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**INTERNATIONAL TRADE AND LABOUR MARKET  
PERFORMANCE:  
MAJOR FINDINGS AND OPEN QUESTIONS**

by

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## **ABSTRACT**

This paper surveys the findings arising from existing research and suggests some directions for improving our understanding of the links between international trade and the labour market. Three routes for further research seem particularly promising. First, an effort should be made to put in relation labour market variables directly with trade policy measures. Second, there is a need to address the issue of trade and labour market outcomes from a consistent cross-country perspective. Finally, the role of labour market institutions and production internationalization (through outsourcing, international exchange of intermediate inputs or FDI) should be further explored.

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## I. INTRODUCTION

The wage and employment conditions of unskilled workers in many developed countries have deteriorated during the last couple of decades. Depending on which countries are considered, this tendency may show up either as a reduction in employment perspectives for unskilled workers (continental Europe) or as a reduction in their relative, and even absolute, earnings (United States). During the same period, the labour markets in developing countries have been showing opposite tendencies, depending on the geographical aggregates considered. While disguised unemployment and wage inequality have been falling in many Asian countries, labour market conditions have been sluggish in Latin America, and inequalities have been increasing.

At the beginning of the 1990s, the focus of the analysis of labour market developments has shifted from a short-run, to a long-run, structural perspective. The persistence of growing unemployment or falling wages in a number of developed countries gave rise to the view that the deterioration of the economic position of unskilled workers is to be attributed to a long-run tendency that is driving the fundamentals of the economy.<sup>1</sup> Two major structural changes have characterized the last 20 years: the introduction of information technologies and the growth in world trade and capital movements. Growing trade is, to a non-negligible extent, attributable to liberal trade reforms adopted in many developing countries. The current worldwide developments parallel those at the beginning of the 20<sup>th</sup> century, when rapid technical change and increased international mobility for goods and production factors were coupled with increasing

inequality in the developed world. During that period, however, labour migration seems to have played a major role, whereas in the current situation, the international movement of workers is not of a comparable magnitude (Baldwin and Martin, 1999). Research suggests that the explanation for the deteriorating situation of unskilled workers is to be found in a tendency towards declining demand for the services of unskilled labour (Katz and Murphy, 1992; OECD, 1997; World Bank, 1995; Slaughter and Swagel, 1997).

Technological change and the process of “globalization” – namely, institutional and technical developments that are reducing the mobility barriers for goods and production factors – may both be responsible for causing a secular downturn in the demand for unskilled labour. As for technological change, it may cause a reduction in the demand for unskilled labour if newly introduced technologies are sufficiently “skill-biased”. Trade-related developments are generally thought to affect the demand for different types of labour through the intersectoral composition of the demand for goods.

Globalization and technological change differ in a fundamental sense. While technological progress is driven by innovations whose development and adoption can be influenced by the policy environment only to some extent, the openness of markets absolutely depends on laws and regulations imposed by sovereign Governments. Understanding the origins of the developments observed in the labour market has primary implications for economic policy. Not sur-

prisingly, there has been a lively debate in recent years, focused on the identification of the forces shaping the demand for labour in the North. Empirical work has proliferated, and alternative techniques have been confronted with the aim of assessing the relative importance of technology and trade as alternative explanations for the observed reduction in the demand for unskilled labour.

The aim of this paper is to summarize the results of recent research into the effects of trade on labour demand, and to identify some open questions and directions for further research. Three paths are identified as particularly promising. First, an effort should be made to relate labour market variables directly to trade policy measures. Second, the links between trade and the la-

bour market should be addressed from a consistent cross-country perspective. Third, the role of labour market institutions and production internationalization (outsourcing, international exchange of intermediate inputs, foreign direct investment) should be further explored.

The next section summarizes some basic facts about world trends in trade integration, employment and wage inequality. Section III illustrates the explanations commonly offered by labour and trade economists to account for the effects of trade on employment and wage dynamics, and assess the findings of empirical research on that issue. Section IV identifies some open questions and paths for further research. Section V concludes.

## II. THE FACTS

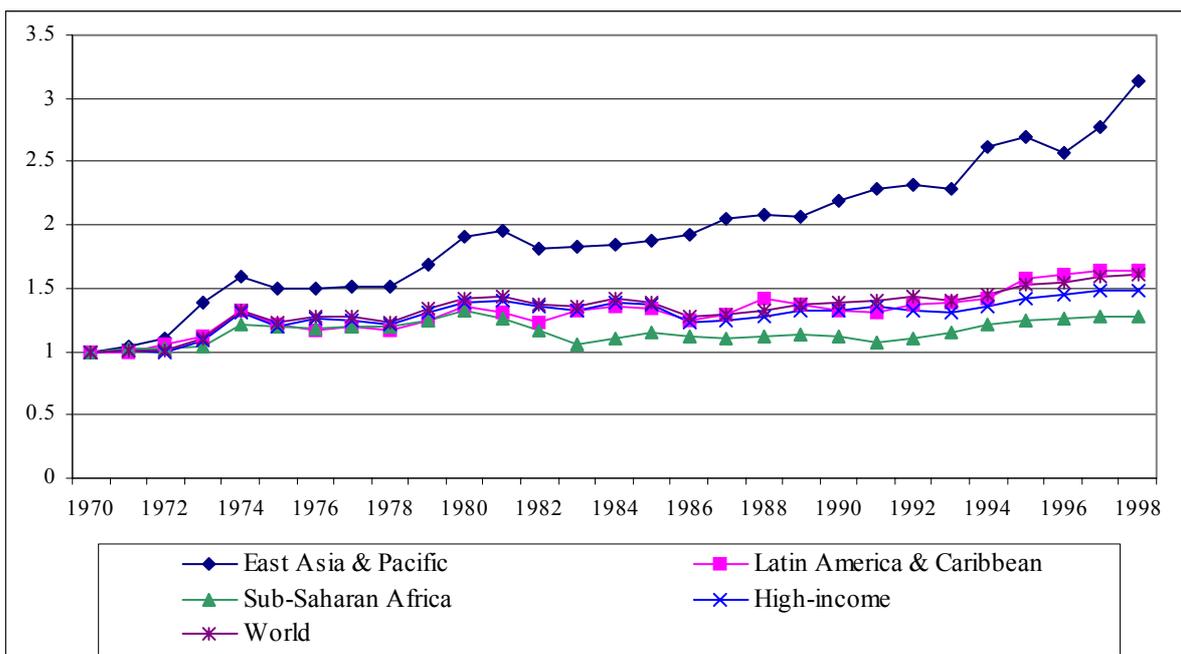
### A. Growing world trade: trends and determinants

Trade integration increased steadily in the post-war period worldwide, with an upswing in global openness during the 1970s, followed by a slight contraction in the middle of the 1980s and an acceleration in the 1990s (Krugman, 1995; Baldwin and Martin, 1999). Not all countries have been sharing equally in the opportunities offered by growing world trade. Figure 1 shows index numbers for the ratio of total trade value to GDP (as an indicator of trade openness) for different country aggregates and the world as a whole for the period 1960-1998. Until the end of the 1970s, trade openness had been

increasing quite steadily for all country aggregates. Since then, the openness indicator of Asian countries has accelerated sharply, while that of sub-Saharan Africa and Latin America has experienced a deceleration.

