
New Pressures in Labor Markets: Integrating Large Emerging Economies and the Global Sourcing of Services

Rapid technological progress, trade in goods, and international sourcing of services come together to put new pressures in labor markets, pressures that will only become more acute in the next 25 years. Through these channels, globalization is creating a progressively more integrated global market for labor. The impact is tempered by differences in the skills, technology, and know-how available to workers.

Globalization offers opportunities for export growth and access to a wider range of cheaper imported products that can fuel productivity growth and rising average living standards. But globalization also imposes adjustment costs on certain groups within countries, primarily through labor markets by influencing wages and job security and by demanding retraining, and the upheaval of moving between jobs. The unskilled have seen their wages worsen relative to skilled workers and their jobs become less secure. This is true even in developing countries—contrary to expectations that the unskilled benefit relative to the skilled as labor-intensive manufacturing moves to low-wage countries. The projections in this report offer little reason to believe that this will change in the coming decade.

Two challenges are particularly demanding: one is the rise of China, India, and other emerging economies as manufacturing powerhouses, and the other is the emergence of global sourcing of services. While the qualitative implications of increasing exports of manufactured products from India and China are the same as

for the emergence of the Asian tigers, India and China's sheer size raises the specter of surging new export competition. Many developing countries fear that exports from these large new players may swamp their domestic markets, squeeze them out of the global market, foreclose avenues of diversification in manufactures as a road to higher growth, and gobble up all the investment flows. And high-income countries worry that if the large emerging economies can readily acquire and master the newest technologies, their exports may soon take over high-tech markets.

Global sourcing of services exerts pressures in the same direction. The transfer of relatively skilled service activities to firms in developing countries is putting new pressures on white-collar employment in both the high-income countries and advanced developing countries. This puts higher-paying and higher-skill jobs at risk in both high- and middle-income countries. Unlike displacement in low-skilled manufactures trade, services offshoring has the potential to destroy the previous investments of white-collar workers in firm-specific knowledge.

The analysis here suggests that three factors are likely to mitigate these effects in the medium and long term.

- First, the growth of the Chinese, Indian, and other emerging markets offers enormous offsetting opportunities for other developing and developed countries to

increase exports. As China and India increase their exports, they will have to increase imports of intermediate inputs, energy, technology, and investment goods. Driven by China, Asia was the principal destination for accelerated exports from Africa and Latin America in the late 1990s and the early 2000s.

- Second, accompanying the rising value of exports and domestic living standards in emerging economies will be rising wages. This—together with the inevitable exchange rate adjustment to the rise in global demand for these countries' products and services—will create space for low-income countries to move into the lowest-skill activities vacated by producers in the large emerging countries.
- Third, developing the social institutions that support a dynamic market economy in China and India will take time, providing an opportunity for smaller, more flexible countries to progress faster in institutional development—and for rich countries to continue to lead in productivity-enhancing innovation. The flow of services activities from rich to poor countries, which entails some transfer of know-how, will be slowed to the extent that institutional frameworks discourage foreign direct investment (FDI) and in particular fail to protect the ownership of such assets.

The policies that countries adopt will determine whether they will be able to take advantage of these new opportunities. Effective policy responses will need to position countries to harness the opportunities from globalization while also addressing the adjustment tensions that inevitably arise from the unprecedented magnitude and speed of change in labor markets.

Policies to embrace, rather than resist, global integration will lay the foundations for future growth and job creation. Openness to trade and FDI will become ever more critical if the poorest countries are to absorb technologies

and know-how from abroad and seize the opportunities created by rising demand from—and production shifts in—India and China. But openness will not foster integration in the absence of an attractive investment climate, one with sound institutions and policies that allow labor, capital, and knowledge to flow from low-return to high-return sectors. Developing knowledge-intensive activities as future drivers of growth will require investing in the institutions and policy frameworks that foster innovation, and in education and lifelong learning for all workers. Developing countries with wages currently higher than those in China and India will have to place greater attention on their institutions and on education policies to create a climate for greater innovation and skill enhancement.

Social policies should focus on protecting workers rather than protecting jobs. Even in the most propitious policy and institutional environments, rapid growth, globalization, and labor-market flexibility are likely to quicken the pace of job creation and job destruction. This demands policies to cushion the adjustment costs associated with increased volatility and involuntary dislocation. The returns to skilled labor will continue to increase faster than those to unskilled labor, perpetuating a natural wage-widening tendency in many (if not most) countries and underscoring the need for measures to support workers at the low end of the scale. Rising wage inequality, together with volatile labor markets, are heightening insecurity among workers throughout the world.

