating to petroleum and related industries are presented. These industries account for less than 1 per cent of manufacturing employment in all the countries under review.

Figure 6: Share of import-competing industries in total manufacturing employment



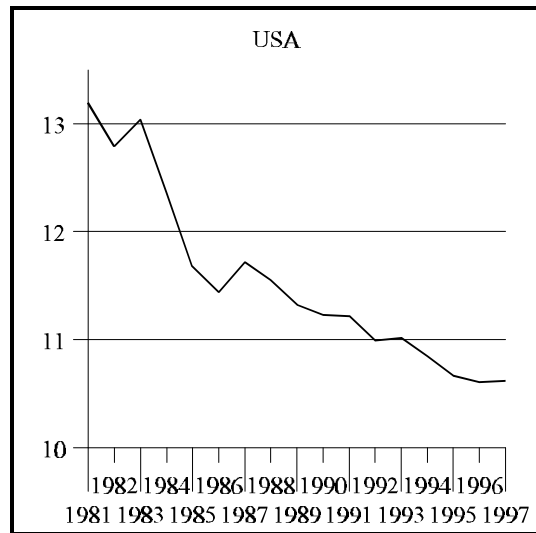
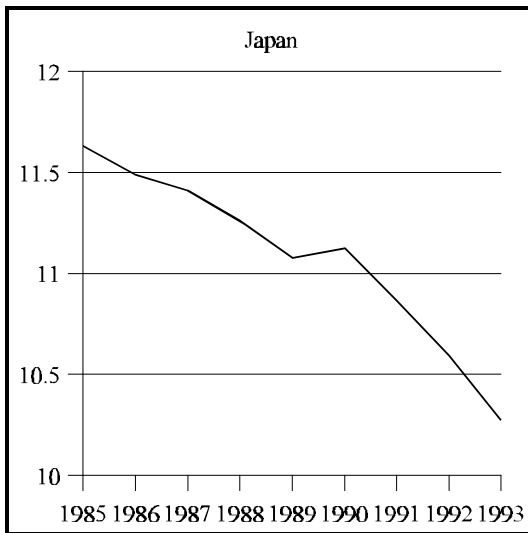
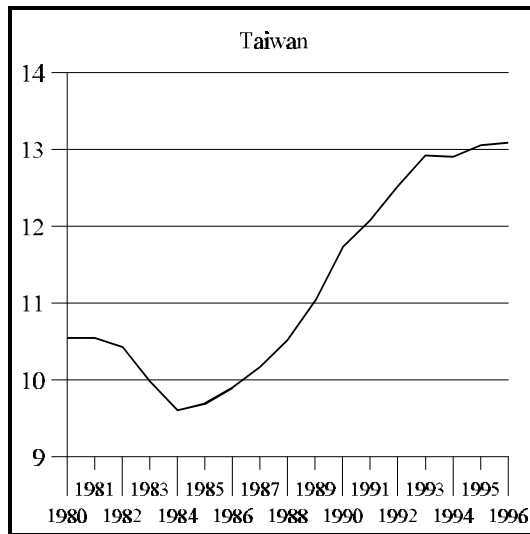


Table 3: Annual average rate of growth of employment

		Export-oriented industries	Import-competing industries	Food beverages tobacco	Other manufacturing	Total manufacturing
4-digit classification						
India,	1981-86	0.0	0.0	-6.2	0.0	-1.6
	1987-94	1.9	2.5	3.2	2.1	2.4
	1981-94	0.0	2.0	0.0	1.3	1.1
Indonesia, 1981-87		11.1	7.3	10.5	12.5	10.8
	1988-96	11.7	12.2	5.2	7.8	9.3
	1981-96	13.1	9.9	6.7	10.5	10.5
Korea, Republic of,	1981-89	5.6	8.8	3.4	6.6	6.0
	1990-95	0.0	4.0	0.0	0.0	0.0
	1981-95	1.8	6.8	1.2	2.4	2.5
Malaysia,	1981-87	0.0	0.0	0.0	-4.5	-1.8
	1988-95	12.8	14.8	4.3	10.9	12.2
	1981-95	8.1	10.8	2.0	5.9	7.6
Philippines,	1983-87	2.0	-5.5	0.0	0.0	0.0
	1988-97	0.0	5.6	0.0	0.0	0.0
	1983-87	-	-	-	-	-
Japan,	1985-89	0.0	-0.9	1.3	0.8	0.0
	1985-93	0.0	-0.7	1.4	0.9	0.7
USA,	1981-89	0.0	-2.4	0.0	0.0	0.0
	1990-97	-0.8	-0.7	0.0	1.1	0.0
	1988-95	-1.7	-1.6	0.6	0.0	0.0
	1981-97	-0.7	-1.7	0.2	0.2	-0.3
3-digit classification						
China,	1980-86	4.8	2.3	4.0	3.4	3.7
	1987-96	7.2	5.3	6.0	9.3	6.2
	1980-96	7.5	4.5	5.9	7.7	5.9
Taiwan, China		-				
	1980-89	6.0	4.0	3.7	1.6	3.9
	1990-96	-0.8	1.5	0.0	-1.5	0.0
	1980-96	1.7	2.9	0.9	-1.4	0.9
Thailand,	1982-86	4.7	-0.1	-4.2	-6.1	-1.9
	1986-94	14.4	10.5	11.4	10.7	12.2
Note:	Growth rates for Thailand were estimated by using terminal values as continuous time-series were not available. Other growth rates are estimated by fitting regression equations. Statistically insignificant values are put as 0.0. In the case of Japan, the second period (1990-93) was too short. In the case of the Philippines, there appeared to be a break in the series between 1987 and 1988.					
Source:	Author's estimates based on data from the UNIDO database on industrial statistics.					

It is perhaps useful to reflect on possible reasons for the asymmetry. Two possible reasons were suggested in the discussion of theoretical considerations above. First, trade might have the effect of easing the foreign exchange constraint for developing countries; this stimulates growth of manufacturing in general. Second, trade liberalization could encourage inflows of foreign direct investment into export-oriented as well as import-competing industries in developing economies. A third possible reason is that the income elasticity of demand for skill-intensive goods (import-competing goods in developing economies) is usually higher than that for labour-intensive goods (import-competing goods in industrialized countries). Finally, the existence of surplus labour in most developing countries makes simultaneous growth of employment in all branches of manufacturing possible.

It must be recognized, however, that the decline in employment in import-competing industries in the two industrialized countries is not wholly attributable to growth of trade with developing countries. Employment in export-oriented industries, which would normally be expected to grow as a result of growth of trade, actually recorded zero growth in Japan and negative growth in the United States. This strongly suggests that there were factors other than trade which reduced the employment intensity of production in both export-oriented and import-competing industries. Indeed, in the United States, these other factors seem to have been dominant during 1988-95 (a period when export growth was fairly impressive) when employment declined in both export-oriented and import-competing industries at roughly the same rate.

Another noteworthy fact is that the adverse effect of trade on manufacturing employment in industrialized countries has been quite small. In the mid-eighties, the share of import-competing industries in total manufacturing employment was less than 12 per cent in both the United States and Japan.⁴⁰ Although employment in these industries has declined since then, it is clear from the evidence cited above that the decline has been nothing very dramatic. Moreover, even this decline is not wholly attributable to trade. Given these facts, trade with developing countries does not seem to explain even the trend in aggregate manufacturing employment. It is obviously absurd to hold trade responsible for the economy-wide unemployment problem in industrialized countries. It is not only that the adverse effect of trade on manufacturing employment is quite small. The share of manufacturing in total employment in these economies is also small. Even in the early eighties, this share was 24 per cent in Japan and 22 per cent in the United States.

The general conclusions suggested by the evidence are as follows. Growth of trade (in manufactures) with developing economies does have a depressing effect on manufacturing employment in industrialized economies, but the effect is quite small. Such trade, on the other hand, has a large positive effect on manufacturing employment in developing economies because, apart from the fact that export-oriented industries are more labour-intensive than other industries, export expansion stimulates output growth in all branches of manufacturing (including import-competing industries).⁴¹

It is true that job losses affect the unskilled workers more than the skilled workers in industrialized countries. In developing economies, on the other hand, job gains seem to accrue to both skilled and unskilled workers though unskilled workers generally derive larger benefits (because more of them work in the export-oriented industries). Contrary to expectation, the

⁴⁰ These are the author's estimates based on statistics derived from the UNIDO database. See Appendix Table 1.18.

⁴¹ These findings are in line with the predictions of some earlier studies that advocated trade liberalization precisely on these grounds. See, for example, Lydall, 1975, and Kruger et.al. 1981.

evidence does not suggest that the skilled workers in developing countries suffer job losses as a result of trade liberalization.

