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Globalization and Industrial Labor Markets in South Asia: Some Aspects of Adjustment in a Less Integrated Region

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Globalization and Industrial Labor Markets in South Asia: Some Aspects of Adjustment in a Less Integrated Region

Will the more open economy situation engendered by globalization (the world without barriers to trade and investment) favorably affect employment and wages of unskilled workers in developing countries? This unsettled question has attracted a large amount of debate and research in recent years¹. Labor markets adjustment to open economy policies is supposed to be complicated by the existence of interventionist institutions and policies in developing countries. Regulations on firing of workers, severance pay and minimum wages are supposed constrain the speed of labor market adjustment to globalization. The empirical evidence on these and related perceptions has just started to emerge and has not been unequivocal. In Morocco and in Mexico, the impact of trade liberalization on manufacturing employment was weak. In Uruguay, on the contrary, a negative relationship between trade reforms and employment was observed (Hanson and Harrison, 1999, and the studies cited therein). In Mexico the relative wages of skilled workers increased after trade liberalization causing inequality to go up (Robertson, 2000). Suryahadi (2001) study of Indonesia finds that years of increasing openness are associated with expansion of employment and growing real wages. However, unskilled wages were observed to have grown faster than skilled wages resulting in declining wage inequality. Given this lack of empirical regularity in the impact of openness on labor markets, it is instructive to study the effects of globalization process on labor allocation and wage inequality in South Asia. Studies focusing on South Asia are very limited².

This paper makes a contribution to the empirical knowledge base by studying the impact of globalization on industrial labor markets in South Asia. A study of South Asia would be instructive for two important reasons. First, labor markets are segmented into formal and informal sectors. Studies of the impact of liberalization on informalization are limited. Second, the labor market institutions and interventions are similar across South Asian countries. Moreover, they have not been subjected to reform during the period of our study. This provides an opportunity to study the labor market outcomes of trade reforms in the absence of labor reforms. We focus attention on the manufacturing sector, as it has been the leading sector in the process of globalization (WTO, 1995). It is also the sector most subjected to tariff and import liberalization measures in these countries. We focus attention on aggregate employment effects; trends in informalization to assess the quality of employment created and wage inequality in the formal sector during the period of globalization. Following this introduction this paper is organized as follows: Section 2 presents the analytical background, a description of the trends in global and South Asian trade and investment reform and brief note on the labor market institutions. The actual extent of global integration attained by South Asia is highlighted. Section 3 contains an analysis of growth and structural change in employment and output. The problem of informalization is discussed in Section 4. Analysis of the impact on real wages and inequalities are discussed in Section 5. Section 6 contains the concluding observations.

2. Analytical background, Institutions and Issues

The standard trade theoretic framework argues that trade liberalization generates demand for abundant factor (unskilled in developing) because of expansion of export sectors, raising both employment and the relative price (wages) of unskilled labor. The demand for skilled workers and their relative wages will fall as the demand for skill intensive goods contract due to contraction of import competing goods. Consequently, the wage differential between skilled and unskilled will fall. Therefore, in developing countries the prediction is that the employment opportunity of unskilled workers increases and wage inequality declines. What conditions and institutions prevent this positive and desirable outcome of trade liberalization? Three areas of major concern can be highlighted. First, the likely fall in employment in import-protected industries losing competitiveness due to openness. Second the employment generating effects of globalization is perceived to be limited due to the skill intensive nature of production technologies that flows in from abroad. The new production methods that are used to improve competitiveness of developing country exports in the global economy are biased against the use of unskilled labor. Therefore the new demand for labor will benefit only skilled labor constituting a small proportion of workforce³. Third, the increasing informalization of the labor force because of the above two effects. Segmented labor markets, formal and informal, characterize developing countries. Formal sector employment is well paid with direct remuneration plus fringe benefits, governed by long-term contract, subject to government regulations and trade union pressure. Informal segment is outside the job security regulations, pays lower wages, free from union wage agreements, and largely escapes government regulations on health, environment and safety. Consequently,

firm size and employment quality are positively associated. Globalization can change the composition of employment between formal and informal sectors. Workers laid off in the formal segment of import substituting industries may seek employment in the informal sector. This could cause wages to decline in an already low wage segments increasing wage inequality⁴. The occurrence of shift from formal to informal has been observed in many countries of Latin America, Asia and Africa countries as reported in Horton et al (1994) and Hoeven (2001). The issue of quality of employment created is an important one. If the pressure of labor-cost competitiveness in export markets generate only low-wage and low productivity jobs in informal enterprises then the supposed positive effects of globalization on unskilled labor are weakened. In brief, the segmented nature of labor markets and surplus informal sector labor in developing countries could undermine the likely positive effects of globalization on unskilled labor⁵.

Labor market institutions in South Asia are largely similar in terms of laws governing retrenchment, minimum wages and severance pay⁶. We note in particular that job security laws look uniformly restrictive on paper. In India firms employing more than 100 workers need to take prior permission from the government before retrenching a worker. In Sri Lanka all firms employing more than 15 workers need consent of the Commissioner of Labor before dismissing a worker with more than one year of service. In Pakistan permission from the labor courts is required for all firms with more than ten workers to close or to retrench more than 50 percent of the workers. In Bangladesh a worker can be retrenched after giving one month's notice to the concerned worker. Nepal recently introduced labor laws to provide social security

benefits (ILOSAAT, 1997). Relatively regulations in Sri Lanka are most restrictive followed by India and Pakistan. Bangladesh has the least restrictive labor firing regulations. However, the severance pay is higher in Bangladesh relative to India.

South Asia has one-fifth of the world's population and nearly half of its poor population. A large proportion of world's unskilled workers live in South Asia. Given the relative scarcity of natural resources, South Asia's comparative advantage is clearly in labor-intensive goods. Based on conventional wisdom, if international integration should benefit workers anywhere, it should be in South Asia. South Asian countries have pursued integration efforts by economic liberalization policies beginning in the eighties. Trade liberalization is most dramatic in the 1990s. In the early 1990s South Asian tariff and non -tariff rates were among the highest in the world. At present the unweighted average tariff level for the region is around 25 percent, a reduction of more than 50 percent. Quantitative restrictions have been progressively eliminated and foreign direct investment procedures simplified.