The impact of globalization: the story so far

Globalization, coupled with technological change, has driven growth in the world economy, bringing new employment opportunities and enabling millions of people to escape absolute poverty. That said, impacts have varied across and within countries—and not all workers have benefited equally. While many countries have seized the opportunities offered

by greater integration of markets in goods and services, others, especially in Sub-Saharan Africa, have remained marginalized. Meanwhile demand for skilled labor has increased in both developed and developing countries and greater global competition has become associated with a growing sense of insecurity for many workers worldwide.

Product markets are rapidly integrating . . . with a geographical redistribution of manufacturing

Developing countries' trade has accelerated over the last few decades. In the markets of developed countries, the share of developing countries in imports of manufactured products grew from barely 14 percent in 1973 to nearly 40 percent in 2003 (figure 4.1).¹

Imports of developing countries have grown just as quickly as their exports to the rest of the world (Ghose 2003). Developing-country imports grew at about 2 percent per year during the 1980s, accelerating to 9.5 percent per year during the 1990s (Bhorat and Lundall 2004).

This increased two-way trade reflects the growth of outsourcing and global production chains (see *Global Economic Prospects 2003*). Enabled by falling barriers to trade and FDI, lower transport and communication costs, and new technologies, global chains break down goods into their constituent parts, each produced where it can be done most efficiently and at least cost, whether by an affiliate or by an independent supplier. Ghose (2003) sees a correlation between countries' share of world merchandise exports and their share of FDI inflows: between 1982 and 1999, foreign affiliates of transnational corporations increased their share of world exports from 31 percent to 45 percent.

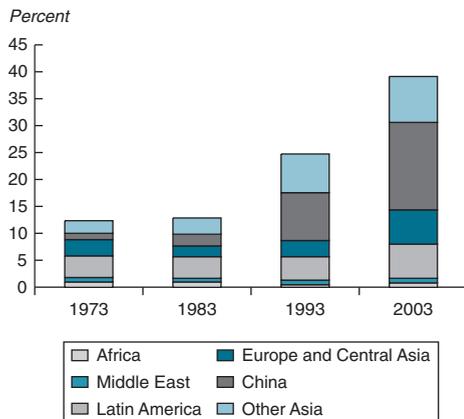
At the same time, manufacturing employment has been redistributed between developed and developing countries. While the precise numbers are debated, the gain in the latter has been much larger than the loss in the former (Sapir 2005; Ghose 2003).² Overall, employment in manufacturing in developed countries declined from 28.7 percent in 1995 to 24.8 percent in 2005, while most developing regions saw gains (table 4.1).

Not all developing countries have experienced gains in manufacturing employment, however. Consider, for example, the striking differences between East Asia and Latin America. Over the 1990s, employment in manufacturing increased in China (by just under 15 percent cumulatively), India (by about 38 percent), Malaysia (40 percent), and Thailand (about 49 percent). In Latin America, however, aggregate manufacturing employment declined over the 1990s; increases in Chile (about 10 percent) were more than offset by declines in Brazil (about 50 percent) and Argentina (14 percent) (Bhorat and Lundall 2004).³

Services employment has increased in both developed countries and all developing regions, except the Middle East and North Africa, where it has remained the same (table 4.1). Over the 1990s, large increases in services employment were seen in Brazil (57 percent) and Mexico (62 percent), with smaller increases in China (about 13 percent) and India (25 percent) (Bhorat and Lundall

Figure 4.1 Developed countries' imports of manufactures increasingly come from developing countries

Share of high-income countries' imports of manufactures originating in developing countries



Sources: Data from World Bank World Integrated Trade Solution (WITS) and staff calculations.

Note: Excludes trade among EU15 countries.