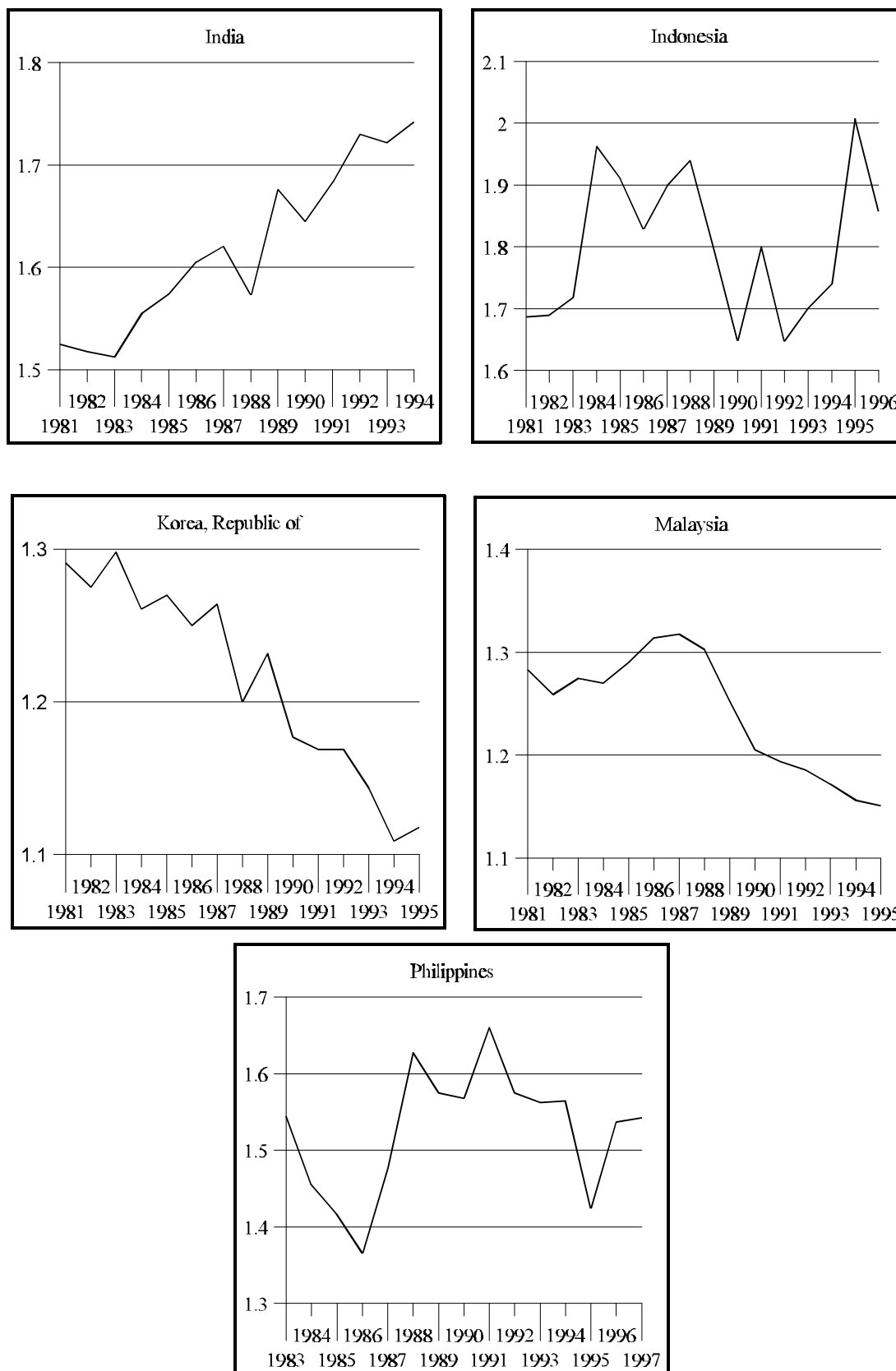
5.4 Trade and wages

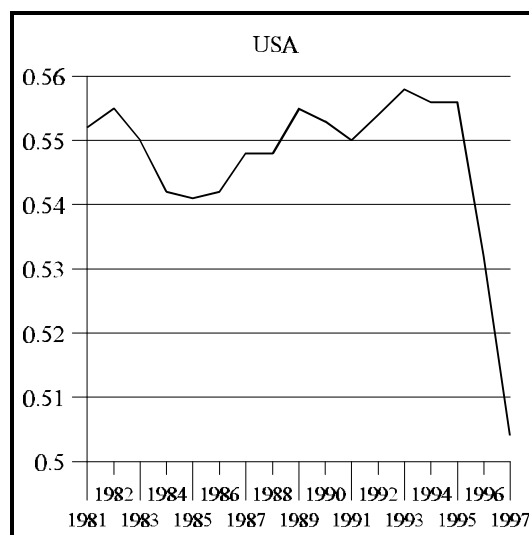
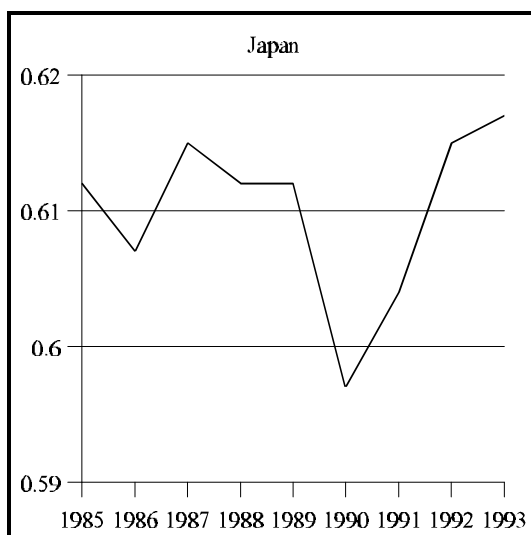
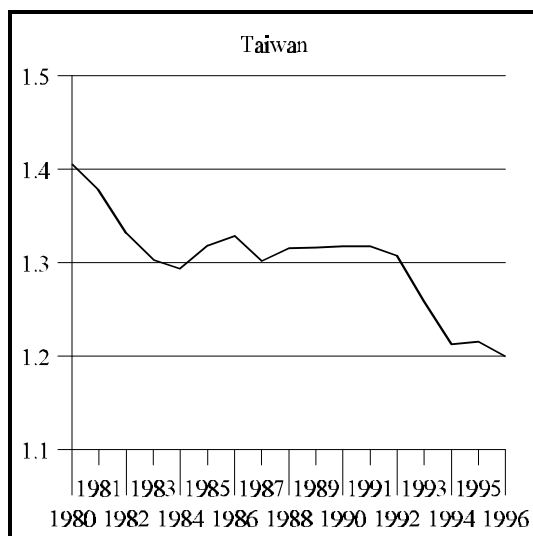
The database being used here does not provide information on wage rates for skilled and unskilled workers separately. Indeed, it does not provide information directly on wage rates at all. It only provides, for each 3-digit or 4-digit industry, total number of workers and the total amount paid to them in wages and salaries. From these data, it is possible to estimate only the values of average wage per worker in different branches of industry. Even such estimates are useful, however. In the case of developing economies, the ratio of unskilled to skilled workers employed in production is much higher in export-oriented industries than in import-oriented industries; the reverse is true in the case of industrialized economies. The ratio of wage per worker in import-competing industries to that in export-oriented industries, therefore, can be used as a measure, albeit imperfect, of wage differential between skilled and unskilled workers. A reduction in this ratio implies a widening wage differential in industrialized countries and a declining wage differential in developing countries; correspondingly, an increase in this ratio implies a declining wage differential in industrialized countries and a widening wage differential in developing countries.

The trade-theoretic argument leads us to expect that trade in manufactures between industrialized and developing countries reduces the wage differential between skilled and unskilled workers in developing countries and increases it in industrialized countries. However, as pointed out earlier, given the conditions of dualism and surplus labour prevailing in many developing countries, decline in the wage differential is not logically inevitable. Besides, we now know that trade does not necessarily reduce employment in import-competing industries in developing countries. This further reduces the possibility of trade reducing the wage differential. Thus the hypothesis that is explored here can be stated as follows: trade reduces the ratio of wage per worker in import-competing industries to that in export-competing industries in industrialized countries and may or may not reduce this ratio in developing countries.

The inter-temporal movements in the relevant wage ratio in different countries (in the sample) are graphically presented in Figure 7 and the relevant data are presented in Appendix Table 1.19. In the case of the developing economies in the sample, the graphs confirm that trade may or may not reduce wage inequality. The wage differential fell in Taiwan (China), Malaysia and the Republic of Korea but rose in Indonesia and India. In the Philippines, it increased during 1986-91 (when export performance was good and declined thereafter (when export performance was erratic); thus trade was actually associated with growing wage inequality. Thailand is not represented in the graphs but, as we shall see, there is evidence of declining wage inequality.