2.1 Trade and Investment Reforms in South Asia

Trade liberalization and the reform of foreign direct investment policies constitute the main forces that developing countries use to integrate with the world economy. South Asian countries are latecomers to this liberalization process with the exception of Sri Lanka that began trade liberalization in 1977⁷. In the beginning of 1990s South Asian tariff and non-tariff rates were among the highest in the world (Pigato et al, 1997). In Table 2.1 the simple mean tariff rates and the weighted mean tariff rates are shown for two selected years for all products, primary products and manufactured products respectively. Bangladesh had the highest simple mean tariff for manufactured products

(110%) followed by India (80%) in the early 1990s. Sri Lanka and Nepal had the lowest mean tariff rates. By the end of the decade tariff rates have come down to 22 percent and 32 per cent in India and Bangladesh. It is below 20 per cent in Nepal and Sri Lanka. Pakistan has brought down the maximum tariff rate to 35 percent in 1998-99⁸. The actual revenue earned from import duties as a proportion of the value of imports is a useful indicator of the degree of protection. The trend in the ratio of import duties as a percentage of imports for the South Asian countries is shown in Table 2.2. A perceptible decline since 1990 is clearly seen. Here Pakistan looks more open than India. In Bangladesh the un-weighted coverage of the NTB's went down from 57 per cent of the tariff lines in 1986 to 9 percent in 1994. It dropped from 14 per cent to 4 per cent in Sri Lanka over the same period. Pakistan reduced non-tariff protection from 83 percent in 1984 to 15 percent in 1992 (Panagariya, 1999). The dismantling of Non-Tariff Barriers (NTBs) began relatively late in India with a coverage of 61 percent in 1996. Consumer goods remained under quantitative restrictions even at the end of the period. However, 95 percent of the tariff lines are freed from NTBs in 2001. All the South Asian Countries have made their currency convertible on the current account and simplified policy restrictions on FDI. The details of policy changes and simplifications are available in other sources (Pigato et al 1997 and RIS, 2002). We shall turn our attention to the actual extent of global integration achieved in South Asia.

Table-2.1: Tariff Reform in South Asia							
	All Products			Primary		Manufactured	
	Simple Mean	Stan.Dev	Wght.Mean	Simple	Wght.	Simple	Wght.
Bangladesh	Tariff	Of Tariffs	Tariffs	Mean	Mean	Mean	Mean
1989	106.6	79.3	88.4	79.9	53.5	110.5	112.4
1999	22	20.3	22	22.4	13.3	22	24.3
India							
1990	79.7	43.8	49.8	69.6	26	80.3	69.9
1999	32.2	12.4	29.5	30.5	24.9	32.4	32.3
Nepal							
1993	24	24.4	19.4	15.7	14.2	26	21.9
1999	17.7	21	18	12.9	14.5	18.9	19.7
Pakistan							
1995	50.7	21.7	46.3	44.5	22.2	51.4	51
1998	46.5	21.2	41.7	42.7	26.2	46.9	44.4
Sri Lanka							
1990	28.3	24.5	26.9	31.8	32.2	27.9	24.3
1997	20.1	14.3	22.5	23.9	26.5	19.7	21.4
Source: World Development Indicators 2001							
Note: Stan.Dev=Standard Deviation and Wght=Weighted							

Table: 2.2 Import Duties as Percentage of Imports					
	Bangladesh	India	Nepal	Pakistan	Sri Lanka
1980	16	26	16	25	10
1981	16	31	16	25	8
1982	13	37	15	22	7
1983	14	37	11	25	10
1984	15	40	12	25	15
1985	14	44	13	24	16
1986	0	51	11	29	19
1987	18	53	13	.	20
1988	17	48	14	31	17
1989	19	45	13	29	20
1990	.	42	14	32	18
1991	.	46	11	25	16
1992	.	37	10	28	16
1993	.	27	9	22	12
1994	..	23	9	24	11
1995	..	25	10	24	10
1996	..	25	9	21	9
1997	..	21	9	19	9
1998	..	22	9	16	8
1999	..	21	10	13	7
Note: Figures after the digit not shown					
Source: World Development Indicators, 2002					

2.2 Global Trade, Investment and South Asia

Globalization is reflected in the rising share of international trade in world output. The volume of world merchandise trade is estimated to have increased at an average annual rate of more than 6 percent, during the period 1950-64, compared with an output growth of less than 4 percent (WTO, 1995). This means each 10 percent increase in world output has on average been associated with a 16 percent increase in world trade. The more interesting development has been the steady rise in the ratio trade growth to output growth for manufactures, from an average of 1.3 in 1950-64 to

3.2 in 1984-94. It is clear that the pace of global integration has been mainly driven by the manufacturing sector (WTO, 1995). The export orientation of developing countries in particular has undergone substantial change since the beginning of the 1980s. Their share in world export of manufactures increased from 12 percent in 1980 to 25 percent in 1996. More significantly, the developing economies received an increasing share of global inflows of foreign direct investment. Their share rose from 23 percent in 1970 to 31 percent in 1995 and further to 38 percent in 1997 (Ghose, 2000)⁹.

South Asian countries have been insignificant players in this rapid growth of world trade and investment. A leading indicator of openness is the ratio of total trade to GDP. The estimated average for the East Asian countries is 58 percent in the beginning of 1990s. Only Sri Lanka had a similar degree of openness in 1990-92 as shown in Table 2.3. The other Asian countries had not reached that level even towards the end of 1990s.

Country Name	Bangladesh	India	Indonesia	Korea, Rep.	Malaysia	Nepal	Pakistan	Sri Lanka	Thailand
1980	19.9	15.7	54.4	74.4	111.0	30.3	36.6	87.0	54.5
1981	21.1	15.1	53.1	76.9	109.3	32.5	35.3	77.0	54.0
1982	22.5	14.0	49.4	70.3	108.9	30.4	31.7	73.6	47.5
1983	22.0	13.8	54.2	70.5	106.5	31.5	34.9	67.8	47.4
1984	20.8	15.0	47.9	70.0	105.1	30.1	33.7	63.5	48.1
1985	21.2	14.2	43.0	66.0	103.2	31.5	33.2	64.0	49.2
1986	19.1	13.8	39.1	68.4	105.0	31.8	34.6	59.0	49.2
1987	19.4	14.3	45.3	71.6	111.9	32.4	34.2	60.9	57.2
1988	20.3	15.6	44.9	67.9	122.6	32.6	35.3	62.9	67.4
1989	19.0	16.9	45.7	62.0	136.7	32.6	35.6	64.0	72.4
1990	19.9	17.2	49.1	59.4	147.0	31.6	38.9	68.2	75.8
1991	19.2	18.1	49.9	57.7	159.3	34.9	39.5	67.6	78.5
1992	20.4	19.9	52.8	56.8	150.6	42.3	40.5	72.8	78.0
1993	23.2	21.7	50.5	55.0	157.9	45.7	41.0	77.1	79.4
1994	22.9	23.1	51.9	56.8	179.9	55.5	37.1	79.4	82.4
1995	27.9	25.7	54.0	61.9	192.1	58.8	37.1	81.6	90.3
1996	29.8	25.4	52.3	63.1	181.8	58.0	40.3	78.9	84.7
1997	30.1	25.6	56.0	70.5	185.7	64.0	38.9	80.1	94.5
1998	31.6	25.3	92.9	85.4	208.6	56.7	36.9	78.5	101.3
1999	31.8	27.1	61.8	77.4	218.2	53.0	35.3	77.8	102.2
Source: World Development Indicators									