A large part of the increase in trade integration and interdependence is due to a long-term downward trend in transport and communication costs. Part of the greater interdependence is associated with reductions in trade barriers as a result of autonomous, regional and multilateral trade liberalization. In the post-war period, manufacturing tariffs in industrialized countries have been cut to an average of 3-4 per cent as a result of the various GATT/WTO rounds. The conclusion

**Figure 1. Trade openness, by major country grouping**  
(total trade as a percentage of GDP, base 1970 = 1)



Source: UNCTAD computations based on World Bank, *World Development Indicators*, 2001.

of the Uruguay Round contributed to a further multilateral reduction in manufacturing tariffs since the mid-1990s, to the elimination of incumbent non-tariff measures, to the tariffication of agricultural protection and to its incipient reduction. Regional trade agreements have contributed to expanding trade within trade blocs, both as a result of the formation of new agreements (NAFTA, MERCOSUR, ASEAN, COMESA) and as a result of the deepening and increased coverage of existing agreements (EEC).<sup>2</sup> Finally, a number of developing countries in Latin America, North Africa, South Asia and South-East Asia have been reducing their trade barriers unilaterally, often in conjunction with the adoption of structural adjustment and stabilization policies. Overall, the acceleration in trade integration during the 1990s was the result of trade liberalization, which was most marked in certain Asian developing and middle-income countries.

## **B. Trade integration and labour market dynamics: the broad picture**

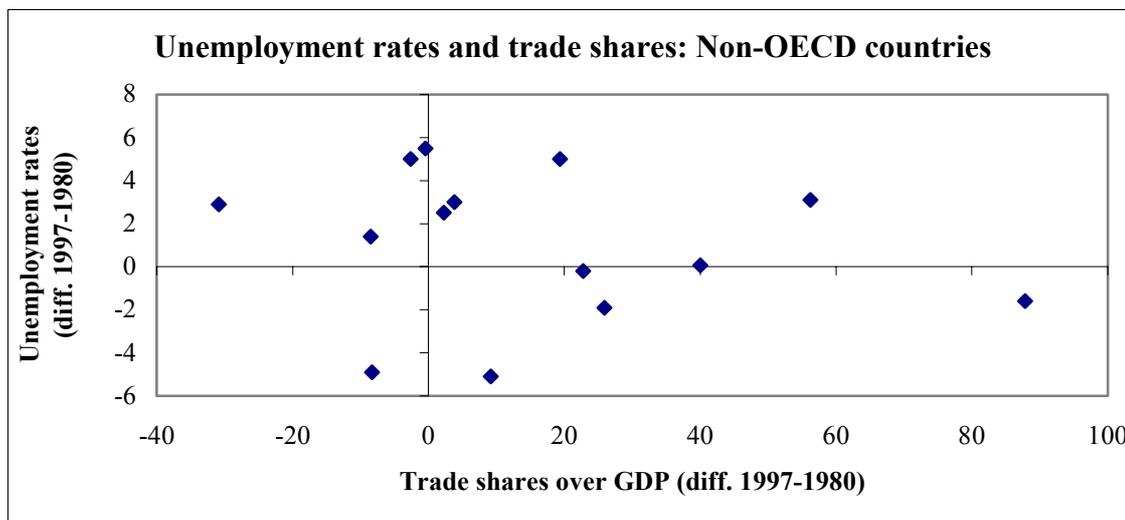
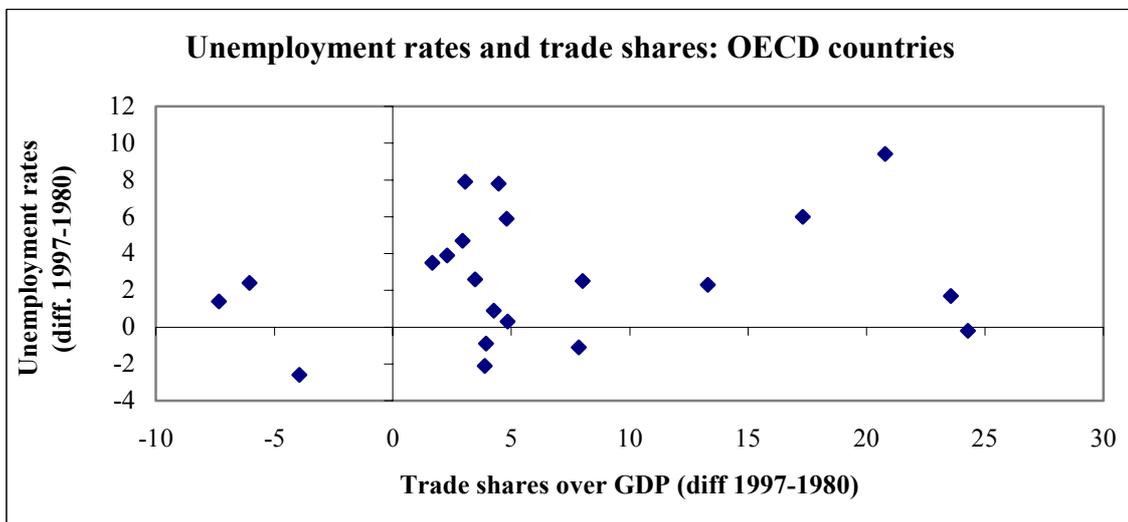
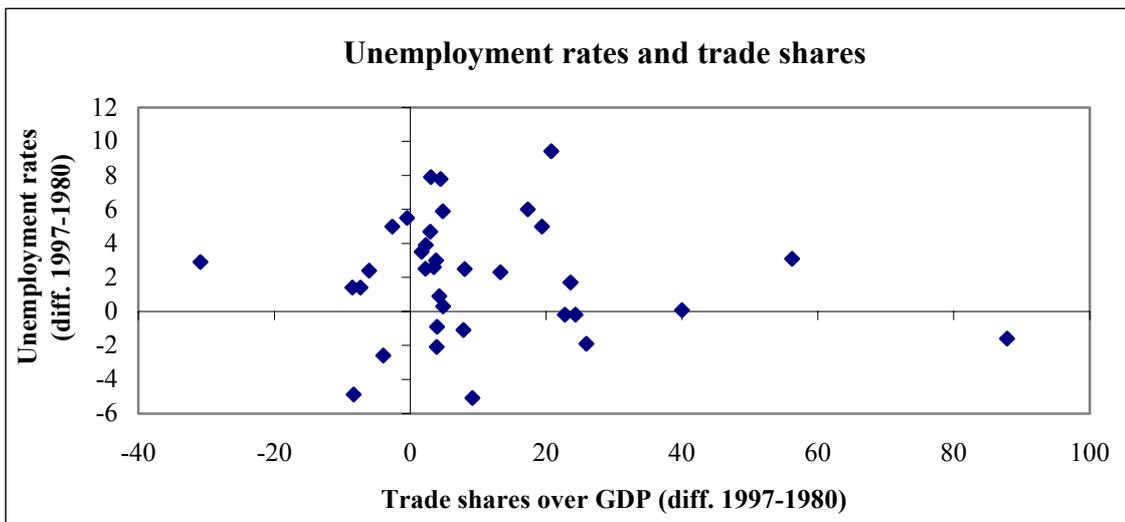
During the last 20 years, a generalized reduction in the aggregate demand for labour paralleled the developments in international trade.<sup>3</sup> The unemployment rate has been growing on average across countries. The increase in unemployment has been more substantial in developed countries. While in the average OECD country the unemployment rate grew by more than 2 per cent between 1980 and 1997, in the average non-OECD country unemployment grew by less than half a percentage point.<sup>4</sup> The share of wage income in total income has also been falling on average. The fall, again, is more substantial in developed economies. These aggregate figures, however, mask important differences across countries. Within developed countries (aggregate) labour demand has been falling more substantially in continental Europe; within developing countries, Latin America and sub-Saharan Africa experienced the major employment losses.

