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Is trade liberalization a window of opportunity for women?

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World Trade Organization

Economic Research and Statistics Division

Is Trade liberalization a window of opportunity for women?

Hildegunn Kyvik Nordås: WTO

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IS TRADE LIBERALIZATION A WINDOW OF OPPORTUNITY FOR WOMEN?

Hildegunn Kyvik Nordås¹

Abstract

This paper analyses how trade affects women's job opportunities and earnings through five case studies: Mauritius, Mexico, Peru, the Philippines and Sri Lanka. It is found that women's share of the labour force has increased over time and the wage gap between men and women has narrowed. It is also found that there is a positive and statistically significant relation between exports and women's share of employment while there is a statistically significant and negative correlation between women's share in employment and imports. The correlation between women's share of employment and trade stems from variation between sectors rather than within sectors over time, indicating that export-competing industries tend to employ women while import-competing industries tend to employ men. Trade liberalization is likely to create jobs for women and over time increase their relative wages.

Key words: Gender, trade liberalization

JEL classification: F14, F16

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"...experience in open, low-income countries until now has clearly been that industrialization has been female-dependent as well as export-led, and many women in outward-oriented developing countries owe their livelihoods to international trade expansion." [Joeke, 1999 p.36].

I INTRODUCTION

A striking feature of early industrialization in developing countries, particularly those with relatively large endowments of labour, is the high share of female employment in the emerging exporting industries. Descriptions of export processing zones (EPZ) in a number of Asian countries and in mainland China all paint the same picture of a female-dominated rapidly growing industrial labour force. To quote a recent article in the Financial Times (04.02.2003) "...thousands of young women from all over China work on bustling production lines...."

The insights from the general trade literature suggest that trade liberalization in poor countries that are rich in unskilled labour would shift investment and employment towards labour-intensive exportable sectors, while employment in import-competing industries would decline. Wages may decline in the short run if the capital investment adjustments take longer than adjustments in the labour market, but in the long run wages will increase. The most labour-intensive industries are clothing, toys, consumer electronics and also some of the metal product industries. General trade theory tells us that in the process of opening up to trade, labour-abundant countries will experience job creation in these industries and over time a rise in the relative wage of unskilled labour will occur. Many of the labour-intensive industries are dominated by women, and consequently job creation will largely benefit women.

The purpose of this paper is to assess to what extent the predictions from trade theory are born out in reality. The issue is hotly debated and recent workshops organized by UNCTAD (Geneva, 1999 and Cape Town 2001) argued that gender dimensions should be mainstreamed into development strategies, including trade strategies. The reason given why this is important is that "women tend to be more vulnerable to the negative effects of trade liberalization and less able to benefit from the positive effects" (Conclusions and recommendations from the Cape Town workshop). The papers presented at the two mentioned workshops however, do not appear to support this assumption. Rather, they provide anecdotal and case study evidence of women's ability to gain from the opportunities that emerging export industries open. This paper takes stock of the evidence so far, and provides some new evidence using data on international trade from UNCTAD and gender differentiated employment and remuneration data from the ILO. A full set of employment data by gender and industry is not available for any least developed country or low-income country, and such data is also scarce for middle-income countries. I have therefore chosen to study in some detail five countries for which data exists (Mauritius, Mexico, Peru, the Philippines and Sri Lanka).

The rest of the paper is organized as follows. Section II reviews existing literature on gender and trade. A comparative study of the five selected countries follows in section III. It describes industrial structure and employment patterns focusing on the gender dimension. In addition, trade policy measures are discussed. Section IV summarizes and concludes.

II. REVIEW OF EXISTING LITERATURE

There is a number of descriptive studies analysing employment and wages in exporting industries from a gender perspective. The literature is reviewed by Joeques (1999) who concludes that they mainly find a positive relation between trade expansion and women's participation in the workforce and the relative wages of women. The positive gender effect is largest in the lowest income countries. Most studies have focused on the exporting industries. However, trade liberalization also leads to changes in import penetration. One recent paper argues that with increased competition in the local market due to a more open trade regime, companies can no longer afford to discriminate against women by paying a premium on male workers just because they are men. The study finds empirical evidence for this hypothesis in USA (Black and Brainerd, 2002).

There is a concern that as labour-intensive industries become concentrated in developing countries women will lose their jobs in developed countries while women in developing countries will experience new job opportunities, but at inferior work conditions relative to the jobs lost in developed countries. Both these arguments appear to have some merit. While data from the period 1960-85 indicates that trade between developed and developing countries corresponded with an increasing share of female employment in developing countries and no change in the gender composition of developed country employment (Wood 1991), a more recent study using data from 1978-95 finds that trade with developing countries has a negative impact on female employment in 22 OECD countries. Women's job losses in the OECD are mainly in the textiles, apparels, and leather industries (Kucera and Milberg, 2000). Working conditions in poor countries are probably inferior to working conditions in developed countries, reflecting poorer living conditions in general. However, numerous studies have found that work conditions in multinational companies established in developing countries are better than in locally owned industries.² Furthermore, the wages earned in these industries, including in export processing zones generally exceed the alternative sources of income for women (Joeques, 1999).

Liberalization of the telecommunication sector, including opening it up to foreign investment, has resulted in a rapid increase in (mobile) telephone and Internet penetration rates in developing countries. This has created new business and job opportunities for women. There are numerous

² See for example Aitken et. al. (1996) for a study on Mexico, Venezuela and the United States, and Brown, Deardorff and Stern (2003) for a recent survey..

examples of female entrepreneurs working from home in sectors such as handicraft, bakeries etc. and selling their products over the Internet. There are also examples of networks of such entrepreneurs, for example a network of housewives making confectionaries from home and selling over the Internet in Peru.³ In Asia 35 per cent of small and medium sized enterprises are run by women. Many of them have been able to take advantage of the new opportunities provided by the Internet and improved their market access as well as access to intermediate products and in some cases eliminated middlemen and kept more of the sales revenues for themselves (UNCTAD, 2002).

The expansion of modern telecommunications has also facilitated trade in a number of so-called IT-enabled services that can be digitized and transported over telecommunication networks. There has for example been a rapid growth in outsourcing of back office non-core services such as hotel and airline booking, mailing list maintenance, various other forms of data entry and information processing. In many cases services closer to the core of the companies' activities such as after sales services have also been outsourced. Women dominate routine work requiring basic and intermediate skills in back-office services in India, while men dominate in the high-skills jobs in this sector (UNCTAD, 2002). The proportion of women working in call centres varies between 40 and 70 per cent. Again there is evidence that the entry of a new industry in developing countries provides opportunities for women, and that women dominate employment in such sectors. Women tend to cluster in the low-skilled end of employment, but nevertheless occupy about 20 per cent of professional jobs in software services in Asian and Latin American countries, a higher share than in any other field of engineering (UNCTAD, 2002).

A. COUNTRIES ABUNDANT IN UNSKILLED LABOUR

Trade liberalization in poor countries has often started in export processing zones where producers can import inputs free of duties provided that the final product is exported. Export processing zones tend to attract light industries such as clothing, footwear, consumer electronics and toys. These industries are everywhere dominated by women – thus the job creation in the early stages of trade liberalization in labour-abundant poor countries mainly benefits women. At least if we make the assumption that even a low-skill, low-wage job is better than no job.

One of the few published rigorous economic analyses of the gender dimension of trade liberalization in poor countries is a study on Bangladesh (Fontana and Wood, 2000). Bangladesh is relatively abundant in labour, and the garments industry accounts for 60 percent of export revenue. More than 80 per cent of employees in the sector are women. The cited paper develops a computable general

³ See <http://www.tortasperu.com.pe/ingles/conditions.php>

equilibrium model (CGE) and simulates the impact of trade liberalization on employment and wages focusing on the gender dimension.⁴ The outcome is a sharp expansion of the exporting manufacturing sectors, labour is reallocated from agriculture to manufacturing, employment of women increases and so do their absolute and relative wages. The paper thus supports the hypothesis that trade liberalization will benefit unskilled female workers.

A study on Turkey using firm-level data (but industry level data on exports) analyses the relation between exports and female employment. It finds a strong positive relation between exports and female share of employment at the firm level. The study further finds that the female share is higher in plants where workers are less skilled and use less capital-intensive and energy-intensive technology (Ozler, 2000). The study looks at the period 1983-85, which is characterized by export-led industrialization policies. Also this study supports the prediction that trade liberalization will create jobs for women. Since it analyses firm-level data only it does not capture how trade liberalization affects the allocation of workers between firms and industries, however.

Tunisia went from import substitution via a combination of import substitution and export promotion, to a more liberal and neutral trade policy regime during the period 1970 to present. The country's major exports are textiles and apparel and other labour-intensive manufactures. A study on the impact of trade liberalization on employment patterns and wages finds, first, that due to women's increased labour force participation employment increased in both the exportable and importable sectors during liberalization (Haouas et. al., 2003). Furthermore, the study finds that real wages have increased during the liberalization period (except for a short period of austerity macroeconomic measures in 1986-88) and that changes in real wages caused changes in employment. The latter finding suggests that it is the rising wages that have mobilized women for labour force participation. Increased workforce participation by women and job creation both in import-competing and export-competing industries following liberalization is also found in Mauritius as will be discussed in section IV A below.

B. COUNTRIES ABUNDANT IN NATURAL RESOURCES AND LAND

Some poor countries, particularly in sub-Saharan Africa and Latin America are sparsely populated, but endowed with rich natural resources. Trade liberalization in these countries is expected to shift labour and capital to natural-resource intensive industries and increase the relative price of land or other natural resources. The income distribution effect of this shift depends on the ownership of natural resources. If it is highly concentrated, like in many Latin American countries, one would

⁴ The model builds on a social accounting matrix (SAM) that distinguishes female and male labour. It

expect income to be less evenly distributed following trade liberalization. If ownership of natural resources is more evenly distributed, like in some African countries, the income distribution effect of trade liberalization is less detrimental, but landless workers would probably gain less than land-owners. The impact on gender depends on the division of labour between men and women in the society. In some poor countries women play an important role in distribution and sales of the products from farms and fisheries, a role that is enhanced with the openness to trade.