However, compared to the eighties South Asia's level of integration in the nineties is unmistakably dramatic. Two other related indicators are the ratio of exports to GDP and the ratio of imports to GDP. They are shown in the appendix tables A2 and A3 respectively. Only Sri Lanka stands out as an open economy. However, the 1990 are clearly the years of rapid integration for the other South Asian countries. This is also

reflected in the other two important ratios, namely, the percentage of exports and imports as a proportion of merchandise exports and imports respectively. Manufactured exports are overwhelmingly important for Bangladesh, Pakistan and Nepal but somewhat less for India and Sri Lanka (Table A4). Manufactured imports form a large proportion (more than two-thirds) of merchandise imports in Bangladesh and Sri Lanka but not so for India and Pakistan (Table A5). This reflects their diversified production structure due to import substitution policies

South Asia began attracting FDI flows very recently¹⁰. Their share in FDI flows to developing countries was just 1 percent 1991 and increased to reach 2.6 percent in 1996. India has absorbed an increasing proportion of FDI flows to this region while Bangladesh ranks as number one in terms of growth rate of FDI inflows. FDI began to form a significant proportion of their gross fixed capital formation only in the late 90's as evident from the figures in Table 2.4. The industry group textiles, leather and clothing have the highest share in Bangladesh and Sri Lanka (Table 2.5). This reflects their relative attractiveness for relocating labor-intensive products and their access to quota markets in the US and the EU. India stands out with a very low share in textiles and clothing but a higher share in metal products, non-electrical machinery, electrical machinery and automobiles including auto components. This is because Indian industrial policy did not permit FDI in the clothing sector as it is reserved for small-scale industries (Ramaswamy and Gereffi, 2000). FDI flows in India are into import competing rather than export oriented sectors.

South Asia exports predominantly low skill and labor-intensive products¹¹. A striking feature of the South Asian export basket is its lack of diversification. India is

an exception. In all other four countries textiles and clothing contribute more than 50 percent of their manufactured exports as evident from the data presented in Table 2.6. In the 1990s world trade in textiles and clothing slowed down much more than the world trade in manufactures as shown in Table 2.7. This is a critical factor that needs to be emphasized in any evaluation of the impact of trade liberalization on labor markets in South Asia.

Table: 2.4 FDI Inflows as percent of GFCF in South Asia

	1991	1998
Bangladesh	0.1	3.8
India	0.3	2.9
Nepal	0.4	1.2
Pakistan	3.3	5.7
Sri Lanka	2.4	5.2

Note: GFCF=Gross Fixed Capital Formation

Source: RIS (2002)

Table 2.5: FDI Stocks by Industry in manufacturing						
	India		Sri Lanka		Bangladesh	
	1991	1995	1991	1995	1991	1995
Food, Beverages, Tobacco	6.3	7.3	1.5	8.6	15.2	8.8
Textiles, Leather and Clothing	2.2	3.9	45.7	20.9	23.6	33.2
Chemicals	27.2	22.1	13.5	7.4	11.4	27.1
Basic metal and metal products	5.9	4.6	1.4	1.4	20.9	14.6
Machinery and Equipment	13	11.3			1.2	0.2
Electrical Machinery	11.5	10.8			0.7	0.1
Motor Vehicles &Transport Equipment	9.7	10.5				
Secondary Sector	100	100	100	100	100	100
Source: RIS (2002) based on UNCTAD						

Table: 2.6 Share of Textiles and Clothing Exports in South Asia

	1991	1995	2000*
Bangladesh	75.3	76.8	99
India	33.9	31.1	31.3
Nepal	77.1	80.7	76
Pakistan	73.7	77.6	74
Sri Lanka	43.7	52.6	59

Source: For 1991 and 1995 is RIS (2002) and for 2000 is ITC/UNCTAD on the internet.

Table: 2.7 World Trade in Manufactures						
	1980-85	1985-90	1990-00	1998	1999	2000
Annual Percentage Change	2	15	7	2	4	10
World Trade in Textiles	-1	15	4	-4	-2	7
World Trade in Clothing	4	17	6	1	0	7

Source: International Trade Statistics, WTO, Various Years

3. Structure of Employment in South Asia: Aggregate Effects

Did South Asia experience inter-sectoral labor shifts following trade liberalization? Openness is expected to bring about labor allocation among sectors as workers move from growing sectors to shrinking sectors. Cross-country studies suggest very little change in sectoral reallocation of labor, at the economy-wide 1-digit level of disaggregation, during significant episodes of trade liberalization (Seddon and Wacziarg, 2001). South Asia is no exception to this rule. The pace of change in the structure of employment in South Asia continues to be slow (Table 3.1).