Figure 2 illustrates the cross-country relationship between changes in trade openness (as measured by the ratio of trade to GDP) and unemployment rates over the period 1980-1997. When the sample includes all countries, the relationship appears very weak (the correlation coefficient between the two variables is close to zero). If the sample is restricted, respectively, to OECD and non-OECD countries a clearer pattern emerges. In OECD countries there is a slight positive correlation between changes in trade openness and unemployment (with a correlation coefficient of 0.16), whereas the correlation is negative for non-OECD countries (with a coefficient of -0.5). A similar pattern is observed with regard to the wage share in total income (figure 3). For the whole sample of countries, the correlation between changes in trade openness and wage share is very weak, while for OECD countries it is negative (-0.3) and for non-OECD countries it is slightly positive (0.11). Of course, this evidence is not indicative of any causal relationship between trade liberalization and labour demand. The co-evolution of unemployment rates and wage shares of income can be attributed to many different factors. Before drawing any conclusion concerning the links between trade openness and the demand for labour, one has to control for the main residual factors that may explain employment and wage dynamics. However, there is a *prima facie* indication that the effects of growing trade integration on labour demand may have been quite different in developed and developing countries – that is to say, while increased trade is coupled with falling labour demand in developed countries, this does not seem to be the case in developing countries.

## **C. Trade liberalization and employment dynamics in developing countries**

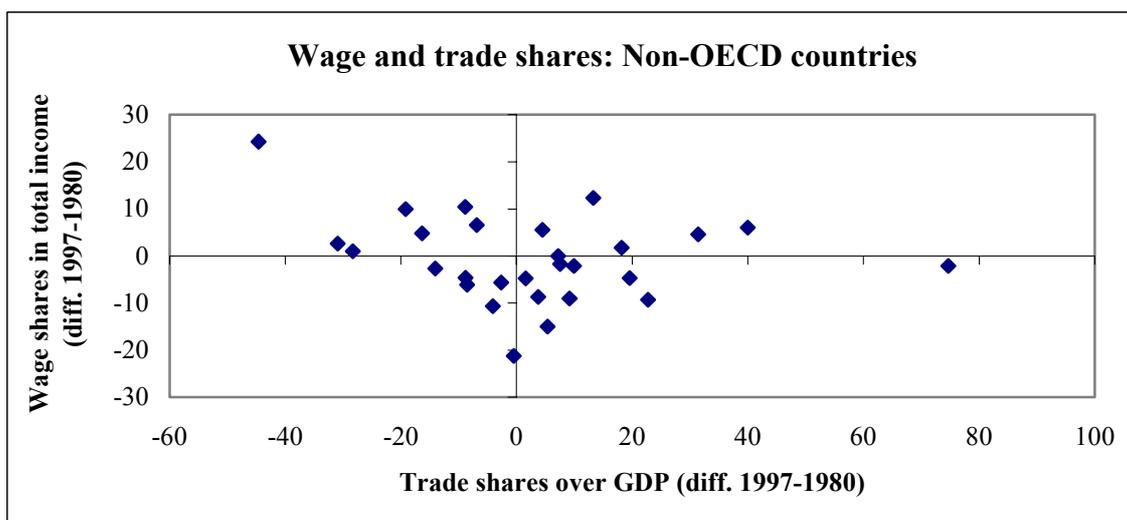
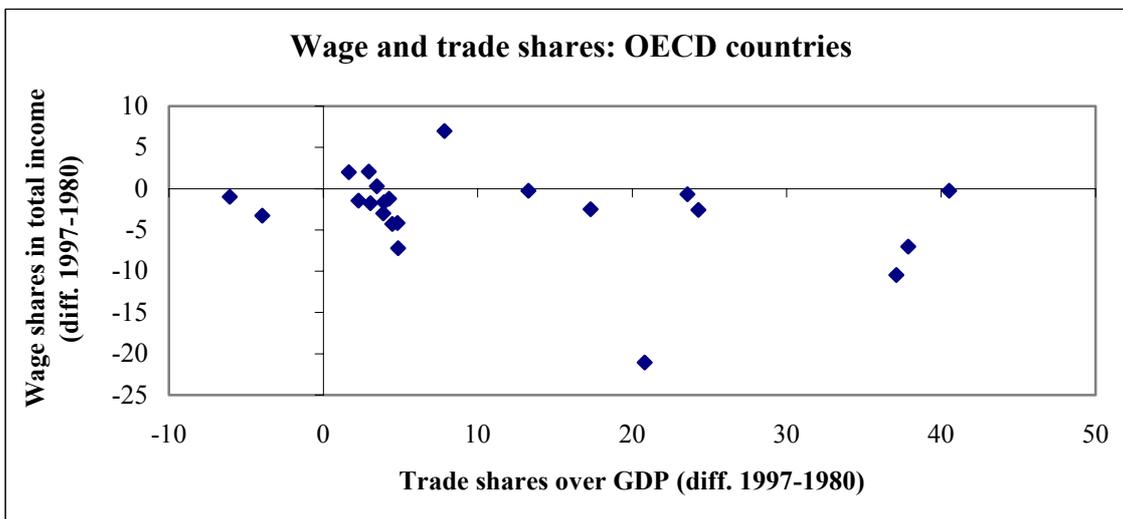
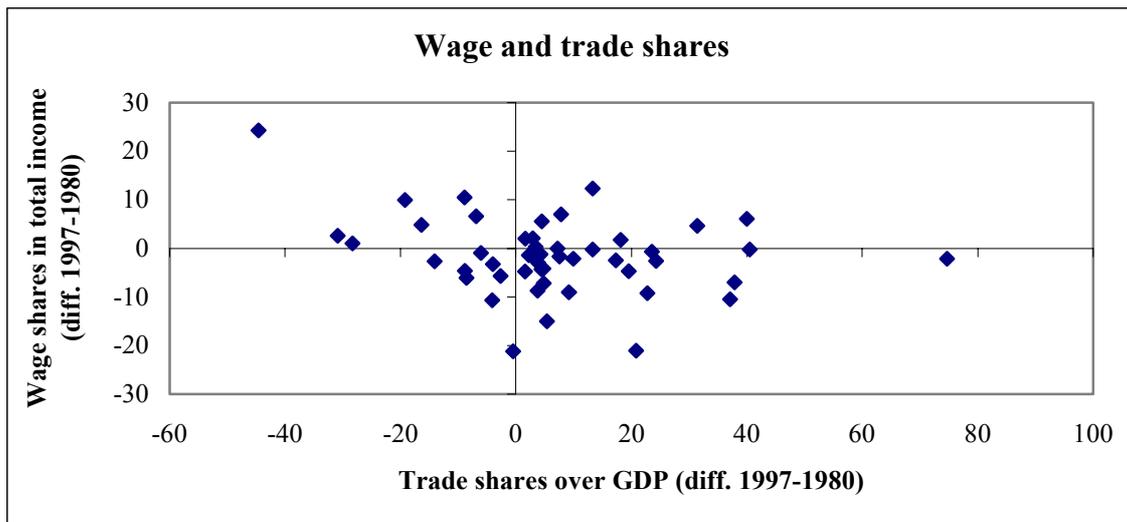
During the last couple of decades, major trade liberalization reforms have been carried out in developing countries, especially in Latin America, North Africa and