Table 4.1 Employment in developing countries has shifted out of agriculture into manufactures and services*Trends in sectoral shares in employment, 1995–2005 (percent)*

World region	Agriculture			Industry			Services		
	1995	2005 ^a	Change (%)	1995	2005 ^a	Change (%)	1995	2005 ^a	Change (%)
World	44.4	40.1	–9.7	21.1	21	–0.5	34.5	38.9	12.8
East Asia	54.4	49.5	–9.0	25.9	26.1	0.8	19.7	24.4	23.9
South East Asia and the Pacific	55.3	43.3	–21.7	15.4	20.7	34.4	29.3	36	22.9
South Asia	64.1	61.2	–4.5	13.4	14.1	5.2	22.5	24.6	9.3
Latin America and the Caribbean	23.4	17.1	–26.9	20.2	20.3	0.5	56.4	62.5	10.8
Middle East and North Africa	30.8	26.3	–14.6	20.3	25	23.2	48.9	48.7	–0.4
Sub-Saharan Africa	70.1	63.6	–9.3	8.2	8.9	8.5	21.7	27.5	26.7
Developed economies and the European Union	5.1	3.7	–27.5	28.7	24.8	–13.6	66.1	71.4	8.0
Central and Eastern Europe and CIS	27.9	22.7	–18.6	27.5	27.4	–0.4	44.6	49.9	11.9

Source: ILO 2006; Bank staff calculations.
 CIS: Commonwealth of Independent States.
 a. Indicative.

2004). Also worthy of note are the relatively high levels of female employment in the sector.

To some extent, this increase may reflect changes in business organization, where functions once performed inside manufacturing companies are now outsourced to other firms on a contract basis, resulting in their reclassification as services. This change in business organization has also crossed borders, with multinational companies sourcing activities from subsidiaries or external firms around the globe. (The global sourcing of services will be revisited below.)

Globalization has generally been associated with rising average wages—but not all workers are benefiting equally . . .

While an economy's openness to trade and investment is in general associated with faster growth of average wages over the longer term, short-term impacts can vary. Although the initial impact of trade liberalization on wages may be negative in some countries, it becomes significantly positive over time. For FDI, the picture is reversed: an initial positive effect on wages is reduced to nothing after five years. This highlights the importance of

the investment climate—if opening the economy does not attract FDI, potential short-term wage losses from opening the economy may not be offset (World Bank 2002).

While average wages rise more rapidly in open economies than in closed ones, increasing relative demand for skilled labor is widening the wage gap between skilled and unskilled workers in both developed and developing countries.⁴ The latter is contrary to expectations based on traditional trade theory that globalization will increase the relative return to abundant unskilled labor in poor countries. While available evidence attributes wage widening primarily to technology, trade is also important. The relative impacts are hard to disentangle since technology can lead to trade, and technological innovation in turn can be a response to increased competition from trade (box 4.1).

A widening wage gap between skilled and unskilled workers is particularly evident in the United States, where lighter labor-market regulation permits faster adjustments in wages. In Europe, where labor markets are more tightly regulated, the outcome of rising relative demand for skilled labor has been

Box 4.1 What causes the gap between skilled and unskilled labor—technology or trade?

Traditional theory expects trade with low-wage countries to result in a shift in the composition of employment toward skilled labor *between* sectors (as industries expand or contract in response to foreign competition). In both developed and developing countries, however, labor composition *within* sectors has moved toward skilled labor (also reflected in a dramatic increase in their relative wages), suggesting that technological change has been the major force at work. Moreover, the sectors shifting toward skilled labor in developing countries in the 1980s had done so in the United States in the 1960s, suggesting a migration of technological change from developed to middle-income countries.

Technological change is generally viewed as the most important force in terms of the rising demand for skilled labor (Krugman 1995), as evidenced by the positive correlations between technology and growth of employment of skilled workers within industries, and by the fact that increases in the relative wages (cost) of skilled workers have been accompanied by an increase in their relative demand (Helpman 2004).

Trade, by contrast, is a less important force—although estimates vary. Feenstra and Hanson (2003) conclude that the offshoring of manufacturing accounts for 15–24 percent of the shift toward more skilled labor. Anderton and Brenton (1999), on the other hand, find that, when only offshoring to low-wage countries is included, trade may actually account for about 40 percent of the rise in the wage bill share of skilled workers and approximately one-third of the increase in their employment in the U.K. textiles sector. The OECD (2005d) finds that the average decline in employment in 15 Organisation for Economic Co-operation and Development (OECD) countries was 27 percent in industries characterized by high international competition compared with 16 percent in total manufacturing. Evidence from developing-country studies also suggests that technology and FDI, rather