	India		Sri Lanka		Pakistan		Bangladesh	
	1993-94	99-00	1994	1998	1990	1998	1991	1995
Agriculture	64	60	41	37	47.4	46.8	66.4	63.2
Manufacturing & Mining	12	13	14	17	12	10	11.8	7.5
Services*	24	27	41	43	26	27.6	17.1	27.1

*Services include construction, utilities, trade, financial services and personal services
Sources: Labor Force Surveys of respective countries and Key Indicators 2001,ADB

Table 3.2: GDP by Sector (Percentage Share): South Asia

	Agriculture			Industry			Services		
	1980	1990	2000	1980	1990	2000	1980	1999	2000
India	38.1	31	25.3	25.9	29.3	26.2	36	39.7	48.5
Pakistan	29.6	26	26.3	25	25.2	22.8	45.5	48.8	50.9
Bangladesh	41.2	29.4	24.6	16.3	20.9	24.4	42.5	49.7	51
Sri Lanka	26.2	22.9	19.4	29.8	27.3	27.3	44	49.8	53.3
Nepal	61.8	51.6	39.8	11.9	16.2	22.1	26.3	32.1	38.1

Source: Key Indicators 2001,ADB

Agricultural sector continues to be the dominant employer even though its share in total employment declined in India and Sri Lanka. Manufacturing sector in Bangladesh seem to have declined .On closer scrutiny of the labor force survey data revealed a serious under estimation of workers in industry groups like Apparel, the fastest growing sector in the 1990s. Manufacturing in Bangladesh probably maintained its share as in 1991 if not an increasing share. Sri Lanka expectedly shows a rising share of manufacturing sector in employment. The direction of structural change in South Asia continues to move from agriculture to services. This is in line with sectoral shares in GDP (Table 3.2)

that indicate a movement in favor of services sector. The average GDP share of services sector, a non-tradable good, in South Asia increased to 47 percent in 2000 from 39 percent in 1980. The manufacturing sector improved its share significantly in Bangladesh¹².

Aggregate employment growth in manufacturing during the 1990s range from 2.5 percent in Nepal (1990-96) to 4.1 percent in Sri Lanka (1999-2000) as shown in Table 3.3. Pakistan data shows declines in total manufacturing employment in many years and fluctuations during 1990-2000¹³. India records a growth rate of 1.9 percent in total manufacturing. Greater disaggregation in India revealed that (Table A5 in appendix) manufacturing contributed about 20 percent of the absolute increase in the number of workers. It is reported that factories employing 100 to 999 workers increased their employment share, in total industrial employment defined as manufacturing plus electricity and water utilities, to 45.4 percent in 1997-98 from 36.2 percent in 1990-91 (Goldar, 2000). This is not consistent with the proposition that job security regulations, applicable to firms with more than 100 workers, constrict new job creation. In the aggregate the effect of openness on employment in South Asia is mixed. Three countries, Sri Lanka, Nepal and India have experienced positive net employment, Pakistan a negative change and Bangladesh suffers from underestimation but probably positive.

Table 3.3: Manufacturing Employment Growth in South Asia

Country	Growth rate
Nepal (1990-96)	2.5
Sri Lanka (1990-2000)	4.1
Pakistan (1990-2000)	2.8*
India (1994-2000)	1.9
Bangladesh (1990-96)	-ve

Source: Key Indicators ADB 2001 *Statistically Insignificant

4 Informalization

The shift of labor from formal to informal segments of manufacturing is an important process of labor market adjustment observed in many developing countries. The proximate causes are; first, import substituting industries may shed labor as they lose their competitiveness; Second, public sector firms restructure after being privatized and consequently reduce their work force and the extent of over-manning; Third, labor regulations on hiring and firing rules discourage firms in the formal sector to hire new workers and encourage outsourcing of products produced in the informal sector. Fourth, export oriented manufacturing demands a kind of production flexibility conditions such that only the informal enterprises can take advantage, for example, short production runs. Export orientation and informal sector production are often synonymous in developing countries. Consequently, the issue of quality of employment created assumes significance. We have estimated the informal sector employment in four South Asian countries using the residual method. In other words informal sector employment is derived by subtracting the formal sector employment figure from the estimate of total manufacturing employment given by the labor force surveys. Formal sector employment in all the 4 countries refers to factories with more

than ten workers. The percentage distribution of formal and informal employment is presented in Table 4.1. India and Pakistan do not show any marked changes in informal sector share in the nineties. Informal sector employment growth rate in India is above total manufacturing leading to the marginal rise in its share (Table 4.2). Analysis of disaggregated data for India, as in Table 4.3, suggests a reversal of informalization process in three industries, namely, textile products, leather products and metal products. The tendency is relatively stronger in textile products, which includes garments, and metal products. Formal sector in these two industries have experienced high rates of investment in the 1990s relative to 1980s¹⁴.

Sri Lanka presents the most interesting case of declining informal sector between 1990 and 1995. During this period Sri Lanka's manufactured export increased at an average annual growth of more than 24 percent and manufactured output grew at more than 11 percent per annum (Jayawardena, 2002).

Bangladesh also seems to have experienced a decline of informal sector. This is due to the under estimation of informal sector workers in the labor force survey of 1995-96. Regardless of this limitation, it is important to note that growth rate of formal sector employment in Bangladesh was above 10 percent per annum during this period and above 13 percent in export oriented sectors (Table 5.1 below).

Our estimates of employment in formal and informal sectors in South Asia suggest that informality in manufacturing sector has not changed much in the 1990s and has in fact declined compared to the situation in the 1980s. In India, in the latter half of the 1990s, a large proportion of new entrants to the labor force entered the informal sector¹⁵. New jobs created during the period of globalization are largely of

low quality. The labor reallocation between formal and informal sectors in South Asia is a significant feature. The case of Sri Lanka suggest the possibility that globalization need not be synonymous with informalization. Moreover, we need to look at structural changes taking place *within* industries and sectors to discover differential responses to globalization.

		1984-85	1993-94	1999-00
India	Formal	16	19	18
	Informal	84	81	82
		1985	1991	1995
Pakistan	Formal	13	16	17
	Informal	87	84	83
		1989	1991	1995-96
Bangladesh	Formal	15.8	19.6	41.5
	Informal	84.2	80.4	58.5
		1990	1995	1997
Sri Lanka	Formal	42	63	51
	Informal	58	37	49

Source: Estimates based on Labor Force Surveys in the respective countries.