In some African countries a deterioration of the relative position of women within the household is observed as the family farm shifts production to cash crops for exports (even though the total family income may increase). On the other hand, it is also found that job opportunities outside the family farm improve the relative position of women. An emerging sector in several poor countries following trade liberalization is horticulture for exports, which again is a female dominated sector (Joeques, 1999).

Men dominate the mining and mineral processing industries both in developed and developing countries. In Zambia, for example, women constitute only 7 per cent of employment in the copper mining sector. Copper accounts for almost 80 per cent of export revenues in the country. Fontana (2002) analyses the effects of trade liberalization on women in Zambia by means of a CGE model and concludes that employment and the absolute wage of women rise with trade liberalization, but less than for men such that the relative position of women deteriorates slightly.

C. COUNTRIES ABUNDANT IN SEMISKILLED WORKERS

While trade liberalization clearly opens new job opportunities for women in poor, labour-abundant countries, there has been a concern that women may lose out again as these industries advance to higher value added segments and become more skills-intensive over time. Joeques (1999), for example, argues that the disproportionate gains to women are reversed as industrial development reaches a higher technology level since the proportion of women employed declines as the technology level rises. However, at the national level the female share of total employment has actually increased and the wage gap between men and women has narrowed in the fast-growing Asian countries at the same time as they have moved into higher value added industries. In South Korea, for example, the wage gap between men and women increased during the period 1971-83, but has narrowed after 1983 (Rodgers, 1996; ILO, 2002). In Malaysia, women's wages in manufacturing increased from 54 per cent of men's wages in 1992 to 63 per cent of men's wages in 1997, a period during which technology upgrading in exporting industries has taken place (ILO, 2002).

also includes household work and leisure.

In Argentina trade liberalization was followed by an increase in wages relative to capital income, an increase in unemployment and underemployment and an increase in female labour force participation. The increase in unemployment is explained by Argentina's inflexible labour market. The female labour force participation increased following trade liberalization also in Brazil and Costa Rica (Cunningham, 2001). The sketchy empirical evidence on the relation between trade liberalization and gender in developing countries with a reasonably well educated labour force is inconclusive on a sector level, but it appears that women's participation in the labour force increases with the level of income and that the wage gap narrows in the process.

D. IMPACT ON FORMAL/INFORMAL SECTOR EMPLOYMENT

One particular concern has been that trade and investment liberalization sets in motion a development where production technology is upgraded and becomes more capital and skills-intensive. As a result, unskilled labour is shed leaving workers to fend for themselves in the informal sector. Furthermore, manufacturing firms may outsource parts of their production to households in order to cut costs. It is argued that such subcontracting leads to deterioration of work conditions and that women are overrepresented in such household production. When analyzing the impact of sub-contracting to households one should look at the opportunities available to the women taking part in the trade. If their previous best option was formal sector employment at higher wages than they earn in the informal sector, they are most likely adversely affected by the move. However, if their previous best alternatives were working as domestic servants in the local economy or as migrant workers, and these options are still available to them, they are most likely better off as subcontractors.

Whether or not trade liberalization leads to increased informal sector activities at the expense of formal sector activities appears to depend on the flexibility of markets and the extent of regulation and red-tape in the formal sector. A recent study compares the relation between formal sector employment and trade liberalization in Colombia and Brazil following their accession to the WTO in the 1990s (Goldberg and Pavenik, 2003). They found that women are more likely to work in the informal sector than men in Brazil, while the opposite was the case in Columbia. The study found that trade liberalization had no effect on the informal sector in Brazil while a small increase that was reversed with the introduction of labour market reforms was observed in Columbia. The study concluded that the impact on trade liberalization on the informal sector depends on labour market regulations. Inflexible labour markets with high costs of hiring and firing workers are more likely to contribute to an increase in informal sector employment following trade reforms.

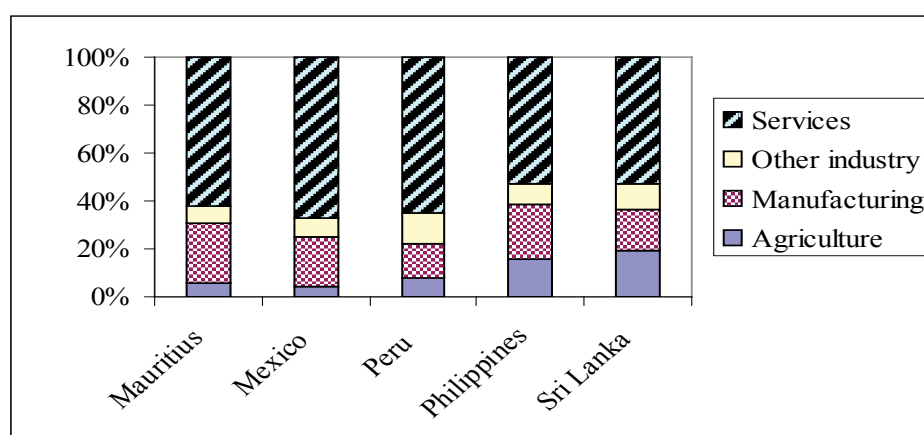
A study by Cunningham (2001) finds an increase in the female share of employment in the informal sector in Brazil following trade liberalization, contradicting the Goldberg and Pavenik (2003) study. However, Cunningham uses data for a much shorter period of time (the year before reforms and the

year after reforms). This study also looked at Argentina and Costa Rica and found that the male share of employment in the informal sector increased following trade liberalization in Argentina, while no impact was found in Costa Rica. At this stage there is no conclusive evidence on the impact of trade liberalization on the informal sector. The flexibility of the labour market and the general position of women in the society seem to be more important than the trade policy per se.

III. GENDER, WORK AND TRADE: FIVE COUNTRY STUDIES

The five countries chosen for the comparative study are Mauritius, Mexico, Peru, the Philippines and Sri Lanka. Ideally the sample should reflect diversity in terms of location, size, industrial structure and income level. Labour market data by gender was, however, not available for any low-income country, so the selected cases are all middle-income although Sri Lanka and the Philippines are at the lower end of the middle-income group. Peru is relatively abundant in natural resources while the others are relatively abundant in unskilled or semi-skilled labour. Figure 1 shows the composition of GDP by economic activity (other industry is the sum of mining, construction, electricity, gas and water). The Philippines and Sri Lanka have relatively large agricultural sectors. Mauritius has the highest manufacturing share of GDP, followed by the Philippines, while Mexico has the highest services share of GDP at 67 per cent.

Figure 1: Industrial structure in 2000, shares of GDP



Source: World Bank (2002)

Key economic and social indicators for the five case studies are provided in table 1.⁵ Mauritius is the country with the highest average effective tariff rates, while Mexico is clearly the most open economy when judged by the effective average tariff rate. However, Mexico is part of a regional

trade agreement with the US and Canada (NAFTA), and almost three quarters of its imports come from the US, while non-NAFTA countries meet much higher trade barriers in Mexico.⁶

Table 1: Key economic and social indicators

Economic indicators								
	GDP per capita		Trade share of GDP	Import duties % of imports		Manufacturing share of exports		Manufacturing share of GDP
Mauritius	4429		130	13		81		24
Mexico	3819		64	2		83		21
Peru	2368		33	12		20		14
Philippines	1167		106	7		92		23
Sri Lanka	860		90	5		75		17
Social indicators								
	Illiteracy rate		Secondary school pupils % female	Unemployment rate		Life expectancy at birth		HDI ranking
	M	F		M	F	M	F	
Mauritius	12	19	50	5.6	12.6	68	76	62
Mexico	7	10	50	1.6	1.9	70	76	55
Peru	5	15	48	7.2	8.7	67	72	82
Philippines	5	5	51	9.4	10.3	67	71	85
Sri Lanka	6	11	51	5.9	11	71	76	99

Sources: World Bank (2002), UNDP (2003), ILO (2002).

M =male; F= Female

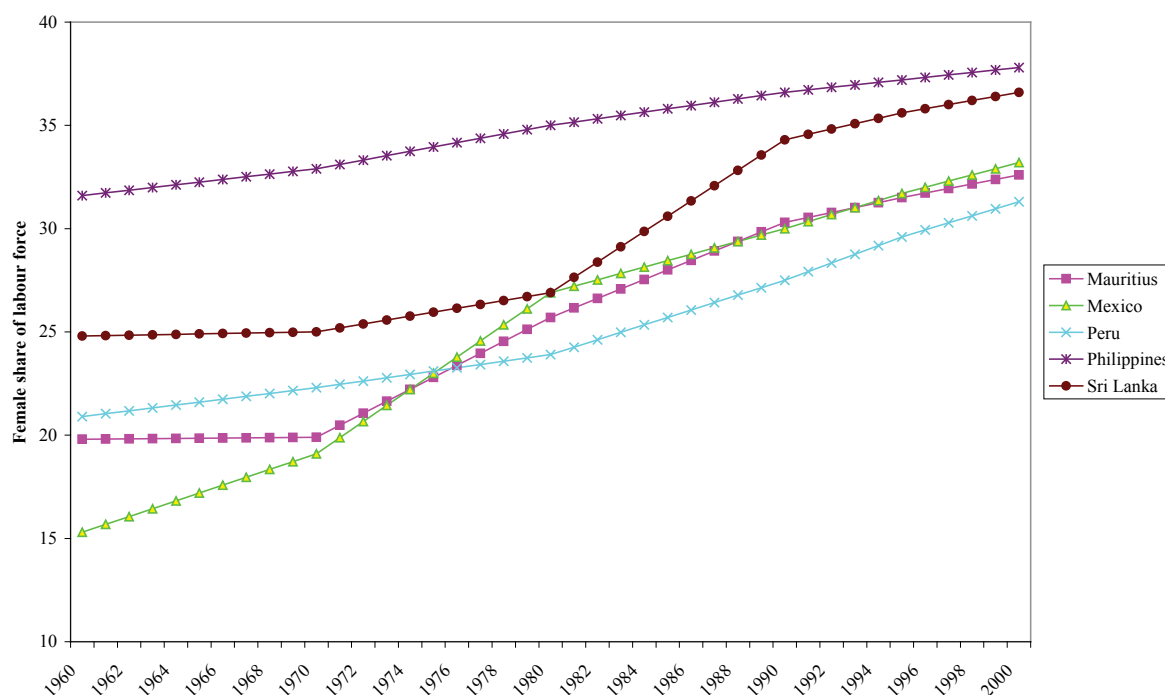
The table indicates that women fall behind men in employment opportunities. Particularly in Mauritius and Sri Lanka, unemployment among women are about twice as high as for men. Although literacy is higher for men in all the countries, girls constitute about half of the pupils in secondary school and women are therefore likely to catch up on literacy over time. Life expectancy is higher for women in all countries.