Figure 7: Ratio of wage per worker in import-competing industries to that in export-oriented industries





The varying country experiences cannot be satisfactorily explained here; but they obviously lend plausibility to the general argument that effects of trade on wage inequality in developing economies are conditioned by the degree of labour market dualism. Taiwan (China) and the Republic of Korea have been promoting export-oriented manufacturing for a much longer period than the other countries and had ceased to be labour-surplus economies by the early eighties. Malaysia had started with a relatively small amount of surplus labour and, by the end of the eighties, had actually become a labour-scarce economy that was attracting migrant workers from the neighbouring countries (particularly Indonesia and the Philippines). Thailand too was beginning to attract migrant workers (particularly from neighbouring Myanmar) - an indication that the economy was becoming labour-scarce. The observed decline in the wage differential in these four countries resulted from the growing tightness of the non-formal labour market and the associated decline in labour market dualism. India, Indonesia and the Philippines, on the other hand, started with large stocks of surplus labour and remain labour-surplus economies to this day. The evidence suggests that the effects of trade were simply not strong enough to tighten the non-formal labour market in these countries. Trade, moreover, did not adversely affect employment growth in the import-competing industries in any of these countries and there is no reason to suppose that the demand for skilled labour declined. Given these circumstances, the observed decline in the relative wage of unskilled workers does not seem particularly puzzling.

In the case of the two industrialized countries, there are some surprises. The graphs show that the wage differential showed no particular trend in Japan and actually tended to fall in the United States. Thus the idea that trade with developing countries increases the relative wage of skilled workers in industrialized countries receives no support from the evidence. The declining tendency in the United States, it must be said, was rather weak and the differential increased quite sharply in the last two years (1996 and 1997) of the period covered. But 1988-95 was a period of trade expansion and the wage differential narrowed precisely during this period. On the whole, the results seem to contradict what has by now become the conventional wisdom in the United States. But the contradiction can be easily resolved. Research in the United States has indeed shown that the wage gap between skilled and unskilled workers increased substantially since the early eighties. But this research focussed on wage inequality in the economy as a whole rather than on wage inequality in the manufacturing sector.⁴² The evidence presented here suggests that wage inequality grew not within but outside the manufacturing sector. Growth of manufactured imports from developing countries, therefore, had very little to do with the growth of wage inequality. The fact that, in the case of Japan too, trade was not associated with growing wage differential adds strength to this argument.

The estimates of average annual growth of real wages, presented in Table 4, allow us to add some pertinent observations. In the developing economies, real wage growth was substantial in all branches of manufacturing; the changes in wage inequality reflected differential rates of growth rather than wage decline for any particular group of workers. The same observations hold for Japan as well. But in the United States, real wages in all branches of manufacturing stagnated; indeed, they declined during 1988-95, a period when the economy performed fairly well in terms of both export expansion and growth of manufacturing output. The possibility that stagnation or decline in wages affected all workers - skilled and unskilled - in manufacturing cannot certainly be ruled out.

⁴² Cf. Collins, 1998, and Freeman, 1998.

Table 4: Annual average rate of growth of real wage per worker

		Export-oriented industries	Import-competing industries	Food beverages tobacco	Other manufacturing	Total manufacturing
4-digit classification						
India,	1981-86	2.8	4.0	9.4	2.8	4.6
	1987-94	0.7	2.0	2.3	0.0	1.3
	1981-94	1.4	2.5	4.1	1.5	2.1
Indonesia,	1981-87	3.8	6.0	3.4	5.2	4.4
	1988-96	3.7	0.0	0.0	0.0	0.0
	1981-96	2.4	2.5	2.6	1.9	2.3
Korea, Republic of	1981-89	8.3	7.6	6.3	7.1	7.8
	1990-95	7.6	6.3	6.2	7.7	7.4
	1981-95	9.2	8.0	7.1	8.7	8.8
Malaysia,	1981-87	4.8	5.4	5.6	3.2	4.7
	1988-95	5.1	3.5	1.9	2.3	3.6
	1981-95	2.9	2.0	2.4	1.7	2.3
Philippines,	1983-87	0.0	0.0	0.0	0.0	0.0
	1988-97	0.8	0.0	0.0	2.2	1.5
	1983-97	-	-	-	-	-
Japan,	1985-89	2.2	2.3	1.6	2.6	2.3
	1985-93	1.4	1.5	0.6	2.0	1.6
USA,	1981-89	1.1	1.1	0.0	0.7	0.9
	1990-97	1.6	0.6	0.0	1.0	1.1
	1988-95	0.0	0.0	-0.8	0.0	-0.4
	1981-97	0.5	0.4	-0.4	0.3	0.3
3-digit classification						
Thailand,	1986-94	4.9	2.9	3.4	3.2	3.7

Note: Growth rates for Thailand were estimated by using terminal values as continuous time-series were not available. All other growth rates were estimated by fitting regression equations. Statistically insignificant estimates are put as 0.0. For China and Taiwan (China), real wages could not be estimated as no suitable deflators were available from the sources used in this paper. In the case of Japan, the second period (1990-93) was too short.

Source: Author's estimates based on nominal wage data from the UNIDO database on industrial statistics and consumer price index from World Bank, World Development Indicators.

To sum up, the evidence examined here does not suggest that trade in manufactures necessarily increases wage inequality in industrialized countries and necessarily reduces it in developing countries. Growth of trade seems to have been associated with declining wage inequality in manufacturing in the United States and with unchanging wage inequality in Japan. On the other hand, expansion of trade was associated with growing wage inequality in several developing economies. In the case of these economies, it is possible to argue that surplus labour and labour market dualism neutralized the effect of trade on wage inequality. Empirically, moreover, it has been found that trade does not have any necessary adverse effect on employment of skilled workers as predicted by theory. The observed behaviour of wage inequality in industrialized economies, however, cannot be adequately explained here. Perhaps the main explanation is to be found in the important role that collective bargaining plays in determining wages in manufacturing.

6. Conclusions

In theory, globalization should promote trade and stimulate growth of the world economy. In reality, there is little sign of all this happening. Trade barriers have come down, vast improvements in transport and communication systems have occurred and international mobility of capital has sharply increased. But world trade and GDP have recorded decelerating growth. It seems undeniable too that dangers of economic instability have increased, particularly for developing countries.

But trade liberalization should not be equated to globalization. The risks generated by globalization arise from problems associated with short-term capital flows and not from trade liberalization. On the other hand, there is evidence to suggest that the benefits of trade liberalization outweigh the costs. One visible effect has been the emergence of a few developing economies - mostly in Asia - as important players in the world economy. These economies have broken through the barriers of the long-established international division of labour to emerge as important producers and exporters of modern manufactures. However, for the vast majority of developing economies, which lack basic physical and social infrastructure, trade liberalization has meant very little. They are not in a position to benefit from the expansion of trade in manufactures and have remained exporters of primary commodities. Their importance in the world economy has arguably declined because the importance of primary commodities in world trade has declined. All this, to be sure, is a matter of concern, but that concern should lead us to focus on problems of building infrastructure in developing countries rather than to condemn trade liberalization.

Paradoxically, even the limited changes in the pattern of world trade have aroused fears and apprehensions precisely in those countries which are in a position to benefit from them. In industrialized countries, growth of trade in manufactures with developing countries is held responsible for the problems of unemployment and growing inequalities. In developing countries, there are concerns about poor working conditions in export-oriented industries. The analysis presented in this paper suggests that these fears and concerns, though not without basis, are grossly exaggerated.

Growth of trade in manufactures with developing countries has undoubtedly had some adverse effects on employment in unskilled-labour-intensive industries in industrialized countries. But the evidence from Japan and the United States shows that such effects have been too small to explain even the trends in total manufacturing employment. Thus it is patently absurd to attribute the economy-wide unemployment in industrialized countries to trade in manufactures

with developing countries. Trade among industrialized countries could be much more plausibly blamed. The fact that stagnation or decline in employment is observed even in skill-intensive (export-oriented) industries strongly suggests that there are factors (other than trade with developing countries) operating to reduce employment-intensity of manufacturing in general. Given the overwhelming importance of trade among industrialized countries, it can be plausibly hypothesized that competition associated with this trade has been the driving force behind labour-saving technological change which in turn has been responsible for the decline in employment-intensity in manufacturing.⁴³ A similar hypothesis could be proposed for explaining employment trends in services. Economy-wide employment trends, after all, cannot be satisfactorily explained by employment trends in manufacturing whose share in total employment is typically small in industrialized countries.

Trade with developing countries cannot be held responsible for the growing wage inequality in industrialized countries either. The evidence from Japan and the United States does not show any consistent rise in “skill premium” in the manufacturing sector. This means that wage inequality grew basically outside the manufacturing sector and explanations very probably lie in new developments in the service sector.

The employment effects of trade in manufactures with industrialized countries are potentially positive and large in developing countries. Export-oriented industries generally are more labour-intensive than others; their growth, therefore, increases the employment-intensity of manufacturing in general. Contrary to theoretical prediction, moreover, skill-intensive (import-competing) industries do not necessarily decline in the wake of trade liberalization. Indeed, the evidence suggests that growth of export-oriented industries stimulates growth in all other industries including import-competing industries. On the whole, growth of manufactured exports to industrialized countries increases demand for both unskilled and skilled workers in developing countries.