	1993-94	1999-00	Growth Rate*
Formal	7.7	7.9	0.5
Informal	32.3	36.3	2.0
Total	40.0	44.2	1.7
Urban	19.2	21.2	1.7
Rural	20.5	22.5	1.6

Note: *Annual Compound Growth Rate.
 Here Manufacturing Excludes Repairs, Electricity, Gas and Water
 Source: Author's Estimates based on Sundaram (2001a and 2001b) and *Annual Survey of Industries*, Summary Results for the Factory sector, various years

Table: 4.3 Employment Growth Rates in Formal and Informal Segments in India: Selected Industries				
	Total	Formal		Informal
Sector	1994-00	1990-95	1990-98	1990-95
Textiles and Textile Products	0.23	4.4	2.5	NA
Textiles	NA	1.4	0.79	0.79
Textile Products	NA	17.9	12.5	1.4
Leather Products	6.76	4.3	2.5	-1.6
Metal Products and Parts	5.64	6.5	3.7	2.1
Source: Estimates based on Labor Force Surveys and Annual Surveys of Manufacturing				
Note: Compound Growth Rates based on end point data				
NA: Not Available				

Has informalization accompanied falling real earnings of those employed in the informal sector? Data required to assess this question is available only for India. Informal sector consists of own account enterprises and establishments defined as those with more than one hired worker. The recent trend in the real earnings of workers in different segments of the informal sector is shown in Table 4.4. This data suggests that informalization in Indian manufacturing is not accompanied by falling real incomes of informal workers¹⁶. It is the formal sector workers who have suffered the fall in real wages. This has narrowed the gap in real earnings between formal and informal sector workers particularly in the urban sector. An important reason is the greater linkage between formal sector enterprises and urban establishments. Contract manufacturing for exports as well as domestic markets is growing and widespread in India (Ramaswamy, 2002)¹⁷. The processes of restructuring *within* the informal sector of South Asia needs to be further investigated. Unfortunately, this is almost impossible

to attempt, as comparable industry-wise data on informal sector is not available for south Asian countries.

	1990-95	1995-00
Urban Establishments	4.0	3.5
Rural Establishments	7.0*	8.2
Organized Factory workers	0.01	-1.11
Non-Manual Work Non-Agriculture	2.82	3.07
Rural Casual Labor Non-Agriculture	2.39	3.7

Source: Labor Force Surveys (1998 and 2001), Annual Surveys of Manufacturing and Sundaram (2001)
 Note: Establishments refer to those with hired workers between 1 to 9
 *Data relates establishments with 6 to 9 workers
 Earnings adjusted using CPI for Industrial Workers with base 1982=100
 Compound Growth Rates based on end point data

	Total	Export Oriented	Import Competing
India			
90-95	4.2	4.7	3.4
90-97	2.7	2.8	3
Bangladesh (90-96)	10.5	13.2	9.2
Nepal (90-96)	3	13.4	NE
Sri Lanka (90-95)	14.5	13	12
Pakistan (87-95)	1.1	2.8	0.6
* Formal Sector only			

Source: Author's Estimates based on UNIDO Industrial Statistics and Statistical Year Book of Bangladesh 1999 and Economic Survey of Pakistan 1997-98

5 Sectoral Effects in the Formal Sector: Employment and Wages

A significant aspect is the changes in employment and relative wages in the export-oriented sector and the sector producing import substitutes. Due to data limitations we focus attention only on the formal sector. Export oriented production is often

dominated by informal sector enterprises in developing countries. Our exercise is still useful for two reasons. First, dynamics of changes within the formal sector will be of value in its own right as the regulatory changes affect this segment directly. Second, movement of changes in wage differentials by skill in the formal sector is a broad indicator of return to human capital and the degree of inequality in the wage structure in a country (Freeman and Oostendrop, 2002). We have followed Ghose (2000) study in formulating the two sets of 4 digit industries using the UNIDO database on industrial statistics. The two groups are called as 'export-oriented' and 'import-competing'. They are listed in the Appendix A1. In Table 5.1 and 5.2 the estimated employment growth rates and the changes in their employment shares are presented.

In all the five countries employment growth rates are higher in export-oriented industries relative to import competing industries. In the case of India this is true only during 1990-95 and growth slowed down between 1990 and 1997. The second half of 1990s exports growth slowed down for all South Asian countries (RIS, 2002). Employment growth rate in import competing industries declined significantly only in Pakistan. Total employment growth rate itself declined in Pakistan unlike others in South Asia. Employment growth in import competing industries in India, Bangladesh and Sri Lanka is equally significant. This is consistent with the results of Ghose (2000). Openness seems to have stimulated employment growth in import competing industries contrary to the predictions of the standard H-O theory. Two explanations may be considered. First for countries like Bangladesh and Sri Lanka, it reflects a process of structural development of the industrial sector as they lacked a diversified structure to begin with. In the case of India with a large domestic market and

diversified product mix the employment growth of import competing industries reflects a ‘competitive effect’ due to the liberalization of industrial and trade policies. Most of the import competing industries have been ‘imperfectly competitive’. Liberalization of capacity licensing and entry regulations for large domestic and foreign firms led to high rates of capital formation in ‘import competing’ industries like consumer durables (Ramaswamy, 2000). As technology and skill are likely to be complementary, new investment would have increased demand for skill labor. Both employment and real wages increased in the group consumer durables during the 1990s even in the absence of effective import competition. This would have led to greater wage inequalities in the manufacturing sector during the period of liberalization. This aspect is investigated in the following section.

Table: 5.2 Changes in Structure of Manufacturing Employment in South Asia		
	(Percentages)	
	Export oriented	Import Competing
India		
1990	28	15
1997	28	14
Sri Lanka		
1990	49	2.3
1997	53	19
Pakistan		
1987	46	7.2
1995	51	7.1
Nepal		
1990	41	NE
1997	52	NE
Bangladesh		
1989	69	4.9
1995	79	4.7
Note: Employment Shares of Industry groups listed in Appendix table A1 Source: UNIDO Industrial Statistics and Year book of Statistics Bangladesh And DCS, Sri Lanka		

5.1. Trends in Real Wage and Wage Inequality in the Formal Sector

We look at trends in real wages, as the first test of a well functioning labor market is the downward flexibility of wages (Horton, Kanbur and Mazumdar, 1987). Nominal and real wage indices of four countries, namely, India, Pakistan, Nepal and Sri Lanka are presented on Table 5.3. For Bangladesh the estimated real wages are shown in Table 5.4. All the five countries experienced systematic fall in real wages in the 1990s¹⁸. Labor markets in South Asia adjusted to globalization through a downward revision of real wages in their formal sector of manufacturing. An important mode of wage flexibility and adjustment is carried out through compositional change in the workforce. The nominal wage bill of an industry could fall because of the rise in either the share of women workers or the share of casual/contract workers in total workforce. As both female and casual/contract workers are generally paid less than the average industry wage, average wages can decline. In Sri Lanka the share of female workers in total manufacturing employment increased from 32 percent in the early 1980s to over 60 percent in by the end of mid-1990s (Athukorala and Rajpatirana, 2000). In the formal sector of Bangladesh the share of female workers is found to be more than 40 percent in 1995-96 (Hossain et al,1998).In India, on the contrary, the share of contract workers rose from 12 percent before reforms to above 16 percent by the end of the 1990s (Ramaswamy,2002). The rise in the share of contract labor in India's formal sector is attributed to job security regulations that create disincentives for hiring permanent workers.