Turning to the labour market, the share of women in the labour force varies substantially between countries. However, during the four decades between 1960 and 2000 women's share of the labour force increased steadily in all the countries in the sample. In 1960 women accounted for the lowest share of the labour force in Mexico at only 15.3 per cent. However, Mexico is also the country in the sample where women's share of the workforce has increased the most, more than doubling during the period in question. The Philippines has had the highest share of women in the workforce throughout the period in question, reaching 37.8 per cent in 2000.

⁵ All variables are for 2000 unless otherwise stated. GDP per capita is in constant 1995 dollars, secondary school data are for 1998 for all countries, HDI ranking is for 2002, and unemployment rates are for 2001 for Mexico, Peru and the Philippines.

⁶ See Ianchovichina (2000) and Hanson (2003) for a discussion.

Figure 2: Women's share in total labour force.



Source: World Bank (2002)

We now turn to a discussion of each country, focusing on developments during the 1990s. For each country I analyse trade patterns following trade liberalization, developments in women's employment and relative wages (where data is available) and the possible linkages between trade and women's position in the labour market. Trade liberalization is a dynamic concept that causes *changes* in trade flows. In order to assess how such changes affect women's labour market participation I estimate the impact of changes in export and import value on woman's share in employment and women's wages relative to men. It is important to note that a significant correlation does not necessarily imply that trade *causes* the observed employment and wage effects. Furthermore, as discussed in section 2 trade liberalization has general equilibrium effects, causing capital and labour to shift from one sector to another and these shifts usually also involve the non-traded sectors. One therefore needs to take into account changes in employment and wages in the economy as a whole, not just the sectors for which protection has been reduced.

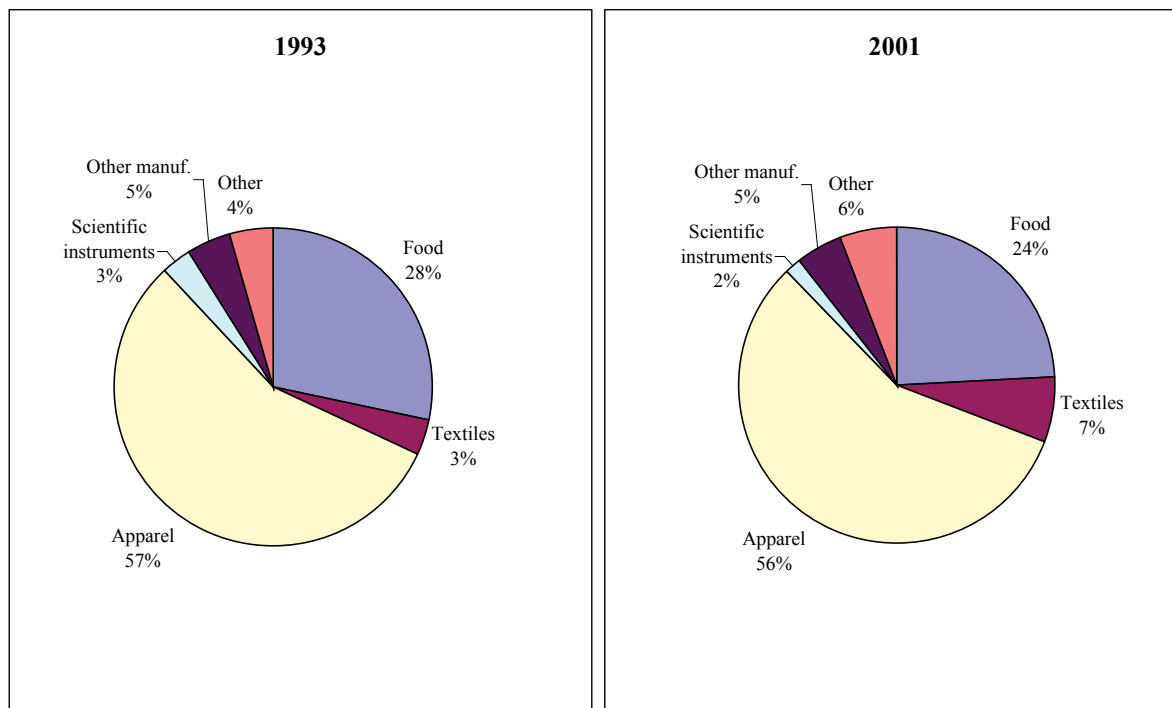
E. MAURITIUS

Mauritius is the second richest country in sub-Saharan Africa, and has experienced rapid growth and industrialization during the past three decades. Average annual GDP growth was 5.9 percent during the period 1973-99, manufacturing share of GDP increased from 15 to 24 per cent during the same period and income distribution became more equal during growth and industrialization.

Industrialization started with an import substitution policy in the 1970s, followed by the usual balance of payment problems and stagnation as the "easy" phase of import substitution came to a close (Subramanian and Roy, 2001). The country therefore embarked on a process of reforms in the early 1980s, starting with macroeconomic stabilization and followed by trade liberalization. The extent to which the country liberalized its trade is, however, disputed. Milner and Wright (1998) describe the trade policy during the late 1980s and 1990s as one of opening the economy to foreign competition, while Subramanian and Roy (2001) argue that government intervention has been significant, but that the government has been able to insulate the exporting industry from the negative impact of protection of import-competing industries. The two studies agree that the export processing zones and the mobilization of female (and later migrant) labour have been a key to the success story, however. The new policy was followed by a sharp expansion in the exporting industries, mainly textiles and apparel. At the same time the import competing industries maintained and even in some cases increased production and employment.

While merchandise exports grew at an annual rate of about 10 per cent in nominal US dollar terms during the 1980s, exports growth slowed down to less than 2 percent during the period 1993-2001. Employment and trade data by sector and gender could only be found for the latter period and the analysis therefore has to be confined to this period. The growth rate of imports slowed down from almost 10 per cent during the 1980s to 2.7 percent during the period 1993-2001. Imports nevertheless grew faster than exports, widening the trade deficit. Figure 3 shows how the structure of exports has changed during the 1990s. Apparel and processed food dominated both in 1993 and 2001, but we notice that exports of textiles have expanded and that the relative importance of food and scientific instruments in exports has declined during the period. Exports of electrical machinery have almost doubled during the period, but from a very low base (included in "other").

Figure 3: Structure of exports, Mauritius 1993 and 2001



Source: Comtrade database

The structure of imports has not changed much during this period, but it is worth noticing that imports of textiles and chemicals have declined both in relative and absolute terms while exports of apparel have increased in absolute terms. This indicates that Mauritius has established backward linkages from the apparel industry and that local suppliers have to some extent replaced imports of inputs to the apparel industry.

Women have increased their share of total paid employment during the period in question from 35.7 to 37.1 per cent of total paid employment. Women's share of paid employment is actually larger than women's share in the labour force (see figure 2 above), indicating that women are less likely than men to be self-employed. In manufacturing, women constitute more than half of the paid employees, increasing slightly from 56.6 to 57.1 per cent during the period. The pace of job creation has been slow and employment in the major traded sectors, agriculture and manufacturing, has declined, while employment in services has increased. Women's share has been stable or increased in all sectors except agriculture where it has declined.

Table 2: Employment (thousands) and women's share (per cent), Mauritius

Sector	1993		2000	
	Number	% women	Number	% women
Food	12.48	12.5	9.65	23.8
Beverages and tobacco	2.85	10.5	2.68	10.1
Textiles	4.8	29.2	5.89	25.6
Apparel	75.26	73.7	75.94	71.4
Leather	1.28	78.3	0.77	75.3
Footwear	0.81	46.9	0.56	42.9
Wood and products	2.15	13.4	1.7	12.9
Paper and products	0.73	34.2	0.99	30.3
Publishing and printing	1.36	25.0	2.15	32.6
Chemicals	1.66	17.5	2.11	20.9
Rubber products	0.33	14.7	0.23	13.6
Plastics	1.01	28.4	1.39	31.3
Pottery, china and glass	1.5	8.0	1.34	12.4
Iron and steel	0.64	3.2	0.44	3.5
Fabricated metal products	1.19	9.2	1.64	10.4
Machinery except electrical	0.63	4.6	0.6	10.6
Electrical machinery	0.81	18.5	0.61	31.1
Transport equipment	0.61	6.6	0.41	4.9
Scientific instruments	0.72	74.0	0.72	69.4
Other manufacturing	3.99	60.3	4.75	64.6
Total manufacturing	114.81	56.6	114.57	57.1
Total economy	290.08	35.7	297.03	37.1

Source: ILO (2002).