**Figure 2. Unemployment rates and trade openness (changes 1980-1997)**



Source: UNCTAD computations based on World Bank, *World Development Indicators*, 2001.

Figure 3. Wage shares and trade openness (changes 1980-1997)



Source: UNCTAD computations based on World Bank, *World Development Indicators*, 2001.

South and South-East Asia. Available evidence shows that, during and after most of the trade liberalization episodes, there was not a major contraction in manufacturing employment.<sup>5</sup> Papageorgiou, Choksi and Michaely (1990), in a cross-country analysis of a series of case studies, conclude that trade liberalization in developing countries in general does not result in employment losses even in the short run. The results of their analysis are summarized in table 1. Manufacturing employment was higher after liberalization in 12 out of the 13 cases reported, the exception being Chile. Parker, Riopelle and Steel (1995) focus on employment changes in small firms following trade liberalization in a number of African countries. In general, there is evidence of a sustained growth in employment after liberalization in all African countries examined. Harrison and Revenga (1995) studied the experience of 16 low- and medium-income economies in which there was significant trade liberalization in the last 20 years. They reported the results concerning employment dynamics for six of them. While employ-

ment was growing in Latin American countries (Costa Rica, Peru and Uruguay) throughout the whole period of liberalization and after, in transition economies (Czechoslovakia, Poland and Romania) there were substantial employment losses.

With regard to the evolution of income inequalities in liberalizing developing countries, the picture varies widely across regions. While wage inequality has been constant or narrowing in most Asian countries over the past two decades (Fields, 1994; World Bank, 1995), in a number of Latin American countries that underwent significant episodes of trade liberalization inequality has been increasing markedly (Revenga, 1995; Wood, 1997; Robbins, 1996; UNCTAD, 1997).

#### **D. Growing labour market inequalities in developed countries**

In developed countries, trade liberalization reforms in the last two decades have been less radical, except perhaps in Australia

**Table 1. Employment in manufacturing during episodes of liberalization**  
(Thousands of workers)

<b>Episode</b>	<b>Year before liberalization</b>	<b>Average for liberalization period</b>	<b>Year after liberalization</b>
Argentina 1 (1967-1970)	1 836	1 847	1 914
Argentina 2 (1976-1980)	1 863	2 099	2 132
Brazil (1965-1973)	1 780	2 182	3 397
Chile 2 (1974-1981)	515	487	351
Peru (1979-1980)	675	717	736
Philippines 1 (1960-1965)	1 456	1 647	1 825
Philippines 2 (1970-1974)	2 056	2 313	2 596
Rep. of Korea 2 (1978-1979)	2 000	2 196	2 099
Singapore (1968-1973)	61	139	210
Sri Lanka 1(1968-1970)	74	108	97
Sri Lanka 2 (1977-1979)	112	134	155
Turkey 1 (1970-1973)	485	551	651
Turkey 2 (1980-1984)	799	829	n.a.

*Source:* Table 10 in Papageorgiou, Choksi and Michaely (1990).

*Note:* Periods of liberalization are in parentheses.

and New Zealand. Increased trade openness in developed countries was mainly the result of a long-run decline in transport and communication costs. For many industrialized countries, what characterizes recent decades is an acceleration of trade with high-growth developing countries (especially Asian countries). Trade with developing countries, however, remains quite small in absolute values in all industrialized countries (well below 5 per cent in the United States and the European Union).