A controversial issue is the impact of international integration on wage differentials between skilled and unskilled labor. The standard argument of neo-

classical trade theory implies that openness reduces the wage differential between skill and unskilled labor in developing countries. This is supposed to happen because trade increases relative demand for unskilled labor and their relative wages go up. We have used the ratio of average earnings per person in import competing industries to that in export oriented industries as an index of wage inequality (Ghose, 2000). This index is based on the assumption that the ratio of unskilled to skilled labor is greater in export-oriented production. The production of import competing products is supposed to approximate the usage of skill to unskilled ratio in industrialized countries¹⁹.

A reduction in this ratio is expected as a developing country's level of integration goes up. Our estimate of this index of wage inequality for the four South Asian countries is presented in Table 5.5. Wage inequality in India has systematically increased in the 1990s. Bangladesh shows a fluctuating trend in wage inequality though the index show a substantial fall in the year 1995. Increasing wage inequality is also suggested in the case of Pakistan. Sri Lanka is an exception to this trend in South Asia. Between 1990 and 1996 wage inequality systematically declined in Sri Lanka. As noted earlier during this period export growth in Sri Lanka was more than 20 percent per annum. The consequent demand for labor perhaps generated sufficient level of demand so as to tighten the informal labor supply in Sri Lanka. We noted above that the degree of informalization declined in Sri Lanka. This is consistent with the proposition of a tight informal labor market during this period.

Table: 5.3: Trends in Manufacturing Wages in South Asia

		Nominal Manufacturing Wage Indices	Real Wage Indices
India	1980	59.0	138.8
	1990	100.0	100.0
	1991	103.1	90.5
	1992	94.4	74.1
	1993	98.9	73.0
	1994	97.2	65.0
	1995	122.5	74.5
	1996	120.3	67.0
	1997	115.1	59.8
Nepal	1990	100.0	100.0
	1991	133.3	115.4
	1993	145.1	99.7
	1994	155.1	98.4
	1996	183.9	99.1
Pakistan	1990	100.0	100.0
	1993	86.6	64.3
	1994	112.7	74.5
	1995	171.2	100.8
	1996	165.9	88.4
	1997	185.1	88.6
Sri Lanka	1980	33.5	106.4
	1990	100.0	100.0
	1991	122.4	109.1
	1992	127.7	102.1
	1993	142.2	101.9
	1994	164.0	108.3
	1995	177.0	108.5
	1996	184.1	97.4
	1997	202.6	97.8
	1998	212.1	93.7
	1999	242.6	102.3

Source: Key Indicators of the Labor Market 2001-2002.ILO

	Nominal	Real
	wages	Wages
1988-89	19497.1	14849.28
1989-90	23386.01	17145.17
1990-91	21930.01	14847.67
1991-92	22463.16	14548.68
1992-93	22995.77	14490.09
1993-94	23872.48	14565.27
1995-96	32060.53	17971.15

Source: Statistical Year Book 1989.

Note: Nominal wages were deflated by Consumer Price Index with 1985-86 as the base.

	India	Pakistan	Bangladesh	Sri Lanka
1980				
1981	1.525			
1982	1.518			
1983	1.513			
1984	1.555			
1985	1.574			
1986	1.605	1.601		
1987	1.621	1.654		
1988	1.573	1.551	1.505	
1989	1.676		1.380	
1990	1.645		1.710	1.879
1991	1.683		1.912	1.759
1992	1.73		2.310	1.791
1993	1.722		NE	1.689
1994	1.742		NE	1.651
1995	1.786		1.251	1.555
1996	1.882	1.751		1.483*
1997	1.882			1.792*

Note: NE: Not Estimated

Source: Estimates based on UNIDO 4 digit Data
* Based on 3 digit data of DCS of Sri Lanka

6. Concluding Observations

Our study of south Asia suggests that the impact of globalization on industrial labor markets is mixed. South Asia experienced insignificant sectoral shifts in labor allocation with positive net employment growth in manufacturing. Informality in the manufacturing sector did not undergo any substantial change in the 1990s. A marginal increase in the proportion of low quality jobs through informalization is observed. Sri Lanka and selected industries in India appeared to be exceptions to this process. Moreover, informalization process did not lead to falling real incomes of informal workers in India. Real wages in formal manufacturing sectors declined. Within the formal sector, contrary to expectation, employment growth was positive in import substituting industries. Overall wage inequalities increased widening the gap between skill and unskilled labor. This indicates an increasing premium for skill in these countries.

We offer three broad interpretative remarks based on our study. First, outcomes in South Asia is strongly linked with world trade growth in textiles and clothing. Access to developed country markets and world trade growth in textiles and clothing remains overwhelmingly significant for South Asian labor markets. One need only to remember that Bangladesh enjoyed unrestricted access to EU markets during the 1990s. Trade liberalization carried out in South Asia in the 1990s is also the period during which world trade in manufactures slowed down. Market access issues remains critical for South Asia and its labor markets.

Second, resilience of labor markets to adjust to changing market conditions. Downward adjustment of real wages was observed in all the five countries of South Asia. Labor market regulations are more restrictive in Sri Lanka than in India while

Bangladesh has relatively flexible firing regulations. Informalization did not show rapid rise in Sri Lanka and in Indian clothing industry with fast growing exports. Formal private sector employment in Sri Lanka continued employment expansion. In India, formal sector firms responded strategically with greater employment of contract workers. Our results are consistent with the viewpoint that labor markets are observed to work tolerably well under different market conditions (Freeman, 1992).

Third, labor market outcomes are sensitive to labour-intensity of sectors attracting and receiving foreign direct investment. Sri Lanka appears to conform to standard textbook predictions with rapid labor-intensive exports, employment growth and declining wage inequality. FDI in Sri Lanka has been export oriented. India represents a contradictory outcome with slower export growth, employment growth in import substituting industries and growing wage inequalities. Indian policy regime banned FDI in labor-intensive manufacturing sectors. India seems to have attracted relatively more of market seeking rather than efficiency seeking FDI. Putting in place policies to attract more of efficiency seeking FDI remains a challenge for South Asia.

Fourth, South Asia needs investment in education to counter growing skill wage gap. Globalization has definitively contributed towards wage inequalities between skilled and unskilled labor. Investing in education to improve skill labor supply to catch up with demand is critical to labor market performance.