The effects of trade on wages in developing countries, suggested by the evidence, are not so straightforward as predicted by the standard theory. Growth of trade, the evidence suggests, may either increase or reduce wage inequality depending upon the initial conditions prevailing in labour markets. As a rule, developing countries have dualistic labour markets with a formal segment, where government regulations and collective bargaining institutions determine wages and working conditions, and a non-formal segment, where there is substantial excess supply of unskilled labour and where neither government regulations nor collective bargaining institutions have much influence. Export-oriented industries generally tend to rely on the non-formal segment of the labour market. Wages of unskilled labour, therefore, begins to rise rapidly only after sustained growth of export-oriented industries (together with associated growth of other industries) has wiped out the excess supply of unskilled labour in the non-formal segment. Till such a stage is reached, skilled workers, who are mostly in the formal segment of the labour market, often succeed in getting higher wage rises (because they can reap the benefits of government regulations and collective bargaining institutions) so that wage inequality tends to rise. This possibility is strengthened if trade increases rather than reduce demand for skilled workers. In sum, growth of trade has a tendency to increase wage inequality in manufacturing in the short run; but if growth is sustained over a period, wage inequality declines not only in manufacturing but also in the economy as whole.

⁴³ Many economists have rejected the “North-South trade” explanation and have proposed a “bias in technological change” explanation instead. Good summaries and references are available in Collins, ed., 1998. A “North-North trade” explanation has also been proposed. See, for example, Dinopoulos and Segerstrom, 1999.

These findings suggest that employment and labour market effects of North-South trade in manufactures are, on balance, significantly positive. Job losses in industrialized countries are quite small while job gains in developing countries are very substantial. Growth of such trade, moreover, does not necessarily increase wage dispersion in the manufacturing sector of industrialized countries and has the potential of reducing wage dispersion in developing countries. All this does not mean, of course, that there are no costs or that the costs should be ignored. Mechanisms have to be found for redeployment of the job-losers in industrialized countries. Even in developing countries, where aggregate employment in manufacturing rises, there can be job losses because of restructuring and mechanisms have to be found for redeployment of the job-losers. But the benefits of trade liberalization are clearly larger than the costs. The fact that there are costs only emphasises the need for active labour market policies in both industrialized and developing economies.

The observation that export-oriented industries in developing countries, at least in initial stages, are to be found mostly in the non-formal segment of the manufacturing sector imply that the concern about poor working conditions in these industries is not without foundation. But the meaning of "poor working conditions" needs to be properly understood. While there are reasons to believe that working conditions in export-oriented industries are poorer than in industries in the formal segment, there are also reasons to believe that they are better than those in the rest of the non-formal economy. This means that, for the workers concerned, growth of export-oriented industries implies both increased employment opportunities and improved working conditions. It is difficult to find good reasons why, in this setting, there should be special concern about working conditions in export-oriented industries alone. Working conditions need to be improved generally and not just in export-oriented industries and encouraging growth of export-oriented industries is actually one way of achieving such general improvement. It is quite clear that growth of trade, if sustained over a period, itself improves (or at least creates conditions for improvement in) working conditions. Indeed, improvement through this route is both durable and general because it is achieved through a tightening of the labour market. Concern about poor working conditions should lead us to think in terms of policy interventions which have the twin objectives of stimulating growth of export-oriented industries and of stimulating demand for labour in the non-formal economy through other measures.

The above conclusions about the effects of trade on employment and wages in developing economies, it must be said, are derived basically from an analysis of the experiences of the emerging Asian economies. For the two Latin American economies, originally included in the sample, it is found that the manufactured exports are no more labour-intensive than the manufactured imports. This finding, to the extent that it is valid, implies that trade in manufactures between them and the industrialized economies is not based on Heckscher-Ohlin comparative advantage. This is why analysis of labour market effects of trade in these two economies has not been attempted. But the finding itself needs to be confirmed through detailed case studies.

A final remark concerns international mobility of labour. The scale of South-North migration currently is not large enough to substantially modify the labour market effects of trade, but skilled workers form a large (and possibly growing) majority of the migrants. This pattern of international migration, if it persists, may make it difficult for many developing countries to improve the skill composition of their labour force. Thus there is a danger that many developing economies will find it hard to get beyond specialization in primary commodities or labour-intensive manufactures. This is an area which deserves attention from researchers.

APPENDIX 1

Statistical Tables

Appendix Table 1.1: Average annual growth (%) of real GDP

Countries/Groups	1960-70	1970-80	1980-90	1990-97
World	5.3	3.5	3.1	2.3
Industrialized economies	5.2	3.2	3.0	2.0
Developing economies ¹	5.7	5.4	3.7	5.3
Group of 13 economies ²	6.2	5.9	2.1	6.2
Other Developing economies ¹	4.6	3.9	2.2	3.3

Notes: 1. The first period is 1965-70 and the last period is 1990-95. Countries of the Middle East and North Africa are excluded for the period 1965-80. Taiwan, China is excluded for the entire period

2. Excludes Taiwan, China. The first period is 1965-70.

Source: Author's estimates based on data from World Bank, World Development Indicators, 1999, CD-ROM.

Appendix Table 1.2: Exports of goods and services as % of GDP

	1965	1970	1975	1980	1985	1990	1995
Industrialized economies	11.6	13.2	17.1	19.6	17.1	18.2	19.3
Developing economies ¹	11.4	12.0	18.0	23.4	20.0	25.4	29.9
Group of 13 economies ¹	7.4	7.9	11.2	17.1	19.5	24.4	31.4
Other Developing economies ¹	17.5	18.1	27.1	30.6	20.7	27.3	26.5

Note: 1. Excludes Indonesia for 1965 and Taiwan, China for all periods.

Source: Author's estimates based on data from World Bank, World Development Indicators, CD-ROM, 1999.

Appendix Table 1.3: Percentage share in world merchandise exports

	Industrialized economies	Group of 13 economies	Other developing economies	All developing economies
1980	63.7	10.1	20.8	31.0
1981	64.2	11.2	19.2	30.4
1982	65.4	12.0	16.9	28.9
1983	65.8	13.1	15.2	28.3
1984	66.4	13.7	14.2	27.9
1985	68.6	13.4	11.6	25.0
1986	72.0	12.5	9.7	22.2
1987	71.2	13.7	9.6	23.3
1988	72.1	14.8	8.1	22.9
1989	72.0	15.2	8.4	23.6
1990	72.3	15.1	9.5	24.6
1991	72.8	16.5	8.3	24.8
1992	72.0	17.8	7.7	25.5
1993	70.8	19.2	7.2	26.4
1994	70.4	20.2	7.0	27.2
1995	69.0	20.5	7.9	28.4
1996	67.9	21.2	8.2	29.4

Source: Author's estimates based on data from STATCAN, CD-ROM.

Appendix Table 1.4: Percentage share of manufactured exports in total merchandise exports

	World	Industrialized economies	Group of 13 economies	Other developing economies	All developing economies
1980	56.6	74.1	48.3	8.5	21.5
1981	57.2	73.6	49.1	9.0	23.8
1982	58.7	73.8	48.6	10.5	26.3
1983	60.2	74.1	51.4	11.8	30.1
1984	61.7	74.4	55.3	13.1	33.7
1985	64.7	75.8	57.1	18.2	39.1
1986	69.9	78.9	65.5	20.3	45.7
1987	70.8	79.2	69.8	21.0	49.7
1988	72.3	79.8	72.5	27.6	56.6
1989	73.3	80.2	73.2	28.0	57.1
1990	72.9	80.1	73.9	23.7	54.6
1991	74.3	80.3	75.7	25.6	58.9
1992	75.6	80.6	78.5	28.5	63.4
1993	76.3	80.2	80.5	32.3	67.3
1994	77.8	81.1	81.6	34.9	69.6
1995	77.1	81.1	81.7	31.1	67.7
1996	75.9	80.8	79.1	28.2	64.9

Source: Author's estimates based on data from STATCAN, CD-ROM.

Appendix Table 1.5: Percentage share of groups of countries in world export of manufactures

	Industrialized economies	Group of 13 economies	Other developing economies	All developing economies
1980	83.3	8.6	3.1	11.7
1981	82.6	9.6	3.0	12.6
1982	82.3	10.0	3.0	13.0
1983	81.1	11.2	3.0	14.2
1984	80.1	12.2	3.0	15.2
1985	80.4	11.8	3.2	15.0
1986	81.3	11.7	2.8	14.5
1987	79.7	13.5	2.8	16.3
1988	79.5	14.8	3.1	17.9
1989	78.8	15.2	3.2	18.4
1990	79.3	15.3	3.1	18.4
1991	78.6	16.8	2.9	19.7
1992	76.7	18.4	2.9	21.3
1993	74.4	20.2	3.0	23.2
1994	73.4	21.2	3.1	24.3
1995	72.5	21.7	3.2	24.9
1996	72.3	22.1	3.0	25.1

Source: Author's estimates based on data from STATCAN, CD-ROM.