The labour market developments in a number of developed countries have been characterized by increasing inequality, especially with regard to skills (table 2). The average wage for unskilled workers in the United States was declining from the early 1980s in comparison with the average wage for skilled workers, thus reversing a trend towards decreasing income inequality across educational levels observed in previous dec-

ades (Bound and Johnson, 1992; Katz and Murphy, 1992; Berman, Bound and Griliches, 1994). Since the relative supply of skilled labour has been increasing throughout the post-war period, increasing income differences between skilled and unskilled workers have been attributed to changes in relative demand. Similar yet less clear-cut developments occurred in the same period in other developed countries (Davis, 1992; Freeman and Katz, 1996; OECD, 1997). In Europe, with the notable exception of the United Kingdom the decline in relative demand for skilled workers did not result in increasing income differences, but rather in slower employment growth for the less educated (table 3). There is agreement that this different labour market performance for continental Europe is due to institutional factors, such as union policies, centralized wage setting and binding minimum wage laws (Freeman and Katz, 1996).

**Table 2. Wage inequality changes in OECD countries**

	1979-1989		1989-1994/5	
	D9/D5	D5/D1	D9/D5	D5/D1
Australia	0.02	0.02	0.06	-0.04
Canada	0.03	0.08	-0.01	-0.13
France	0.02	-0.01	0.01	0.00
Germany	0.01	-0.12	-0.03	-0.08
Italy	-0.03	-0.23	0.19	0.32
Japan	0.05	0.00	-0.02	-0.07
Netherlands	0.03	0.00	0.02	0.01
United Kingdom	0.09	0.05	0.03	0.02
United States	0.12	0.11	0.06	0.07

*Source: OECD Employment Outlook, July 1996, table 3.1.*

*Note: D9/D5 is the value of the ninth decile over the first; D5/D1 is the value of the fifth decile over the first decile.*

**Table 3. Unemployment rates in the OECD**

	1973	1979	1985	1989	1993
OECD	3.3	5.1	7.8	6.4	8.0
OECD Europe	3.0	5.6	9.9	8.5	10.4
Of which EU	2.7	5.4	10.5	8.7	11.0

*Source: OECD Labour Force Statistics, 1973-1993, 1995.*

*Note: Table entries are unemployment rates expressed as percentages.*

### III. INTERPRETING THE FACTS

#### A. Trade liberalization and the reallocation of labour from import-competing to export industries in developing countries

The employment effects associated with trade liberalization in developing countries have often been interpreted in the light of a “specific factors” trade model. This model assumes that some production factors (e.g. capital equipment) are immobile across sectors, and is suited for a short-run appraisal of the effects of trade policy shocks on labour demand. After trade liberalization, labour shifts from the shrinking import-competing sectors to the expanding export-oriented ones. At the end of the reallocation process, overall labour demand may either rise or fall, depending on the relative labour intensity of import-competing and export-oriented industries. The common a priori assumption is that in developing countries the labour intensity of export industries is higher than that of import-competing sectors (since the comparative advantage of these countries lies in their labour endowments), so that, overall, trade liberalization should bring about an increase in overall labour demand.<sup>6</sup> Some empirical work aimed at assessing this hypothesis has been carried out in the past decade. In this work, the relationship between sectoral measures of wages and employment on the one hand, and sectoral trade variables such as trade flows, trade prices or, more rarely, trade policy variables on the other hand, is tested.

Overall, the econometric work done so far roughly confirms the finding obtained from the simple count of job flows during liberalization: trade liberalization did not result in major changes in employment or

wages in most developing countries. Currie and Harrison (1997) find that in Morocco the impact of tariff and quota removal has been quite limited, both on employment and on wages. Milner and Wright (1998) obtain similar results for Mauritius. Revenga (1995) shows that during trade liberalization in Mexico manufacturing employment did not fall much, whereas wages declined substantially. Rama (1994) is one of the few studies in which reported employment effects (estimated for Uruguay) are quite considerable. These results contrast with those obtained in analogous studies for the United States and Canada: after trade liberalization in North America job flows were found to be quite substantial (Revenga, 1992; Gaston and Trefler, 1997).

What is more puzzling is that the expectation that employment should increase in export-oriented sectors and decline in import-competing industries is disproved in a number of studies. Milner and Wright (1998) analyse the case of Mauritius and find that, after some time lags, trade liberalization resulted in expanded labour demand in export industries. More surprisingly, labour demand appears to increase even in import-competing industries. Similar positive employment effects in import-competing industries are reported in Ghose (2000) for a number of Asian countries and in Dessing (2000) for 18 developing countries in Latin America, Africa and Asia.

#### B. Labour market inequality and growing North-South trade

The increase in labour market inequalities in developed countries has been

associated with increased trade through a long-run trend towards the substitution of unskilled labour for skilled labour. This view is rooted in the neoclassical model of comparative advantage. The Stolper-Samuelson theorem indicates that falling demand for unskilled labour in developed countries is caused by the fact that those goods that require intensive use of unskilled labour services are increasingly produced and exported by unskilled labour-abundant developing countries.

Empirical analysis aimed at testing whether growing trade is responsible for the labour market developments in the North has been abundant in recent years. The methodologies employed by trade and labour economists differ.<sup>7</sup> Labour economists look at the impact of trade volumes on the earnings of workers with different skills (examples are given in Wood, 1994, and Borjas, Freeman and Katz, 1992). The logic of this analysis is that trade in goods produces effects analogous to those of changes in the relative supply of labour. By computing the “factor content of trade” (i.e. the direct and indirect amount of factor inputs necessary for producing a given amount of traded output) it is possible to assess by how much domestic unskilled labour is displaced by the unskilled labour “incorporated” in net imports. Trade economists followed a different approach. In their view, trade flows

cannot be used directly as explanatory factors of factor rewards, since they are endogenous – that is, determined together with factor earnings. According to that view, relative wages are to be related to price variables. The expectation is that falling prices of imports will lead to a contraction of import-competing industries, and then to falling demand for the factors employed intensively there. This path has been followed in several studies. For example, Lawrence and Slaughter (1993) and Sachs and Shatz (1994) simply relate the change in import prices to employment levels in the United States. Leamer (1996), Feenstra and Hanson (1999), and Haskel and Slaughter (2001) analyse which change in factor prices would have been necessary in order to reproduce, consistently with the Stolper-Samuelson theorem, the observed changes in import prices and productivity, and compare these “mandated” wage changes with the actual changes in the United States economy.

In spite of the differences in the analytical approach, the message emerging from recent work aimed at assessing the impact of trade on labour market inequalities is quite unanimous: trade integration had only a marginal role in shaping the structural developments in labour markets over the last 20 years.<sup>8</sup> The conventional wisdom is that these trends have rather to be attributed to skill-biased technological change.