We need more research to understand the analytical complexities of the linkage between globalization and labor market institutions that create more quality employment or good jobs. Meanwhile, the available evidence suggests that industrial labor markets in South Asia have shown sufficient resilience to adjust to globalization

trends. Raising investment in infrastructure, education and productivity growth need far more urgent attention to achieve output growth and employment.

APPENDIX

Table A1: Classification of Industry Groups

Code	List of Export-Oriented Industries
3211	Spinning, weaving and finishing textile
3212	Knitting mills
3214	Manufacture of carpets and rugs
3220	Manufacture of wearing apparel, except footwear
3231	Tanneries and leather finishing
3233	Manufacture of products of leather and leather substitutes, except footwear and wearing apparel
3240	Manufacture of footwear, except vulcanized or moulded rubber or plastic footwear
3320	Manufacture of furniture and fixtures, except primarily of metal
3522	Manufacture of drugs and medicines
3529	Manufacture of chemical products not elsewhere classified
3811	Manufacture of cutlery, hand tools and general hardware
3813	Manufacture of structural metal products
3819	Manufacture of fabricated metal products except machinery and equipment n.e.c
3901	Manufacture of jewellery and related articles
3902	Manufacture of musical instruments
3903	Manufacture of sporting and athletic goods
Code	Import-competing Industries
3411	Manufacture of pulp, paper and paperboard
3511	Manufacture of basic industrial chemicals except fertilizers
3513	Manufactures of fertilizers and pesticides
3521	Manufactures of synthetic resins, plastic materials and man-made fibres except glass
3821	Manufacture of engines and turbines
3823	Manufacture of metal and wood working machinery
3824	Manufacture of special industrial machinery and equipment except metal & wood working machinery
3825	Manufacture of office, computing and accounting machinery
3829	Machinery and equipment except electrical not elsewhere classified.
3831	Manufacture of electrical industrial machinery and apparatus
3832	Manufacture of radio television and communication equipment and apparatus
3845	Manufacture of aircraft
3851	Manufacture of professional and scientific, and measuring and controlling equipment, n.e.c.
3852	Manufacture of photographic and optical goods
	Note: n.e.c=:Not elsewhere classified
Source: Ghose (2000)	

Table: A2 Export of Goods and Services as percentage of GDP					
	Bangladesh	Pakistan	Sri Lanka	Nepal	India
1980	4.16	12.49	32.22	11.54	6.17
1981	4.79	12.32	30.46	12.90	6.01
1982	4.76	9.95	27.36	11.59	5.75
1983	5.35	11.92	26.33	10.23	5.80
1984	5.42	11.07	28.80	10.65	6.41
1985	5.47	10.42	26.01	11.53	5.62
1986	4.91	11.90	23.72	11.67	5.62
1987	5.43	13.23	25.19	11.83	5.96
1988	5.72	13.59	26.08	11.33	6.29
1989	5.74	13.88	27.26	11.09	7.30
1990	6.25	15.54	30.18	10.53	7.28
1991	6.82	16.33	28.74	11.82	8.74
1992	7.87	16.97	31.76	15.99	9.13
1993	9.07	16.14	33.80	18.05	10.20
1994	9.03	15.93	33.81	23.86	10.26
1995	10.92	15.95	35.60	24.22	11.23
1996	11.08	16.19	34.97	22.26	10.85
1997	12.01	15.70	36.54	26.33	11.06
1998	13.35	16.20	36.25	22.83	11.33
1999	13.19	15.20	35.27	23.03	12.08
Source: World Development Indicators,2002					

Table A3: Imports of Goods and Services as Percentage of GDP					
	Bangladesh	India	Nepal	Pakistan	Sri Lanka
1980	15.8	9.5	18.7	24.1	54.8
1981	16.3	9.1	19.6	23.0	46.5
1982	17.8	8.3	18.8	21.8	46.3
1983	16.7	8.0	21.3	23.0	41.4
1984	15.4	8.6	19.4	22.6	34.7
1985	15.7	8.6	20.0	22.8	38.0
1986	14.2	8.2	20.1	22.7	35.3
1987	14.0	8.4	20.6	21.0	35.7
1988	14.6	9.3	21.3	21.7	36.8
1989	13.3	9.6	21.5	21.7	36.8
1990	13.6	10.0	21.1	23.4	38.1
1991	12.4	9.3	23.1	23.2	38.9
1992	12.5	10.8	26.3	23.5	41.0
1993	14.1	11.5	27.7	24.9	43.3
1994	13.9	12.9	31.6	21.2	45.6
1995	17.0	14.5	34.6	21.1	46.0
1996	18.7	14.5	35.8	24.1	43.9
1997	18.1	14.5	37.7	23.1	43.6
1998	18.3	14.0	33.9	20.7	42.2
1999	18.7	15.0	30.0	20.1	42.6
Source: World Development Indicators, 2002					

TableA4: Manufactured Exports as Percentage of Merchandise Exports					
	Bangladesh	India	Nepal	Pakistan	Sri Lanka
1980	67.65	58.64	30.5	48.19	18.55
1981	67.15	59.52	51.95	51.1	21.54
1982	61.54	49.19	34.46	57.91	26.04
1983	61.00	50.67	48.4	62.51	28.9
1984	64.31	52.83	42.02	67.55	26.61
1985	65.80	58.11	59.09	61.89	32.6
1986	66.36	62.54	64.84	66.39	42.54
1987	73.35	66.42	57.81	71.95	47.38
1988	68.21	71.54	63.74	66.01	48.46
1989	73.99	71.66	74.09	69.69	51.55
1990	77.49	70.69	83.47	78.69	53.64
1991	79.77	72.04	80.69	78.91	61.28
1992	83.26	73.52	82.83	78.77	70.48
1993	83.97	73.75	84.27	84.65	71.76
1994	83.88	76.22	87.25	86.89	72.5
1995	85.15	73.55	98.84	82.97	.
1996	87.23	72.42	79.67	83.78	.
1997	88.38	74.26	76.68	85.99	.
1998	90.68	76.04	89.96	83.91	.
1999	.	.	.	84.15	75.36
Source: World Development Indicators, 2002					