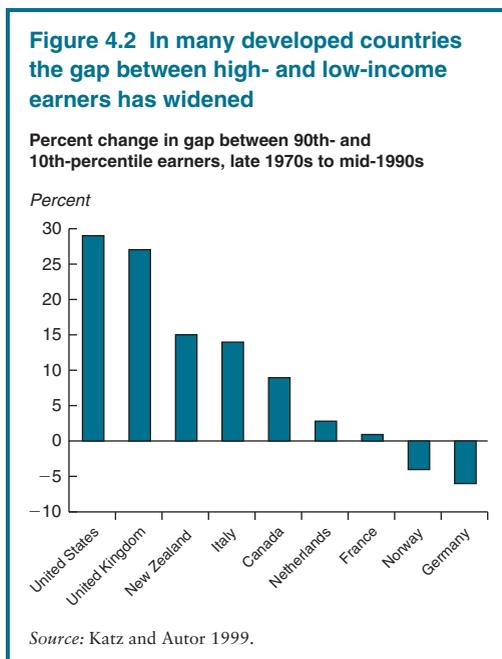
than trade, is the most important factor in wage inequality—for example in Chile (Reinecke and Torres 2001) and South Africa (Edwards 1999).

Trade plays an important role in disseminating new technologies, however. Robbins (1997), for example, finds that the amount of capital equipment imported into a subset of developing countries is a significant factor in raising the demand for those completing only primary school. Moreover, technological upgrading can itself be a response to trade competition; there is substantial evidence that firms improve productivity following competition from imports (Hoekman and Winters 2005). Companies in high-wage countries facing import competition from lower-cost developing-country suppliers may engage in “defensive innovation,” moving up the value chain and into more capital-intensive production. They may also respond by offshoring more production to reduce costs—generally the low-skilled activities, with the high-skilled activities remaining in the home market (Anderton, Brenton, and Whalley 2006).^a This can occur in both high-skill-intensive and low-skill-intensive sectors so that trade with developing countries can thus potentially have an impact on a wide range of sectors—and even within low-skill-intensive sectors, the higher-skilled activities could still expand. In this sense, offshoring can have the same effect as technology in reducing the relative demand for unskilled labor *within* an industry (Feenstra and Hanson 2003), and reallocating away from high-wage economies to low-wage economies.

^aCurrency and exchange rate movements can also prompt a shake-out that leaves only higher technology firms in a sector. Disproportionate increases in offshoring can be seen during large exchange rate appreciations and the costs and difficulty of reversal may see offshoring remain after the currency has stabilized.

reflected in higher unemployment among the unskilled.⁵ In the United States, increased demand for skilled workers since the mid-1980s has led to a relative increase in their employment and wages (Katz and Autor 1999).

Hence, while average U.S. real wages did not change significantly between the late 1970s and the mid-1990s, real wages of high-wage workers increased and those of low-wage workers declined (Helpman 2004)—despite



the fact that the relative supply of skilled workers grew over the same period.⁶

The same decline in the relative wages of low-skilled workers is found in other developed countries, although to a lesser extent. While the gap increased by 29 percent in the United States and 27 percent in the United Kingdom (figure 4.2), it was only 15 percent in New Zealand, 14 percent in Italy, and 9 percent in Canada (Katz and Autor 1999).

The relative wages of skilled workers increased in developing countries in the late 1990s, along with a rise in their relative employment levels (Majid 2004; Bhorat and Lundall 2004). There are several possible reasons for this.

First, in some developing countries, notably in Africa, increased demand for low-skilled labor did not lead to wage increases because there was a large surplus of labor to be absorbed (Ghose 2003; Wood 1997; Fox and others 2004). Studies in Latin America and the Caribbean also suggest that the increased participation of women in the labor market may have contributed to a widening wage distribution. In that region,

women's skills tended to be lower than average and hence their entry in the 1990s depressed earnings to lower-skilled workers (although overall it raised the income of poor households) (de Ferranti and others 2002).

Second, demand for skilled labor increased (World Bank 2002). The share of skilled workers in total employment and the relative demand for these workers increased between the early and late 1990s in a range of countries—including Brazil, Chile, Malaysia, the Philippines, Singapore, and Thailand, with Mexico experiencing a slight decline. In all cases, including Mexico, the growth rate of relative wages of skilled workers exceeded that of unskilled workers.