Appendix Table 1.6: Import duties as % of value of imports for selected countries

	1975	1980	1985	1990	1995
Australia	11.50	8.53	8.57	7.86	4.48
Belgium	0.02	0.01	0.02	0.01	0.00
Canada	5.93	4.59	3.74	2.86	1.72
France	0.09	0.11	0.07	0.02	0.01
Germany	0.04	0.02	0.01	0.00	0.00
Japan	...	2.29	2.30	2.65	...
Netherlands	0.11	0.01	0.00	0.00	0.00
Sweden	2.69	1.54	0.80	1.01	0.98
United Kingdom	0.84	0.11	0.00	0.11	0.09
United States	4.37	2.97	3.60	3.37	2.59
Brazil	...	16.54	6.62	10.54	8.61
India	29.11	26.93	44.14	42.18	24.82
Indonesia	...	5.13	4.30	6.29	3.29
Korea, Rep.	8.46	7.64	8.41	7.88	4.65
Malaysia	9.41	9.00	8.68	4.81	3.12
Mexico	...	9.30	6.49	5.98	2.40
Philippines	...	13.43	14.31	14.52	14.38
Singapore	1.34	0.91	0.72	0.35	0.23
Thailand	14.35	11.10	13.44	11.67	8.02

Source: World Bank, World Development Indicators, CD-ROM, 1999.

Appendix Table 1.7: Percentage share in global flows of foreign direct investment

	Industrialized economies	Developing economies
1970	75.9	22.7
1977	75.1	24.1
1981	75.6	23.7
1985	77.7	22.3
1991	72.3	24.8
1995	62.9	31.0
1996	56.5	37.5
1997	55.5	38.0

Source: Author's estimates based on data from World Bank, World Development Indicators, CD-ROM, 1999.

Appendix Table 1.8: Performance of Group of 13 economies

Percentage share of the Group of 13 economies in:	1970	1975	1980	1985	1990	1995	1996	1997
Total exports of goods and services from developing countries	39.5	35.8	38.8	56.9	64.0	74.1	...	...
Total merchandise exports from developing countries	...	...	32.6	53.6	61.5	72.3	72.1	...
Total manufactured exports from developing countries	...	...	73.3	78.4	83.2	87.2	87.9	...
Total inflows of foreign direct investment to developing countries	47.8	43.4	...	59.2	75.5	81.7	78.9	75.2

Note: 1. Data for Taiwan, China were not available.
Source: Author's estimates. Data on exports of goods and services are from the World Bank, World Development Indicators, CD-ROM, 1999; and the data on merchandise exports and manufactured exports are from STATCAN, CD-ROM.

Appendix Table 1.9: Percentage of merchandise exports of industrialized economies to:

	Other industrialized economies	Group of 13 economies	Other developing economies	All developing economies
1980	68.9	10.3	14.9	25.2
1981	66.5	10.9	17.0	27.9
1982	67.1	10.2	17.1	27.3
1983	69.3	10.2	15.1	25.3
1984	71.1	10.4	13.6	24.0
1985	72.7	10.5	12.0	22.5
1986	75.5	10.0	10.2	20.2
1987	76.3	10.2	9.2	19.4
1988	76.1	11.1	8.9	20.0
1989	75.7	12.1	8.4	20.5
1990	76.5	11.7	8.4	20.1
1991	74.7	12.9	8.6	21.5
1992	73.3	13.9	9.1	23.0
1993	70.3	15.7	9.3	25.0
1994	70.7	16.5	8.4	24.9
1995	69.9	16.9	8.2	25.1
1996	69.4	16.7	8.2	24.9

Source: Author's estimates based on data from STATCAN, CD-ROM.

Appendix Table 1.10: Percentage of merchandise exports of Group of 13 economies to:

	Industrialized economies	Group of 13 economies	Other developing economies	All developing economies
1980	63.7	19.1	12.1	31.2
1981	61.9	20.0	13.4	33.4
1982	61.5	20.6	12.7	33.3
1983	64.0	20.4	11.0	31.4
1984	65.9	20.8	9.8	30.6
1985	64.8	20.9	10.2	31.1
1986	65.9	21.3	9.2	30.5
1987	66.0	22.4	8.3	30.7
1988	62.9	26.2	7.9	34.1
1989	63.8	26.1	7.4	33.5
1990	60.2	29.7	7.3	37.0
1991	57.1	32.5	8.1	40.6
1992	56.3	33.2	8.7	41.9
1993	56.2	33.4	8.5	41.9
1994	55.3	35.4	8.1	43.5
1995	54.0	35.8	8.5	44.3
1996	53.0	35.0	7.2	42.2

Source: Author's estimates based on data from STATCAN, CD-ROM.

Appendix Table 1.11: Percentage of manufactured exports of industrialized economies to:

	Other industrialized economies	Group of 13 economies	Other developing economies	All developing economies
1980	67.5	11.1	16.4	27.5
1981	64.8	11.9	18.8	30.7
1982	65.1	11.1	19.1	30.2
1983	67.9	11.0	16.5	27.5
1984	70.4	11.3	14.4	25.7
1985	72.0	11.4	12.6	24.0
1986	75.1	10.6	10.5	21.1
1987	76.1	10.8	9.3	20.1
1988	76.3	11.4	9.0	20.4
1989	76.1	12.4	8.3	20.7
1990	76.7	12.1	8.3	20.4
1991	74.6	13.4	8.7	22.1
1992	72.9	14.6	9.3	23.9
1993	69.8	16.8	9.6	26.4
1994	70.2	17.6	8.4	26.0
1995	69.8	17.9	8.2	26.1
1996	69.5	17.7	8.3	26.0

Source: Author's estimates based on data from STATCAN, CD-ROM.

Appendix Table 1.12: Percentage of manufactured exports of the Group of 13 economies to:

	Industrialized economies	Group of 13 economies	Other developing economies	All developing economies
1980	60.6	20.9	16.2	37.1
1981	60.4	21.6	16.6	38.2
1982	60.9	21.1	15.7	36.8
1983	64.7	20.5	13.0	33.5
1984	65.9	21.6	9.9	31.5
1985	65.4	21.5	10.2	31.7
1986	66.8	21.6	9.2	30.8
1987	67.0	22.6	8.3	30.9
1988	63.4	27.4	7.7	35.1
1989	64.8	26.7	7.2	33.9
1990	60.2	30.8	7.0	37.8
1991	56.7	33.9	8.0	41.9
1992	56.3	34.3	8.4	42.7
1993	56.4	34.3	8.0	42.3
1994	55.3	36.0	7.7	43.7
1995	54.6	36.2	7.9	44.1
1996	55.4	36.2	7.1	43.3

Source: Author's estimates based on data from STATCAN, CD-ROM.

Appendix Table 1.13: Percentage of merchandise exports of Other Developing Economies to:

	Industrialized economies	Group of 13 economies	Other Developing economies	All developing economies
1980	70.0	10.5	11.3	21.8
1981	69.7	11.7	11.5	23.2
1982	67.9	11.9	12.2	24.1
1983	66.2	12.5	11.8	24.3
1984	67.2	12.0	12.6	24.6
1985	70.5	9.9	12.3	22.2
1986	70.2	10.5	10.1	20.6
1987	65.5	11.0	10.2	21.2
1988	63.9	9.9	10.1	20.0
1989	67.5	9.4	10.3	19.7
1990	69.5	11.8	9.6	21.4
1991	69.7	12.2	10.8	23.0
1992	65.2	13.5	10.8	24.3
1993	59.6	17.0	13.4	30.4
1994	60.4	16.0	12.6	28.6
1995	59.9	16.5	11.9	28.4
1996	60.9	14.1	10.5	24.6

Source: Author's estimates based on data from STATCAN, CD-ROM.

Appendix Table 1.14: Percentage of manufactured exports of Other Developing Economies to:

	Industrialized economies	Group of 13 economies	Other Developing economies
1980	37.1	6.0	56.9
1981	31.5	4.8	63.7
1982	31.9	4.4	63.7
1983	33.3	4.4	62.3
1984	31.2	4.9	63.9
1985	33.9	5.6	60.5
1986	34.8	5.1	60.1
1987	32.2	4.8	63.0
1988	29.0	4.6	66.4
1989	30.2	4.1	56.7
1990	27.0	4.1	68.9
1991	22.3	3.9	73.8
1992	19.8	4.3	75.9
1993	17.9	4.6	77.5
1994	17.5	4.6	77.9
1995	17.7	4.3	78.0
1996	17.6	3.7	78.7

Source: Author's estimates based on data from STATCAN, CD-ROM.