Table 2 shows that women dominate the labour-intensive industries, while men dominate the capital-intensive industries. However, during the period 1993-2001, there appears to have been a movement towards less gender-segregated labour markets. Women's share of employment has declined in textiles, apparel, leather and footwear, while it has increased in chemicals and machinery.

F. MEXICO

There exists a relatively rich and growing body of research on the impact of trade on Mexico's labour market. We can therefore draw on existing literature to a larger extent for Mexico than the other case studies. Mexico had relatively protected markets, significant government regulation and strong trade unions before the early 1980s. In the early 1980s, the weighted average tariff was 23.5 per cent, import license requirement covered 92.2 per cent of national production and there was a cap on foreign ownership of 49 per cent in addition to official approval procedures for foreign investment (Feenstra and Hanson, 1997). Labour-intensive industries were the most protected until the mid 1980s, indicating that labour-intensive goods were relatively more expensive in Mexico than on the world market. This was reflected in relatively high wages for unskilled labour compared to a free

trade situation, particularly in the industries that were protected through import licenses (Hanson, 2003).

Even during the inward looking policy era there were pockets of more liberal trade and investment regimes. In-bond industries; the so-called maquiladoras were exempted from the cap on foreign ownership. The maquiladora program was introduced in the 1960s and allowed companies established under the program to import intermediates duty-free and they were exempted from local value added taxes, provided that they exported all their output. Even so, the establishment of an in-bond factory was associated with significant red-tape. The maquiladoras were mainly established in the towns close to the US border and the apparel industry dominated in the early days.

Liberalization gained momentum with deregulation of foreign investment in 1982-83. Mexico became a member of GATT in 1986 and NAFTA in 1994. The cap on foreign ownership was relaxed and red-tape on the maquiladora investments was reduced in the mid 1980s. This led to a sharp increase in inflows of foreign capital. Between 1983 and 1989 FDI increased from \$478 million to \$3.635 billion. Employment in the maquiladoras increased from about 150 000 in 1983 to more than 460 000 in 1990, and accounted for almost a fifth of manufacturing employment. In 2000 the maquiladoras accounted for 47.7 per cent of Mexico's exports and 35.4 per cent of its imports (Hanson, 2003).

Foreign direct investment reached a new peak of \$15 billion following the entry into force of NAFTA in 1994, and remained between \$9 and \$15 billions annually during the rest of the decade before it reached a new record level of \$24 billion in 2001 (UNCTAD, 2003). About two thirds of FDI come from USA, and the share of FDI to GDP has increased from an average of 1.3 per cent during the period 1980-94 to an average of 2.8 per cent during the period 1995-2001. Investment and output continued to grow in the maquiladoras even though the special privileges for maquiladoras were mostly abolished following NAFTA (Hanson, 2003).

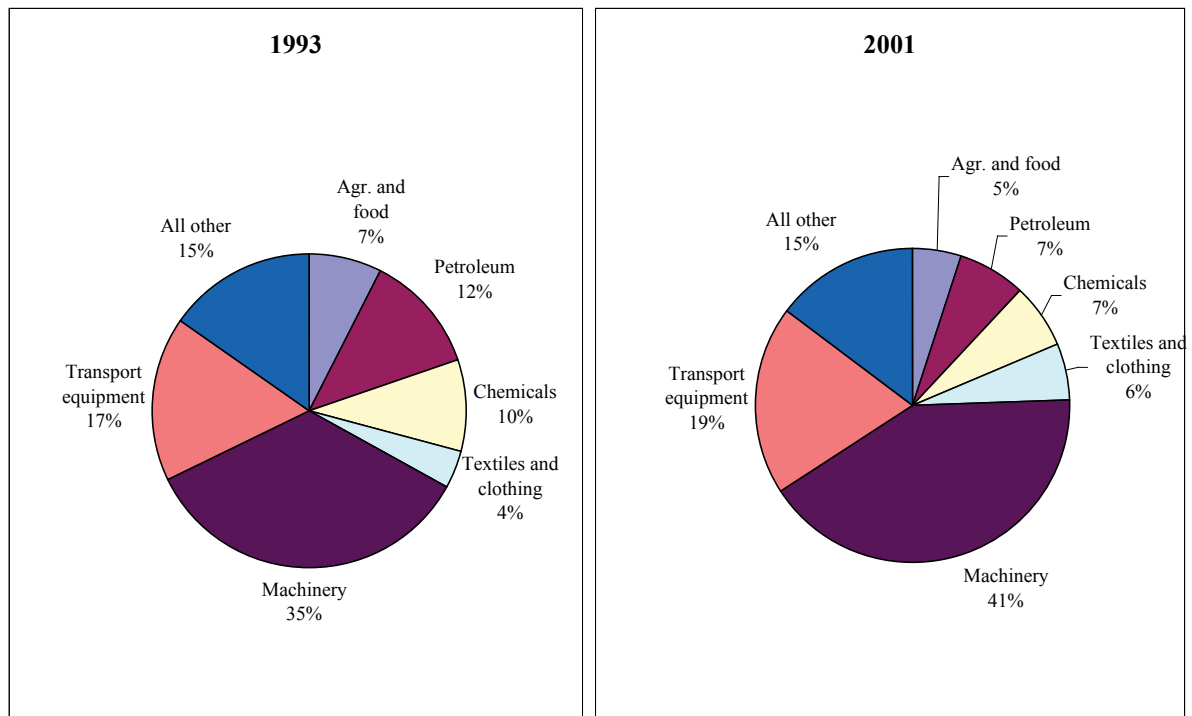
Liberalization of FDI led to extensive outsourcing of labour-intensive stages of production by multinational firms to Mexico. However, although the activities outsourced were relatively intensive in unskilled labour compared to the US average, they were relatively skills intensive compared to the Mexican average. The increase in FDI therefore led to a sharp increase in demand for skilled labour in the maquiladoras. Furthermore, the annual rate of return to schooling for urban workers increased from 3.5 per cent in 1987 to 5 per cent in 1994 and further to 7 per cent in 1998 (Hanson, 2003). Both the nature of FDI and the reduction of tariffs that protected unskilled labour-intensive industries the most could explain this increase in the skills premium.

In 1980 women accounted for 77 per cent of production workers in the maquiladoras, declining to 63 per cent in 1988. Yet, women's share of employment is still more than twice as high in the maquiladoras as it is in manufacturing outside the maquiladoras (Feenstra and Hanson, 1997). The decline in women's share probably reflects a change in the composition of sectors engaged in maquiladora production. While apparel dominated in the early days, auto parts, domestic appliances and electronics have gained prominence over time. The auto parts in particular have traditionally had a smaller share of female production workers. Nevertheless, during the period 1993 – 2001 women's share of employment in the motor vehicle industry increased from 21 per cent to 32.7 per cent (see table 3 below). Women's earnings are slightly higher in the maquiladoras than in the rest of the economy.

Has economic integration induced by NAFTA led to convergence in American and Mexican wages? Robertson (2000) argues that it has and that the integration of labour markets started already in the late 1980s. He shows that changes in wages in the US rapidly spill over to the Mexican labour market and that the integration process started in the border towns, but has spread to the interior during the second half of the 1990s. He argues that by the late 1990s wage differences between the US and Mexico can largely be explained by differences in education level, transport costs and the cost of migration. He also distinguished between male and female workers and found a strong effect on Mexican female wages of integration with the US labour market. The effect was strongest in the border towns and also strongest for the less educated women (with less than 9 years of schooling). Hanson (2003) is somewhat sceptical to Robertson's results and argues that the evidence of wage convergence is fragile. He does, however find that young women is the only cohort in his sample that has experienced real wage gains both in absolute terms and relative to the United States during the period 1990-2000 and that women with more than 12 years of education had real and absolute wage gains in a period of declining real wages in the economy as a whole. Finally he finds that the average hourly real wage for women was lower than the corresponding wage for men in 1990, but higher in 2000.⁷ The literature on trade liberalization and the Mexican labour market thus indicates that during trade liberalization women's relative position has improved both in terms of wages and employment.

Let us now take a closer look at trade flows, employment patterns and relative wages in Mexico during the 1990s. Mexico underwent a deep recession in 1995, when real GDP fell by 6.2 per cent and real wages also fell significantly. This was due to macroeconomic imbalances that had accumulated over time and the recession makes it difficult to distinguish short-term effects of NAFTA from the impact of the recession unless sophisticated econometric measures beyond the scope of this paper are applied.

Figure 4: Composition of exports, Mexico 1993 and 2001



Source: Comtrade database

Mexico has been a significant petroleum exporter for almost a century, but we notice that the petroleum share in total exports has declined sharply over the period 1993 to 2001, due to an increase in manufactured exports.⁸ Machinery has increased its export share by 6 percentage points, and the major industries within the category are electrical machinery and communication equipment. The other large exporting sector is transport equipment where motor vehicles dominate. These two sectors have expanded tremendously both in absolute and relative terms during the period. The third maquiladora sector, textiles and clothing, has increased its share of total exports by 50 per cent, but the absolute size of the sector is much smaller than the other two. Nevertheless Mexico is the second largest exporter of textiles and clothing to USA, second only to China.

Turning to imports, the largest increase has been in transport equipment, which has increased its share from 5 to 12 per cent of total imports during the period. Electrical machinery and transport equipment

⁷ The average hourly wage in 1990 prices was \$1.33 dollar for men and \$1.24 for women in 1990 and \$1.11 for men and \$1.13 for women in 2000, according to Hanson (2003).

⁸ The share of petroleum exports declined in spite of the fact that the price of oil increased (\$18.45 in 1993 versus \$25.93 in 2001).

have increased their shares too, from 20 to 26 per cent of total imports. Hence, we find that the largest exporting sectors are also the largest importing sectors, reflecting intra-industry trade and regional production networks. To quote Hanson (2003) "Mexican manufacturing has, in effect, reoriented itself from producing simple consumer goods to being a subcontractor for the North American Economy." (p.13).