The demand for skilled labor depends on the skill intensity of the export sector. In many countries in Latin America, increased exports based on abundant natural resources raised demand for complementary skilled labor and capital (Perry and Olarreaga 2006). Furthermore, activities considered relatively low skill in developed countries may nonetheless be relatively skilled in developing countries, especially in manufacturing. Transfer of activities considered relatively low skill in developed countries to developing countries raises the relative demand for and relative earnings of high-skilled workers in the latter (Feenstra and Hanson 2003).

Additionally, enhanced competition from trade can affect the relative demand for skilled labor by reallocating resources within sectors away from less productive, unskilled-labor-intensive firms toward more productive firms using more skilled labor. Trade also facilitates the transmission of skill-biased technological change. Protection in many developing countries favored unskilled-labor-intensive sectors, hence liberalization led to expansion of skilled-labor-intensive industries (Perry and Olarreaga 2006). Foreign direct investment can also increase the demand for skilled labor. In Eastern Europe, for example, privatization and FDI helped bias employment composition and relative wages significantly toward skilled labor as production facilities were upgraded with new technologies.⁷

Even outside the traded sector, globalization may have an impact on low-skilled workers in other ways. In all countries, wages in the nontraded sector may be affected by wages and employment in the traded sector if there is mobility between the two. In addition, international

mobility in the form of migration may also have an impact on low-skilled workers, although there is considerable debate on this issue. Most studies focus on developed countries and tend to find small overall impacts—or indeed positive impacts—from migration on wages (see box 4.2).

Box 4.2 Workers in the nontraded sector—the role of migration

Even where workers do not experience increased competition from international trade, they may be affected by an increase in the supply of workers resulting from migration, although this impact may be positive. As immigration increases labor supply, and wages are reduced, more capital may be attracted and more jobs created. Moreover, consumption by migrants also increases the overall demand for native labor and capital. That said, many studies identify redistributive effects, with the impact of immigration concentrated on the lowest-skilled workers. The impact depends critically on the extent to which migrants and natives are substitutes for one another; that is, whether they are competing for the same jobs or operating in segmented markets (for a fuller discussion, see *Global Economic Prospects 2006*).

Borjas (2003) finds negative impacts on workers up to some college level, with immigration harming the employment prospects and lowering the wage of competing native workers (a 10 percent increase in supply reduces wages by 3–4 percent). The lowest-skilled were hardest hit: wages fell by 8.9 percent for high school dropouts, 4.9 percent for college graduates, and 2.6 percent for high school graduates while barely changing for workers with “some college.” However, this analysis ignores, among other things, the long-run capital adjustments induced by immigration. If the capital stock does adjust, overall wages are unaffected and the loss of wages to high school dropouts is cut to below 5 percent (*The Economist*, “Economics Focus: Myths and Migration,” April 8, 2006).

Borjas, Freeman, and Katz (1997) argue that the effect of immigrant-induced increases in relative labor supply are strongly concentrated on U.S. workers with less than 12 years of schooling, many of whom work in the nontraded sectors. Migration increased the supply of workers with less than high school education by 15 to 20 percent over 1980–95, leading to a 27–55 percent

decline in the relative wages of high school dropouts over 1980–95 (depending on wage elasticity). The effect of immigration is diffused throughout the economy, as natives move in response to immigration. Large immigrant flows to one region may discourage flows to that region of native workers, but may encourage flows of capital. Ottaviano and Peri (2005) find that migration increases total employment by 10 percent, and increases U.S.-born workers’ wages by 3–4 percentage points, largely because U.S.- and foreign-born workers are not perfectly substitutable, even when they have similar observable skills. College graduates, high school graduates, and college dropouts all gain (about 2.4 percent real wage increase), but the low-skilled lose (by the same amount).

Cortes (2005) also sees sizeable wage effects on the low-skilled, but these are concentrated on other immigrants, as low-skilled immigrants and low-skilled natives are far from perfect substitutes. A 10 percent increase in the number of low-skilled immigrants in a city reduced the wages of low-skilled natives by 0.6 percent and of low-skilled immigrants by 8 percent. But migration also reduces the prices of nontraded goods and services. A 10 percent increase in the average city’s share of low-skilled immigrants in the labor force decreases the price of immigrant-intensive services such as housekeeping and gardening by 1.3 percent, with about 50–80 percent of this net effect caused by reduction in wages.