Appendix Table 1.15: Ratio of the value of manufactured exports to that of manufactured imports

	Of Industrialized economies to that of Other Developing economies	Of Group of 13 economies to that of Other Developing economies	Of Industrialized economies to that of Group of 13 economies
1980	7.3	4.7	1.8
1981	9.7	6.6	1.7
1982	9.7	7.0	1.5
1983	7.7	6.2	1.2
1984	6.4	4.3	1.1
1985	5.0	3.6	1.2
1986	4.5	3.8	1.1
1987	3.8	3.8	1.2
1988	3.4	3.4	1.1
1989	2.9	3.6	0.9
1990	3.1	3.3	1.0
1991	3.5	3.9	1.0
1992	3.8	3.8	1.0
1993	3.8	3.4	1.1
1994	3.2	3.1	1.1
1995	2.9	3.5	1.1
1996	3.0	3.7	1.0

Source: Author's estimates based on data from STATCAN, CD-ROM.

Appendix Table 1.16: Growth of manufacturing output

	Period 1	Period 2	The full period
India	5.6 (81-86)	6.9 (87-94)	7.0 (81-94)
Indonesia	17.9 (80-87)	12.9 (88-96)	14.3 (80-96)
Korea, Republic of	12.0 (81-89)	10.1 (90-95)	11.2 (81-95)
Malaysia	6.3 (81-87)	14.3 (88-95)	11.6 (81-95)
Philippines	0.0 (83-87)	4.6 (88-97)	-
Japan	0.0 (85-89)	-	3.5 (85-93)
USA	2.1 (88-95)	5.3 (90-96)	3.0 (87-96)
China	13.8 (80-86)	11.8 (87-96)	13.3 (80-96)
Thailand	-7.4 (82-86)	15.8 (86-94)	7.5 (82-94)

Note: The statistically insignificant values are put as 0.0. In the case of Japan, the second period (1990-93) was too short. In the case of the Philippines, there appears to be a break in the series between 1987 and 1988. In the case of the United States, the price deflator for manufacturing was available only for the period 1987-96.

Source: Author's estimates based on nominal output data from the UNIDO database on industrial statistics and price deflator from World Bank, World Development Indicators.

Appendix Table 1.17: Percentage share of export-oriented industries in total manufacturing employment

	India	Indonesia	Korea, Republic of	Malaysia	Philippines	Japan	USA
1980							
1981	29.6	34.5	56.6	33.0			36.8
1982	30.2	35.5	55.7	32.8			35.6
1983	30.5	35.8	56.0	35.4	28.7		34.6
1984	31.0	39.7	56.1	37.1	32.0		35.1
1985	30.0	34.7	55.5	36.0	32.1	33.6	35.2
1986	30.0	35.0	55.8	38.1	32.8	33.1	34.7
1987	29.3	36.2	56.1	32.3	32.7	32.8	36.0
1988	29.0	38.3	55.1	34.3	36.3	32.5	36.0
1989	29.0	40.5	54.1	35.2	38.4	32.9	36.1
1990	28.4	44.0	52.4	35.7	33.6	32.9	35.8
1991	28.0	46.8	54.1	36.0	34.3	33.2	35.3
1992	27.6	48.6	53.5	36.0	36.3	33.1	34.8
1993	28.8	48.6	52.2	36.6	34.4	32.8	34.2
1994	28.7	48.1	51.5	36.2	33.0		33.9
1995		45.9	51.3	35.9	31.5		33.6
1996		47.2			33.7		33.7
1997					33.8		33.6
	China			Taiwan (China)		Thailand	
1980	13.0			18.6			
1981	13.1			18.9			
1982	13.4			18.9		21.1	
1983	13.1			19.9			
1984	12.9			20.9		23.9	
1985	13.7			20.8			
1986	14.0			21.5		27.4	
1987	14.1			21.9			
1988	14.3			21.9		24.5	
1989	14.1			21.8		26.8	
1990	16.8			21.7			
1991	16.3			21.7		27.4	
1992	16.0			21.3			
1993	15.7			21.1		30.1	
1994	16.0			21.0		31.9	
1995	15.6			21.1			
1996	15.1			21.3			
1997							

Source: Author's estimates based on data from UNIDO database on industrial statistics.

Appendix Table 1.18: Percentage share of import-competing industries in total manufacturing employment

	India	Indonesia	Korea, Republic of	Malaysia	Philippines	Japan	USA
1980							
1981	12.8	12.0	9.2	21.9			13.2
1982	13.4	11.8	9.5	22.3			12.8
1983	13.9	11.4	9.3	23.5	19.0		13.0
1984	13.9	10.4	9.4	23.7	18.8		12.3
1985	14.7	10.5	9.4	23.5	16.6	11.6	11.7
1986	14.2	10.1	9.8	22.9	16.5	11.5	11.4
1987	14.8	9.8	10.4	26.0	16.1	11.4	11.7
1988	14.5	9.5	10.9	27.1	15.8	11.3	11.5
1989	14.7	9.5	11.7	28.2	15.6	11.1	11.3
1990	14.9	8.9	12.2	29.6	15.1	11.1	11.2
1991	15.0	9.2	13.9	30.5	16.6	10.9	11.2
1992	15.0	8.8	14.0	31.0	19.9	10.6	11.0
1993	14.6	10.0	14.6	31.6	20.9	10.3	11.0
1994	14.7	10.7	15.2	32.5	22.4		10.8
1995		11.2	15.6	32.1	26.1		10.7
1996		11.7			22.6		10.6
1997					22.5		10.6
	China			Taiwan (China)			Thailand
1980	25.1			10.5			
1981	25.3			10.5			
1982	24.7			10.4		7.5	
1983	24.7			10.0			
1984	24.8			9.6		8.9	
1985	23.4			9.7			
1986	23.1			9.9		8.0	
1987	22.9			10.2			
1988	22.6			10.5		7.5	
1989	22.9			11.0		7.8	
1990	19.2			11.7			
1991	20.7			12.1		9.9	
1992	20.9			12.5			
1993	20.8			12.9		8.3	
1994	20.6			12.9		7.1	
1995	20.9			13.0			
1996	21.2			13.1			
1997							

Source: Author's estimates based on data from UNIDO database on industrial statistics.

Appendix Table 1.19: Index of wage inequality: ratio of per worker wage in import-competing industries to that in export-oriented industries

	India	Indonesia	Korea, Republic of	Malaysia	Philippines	Japan	USA
1980							
1981	1.525	1.687	1.291	1.283			0.552
1982	1.518	1.690	1.275	1.259			0.555
1983	1.513	1.718	1.298	1.275	1.545		0.550
1984	1.555	1.963	1.261	1.270	1.416	0.612	0.542
1985	1.574	1.910	1.270	1.290	1.366	0.607	0.542
1986	1.605	1.828	1.250	1.314	1.477	0.615	0.548
1987	1.621	1.899	1.264	1.318	1.628	0.612	0.548
1988	1.573	1.940	1.200	1.303	1.575	0.612	0.555
1989	1.676	1.797	1.232	1.253	1.568	0.597	0.553
1990	1.645	1.648	1.177	1.205	1.661	0.604	0.550
1991	1.683	1.801	1.169	1.194	1.575	0.615	0.554
1992	1.730	1.647	1.169	1.186	1.563	0.617	0.558
1993	1.722	1.701	1.144	1.172	1.565		0.556
1994	1.742	1.740	1.109	1.156	1.424		0.556
1995		2.008	1.118	1.151	1.537		0.532
1996		1.857			1.543		0.504
1997							
	China		Taiwan (China)			Thailand	
1980	1.004		1.406				
1981	1.012		1.378				
1982	1.030		1.332			1.437	
1983	1.050		1.304				
1984	1.068		1.294			1.593	
1985	1.087		1.319				
1986	1.081		1.329			1.373	
1987			1.302				
1988			1.316			1.482	
1989			1.317			1.265	
1990			1.318			1.466	
1991			1.318			1.491	
1992			1.308				
1993			1.259			1.389	
1994			1.213			1.172	
1995			1.216				
1996			1.200				
1997							

Source: Author's estimates based on data from the UNIDO database on industrial statistics.