## IV. OPEN QUESTIONS AND PATHS FOR FURTHER RESEARCH

The existing research has been useful in giving a broad assessment of the order of magnitude of the impact of trade integration on labour demand. However, several puzzles and open questions remain. Why have the estimated effects of trade liberalization generally been so slight in developing countries? Why does the empirical evidence not clearly confirm the expectation that, after liberalization, employment will expand in export sectors and fall in import industries? How do we explain the fact that labour market inequalities have been increasing in Latin America and decreasing in many Asian countries?

A better understanding of these and other open issues requires that some of the limitations that persist in existing research be tackled. Some are related to the empirical implementation of the models currently employed to study the effects of trade on the labour market, while others are rooted in the models themselves.

### A. Limitations in empirical implementation

#### 1. *Disentangling the effects of trade policy shocks*

The studies aimed at evaluating the effects of trade on labour demand in developing countries in a fixed-factor model framework, as well as those using the neo-classical comparative advantage model to explain developments in industrialized countries, relate labour market variables (employment, wages) to trade flows or import prices. There is a problem with this approach. Trade flows are clearly endog-

enous, determined together with the value of labour market variables. This is a major concern which trade economists have about the work undertaken by labour economists. As for import prices, they can be considered endogenous only on the assumption that the country being analysed is a “small” one, and is therefore not in a position to affect world prices. While this assumption can be justified for some countries, it is not appropriate for countries such as the United States that can hardly be defined as price-takers in most products.

Developments in trade quantities and prices can be the result of changes in technology, factor endowments, tastes or policy. It is important to disentangle the different effects of such determinants – for two main reasons. First, while factor endowments are essentially fixed and technology can hardly be stopped or reversed by government intervention, the changes in labour market outcomes that stem from trade policy reform are under the control of national authorities. Second, depending on which sectors are subject to trade liberalization, the effects on labour demand can differ substantially. Disentangling the role of actual trade policy reforms from that played by other determinants of trade flows adds important information to evaluate the effects of trade *ex post*.

Studies that analyse the impact of trade on the labour market, evaluating what share of import price changes is attributable to trade policy, have so far been very few in number.<sup>9</sup> Further research should address this issue.

## ***2. How short is the short run, how long the long run?***

Most of the work focusing on the labour market impact of trade in developing countries adopts a short-run perspective, implicit in the fixed-factor model of international trade. Conversely, most of the studies focusing on industrialized countries are based on the long-run framework of the neoclassical model of comparative advantage. The idea beyond this difference in the chosen perspective is that while most of the trade-related changes in developing countries are associated with one-time reforms in trade policy, most of the trade developments in advanced countries reflect long-run tendencies in transport and communication costs, technology and factor endowments.

Though useful for conceptual purposes, the distinction between the short and the long run is blurred in practice. How long does it take for “mobile” workers to shift from import-competing to export-oriented sectors? How long does it take for all production factors (capital, skilled and unskilled labour) to shift to a sector paying relatively higher rewards for their services? Most probably, the answers to these questions depend a great deal on the peculiarities of specific cases. However, the common practice of adopting a short-run perspective when analysing developing countries and a long-run one when studying developed countries seems more dictated by a priori considerations than by a careful examination of the country characteristics.

As noted in Slaughter (1998), it is quite surprising that almost all the work based on estimating the contribution of trade to changes in developed countries’ labour markets relate trade variables to labour market variables measured at the same point in time. This is comparable to assuming that production factors can reallocate immediately after the occurrence of trade shocks. But what if we admit that for labour market ad-

justment to occur may require some time? In this case, one may argue that the conclusion that trade played actually a minor role in explaining United States wage inequality needs further exploration. In fact, the data show that increasing inequality in the United States started only at the beginning of the 1980s, but that trade integration produced marked changes in import prices only in the 1970s, and not in the 1980s.<sup>10</sup> There is a suspicion that, owing to frictions that slow down the intersectoral reallocation of workers, the trade shocks characterizing the United States economy during the 1970s may have started to play a role in the labour market only in the 1980s.

Overall, there is a need for a systematic investigation of which perspective (long- or short-run) should inspire the empirical work in different countries and of which assumptions should be made concerning the lags with which the reallocation of labour across sectors takes place.

## ***3. Adopting a cross-country perspective***

One basic fact that seems to contradict explanations based on the neoclassical model of comparative advantage for the growing labour market inequalities in industrialized countries is that income inequality has been increasing also in a number of developing countries. In most Latin American countries, in fact, wage inequality between skilled and unskilled workers was increasing in the same period as that in which rising wage differentials in the United States were appearing. This would seem to be at odds with the predictions of the Stolper-Samuelson theorem, according to which we should expect income inequalities between the skilled and the unskilled to fall as a result of trade in developing countries. The reason is that the stock of human capital in developing countries is smaller than that in developed countries, so that the comparative advantage of the former should lie in unskilled labour, which will benefit from

increased trade integration. As suggested in Wood (1997), this puzzle can be solved by abandoning the textbook version of the neo-classical model of comparative advantage.<sup>11</sup> The Stolper-Samuelson theorem permits a very straightforward prediction: in a given country, the factor benefiting from trade liberalization is the one that is relatively abundant in comparison with the world average. Two caveats must be entered regarding this proposition: the first concerns the requirements for the validity of this result, and the second concerns its operational use and its interpretative power. The Stolper-Samuelson theorem requires that all countries effectively produce all the feasible goods. Should any country appear to be specialized in the production of a subset of the goods only, the relation between good and factor prices fails to follow the predictions of the Stolper-Samuelson theorem. When the countries, the sectors and the relevant production factors are many, as they are in the real world, it may be quite difficult to understand empirically in which production factor a given country is relatively abundant and in which trade liberalization context this factor is going to benefit from increased trade integration. Latin America, for instance, can easily be considered an unskilled labour-abundant country according to a restrictive representation of the world in which the only factors are skilled and unskilled and sectors are to be distinguished between those inten-

sive in skilled labour and those intensive in unskilled labour. Allowing for a more complex picture with several production factors, Latin America may more properly be defined as a land-intensive region. The effects of trade liberalization on income inequality in such a perspective may be less straightforward.