Table A5: Manufactured Imports as percentage of Merchandise Imports					
	Bangladesh	India	Nepal	Pakistan	Sri Lanka
1980	57.87	38.69	73.14	53.97	52.35
1981	61.07	39.33	64.66	49.85	52.24
1982	53.99	.	72.48	48.97	52.84
1983	58.37	49.07	65.35	51.12	55.88
1984	51.20	48.93	63.65	50.02	55.95
1985	50.67	54.39	70.71	50.72	54.64
1986	54.70	66.78	70.78	61.08	66.56
1987	50.17	53.33	59.40	59.90	64.85
1988	55.71	56.86	52.07	61.44	64.85
1989	56.70	58.99	59.98	56.00	64.55
1990	55.86	51.20	67.40	54.10	64.88
1991	64.07	49.90	62.22	62.40	67.78
1992	63.06	49.84	52.43	61.30	71.56
1993	65.70	53.57	49.46	62.04	74.94
1994	.	51.31	47.51	55.93	74.74
1995	69.14	53.77	47.44	57.41	.
1996	68.58	49.94	52.02	57.18	.
1997	65.54	54.70	48.77	54.09	.
1998	69.45	53.85	42.30	55.33	.
1999	.	.	.	52.87	76.59
Source: World Development Indicators, 2002					

Table: A6 Employment Growth in Selected Sectors in India				
	Number of workers ('000)		Absolute Change	Average Compound Growth rate
	1993-94	1999-2000		
Agriculture, Forestry, Fishing	238,682	237786	-896	-0.06
Manufacturing and Repair Services	43218	48296	5,078	1.87
Of which				
Food Products	4843	5409	566	1.86
Beverage and Tobacco	4410	4925	515	1.86
Textiles and Textile Products	10335	10480	145	0.23
Wood, Products and Furniture	4295	5367	1,072	3.78
Leather, Fur and Products	730	1081	351	6.76
Non-Metallic Mineral Products	3134	3485	351	1.79
Metal Products and Parts	1638	2276	638	5.64
Repair Services	3362	4203	841	3.79
Total Workforce	373832	397018	23,186	1.01

Source: Author's Estimates based on NSS data in Report of the Task Force (2001) and Sundaram (2001)

Table A7 Private Sector Employment in Sri Lanka

Year	EPZ	Total	EPZ Share
1989	61	3632	1.7
1990	71	3633	2.0
1991	85	3777	2.3
1992	104	3868	2.7
1993	122	3932	3.1
1994	135	3990	3.4
1995	233	4126	5.6
1996	242	4374	5.5
1997	258	4519	5.7

Note: EPZ=Export processing zones

Source: Table 11 in Rama (1999)

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¹ Globalization is the increasing integration of economies facilitated by the flow of goods, services, information, capital and people. Trade and investment liberalization are two major avenues by which developing countries integrate themselves with the world economy. For an analytical review of evidence see Rama (2000)

² Ghose (2000) addresses the issue of trade liberalization and employment in developing countries and does not cover South Asia except India. The issue of informalization is not within the purview of that study. Unni (1999) study focus on gender issues and informality in South Asian labor markets without a specific focus on openness and manufacturing employment. Hossain et al (1998) and the studies in Uchikawa (2002) are the other important studies of labor markets under structural adjustment in Bangladesh and India

³ Robbins calls it 'Skill-enhancing Trade' quoted in Wood (1997). Notice that technological change in industrialized north also causes a widening of wage inequalities by rising demand for skilled workers relative to unskilled

⁴ I am unaware of any trade model incorporating dual labor markets. However, similar effect is observed by Agenor and Aizeman (1999) in their model of macroeconomic adjustment with segmented markets.

⁵ I owe this point to Ghose (2000). It may be argued that interventionist policies have contributed to accentuate the dual structure of developing country labor markets and the wage differentials between formal and informal segments. While it is hard to deny the distortion effects of policies, a more nuance approach points to the difficulty of disentangling the effects of different factors causing wage differentials (Mazumdar, 1989). Policy biases in general have had both favorable and discriminatory effects on informal enterprises.

⁶ The description of labor laws and regulations is available on the Internet sites of ministry of labour of the respective countries. We have abstained from providing a detailed summary of various provisions. In India the regulations are found under the Industrial Disputes Act of 1947. In Sri Lanka they are explained under the Termination of Employment of Worker men act, called TEWA, of 1971. This paragraph also draws much from World bank (1998).

⁷ Panagariya (1999) discusses the evolution of trade policy in South Asia in detail. Two other important sources are Pigato Et al (1997) and RIS (2002)

⁸ See Economic Survey 1998/99, Ministry of Finance, Government of Pakistan

⁹ This sharp rise in the early nineties is due to the emergence of China as the most important host in the developing world. However, the FDI inflows in to developing countries declined during 1997 to 2000 to reach 24 percent (RIS,2002).

¹⁰ This paragraph is based on RIS (2002)

¹¹ See Wood and Mayer (2000) who show that this distinctive export structure is mainly an outcome of South Asia's distinctive combination of resources by comparison with other regions.

¹² The manufacturing sector in Nepal is in a nascent stage of development. It is dominated by two industries namely carpets and garments. Manufacturing employment constitutes little more than 2 percent of total employment.

¹³ These are my estimates based on data in Key indicators 2001 ADB and the Statistical Year book of Nepal 2001.

¹⁴ Investment rate in textile products (26%) and metal products (18%) are two export-oriented industries that have had higher rates of capital formation than the sector average (15%). This should have accelerated employment growth in the formal sector

¹⁵ Those workers displaced from the formal sector also gained entry into informal sector. For some evidence on this process See Roy (2002)

¹⁶ It is important to note that we have used the consumer price index for Industrial workers (CPIW) to deflate all wages. Use of CPIW for deflating informal sector wages may not be appropriate. CPIW uses a consumption basket that may not correctly represent the consumption expenditure of informal sector workers. CPIW is observed to have risen consistently relative to other price indices in the Indian economy. Consequently, we may be overestimating the rise in consumer prices.

¹⁷ Available estimates indicate that labor productivity in the informal manufacturing and service sector did not decline during the reform period. This aspect needs to be probed using disaggregated data. See Unni (2002)

¹⁸ Real wage here refer to the formal sector only. Time series data on informal sector wages is not available

¹⁹ Measuring and capturing skill content of labor force is problematic. One approach is to associate skill with educational levels (UNCTAD, 2002). Alternative approach emphasizes functionality. Here one can ask whether a worker has any supervisory role. Indian annual manufacturing surveys gives data separately for workers and employees. Employees refer to those in managerial and supervisory roles. We estimated the ratio of employees to workers and found them to be high in import competing industries. This ratio is a standard metric in the literature (See Robertson, 2000)