APPENDIX II

Lists of Export-Oriented and Import-Competing Industries for Different Countries and Regions

Argentina***Export-oriented industries***

Spinning, weaving and finishing textile
Manufacture of wearing apparel, except footwear
Tanneries and leather finishing
Fur dressing and dyeing industries
Manufacture of products of leather and leather substitutes, except footwear and wearing apparel
Manufacture of basic industrial chemicals except fertilizers
Manufacture of chemical products not elsewhere classified
Iron and steel basic industries
Non-ferrous metal basic industries
Manufacture of cutlery, hand tools and general hardware
Manufacture of engines and turbines
Manufacture of office, computing and accounting machinery
Manufacture of jewellery and related articles

Import competing industries

Manufactures of fertilizers and pesticides
Manufacture of synthetic resins, plastic materials and man-made fibres except glass
Manufacture of drugs and medicines
Manufacture of structural clay products
Manufacture of agricultural machinery and equipment
Manufacture of metal and wood working machinery
Manufacture of special industrial machinery and equipment except metal and wood working machinery
Machinery and equipment except electrical n.e.c.
Manufacture of electrical industrial machinery and apparatus
Manufacture of radio, television and communication equipment and apparatus
Manufacture of electrical appliances and housewares
Manufacture of electrical apparatus and supplies n.e.c.
Ship building and repairing
Manufacture of railroad equipment
Manufactures of motor vehicles
Manufacture of professional and scientific, and measuring and controlling equipment, n.e.c.
Manufacture of photographic and optical goods
Manufacture of watches and clocks
Manufacture of musical instruments

China

Export-oriented Industries

Spinning, weaving and finishing textile
Manufacture of made-up textile goods except wearing apparel
Knitting mills
Manufacture of carpets and rugs
Manufacture of textile not elsewhere classified
Manufacture of wearing apparel, except footwear
Manufacture of footwear, except vulcanized or moulded rubber or plastic footwear
Manufacture of wood and cork products not elsewhere classified
Manufacture of furniture and fixtures, except primarily of metal
Manufacture of basic industrial chemicals except fertilizers
Manufacture of drugs and medicines
Manufacture of chemical products not elsewhere classified
Manufacture of pottery, china and earthenware
Non-ferrous metal basic industries
Manufacture of sporting and athletic goods

Import-competing Industries

Manufacture of pulp, paper and paperboard
Manufactures of fertilizers and pesticides
Manufacture of synthetic resins, plastic materials and man-made fibres except glass
Manufacture of soap and cleaning preparations, perfumes, cosmetics and other toilet preparations
Manufacture of engines and turbines
Manufacture of metal and wood working machinery
Manufacture of special industrial machinery and equipment except metal and wood working machinery
Manufacture of office, computing and accounting machinery
Machinery and equipment except electrical n.e.c.
Manufacture of electrical industrial machinery and apparatus
Manufacture of radio, television and communication equipment and apparatus
Manufactures of motor vehicles
Manufacture of aircraft
Manufacture of professional and scientific, and measuring and controlling equipment, n.e.c.
Manufacture of photographic and optical goods

India

Export-oriented Industries

Spinning, weaving and finishing textile

Knitting mills

Manufacture of carpets and rugs

Manufacture of wearing apparel, except footwear

Tanneries and leather finishing

Manufacture of products of leather and leather substitutes, except footwear and wearing apparel

Manufacture of footwear, except vulcanized or moulded rubber or plastic footwear

Manufacture of furniture and fixtures, except primarily of metal

Manufacture of drugs and medicines

Manufacture of chemical products not elsewhere classified

Manufacture of cutlery, hand tools and general hardware

Manufacture of structural metal products

Manufacture of fabricated metal products except machinery and equipment not elsewhere classified

Manufacture of jewellery and related articles

Manufacture of musical instruments

Manufacture of sporting and athletic goods

Import-competing Industries

Manufacture of pulp, paper and paperboard

Manufacture of basic industrial chemicals except fertilizers

Manufactures of fertilizers and pesticides

Manufacture of synthetic resins, plastic materials and man-made fibres except glass

Manufacture of engines and turbines

Manufacture of metal and wood working machinery

Manufacture of special industrial machinery and equipment except metal and wood working machinery

Manufacture of office, computing and accounting machinery

Machinery and equipment except electrical n.e.c.

Manufacture of electrical industrial machinery and apparatus

Manufacture of radio, television and communication equipment and apparatus

Manufacture of aircraft

Manufacture of professional and scientific, and measuring and controlling equipment, n.e.c.

Manufacture of photographic and optical goods

Indonesia

Export-oriented Industries

Spinning, weaving and finishing textile
 Manufacture of made-up textile goods except wearing apparel
 Manufacture of carpets and rugs
 Manufacture of wearing apparel, except footwear
 Manufacture of products of leather and leather substitutes, except footwear and wearing apparel
 Manufacture of footwear, except vulcanized or moulded rubber or plastic footwear
 Sawmills, planing and other wood mills
 Manufacture of wood and cork products not elsewhere classified
 Manufacture of furniture and fixtures, except primarily of metal
 Manufacture of glass and glass products
 Non-ferrous metal basic industries
 Manufacture of furniture and fixture primarily of metal
 Manufacture of sporting and athletic goods
 Manufacturing industries n.e.c.

Import-competing Industries

Manufacture of pulp, paper and paperboard articles n.e.c.
 Manufacture of basic industrial chemicals except fertilizers
 Manufacture of synthetic resins, plastic materials and man-made fibres except glass
 Manufacture of chemical products not elsewhere classified
 Iron and steel basic industries
 Manufacture of cutlery, hand tools and general hardware
 Manufacture of structural metal products
 Manufacture of engines and turbines
 Manufacture of agricultural machinery and equipment
 Manufacture of metal and wood working machinery
 Manufacture of special industrial machinery and equipment except metal and wood working machinery
 Manufacture of office, computing and accounting machinery
 Machinery and equipment except electrical n.e.c.
 Manufacture of electrical industrial machinery and apparatus
 Manufacture of radio, television and communication equipment and apparatus
 Manufacture of electrical appliances and housewares
 Ship building and repairing
 Manufacture of railroad equipment
 Manufactures of motor vehicles
 Manufacture of professional and scientific, and measuring and controlling equipment, n.e.c.
 Manufacture of photographic and optical goods
 Manufacture of watches and clocks
 Manufacture of musical instruments

Korea, Republic of***Export-oriented Industries***

Spinning, weaving and finishing textile
Manufacture of made-up textile goods except wearing apparel
Knitting mills
Cordage, rope and twine industries
Manufacture of textile not elsewhere classified
Manufacture of wearing apparel, except footwear
Manufacture of products of leather and leather substitutes, except footwear and wearing apparel
Manufacture of footwear, except vulcanized or moulded rubber or plastic footwear
Tyre and tube industries
Iron and steel basic industries
Manufacture of cutlery, hand tools and general hardware
Manufacture of furniture and fixture primarily of metal
Manufacture of office, computing and accounting machinery
Manufacture of electrical industrial machinery and apparatus
Manufacture of radio, television and communication equipment and apparatus
Manufacture of electrical appliances and housewares
Manufacture of electrical apparatus and supplies n.e.c.
Ship building and repairing
Manufacture of motor vehicles
Manufacture of motorcycles and bicycles
Manufacture of musical instruments
Manufacture of sporting and athletic goods
Manufacturing industries n.e.c.

Import-competing Industries

Fur dressing and dyeing industries
Manufacture of pulp, paper and paperboard
Manufacture of pulp, paper and paperboard articles n.e.c.
Manufacture of basic industrial chemicals except fertilizers
Manufacture of synthetic resins, plastic materials and man-made fibres except glass
Manufacture of chemical products not elsewhere classified
Non-ferrous metal basic industries
Manufacture of engines and turbines
Manufacture of agricultural machinery and equipment
Manufacture of metal and wood working machinery
Manufacture of special industrial machinery and equipment except metal and wood working machinery
Machinery and equipment except electrical n.e.c.
Manufacture of aircraft
Manufacture of professional and scientific, and measuring and controlling equipment, n.e.c.
Manufacture of photographic and optical goods

Malaysia

Export-oriented Industries

Manufacture of wearing apparel, except footwear
 Manufacture of products of leather and leather substitutes, except footwear and wearing apparel
 Manufacture of footwear, except vulcanized or moulded rubber or plastic footwear
 Manufacture of wooden and cane containers and small cane ware
 Manufacture of wood and cork products not elsewhere classified
 Manufacture of furniture and fixtures, except primarily of metal
 Manufacture of rubber products n.e.c.
 Manufacture of pottery, china and earthenware
 Non-ferrous metal basic industries
 Manufacture of furniture and fixture primarily of metal
 Manufacture of office, computing and accounting machinery
 Manufacture of radio, television and communication equipment and apparatus
 Manufacture of electrical appliances and housewares
 Manufacture of sporting and athletic goods

Import-competing Industries

Manufacture of pulp, paper and paperboard
 Manufacture of basic industrial chemicals except fertilizers
 Manufactures of fertilizers and pesticides
 Manufacture of synthetic resins, plastic materials and man-made fibres except glass
 Manufacture of drugs and medicines
 Manufacture of soap and cleaning preparations, perfumes, cosmetics and other toilet preparations
 Manufacture of chemical products not elsewhere classified
 Iron and steel basic industries
 Manufacture of cutlery, hand tools and general hardware
 Manufacture of fabricated metal products except machinery and equipment not elsewhere classified
 Manufacture of engines and turbines
 Machinery and equipment except electrical n.e.c.
 Manufacture of electrical apparatus and supplies n.e.c.
 Ship building and repairing
 Manufactures of motor vehicles
 Manufacture of motorcycles and bicycles
 Manufacture of photographic and optical goods
 Manufacture of watches and clocks
 Manufacture of musical instruments