There appears to be few discernible changes in women's share of employment from 1993 to 1995 - before and after NAFTA came into force. In the longer term, i.e. during the period 1993-2001, there is a decline in total employment in the mining industry, which in Mexico largely consists of the petroleum industry. It appears that the shedding of labour in this sector has affected men more than women, and women's share has increased significantly during the period. The same applies to electricity, gas and water. Within the services sectors women have increased their share of employment significantly in health and other social services, while their share has declined in business services. Table 3 shows employment by manufacturing sector and women's share of employment in the years 1993, 1995, and 2001.

Table 3: Paid employment (thousands) and women's share (per cent), Mexico

	1993		1995		2001	
	Employment	% F	Employment	% F	Employment	% F
Food and beverages	820.2	25.9	839.7	21.8	1078.6	29.4
Tobacco	6.8	35.3	11.9	17.8	5.5	20.0
Textiles	180.2	25.2	187.3	17.7	316.5	34.5
Apparel	424.6	67.8	475.9	64.0	680.7	68.0
Leather	209.1	23.9	172.6	34.6	270.1	36.5
Wood and products	62.9	5.1	81.2	6.0	128.7	9.9
Paper and products	100.0	17.2	94.6	34.6	97.9	30.8
Publishing and printing	168.9	34.3	196.1	29.7	201.0	31.1
Coke and refined petroleum	50.1	12.2	101.3	17.6	97.8	15.5
Chemicals	219.0	33.4	235.4	30.5	252.3	36.8
Rubber and plastics	169.1	32.5	198.6	27.6	227.3	31.9
Non-metallic mineral prod.	235.6	7.6	235.5	11.5	294.2	15.0
Basic metals	71.7	11.9	93.6	6.0	87.0	11.1
Fabricated metal products	235.0	9.1	240.0	9.6	337.7	9.9
Machinery and equipment	72.0	9.0	66.6	21.6	110.9	18.4
Computers	2.8	3.6	6.1	18.0	27.0	39.2
Electrical machinery	159.9	42.7	168.5	44.1	240.2	36.6
Radio, TV and comm.. equip.	116.8	54.0	135.8	51.3	273.7	52.3
Scientific instruments	28.1	26.0	30.3	32.0	59.6	48.7
Motor vehicles	275.0	21.4	341.9	25.4	526.0	32.7
Other transport equipment.	7.7	37.7	4.2	4.8	5.2	13.5
Other manufacturing	222.7	18.2	251.5	15.1	334.6	24.8
Total manufacturing	3838.2	28.8	4168.6	28.1	5652.5	33.8
Total economy	18102	32.5	19397.5	32.4	24460.9	34.5

Source: ILO (2002).

One of the fastest growing manufacturing sectors in terms of both employment and exports is computers (ISIC code 30). Employment increased almost 10-fold from 1993 to 2001, while women's share increased from less than 5 per cent to almost 40 per cent. The sector was subject to a promotion program that protected the local industry through limiting access for foreign companies in the sector, local content requirements facing foreign investors and preferences for local firms in government procurement. The program was abolished in 1990 and replaced by an open trade and investment regime (Dederick et al 2001). The switch from protection to competition did apparently not have a negative impact on women in this high-technology industry. In the textiles sector, female share of employment first fell, but then almost doubled between 1995 and 2001. We also notice the increased share of women in "heavy" industries such as chemicals, petroleum refining and motor vehicles, when considering the entire period from 1993 to 2001.

Data on women's wages relative to men produce different figures depending on the source. As mentioned above, Hanson (2003) using data from the Mexican population census find that women's average hourly wages were higher than men's in 2000, while calculations from ILO statistics yield an increase of women's wages relative to men from 72.8 per cent in 1991 to 82.6 per cent in 2001 for the economy as a whole, while in manufacturing women's wage rate relative to men, adjusted for differences in work hours increased from 52.9 per cent in 1991 to 76.1 per cent in 2001. To summarize the Mexican case, women's participation in the labour force has increased sharply during Mexico's recent history of trade liberalization and the wage gap between men and women has narrowed during the same period.

G. PERU

Peru underwent major economic reforms during the early 1990s, including trade liberalization and privatisation of state enterprises. The reform process came about after a long period of stagnation. GDP per capita reached its highest level to date at \$2685 dollar in 1981. During the 1980s and early 1990s GDP per capita fell to \$1869 in 1992 from which it recovered and reached \$2368 in 2000 (World Bank, 2002).⁹ Real wages declined during the stagnation and hyperinflation period of the 1980s.

The average applied most favoured nation tariff rate came down from 63 per cent in 1985 to 13.6 per cent in 1999. The tariff structure has been significantly simplified and there were two main tariff lines in 1999, 12 per cent and 20 per cent respectively. Non-tariff barriers have been reduced to a low level and there are also few distorting export promotion schemes in place (WTO, 2000). Subsidies

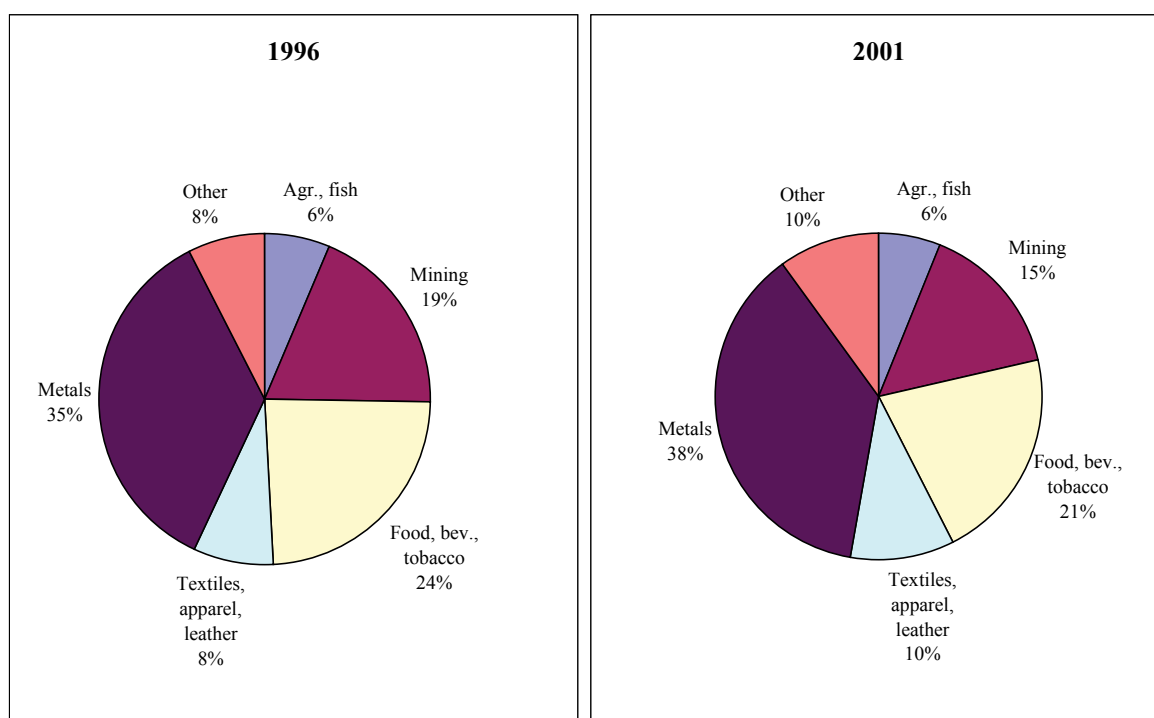
⁹ All GDP per capita figures are in constant 1995 prices.

were reduced significantly during the reform period, including subsidies to the agricultural sector, which employs about a third of the labour force. The privatisation programme resulted in a reduction in state ownership in production activities. The state has completely sold off its assets in telecommunications and financial services, while it retains only small shares in manufacturing and mining.

During the reform period a substantial number of jobs were created (see table 4 below), while real wages recovered. The poverty rate has been reduced from 53.5 per cent in 1994 to 49 per cent in 1997, while the severe poverty rate declined from 18.8 per cent to 14.8 per cent during the same period. Nevertheless, registered unemployment actually increased due to rapid growth in the labour force (WTO, 2000) while the Gini coefficient, which measures the degree of income inequality increased slightly.

Peru is the world's largest exporter of fish-meal and fish-oil and its other major exports are minerals and semi-processed products from the mining and fishing industries, accounting for about 60 per cent of total exports. Both fisheries and minerals are largely cyclical; fisheries because of weather and climate conditions and minerals because of world market conditions. Since economic reforms gained momentum in the early 1990s, Peru's trade has grown at a pace of 7.7 per cent annually while annual average GDP growth was 3.9 per cent during the period 1990-2000. Detailed employment data by sector and gender is available for the period 1996-2001, and in the following we analyse these data. Figure 5 depicts the composition of exports in 1996 and 2001.

Figure 5: Composition of exports, Peru



Source: Comtrade database

There is an increase in the share of basic and fabricated metals and chemicals at the expense of mining, indicating that more of the raw materials are processed locally.¹⁰ We also notice an increase in exports of textiles, apparel, machinery and equipment, although the latter two from a very low base (included in “other”). Textiles and apparel have become more integrated in international supply chains and moved towards market segments where quality and design matter, which is also reflected by a growth in imports of textiles and apparel.¹¹ Other changes in the structure of imports are an increase in the share of chemicals and mining and a decline in the share of food, beverages, tobacco and machinery. During the period 1996-2001 the value of total exports measured in current dollars increased by 14 per cent, while imports declined by 8 per cent, mainly due to a deep recession in 1998.