Card (2005) argues that the wages of natives with less than a high school education relative to native high school graduates have remained nearly constant since 1980. This is despite immigrant inflows that have increased the supply of workers with less than high school education and despite the growing wage gap between other education groups. Most of the absorption of unskilled workers occurs in the form of city-specific, within-industry increases in low-skilled intensity.

... and workers are feeling less secure

Individuals are concerned not only about the level but also the security of their earnings. Greater global competition, along with more rapid technological change and diffusion, can increase wage and employment volatility,⁸ although separating the effect of trade from technological change in volatility is difficult.

Labor turnover is high in many countries, fueling individuals' perceptions of economic insecurity. Available data show gross sectoral rates of job creation and destruction of between 5 and 20 percent, adding up to an annual job turnover of up to 40 percent in some countries. A significant part of that turnover (often 30–50 percent) can be traced to the entry and exit of firms, important for output and productivity growth. About 20 percent of firms are created and destroyed each year in many countries, involving 10–20 percent of the workforce (World Bank 2005). While evidence is not uniform, some studies of OECD countries find that increased trade exposure is associated with more labor churning (Hoekman and Winters 2005). Overall it is estimated that 3 to 5 percent of the OECD workforce experiences involuntary layoff in any given year (Kuhn 2002).

In the United States, more than 7 million jobs have been destroyed on average every quarter over the last decade as a result of the normal functioning of the economy (OECD 2005b), matched for the most part by equal or greater job creation. Among the unemployed, about 45 percent were laid off, 10–15 percent are persons voluntarily between jobs, and the remainder are persons entering or reentering the labor market as new job-seekers (Kletzer 2001). Voluntary attrition may account for up to two-thirds of employment reduction in the United States (OECD 2005d).

Falling transport and communication costs are creating new opportunities for developing countries to participate in global production chains by providing specific activities and tasks (see box 4.7). However, discrete activities are likely to be more footloose than whole sectors, so that while globalization can bring better

job prospects to developing countries, it can also bring greater volatility and insecurity. Bergin, Feenstra, and Hanson (2006) find that while offshoring of production from the United States to Mexico has been an important source of growth in Mexico, there is a high degree of volatility in these activities. Domestic demand shocks in the United States are amplified when they are transmitted to the offshored activities in Mexico. In this way, offshoring has led the United States to export to Mexico some of the employment fluctuations that it experiences over the business cycle.

In Latin America, overall labor turnover is higher than in OECD countries. However, turnover depends on education, per capita income, and other demographic and growth variables. For example, young workers change jobs more frequently than older workers and lower levels of education can imply lower levels of firm-specific capital and hence a higher incidence of voluntary separation. Adjusting for these factors, the region does not show conditionally higher turnover. There is only mixed evidence that either greater trade liberalization or exposure to technological change leads to greater overall turnover in the region; however, to the degree that trade liberalization has expanded the share of tradables in total output, it may have led to more churning in the job market (de Ferranti and others 2000).

To the extent that it reflects labor-market flexibility and the reallocation of resources to more productive sectors, increased turnover can be a sign of healthy adjustment, linked to further growth and job creation. However, churning can also be negative—for example, where job creation lags well behind job destruction, where high turnover lowers workers' and employers' incentives to invest in education and training (thus ultimately reducing productivity in a sector), or where churning results in labor moving into less productive sectors. In the absence of social safety nets, workers in developing countries may be unable to finance job searches and may be forced into the informal sector (where productivity is generally lower) or

into low-productivity, relatively low-growth sectors such as agriculture.

The extent and nature of churning depend on the policy environment. Onerous labor-market regulations and restrictions on entry and exit of firms can discourage firms from hiring new regular workers, and workers from searching for jobs in the formal sector. They can also limit the movement of resources out of low-productivity sectors. Overly restrictive employment protection (such as restrictions on hiring and firing) tends to have the effect of protecting only *some* workers (insiders, usually prime-age males) at the expense of others (outsiders, usually youth, women, and low-skilled workers). Strict employment protection is associated with higher income disparities and a greater incidence of informal work (World Bank 2005). It also raises the costs of workforce reorganizations, thereby reducing incentives for innovation and implementation of new technologies (Arias and others 2005).⁹

The precise impact of strict employment protection on job creation depends on who bears the cost: where wages absorb less of the cost than firms, the disincentives to create employment are greater. In Latin America, firms can bear up to 50 percent of the cost of non-wage benefits, resulting in reduced wages, greater informality, or both (World Bank 2005). In the OECD countries, partial reforms have tended to reinforce labor-market inequality, with temporary contracts for new entrants (youth or women) but only limited access to more permanent jobs. Strict employment protection is also associated with a greater feeling of insecurity, perhaps because workers realize that their chance of long-term unemployment is higher (OECD 2005d, 2004).¹⁰ A benefit of globalization is the pressure it exerts on institutions that cramp productivity growth and on governments to develop efficient safety nets that cushion workers from the worst aspects of economic insecurity, while preserving job creation and flexibility.