Mexico***Export-oriented***

Manufacture of carpets and rugs
Cordage, rope and twine industries
Manufacture of footwear, except vulcanized or moulded rubber or plastic footwear
Manufacture of glass and glass products
Iron and steel basic industries
Non-ferrous metal basic industries
Manufacture of furniture and fixture primarily of metal
Manufacture of engines and turbines
Manufacture of office, computing and accounting machinery
Manufacture of radio, television and communication equipment and apparatus
Manufacture of electrical appliances and housewares
Manufactures of motor vehicles

Import-competing

Manufacture of pulp, paper and paperboard
Printing, publishing and allied industries
Manufacture of basic industrial chemicals except fertilizers
Manufacture of synthetic resins, plastic materials and man-made fibres except glass
Manufacture of chemical products not elsewhere classified
Manufacture of cutlery, hand tools and general hardware
Manufacture of structural metal products
Manufacture of fabricated metal products except machinery and equipment not elsewhere classified
Manufacture of agricultural machinery and equipment
Manufacture of metal and wood working machinery
Manufacture of special industrial machinery and equipment except metal and wood working machinery
Machinery and equipment except electrical n.e.c.
Manufacture of electrical industrial machinery and apparatus
Manufacture of electrical apparatus and supplies n.e.c.
Manufacture of railroad equipment
Manufacture of professional and scientific, and measuring and controlling equipment, n.e.c.
Manufacture of photographic and optical goods
Manufacture of watches and clocks
Manufacture of jewellery and related articles

Philippines

Export-oriented Industries

Manufacture of made-up textile goods except wearing apparel
 Cordage, rope and twine industries
 Manufacture of wearing apparel, except footwear
 Manufacture of products of leather and leather substitutes, except footwear and wearing apparel
 Manufacture of footwear, except vulcanized or moulded rubber or plastic footwear
 Sawmills, planing and other wood mills
 Manufacture of wooden and cane containers and small cane ware
 Manufacture of wood and cork products not elsewhere classified
 Manufacture of furniture and fixtures, except primarily of metal
 Manufacture of chemical products not elsewhere classified
 Manufacture of pottery, china and earthenware
 Non-ferrous metal basic industries
 Manufacture of electrical apparatus and supplies n.e.c.
 Manufacture of jewellery and related articles
 Manufacture of sporting and athletic goods
 Manufacturing industries n.e.c.

Import-competing Industries

Manufacture of pulp, paper and paperboard
 Manufacture of basic industrial chemicals except fertilizers
 Manufactures of fertilizers and pesticides
 Manufacture of synthetic resins, plastic materials and man-made fibres except glass
 Iron and steel basic industries
 Manufacture of structural metal products
 Manufacture of fabricated metal products except machinery and equipment not elsewhere classified
 Manufacture of engines and turbines
 Manufacture of agricultural machinery and equipment
 Manufacture of metal and wood working machinery
 Manufacture of special industrial machinery and equipment except metal and wood working machinery
 Manufacture of office, computing and accounting machinery
 Machinery and equipment except electrical n.e.c.
 Manufacture of electrical industrial machinery and apparatus
 Manufacture of radio, television and communication equipment and apparatus
 Ship building and repairing
 Manufacture of railroad equipment
 Manufactures of motor vehicles
 Manufacture of motorcycles and bicycles
 Manufacture of professional and scientific, and measuring and controlling equipment, n.e.c.
 Manufacture of photographic and optical goods
 Manufacture of watches and clocks
 Manufacture of musical instruments

Taiwan, China

Export-oriented Industries

Manufacture of wearing apparel, except footwear
 Manufacture of footwear, except vulcanized or moulded rubber or plastic footwear
 Manufacture of wood and cork products not elsewhere classified
 Manufacture of furniture and fixtures, except primarily of metal
 Manufacture of furniture and fixture primarily of metal
 Manufacture of fabricated metal products except machinery and equipment not elsewhere classified
 Manufacture of metal and wood working machinery
 Manufacture of special industrial machinery and equipment except metal and wood working machinery
 Manufacture of office, computing and accounting machinery
 Manufacture of radio, television and communication equipment and apparatus
 Manufacture of electrical appliances and housewares
 Manufacture of electrical apparatus and supplies n.e.c.
 Manufacture of motorcycles and bicycles
 Manufacture of sporting and athletic goods
 Manufacturing industries n.e.c.

Import-competing Industries

Manufacture of pulp, paper and paperboard
 Manufacture of basic industrial chemicals except fertilizers
 Manufactures of fertilizers and pesticides
 Manufacture of synthetic resins, plastic materials and man-made fibres except glass
 Manufacture of paints, varnishes and lacquers
 Manufacture of drugs and medicines
 Manufacture of soap and cleaning preparations, perfumes, cosmetics and other toilet preparations
 Manufacture of chemical products not elsewhere classified
 Iron and steel basic industries
 Non-ferrous metal basic industries
 Manufacture of structural metal products
 Manufacture of engines and turbines
 Manufacture of agricultural machinery and equipment
 Manufacture of special industrial machinery and equipment except metal and wood working machinery
 Machinery and equipment except electrical n.e.c.
 Manufacture of electrical industrial machinery and apparatus
 Ship building and repairing
 Manufactures of motor vehicles
 Manufacture of professional and scientific, and measuring and controlling equipment, n.e.c.
 Manufacture of photographic and optical goods
 Manufacture of watches and clocks
 Manufacture of jewellery and related articles

Thailand

Export-oriented Industries

Manufacture of made-up textile goods except wearing apparel
 Cordage, rope and twine industries
 Manufacture of wearing apparel, except footwear
 Manufacture of products of leather and leather substitutes, except footwear and wearing apparel
 Manufacture of footwear, except vulcanized or moulded rubber or plastic footwear
 Sawmills, planing and other wood mills
 Manufacture of wooden and cane containers and small cane ware
 Manufacture of wood and cork products not elsewhere classified
 Manufacture of furniture and fixtures, except primarily of metal
 Manufacture of rubber products n.e.c.
 Manufacture of pottery, china and earthenware
 Non-ferrous metal basic industries
 Manufacture of office, computing and accounting machinery
 Manufacture of radio, television and communication equipment and apparatus
 Manufacture of electrical appliances and housewares
 Manufacture of jewellery and related articles

Import-competing Industries

Manufacture of pulp, paper and paperboard
 Manufacture of basic industrial chemicals except fertilizers
 Manufactures of fertilizers and pesticides
 Manufacture of synthetic resins, plastic materials and man-made fibres except glass
 Manufacture of drugs and medicines
 Manufacture of chemical products not elsewhere classified
 Iron and steel basic industries
 Manufacture of cutlery, hand tools and general hardware
 Manufacture of structural metal products
 Manufacture of engines and turbines
 Manufacture of agricultural machinery and equipment
 Manufacture of metal and wood working machinery
 Manufacture of special industrial machinery and equipment except metal and wood working machinery
 Machinery and equipment except electrical n.e.c.
 Manufacture of electrical industrial machinery and apparatus
 Manufacture of electrical apparatus and supplies n.e.c.
 Ship building and repairing
 Manufactures of motor vehicles
 Manufacture of professional and scientific, and measuring and controlling equipment, n.e.c.
 Manufacture of photographic and optical goods
 Manufacture of watches and clocks

Japan and the United States of America

Export-oriented industries

Manufacture of pulp, paper and paperboard
 Manufacture of basic industrial chemicals except fertilizers
 Manufactures of fertilizers and pesticides
 Manufacture of synthetic resins, plastic materials and man-made fibres except glass
 Manufacture of structural clay products
 Iron and steel basic industries
 Manufacture of engines and turbines
 Manufacture of agricultural machinery and equipment
 Manufacture of metal and wood working machinery
 Manufacture of metal and wood working machinery
 Manufacture of special industrial machinery and equipment except metal and wood working machinery
 Manufacture of office, computing and accounting machinery
 Machinery and equipment except electrical n.e.c.
 Manufacture of electrical industrial machinery and apparatus
 Manufacture of electrical appliances and housewares
 Ship building and repairing
 Manufacture of railroad equipment
 Manufactures of motor vehicles
 Manufacture of aircraft
 Manufacture of professional and scientific, and measuring and controlling equipment, n.e.c.
 Manufacture of photographic and optical goods
 Manufacture of watches and clocks

Import-competing industries

Spinning, weaving and finishing textile
 Manufacture of carpets and rugs
 Cordage, rope and twine industries
 Manufacture of wearing apparel, except footwear
 Manufacture of products of leather and leather substitutes, except footwear and wearing apparel
 Manufacture of footwear, except vulcanized or moulded rubber or plastic footwear
 Manufacture of wooden and cane containers and small cane ware
 Manufacture of wood and cork products not elsewhere classified
 Manufacture of pottery, china and earthenware
 Non-ferrous metal basic industries
 Manufacture of furniture and fixture primarily of metal
 Manufacture of professional and scientific, and measuring and controlling equipment, n.e.c.
 Manufacture of jewellery and related articles
 Manufacture of musical instruments
 Manufacture of sporting and athletic goods

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