Peru is a relatively natural resource rich country and the structural changes observed during the reform period are largely as predicted by trade theory – a reallocation of resources from protected labour-intensive manufacturing, to agriculture, fisheries, mining and basic processing of raw materials from these three sectors. Both agriculture and mining have increased their shares of GDP and total

¹⁰ Chemicals is included in "other" and increased from 3 to 4 percent of total exports from 1996 to 2001.

exports since the early 1990s. In agriculture employment has increased as well, while in the mining sector employment has been reduced by almost 50 per cent. The revival of the mining sector came after liberalization of the foreign investment regime and has been driven by foreign investment and technology transfer, making production more capital-intensive. Women's share of employment has actually declined in the primary sectors, while it has increased in manufacturing, services and the economy as a whole. Thus, total employment has increased by about 22 per cent from 1996 to 2001 – 15.5 per cent for men and 30 per cent for women, increasing the female share of the employed labour force from 40 to 44 per cent. During the same period *paid* employment increased by 13 per cent; 9 per cent for men and 22 per cent for women - and the female share of paid employees increased from 31 to 33.8 per cent.

Privatisation and/or liberalization were followed by a sharp reduction in employment in electricity, water and financial services, but a sharp increase in employment in hotels and restaurants and other services (which constitute other community and social services) during the 5-year period. The financial sector has been subject to privatization, liberalization and it has been opened to foreign direct investment. This led to consolidation and contraction of total employment in the sector and foreign investors held 82 per cent of total assets in 1999 (WTO, 2000). There was also a sharp fall in women's share of employment during this period. The job losses in the financial sector are more than counterbalanced by an increase in women's share in business services and public administration. While the number of women's jobs lost in the financial sector was 6600, about 10 000 jobs were gained in the business services sector and 20 500 in public administration during the period 1996-2001. Data on wages by gender is not available for Peru, but the average wage rate in the business services sector is about half of the average wages in the financial services sector. The shift in women's employment from financial to business services therefore may have led to lower average wages for women in the commercial services sectors. Table 4 presents the data on employment in manufacturing in 1996 and 2001.

¹¹ See Visser (1999) for an analysis of a textile and clothing cluster in Lima.

Table 4: Paid employment (thousands) and women's share of employment (per cent)

Sector	1996		2001	
	Number	% women	Number	% women
Food and beverages	160.9	22.1	143.7	26.4
Tobacco	0.7	57.1	0.1	66.7
Textiles	51	32.3	57	21.8
Apparel	55	72.2	88.9	56.6
Leather	36.5	16.5	26.1	27.9
Wood and products	11.9	21.7	11.1	10.8
Paper and products	6.9	13.0	3.7	70.2
Publishing and printing	30.4	29.4	18.1	19.8
Coke and refined petroleum	1.1	10.0	2.0	50.0
Chemicals	27.7	28.9	31.1	31.8
Rubber and plastics	18.9	12.2	19.4	18.6
Non-metallic mineral prod.	31.7	8.5	30.6	9.1
Basic metals	4.2	-	3.9	5.1
Fabricated metal products	38.9	8.0	35.4	-
Machinery and equipment	13.4	12.6	4.5	-
Electrical machinery	3.7	-	2	47.6
Radio, TV and comm.... equip.	1.4	-	-	-
Scientific instruments	0.9	-	3.0	-
Motor vehicles	3.3	-	7.0	-
Other transport equipm.	4.1	-	3.4	-
Other manufacturing	47.8	11.5	57.6	23.7
Total manufacturing	550.2	24.5	548.8	26.9
Total economy	2924.5	31.0	3329.9	33.8

Source: ILO (2002)

Female employment in the sectors with the lowest total number of workers fluctuates a lot from one year to another and it is not possible to read a trend out of these figures. Women are almost absent from the heavy industries and the emerging high-technology industries, although it is noteworthy that the female share of employment has increased from next to nothing to almost half in the electrical machinery industry.¹²

H. PHILIPPINES

The Philippines has not had the same growth experience as many of the other countries in the South-East Asian region, notably South Korea, Taiwan, Malaysia and Thailand. The lagging behind is largely explained by a more inward-looking policy pursuing import substitution for longer than its more successful neighbours. Furthermore the country has been less politically stable than its more successful neighbours with the country experiencing a significant political and economic crisis in the mid 1980s. During the period 1980 – 85, GDP per capita fell by almost 4 per cent per year on

¹² The quality of data seems to be poorer for Peru than for the other four case studies, and there are many gaps in the data.

average. The crisis was followed by comprehensive reforms in the second half of the 1980s. In the trade policy area, reforms mainly consisted of lifting quota restrictions on imports. Many distortions remained, however, and GDP per capita growth stagnated and declined in the early 1990s (WTO, 1999).

Again the economic crisis induced policy reform. During the early 1990s tariffs have been reduced from an average of 26 per cent in 1992 to 10 per cent in 1999 (WTO, 1999). There are further plans to introduce a uniform import tariff of 4 per cent by 2004 (Lim, 2000). In spite of the recent reforms, the export-bias persists to some extent, although measures to encourage exports have been introduced. In particular, there have been programs promoting the automotive industry and export processing zones have attracted foreign direct investment particularly in the electronics industry.

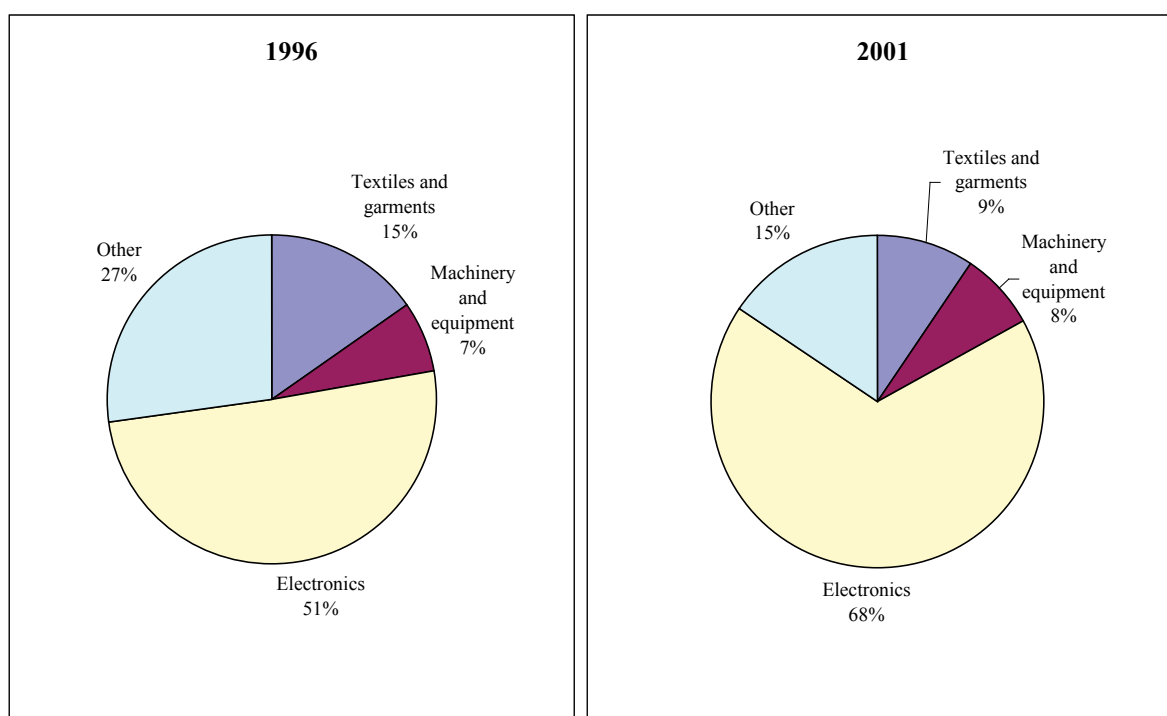
About 40 percent of the workforce is employed in agriculture. Agriculture receives both direct support from the government and protective tariffs and non-tariff trade barriers. Rice farming receives particularly strong protection and the aim of the policy is larger self-sufficiency. The Philippines has had a consistent and relatively large deficit on their merchandise trade balance, which has been fully counterbalanced by a surplus on the services account. Remittances from Filipino workers abroad, of which women accounted for 69 per cent of new deployments in 2002, accounted for about \$5-7 bill. per year during the period 1997-2002 (Philippines Overseas Employment Administration, 2003).

During the recent years of trade and investment liberalization, the composition of exports has shifted from natural resources to manufacturing, where semi-conductors, electronics and garments have shown strong export performance. The rapid growth of electronics has been driven by a liberal trade and investment policy and the Philippines has become an attractive location for parts and components production within international production networks in the industry. Many of the electronics firms are located in special economic zones and are exempted from paying duties on their imported parts and components. In addition the automotive sector has expanded both its output and its exports, largely driven by government promotions programmes.

Figure 6 shows the composition of exports in 1996 and 2001. Electronics accounted for about half of total exports in 1996, increasing to two thirds in 2001. The value of exports of electronics in current dollar terms has increased by about 15 per cent annually during the period. Women accounted for about 70 per cent of the employees in the electronics sector, and the electronics sectors accounted for about 10 per cent of total female employment in the manufacturing sector in 1997. We also notice that the share of textiles and clothing in total exports has declined over the 5-year period. In fact, it

has also declined in absolute terms in spite of increased protection of the sector that was introduced in 1999 (WTO, 1999).

Figure 6: Exports by sector, Philippines 1996 and 2001



Source: Comtrade database

There has also been a sharp increase in imports of electronics reflecting the structure of this sector. It consists of vertically fragmented production networks, where developing countries such as the Philippines typically attract foreign investment in the labour-intensive steps in the production process, and import intermediates from the parent company or other participants in the production network. Employment and trade data by the same industrial classification exist only for two years, 1996 and 1997 and table 5 presents the data for 1997. Data on wages and work hours are also available, and I include women's wage rate relative to men adjusted for differences in hours of work in the table as well.