To illustrate this point, tables 4 and 5 show computable general equilibrium (CGE) simulations of the effects on factor earnings arising from the full liberalization of textiles and clothing and agricultural trade. The simulations are obtained from the GTAP model.<sup>12</sup> In this experiment, the world is divided into 12 geographical regions; there are six sectors and five production factors (see tables 4 and 5 and related footnotes).<sup>13</sup> When the textiles and clothing sector is liberalized (table 4), skilled/unskilled wage differentials increase in North America and Western Europe, fall in Asian countries and stay relatively constant in Latin America. This scenario is roughly consistent with the predictions of the Stolper-Samuelson theorem and conveys quite closely the a priori assumption underlying many recent empirical studies. Textiles and apparel products are, overall, intensive in unskilled labour. Developing countries are relatively abundant in unskilled labour, and developed countries in skilled labour. As a consequence, trade liberalization in textiles and clothing results in

**Table 4. Effects of a 100% cut in textile and apparel tariff on real incomes**  
(Percentage changes)

	Western Europe	North America	Oceania	Japan	Trans. countries	Sub-Saharan Africa	North Africa and Middle East	Latin America	Asian NICs	China	South Asia	Rest of the world
Land	0.56	1.50	2.12	0.46	0.44	0.99	1.16	1.13	-0.44	2.68	0.64	0.24
Unskilled labour	0.13	0.10	0.24	0.14	0.77	0.37	1.08	0.13	0.99	1.29	0.54	0.66
Skilled labour	0.19	0.16	0.25	0.14	0.75	0.45	0.93	0.13	0.72	1.09	0.54	0.56
Capital	0.17	0.15	0.29	0.14	0.73	0.45	0.92	0.10	0.78	1.1	0.52	0.58
Natural resources	1.26	2.29	1.72	0.54	-0.75	2.28	-2.51	3.24	-4.20	-4.97	-1.77	-2.68

*Source:* UNCTAD simulations from GTAP 5.

*Note:* Sectoral disaggregation: Natural Resources, Primary Agriculture, Food, Manufacturing, Services.

**Table 5. Effects of a 100% cut in agricultural tariff and export subsidies on real incomes**  
(Percentage changes)

	Western Europe	North America	Oceania	Japan	Trans. countries	Sub-Saharan Africa	North Africa and Middle East	Latin America	Asian NICs	China	South Asia	Rest of the world
Land	-21.98	33.9	62.53	-78.70	-0.69	7.54	-24.37	20.22	-21.11	4.68	0.22	5.72
Unskilled labour	0.51	0.06	1.37	1.38	1.35	1.21	2.97	0.27	3.48	1.00	0.64	0.17
Skilled labour	0.70	-0.01	0.55	1.68	1.41	0.94	3.81	-0.10	4.02	0.85	0.70	0.001
Capital	0.55	0.09	0.79	1.46	1.40	0.99	3.50	0.11	4.06	0.82	0.64	0.02
Natural resources	-4.81	-1.17	-17.10	-47.87	0.06	-0.68	10.63	-4.88	-9	2.40	1.74	0.61

Source: UNCTAD simulations from GTAP 5.

Note: Sectoral disaggregation: Natural Resources, Primary Agriculture, Food, Manufacturing, Services.

increased exports from developing to developed countries in these sectors; it entails increased demand for unskilled labour in the “South” and reduces the demand for unskilled labour in the “North”. The results are quite different when agriculture is liberalized. In this case, wage differentials shrink in land-abundant countries (North and Latin America, Oceania) and grow in land-scarce countries (Western Europe, Japan, Asian newly industrializing countries). The result can be interpreted as follows: agricultural goods are intensive in land, and unskilled labour is complementary with land in agricultural production; as trade is liberalized in agriculture, land-abundant countries start exporting more agricultural products, and the demand for both land and unskilled labour increases. The opposite occurs in land-scarce countries.

This exercise is instructive in understanding the importance of adopting a multi-country, multi-factor perspective when evaluating the effects of trade liberalization on employment and income inequality. Moreover, it shows that, as pointed out previously, labour demand is affected quite differently depending on the sector bias of trade liberalization reforms.<sup>14</sup> The results illustrate the need to shift from a single-country to a consistent cross-country perspective in *ex-post* econometric analysis. Coordinated action by academia and inter-

national institutions may provide the momentum required to undertake such an effort.

## B. Limitations in the model

The unsatisfactory performance of common trade models in empirical analysis aimed at identifying the role of trade in explaining labour market outcomes may not be due to limitations in the empirical strategy, but, more basically, to a misrepresentation of the main mechanisms through which trade affects labour demand. In other words, the problem may be in the models themselves, rather than in the implementation of the empirical tests.

### 1. Trade-induced reductions in union mark-ups

When the product market is imperfectly competitive, rents are generated that can be shared by organized labour. It is widely known that, among the effects entailed by the opening of trade, there is a reduction in the degree of market power of imperfectly competitive firms. Since the workers that are most commonly covered by union protection are the unskilled, there is the possibility that the erosion of oligopoly rents associated with trade may also result in a deterioration of relative wages for the unskilled. This is the line of research pursued, for instance, by Abowd and Lemieux

(1993) and by Borjas and Ramey (1995). Focusing on particular industries, characterized by strong unionization, both papers find a significant correlation between imports and wage reductions for unskilled workers. This explanation has also been proposed to explain why trade liberalization in Mexico had a minor impact on employment and a major one on wages: unions have been reducing their wage demands in formerly protected sectors (Harrison and Hanson, 1999).

The economic theory of trade unions tells us that, in setting (or negotiating) wages, unions tend to behave (to some extent) as monopolists. Consistently, they will achieve a higher wage for their members the lower the elasticity of labour demand they face. As globalization proceeds (i.e. as technical and legal barriers to trade and factor movements are reduced), firms will more and more rapidly seek across space (regions, States or even continents) the labour force with the best characteristics, both in terms of quality and of cost. The consequence of this process is a tendency towards a higher elasticity of labour demand. As soon as wage pressures increase, firms may start looking at better opportunities in markets that are more and more global. Consequently, even very small wage increases may entail sharp cuts in labour demand and employment. This, in turn, reduces the monopolistic power of unions, and their wage premiums. Examining labour demand elasticities, as an alternative channel through which globalization may operate against labour, has been proposed by Rodrik (1997).

Recent empirical research started looking at the effects of trade on labour market outcomes, investigating the impact of growing trade flows on labour demand elasticities. However, the evidence so far shows that the impact has probably been small both in developed (Slaughter, 2001; Bruno, Falzoni and Helg, 2001) and developing countries (Fajnzylber and Maloney, 2000; Krishna, Mitra and Chinoy, 2001).

Overall, a deeper insight into labour market characteristics would help to explain the different response of wages and employment to trade integration observed across countries.