Table 5: Employment (thousands), women's share of employment, 1997, Philippines

	Employment	% women	Women's relative wage, %
Food and beverages	214.565	29.6	78.2
Tobacco	11.213	44.8	90.8
Textiles	54.335	55.8	80.5
Apparel	154.006	78.0	94.3
Leather	39.073	60.3	92.8
Wood and products	26.869	16.5	110.2
Paper and prod.	22.237	26.7	96.0
Publishing and printing	29.73	37.9	108.8
Refined petroleum	3.05	15.8	76.1
Chemicals	56.672	27.6	93.5
Rubber and plastics	42.893	27.7	87.1
Non-met. mineral prod.	46.378	22.3	75.6
Basic metals	37.327	12.3	102.3
Fabricated metals	36.445	17.3	94.7
Machinery and equipment.	32.036	15.9	87.6
Computers	14.438	68.4	81.5
Electrical machinery	50.252	59.8	77.2
Communication equipment	98.077	74.0	73.8
Instruments	34.083	84.7	73.6
Motor vehicles	26.191	10.6	75.1
Other transport equipment.	9.183	15.6	103.3
Other manufacturing	57.928	42.4	96.0
Total manufacturing	1097.175	44.5	78.2
Total economy	13565	36.4	92.5

I. SRI LANKA

Sri Lanka has led an industrial policy of heavy state intervention and direct involvement in economic activities. Trade policy supported the industrial policy, protecting industries through high tariffs, import licensing and import quotas. By the mid 1970s Sri Lanka had become one of the most regulated economies in the world outside the centrally planned economies (Athukorala and Jayasuiya, 2000). The import substitution policy did not yield the expected results. Manufacturing value added grew at a rate of only 3.6 per cent during the period 1970-76, capacity utilization fell to only 54 per cent and only 4 per cent of output was exported (Athukorala and Jayasuiya, 2000). In order to rectify the situation, far-reaching economic reforms were introduced in 1977. The reforms included trade liberalization, opening the market to foreign direct investment in export-oriented industries and in the financial sector and exchange rate realignment. Trade liberalization implied both the reduction of trade barriers and making the trade barriers less distorting. Before liberalization, quantitative import restrictions were almost universal. During reforms these restrictions were replaced by tariffs in most cases, although about 280 items were still under license (Athukorala and Jayasuiya, 2000). The tariffs were high initially, but still represented a significant reduction in trade barriers. Over time the tariffs

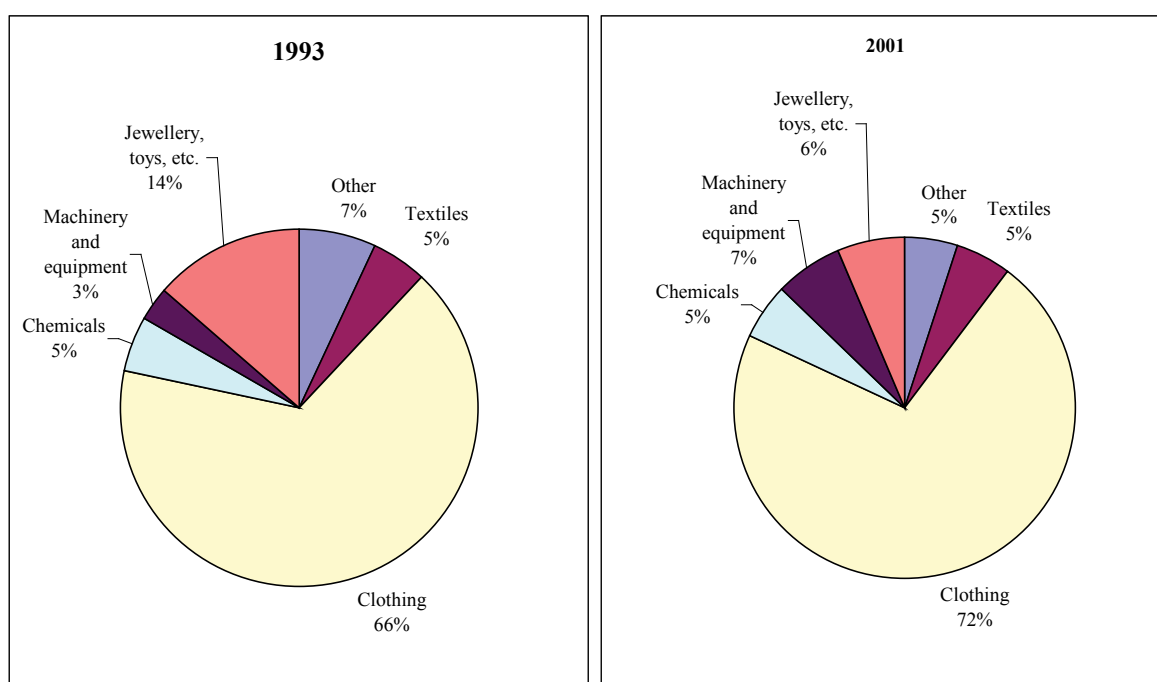
gradually came down. The effective duty rate (import duties as share of total import value) declined from 18 per cent in 1984-86 to about 8 per cent in 1995 and further to 5 per cent in 2000. The share of total imports that was duty-free increased from 31 per cent in 1984-86 to 60 per cent in 1995 (Athukorala and Jayasuiya, 2000).

Even before liberalization, foreign direct investment in exporting industries was allowed and encouraged. In 1978 Sri Lanka opened its first export processing zone (EPZ) near the Colombo International Airport. Subsequently two additional EPZs were opened, one in 1982 and one in 1991. In the export processing zones, foreign firms were allowed to hold 100 per cent of the equity, they enjoyed a tax holiday for up to 10 years, and were exempted from duties on imported inputs. The investment policy was further liberalized in 1990 when export-oriented foreign companies enjoyed free-zone status in all parts of the country (WTO, 1995).

A second wave of liberalization took place around 1989-90. Privatization of state-owned enterprises, further tariff cuts and simplification of the tariff structure were important elements of the reform package. In the late 1990s there was a three-pronged structure with tariff rates of 10, 20 and 35 per cent.

During the import substitution period, Sri Lanka's main exports were tea. After reforms were introduced labour-intensive exporting industries, mainly clothing and jewellery became the major exporting sectors. Foreign direct investment was an important factor in the expansion of the clothing sector, and Sri Lanka attracted investment from countries that had exhausted their national quotas under the Multifibre Agreement. The clothing sector has continued to grow and its share of total exports has increased steadily and reached a level of almost three quarters of total exports in 2001. Figure 7 depicts the composition of exports in 1993 and 2001.

Figure 7: Composition of exports from Sri Lanka, 1993 and 2001



Source: Comtrade database

Clothing totally dominates the picture and its share in total exports increased from 65 per cent to 72 per cent during the period. "Jewellery, toys, etc.", which is mainly jewellery, has declined from 14 per cent to 6 percent of total exports. Exports of electronics (included in the machinery and equipment sector) got off to a slow start in spite of policy programs to promote the industry (WTO, 1995). However, during the past few years machinery and equipment's share in total exports went from 3 per cent in 1993 to 7 per cent in 2001, and electronics account for a large part of this increase. The changing pattern of exports also affects imports. Thus, the share of textiles in imports increased from 25 per cent in 1993 to 29 per cent in 2001, due to increased demand from the expanding clothing sector. Imports of textiles were prohibited during the import substitution era, and state-owned textile mills were established in order to supply the local clothing industry. These were privatized and restructured in the early 1990s, their rate of protection came down substantially, and as seen in table 6 below, employment was more than halved in the sector between 1993 and 2000. The structure of imports has otherwise been fairly stable.

Turning to the labour market and gender issues, Sri Lanka had the first female head of state in the world and is viewed as a progressive country in terms of gender equality. Between 1993 and 2000 employment has increased in all sectors except mining and construction. In manufacturing employment increased by 45 per cent while it doubled in the services sectors. Women's share of employment has been fairly constant during the period in question, but has increased in manufacturing

and declined in mining, construction and transport. A more detailed study of employment in the manufacturing sector is presented in table 6.

Table 6: Employment by economic activity (thousands) and gender (per cent), Sri Lanka

Sector	1993		2000	
	Number	% women	Number	% women
Food	16.53	41.0	35.11	40.4
Beverages	3.26	18.2	2.95	14.6
Tobacco	4.85	75.0	4.39	74.9
Textiles	47.04	68.5	22.14	64.2
Apparel	103.26	87.3	213.14	82.2
Leather	6.55	68.1	7.33	68.2
Footwear	2.53	69.2	7.38	64.2
Wood and products	1.96	27.7	3.42	16.1
Furniture	0.56	8.9	3.44	13.9
Paper and products	5.02	15.8	5.23	14.7
Publishing and printing	5.24	11.1	3.4	16.2
Industrial chemicals	3.52	30.1	6.66	30.8
Other Chemicals	3.96	20.7	5.48	30.8
Rubber products	10.81	26.9	14.26	32.7
Plastics	1.14	23.9	1.38	51.4
Pottery and china	6.06	53.8	4.19	38.2
Glass and glass products	1.17	31.9	0.55	7.2
Non-metallic mineral products	5.66	21.2	6.43	13.7
Iron and steel	1.78	7.0	2.58	9.3
Non-ferrous metal products	0.15	13.3	0.32	9.4
Fabricated metal products	1.99	9.6	2.36	8.9
Machinery except electrical	2.08	6.4	4.96	15.3
Electrical machinery	4.23	70.7	14.0	79.2
Transport equipment	6.14	2.8	5.43	8.5
Scientific instruments	0.13	58.3	0.26	23.1
Other manufacturing	11.17	79.1	12.89	75.1
Total manufacturing	256.79	63.8	389.68	65.2
Total economy	729.1	48.3	1030.2	48.1

Source: ILO (2002).

The table indicates that employment in manufacturing is totally dominated by the apparel sector. Other sectors with more than 10 000 employees are food processing, textiles, rubber products and jewellery. These are also the major exporting industries. Women is in large majority in all the labour-intensive industries, but it is worth noticing that the share has declined slightly from 1993 to 2000, while it has increased slightly in some of the more capital intensive industries such as transport equipment and chemicals. We notice that the declining share of textiles in exports is reflected by an absolute decline in employment in the sector.

Data on wages and salaries by gender is available for the major economic sectors in Sri Lanka. The broad picture shows that women's relative hourly wages in the non-agricultural sectors have fluctuated during the 1990s, reaching its highest level of 99 per cent of men's wages in 1994 and its

lowest level of about 86 per cent in 1999. In 2001 the share stood at 90.5 per cent. Women earned about the same as men in the construction sector and in wholesale and retail trade, hotels and restaurants in 2001, while in manufacturing women earned about 83 per cent of men's average wages (ILO, 2002). Kurukulasuria (2002) estimates men's wage premium to about 15 per cent in 1999-2000 for the population as a whole, controlling for differences in education, experience, ethnicity, public sector employment, rural/urban and hours worked. The clustering of women in low-skilled, low-wage industries as indicated in the table probably also explains part of the wage differentials. Given the relatively high education level of women in Sri Lanka, this clustering is, however, puzzling. According to a study by Malhorta and DeGraff (1997) the unemployment rate of young, single women in Sri Lanka is extremely high, reflecting a mismatch between education and aspiration level and jobs available to women.¹³

To summarize the Sri Lankan case, early liberalization of trade and investment led to a reallocation of capital and labour from agriculture and import substituting industries towards labour-intensive manufacturing, first and foremost clothing. Women constitute about two thirds of manufacturing employees and appear to have gained substantially in terms of employment opportunities. Further liberalization during the 1990s, however, appears to have had little impact on women's share of employment. Women's relative earnings in manufacturing have fluctuated around a slightly downward sloping trend during the 1990s.

J. ECONOMETRIC ANALYSIS OF THE DATA

An econometric analysis of the trade and employment statistics was undertaken for each country. In order to assess the impact of trade liberalization on women's employment opportunities, I first regressed women's share of employment on the log of exports and imports for each country using weighted least square estimates. A linear-log form captures the reasonable assumption that the marginal impact of trade on women's share declines as trade increases, while the weighted least squares form reflects the fact that women's share has to be between zero and one. The results are presented in table 7. T-statistics are given in parentheses and ** indicates significance at the 1 per cent level while * indicates significance at the 5 per cent level.

¹³ The average age of marriage for women in Sri Lanka is 25 years according to the study.

Table 7: Dependent variable, woman's share in employment

	Mauritius	Mexico	Peru	Philippines	Sri Lanka
Constant	3.20** (5.40)	-1.30 (-1.78)	2.33* (2.91)	-2.15 (-1.72)	-3.88** (-7.88)
ln exports	0.277** (12.72)	0.285** (3.95)	0.20** (3.75)	0.50** (5.83)	0.473** (17.20)
ln imports	-0.605** (-13.76)	-0.242** (-2.77)	-0.45** (-5.71)	-0.36 (-4.37)	-0.095** (2.94)
N	160	196	84	44	128
adjusted R ²	0.74	0.07	0.27	0.46	0.70

We notice that trade patterns appear to account for a large part of gender-related employment variation in Mauritius and Sri Lanka, while it can explain only a small share in Mexico. An alternative is to regress changes on woman's employment on changes in exports and imports, controlling for changes in total employment. The results are presented in table 8.

Table 8: Dependent variable, ln woman's employment

	Mauritius	Mexico	Peru	Philippines	Sri Lanka
Constant	0.94* (2.07)	-2.48** (-4.87)	-0.668 (-0.76)	-1.58 (-1.97)	-1.908** (-3.72)
ln exports	0.32** (8.27)	0.11 (1.90)	-0.004 (-0.08)	0.272** (3.43)	0.25** (5.74)
ln imports	-0.49** (-10.50)	-0.05 (-0.92)	-0.06 (-0.75)	-0.259** (-3.63)	-0.182** (-4.57)
ln total employment	0.90** (14.6)	1.03** (19.86)	0.975** (10.89)	1.123** (10.33)	1.08** (18.40)
N	160	197	87	44	128
adjusted R ²	0.88	0.74	0.67	0.83	0.86

No significant relation between changes in trade and changes in women's employment is found in Mexico and Peru, while a similar pattern as that presented in table 7 is found for Mauritius, the Philippines and Sri Lanka. There are two possible explanations for this finding. One explanation is that export competing industries tend to employ women while import competing industries tend to employ men. The other possibility is that as an industry improves its export performance, it tends to employ more women. Likewise if an industry faces more import competition, it tends to employ more men, or lay off women first. In order to establish which explanation is the more likely, additional analyses that distinguish between variations *within* industries over time and *between* industries were undertaken. It turns out that the variation is mainly *between* sectors and thus employment in export competing industries tend to be dominated by women while import competing industries tend to employ men. The variations *between* sectors account for most of the total variation and are presented in table 9.

Table 9: Dependent variable, ln women's employment, between sector variation

	Mauritius	Mexico	Peru	Sri Lanka
Constant	0.715 (0.56)	-2.71* (-2.43)	-0.48 (-0.28)	-1.97 (-1.77)
ln exports	0.473** (3.60)	0.19 (1.31)	-0.01 (-0.10)	0.26* (2.66)
ln imports	-0.588** (-4.30)	-0.104 (-0.81)	-0.04 (-0.24)	-0.19* (-2.32)
ln total employment	0.715** (3.65)	1.025** (9.71)	0.84** (4.72)	1.12** (8.73)
N	160	197	87	128
groups	20	22	20	26
R ² within	0.117	0.2347	0.3085	0.47
R ² between	0.911	0.8838	0.7239	0.90
R ² total	0.875	0.7434	0.685	0.86

Data on wages by gender and sector was only available for Mexico and the Philippines. I regressed women's wages relative to men on exports and imports and found no significant relationship. I also regressed women's wages relative to men on women's share of employment and included imports and exports in the regression as well. The inclusion of trade flows improved the R², but were still not significant. The results are presented in table 10.

Table 10. Regression women's wage rate relative to men

Variable	Mexico	Philippines
ln women's share of employment	-0.10** (-5.50)	-0.11** (-3.27)
ln exports	-0.02 (-1.77)	0.02 (0.88)
ln imports	0.009 (0.63)	-0.03* (-2.07)
constant	0.95** (6.84)	1.06** (5.57)
Adjusted R ²	0.16	0.22
N	197	44

There is a statistically significant and negative relation between women's share of employment and women's wage rate relative to men in both Mexico and the Philippines. There is a statistically significant relationship between women's relative wages and trade only in the case of imports to the Philippines. From table 7 we have that there is also a statistically significant relationship between women's share of employment and trade. Thus, one could say that there is an indirect relationship

between trade and wages in these two countries, and the relationship is as predicted by trade theory: a country rich in unskilled labour tend to export labour-intensive goods, which in turn tends to pay low wages compared to capital-intensive and skills intensive sectors. Labour-intensive sectors also tend to employ women.

Table 11. Data coverage, years and industry categories

	Mauritius	Mexico	Peru	Philippines	Sri Lanka
Period	1993-2000	1991, 1993, 1995-2001	1996- 2001	1996, 1997	1990, 1991, 1993, 1994, 1999
Sector classification	ISIC 2, 3-digit	ISIC 3, 2-digit	ISIC 3, 2-digit	ISIC 3, 2-digit	ISIC 2, 3-digit

As discussed in sections 1 and 2, trade liberalization leads to a shift in labour and capital from import-competing industries to export competing industries and is therefore likely to increase women's share of employment in the economy as a whole. Thus, in the five country case studies, the empirical analysis indicates that women have been able to benefit from the positive impacts of trade liberalization and if anything are less vulnerable to the negative impacts of trade liberalization as far as employment is concerned.

IV. SUMMARY AND CONCLUSIONS

The purpose of this paper was to assess the commonly held view that women tend to be vulnerable to the negative effects of trade liberalization and less able than men to benefit from the positive effects. This is an empirical question and in order to assess the claim, existing literature was reviewed and data on trade and employment and where available wages in five countries: Mauritius, Mexico, Peru, the Philippines and Sri Lanka was analysed. It is not possible to establish firm general conclusions on the causality between trade liberalization and women's employment opportunities and earnings from these studies, but fairly robust statistical relations between trade flows and women's employment opportunities are found, suggesting that trade liberalization might well be a window of opportunity for women.

First, in poor, labour-rich developing countries, expansion of exports is related to a substantial increase in female employment and an increase in women's share of employment. There is a clear, statistically significant positive correlation women's share in employment and exports. The data also suggests that women are not necessarily more vulnerable than men to job losses due to increased import competition. Although there is indeed a statistically significant and negative correlation between women's share in employment and changes in imports, it appears that the correlation reflects a tendency for import competing industries to employ men, and not a tendency to lay off women.

There has been a concern that women's gains from trade liberalization are reversed as countries upgrade their industries to higher value added and more technologically sophisticated production. The observation that has caused this concern is that the share of women in employment has declined in these industries as they become more sophisticated. However, at the same time the wage gap between men and women in the economy as a whole has narrowed in the East Asian countries where industry upgrading has been most prominent. Moreover a negative correlation between women's share of employment and women's relative wages was found, indicating that as the industrial structure changes towards higher value added industries where employment seem to be less gender-biased, women's relative earnings will improve. To conclude, it appears that women have been able to benefit from the positive side of trade liberalization while there is little evidence that women are more vulnerable than men to the adjustment costs of trade liberalization. However, it should be emphasised that the impact of trade liberalization on women's job opportunities and income is an empirical question and more empirical studies from low-income and least developed countries would be useful to shed more light on the issue.

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V. APPENDIX