## ***2. Trade in intermediate inputs, outsourcing and vertical specialization***

The relative importance of trade and technological change in explaining employment and wages is not easy to disentangle in empirical analysis, or conceptually. Trade policy reforms or long-run developments in transport costs reduce the obstacles faced by firms in “slicing up the value chain” internationally. Owing to lower trade barriers, firms are better able to locate different stages of their production process across countries, searching for the production factors with the best quality and price characteristics. At the same time, technological developments (e.g. reduction in communication costs) make it easier to split the production process internationally (through FDI or outsourcing practices), thus fostering trade in intermediate inputs along the value chain. Recent evidence shows that the extent of this “vertical specialization” across developed and some middle-income countries is substantial, and has been growing rapidly in the last 20 years (Hummels, Ishii and Yi, 2001).

Such developments are relevant for understanding the labour market impact of trade reform. Feenstra and Hanson (1995) explore the role of outsourcing by United States firms in Mexico in explaining wage inequality. They show that outsourcing helps to explain rising wage inequality both in the United States and in Mexico.<sup>15</sup> This result is explained as follows. With outsourcing, what is traded is not final output, but output at different stages of production. Some stages of production are conveniently located in Mexico, while others remain in the United States. As outsourcing takes place, the demand for unskilled labour in the United States falls, because tasks are increasingly

carried out by workers in Mexico. At the same time, however, an increase in wage inequality may also be observed in Mexico, since the workers that are engaged in outsourcing practices appear skilled compared with other Mexican workers.

This result can help explain the apparent puzzle of the simultaneous increase in wage inequality in the United States and several Latin American countries. Resorting to trade in intermediate inputs can also help in finding an explanation for the often observed apparently inconsistent dynamics of employment in import-competing sectors in liberalizing countries. Instead of falling, employment appears to rise after some time

lags in import-competing industries. The reason may lie in productivity gains associated with imports of intermediate inputs.<sup>16</sup> This possible explanation is consistent with recent evidence (Levinsohn, 1999) showing that a large part of the job reallocation occurring in countries engaged in extensive trade liberalization (such as Chile) takes place within industries, and not between industries as supposed by standard trade models.<sup>17</sup>

A systematic cross-country analysis of the trade and labour links occurring through the exchange of intermediate inputs is likely to shed light on aspects of trade reforms that are still poorly understood.

## V. CONCLUSIONS

The relationship between trade integration and labour market outcomes has been at the centre of a lively debate among experts and policy makers in recent years and is also the source of a number of concerns about the effects of globalization. Liberalizing developing countries fear that trade liberalization may result in job losses in import-competing sectors. Governments and the labour movements in industrialized countries are concerned about a possible link between rising import penetration from developing countries and growing labour-market inequalities. So far, both these concerns seem contradicted by the empirical evidence. However, open questions remain and there is scope for substantially improving our understanding of the links between international trade and the labour market. Three routes for further research seem particularly promising. First, an effort should be made to relate labour market variables directly to trade policy measures. Second, there is a need to address the issue of trade and labour market outcomes from a consistent cross-country perspective. Third, the role of labour market institutions and production internationalization (through outsourcing, international exchange of intermediate inputs or FDI) should be further

explored. Significant advances along these paths require a substantial improvement in data availability and data quality, especially as far as trade policy measures, FDI flows and trade in intermediates are concerned. A joint effort by Governments, academia and international organizations may be required for this purpose.

A better understanding of the links between trade integration and the performance of labour markets is crucial for the implementation of sound policy responses to the generalized trend towards falling demand for unskilled labour. However, irrespective of the results of the research on this topic, it is likely that interest groups in many countries will continue to resist further liberalization in sensitive sectors because of concerns about employment, and that interest groups in developed countries will ask that liberal trade policies be made conditional on respect for labour standards, as they did in the recent past. The implementation of labour market policies targeted at reducing adjustment costs through social safety nets and at narrowing the skill gap may help contain such pressures, which are among the major threats to efforts to further liberalize trade.

## NOTES

- <sup>1</sup> However, as emphasized for instance in UNCTAD (1995), macroeconomic factors affecting aggregate investment still played a crucial role in explaining the income performance of unskilled workers in many developed countries in the past two decades.
- <sup>2</sup> See Crawford and Laird (2001) for an overview.
- <sup>3</sup> See ILO (1995, 1998-1999) for an overview.
- <sup>4</sup> UNCTAD computations from World Bank, *World Development Indicators 2001*.
- <sup>5</sup> Recent surveys are to be found in Matusz and Tarr (1999) and Bacchetta and Jansen (2001).
- <sup>6</sup> This hypothesis inspired abundant case-study work at the beginning of the 1990s aimed at measuring the different labour intensity of import and export industries in a number of developing economies (Krueger, 1983).
- <sup>7</sup> For a discussion, see for example, Slaughter (1999).
- <sup>8</sup> For instance, the results of a poll among eminent economists doing research in this area, reported in the 1997 Economic Report of the President of the United States, show that the average respondent attributed only 10 per cent of the increase in the United States labour market inequalities to international trade (reported in Slaughter, 1999).
- <sup>9</sup> An exception is to be found in Haskel and Slaughter (2000), who analyse the effect of changes in tariff and transportation costs on United States labour market inequalities. They conclude that the impact of tariff changes on United States skilled/unskilled wage differentials has been very limited.
- <sup>10</sup> According to Leamer (1996), indeed, if there was a “Stolper-Samuelson decade”, it was the 1970s, and not the 1980s as widely supposed.
- <sup>11</sup> See also Slaughter and Swagel (1997) and Francois and Nelson (1998) on this point.
- <sup>12</sup> For a description of the GTAP model see Hertel (1997).
- <sup>13</sup> Benchmark data refer to 1997. The model used in the simulations assumes costless and instantaneous sectoral reallocation of production factors and full employment. Changes in labour demand are fully reflected in wage changes.
- <sup>14</sup> It was noted in Wood (1997) and UNCTAD (1997) that the opposite trends observed in liberalizing Latin American and Asian countries may be partly explained by taking into account the fact that Latin American countries are to be considered land-abundant rather than unskilled-labour-abundant, and that in the past decades trade liberalization has taken place only to a limited extent in agriculture.
- <sup>15</sup> According to their findings, between 15 and 33 per cent of the decline in the share of wage income accruing to unskilled workers in the United States can be attributed to outsourcing practices.
- <sup>16</sup> See Harrison and Hanson (1999) on this point.
- <sup>17</sup> See Trefler (2001), who obtains similar results analysing the United States and Canada after the implementation of the North American Free Trade Agreement.

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