Today's global labor market is characterized by volatility, shifts in employment between

developed and developing countries, and increasing wage gaps between low- and high-skilled workers worldwide. What will be the impact of the key challenges now facing global labor markets—namely absorption of large emerging economies and the global sourcing of services?

New challenge I—absorbing large emerging economies into the global market

By 2030 China and India together will account for about 40 percent of the world's workforce, which will remain predominantly unskilled

By 2030 the world's labor force will number some 4.1 billion workers, 90 percent of whom will live in the developing world. The global labor force is predicted to grow by about 1 percent per year over 2001–30, with higher growth in developing countries offset by some contraction in developed countries (table 4.2). East Asia, the Pacific, and South Asia together will account for just over half the world's workforce, with China and India alone representing 40 percent—although China's labor force will grow far more slowly than that of India. Sub-Saharan Africa will experience the highest rate of growth (about 2.4 percent per year) and will be the third-largest developing region.

Worldwide, the supply of skilled workers is likely to grow faster than that of unskilled workers, but the vast majority of the world's workforce will remain unskilled in 2030.¹¹ In the developing world, rates of growth in the number of skilled workers will be highest in Sub-Saharan Africa, South Asia, and the Middle East and North Africa. Given the large pool of unskilled labor, however, these increases will raise the share of skilled workers in developing countries' workforces only slightly (from 9.6 percent to 11.3 percent).

There will be significant regional variations in the developing world. The Middle East and North Africa, Latin America and the

Table 4.2 In 2030 most workers will be in developing countries and unskilled*Growth in the global labor force 2001–30*

World region	All workers (millions)			Unskilled workers (millions)			Skilled workers (millions)		
	2001	2030	Growth (% per year)	2001	2030	Growth (% per year)	2001	2030	Growth (% per year)
World total	3,077	4,144	1.03	2,674	3,545	0.98	403	598	1.37
High-income countries	481	459	-0.16	327	276	-0.58	154	183	0.60
Developing countries	2,596	3,684	1.21	2,347	3,269	1.15	249	415	1.78
East Asia & the Pacific	1,060	1,279	0.65	988	1,163	0.56	71	117	1.70
China	773	870	0.41	740	816	0.34	33	54	1.72
South Asia	632	1,005	1.62	589	925	1.56	42	81	2.27
India	473	712	1.42	441	653	1.36	32	59	2.10
Europe & Central Asia	236	233	-0.04	195	192	-0.06	41	41	0.02
Middle East & North Africa	119	205	1.88	87	144	1.74	32	61	2.25
Sub-Saharan Africa	313	617	2.36	293	573	2.33	20	44	2.74
Latin America & the Caribbean	236	345	1.32	194	273	1.19	42	72	1.85

Source: World Bank staff calculations.

Caribbean, and Europe and Central Asia continue to have relatively high rates of skilled workers (30, 21, and 18 percent, respectively), compared to East Asia and the Pacific (9 percent), South Asia (8 percent), and Sub-Saharan Africa (7 percent). But in absolute numbers, India and China each have more skilled workers than Europe and Central Asia or Sub-Saharan Africa, and almost as many as the Middle East and North Africa. Overall, developing countries have more than twice as many skilled workers as developed countries, even though the proportion of skilled workers in the workforce is four times higher in the developed world.

Agricultural workers will constitute a shrinking share of the world's labor force, declining from about 43 percent in 2001 to about 30 percent in 2030. While the share of agricultural workers will fall by about half in developed countries, the stark decline is from an already low base (from 4 to 2.6 percent). The more significant change will occur in developing countries, where agricultural workers will shift from about 50 percent of the workforce in 2001 to 34 percent in 2030. The most notable shifts will occur in Sub-Saharan Africa (61 to 47 percent), East Asia and the Pacific (62 to 39 percent), and South Asia (55 to 35 percent)—with the latter

two driven by large changes in China (67 to 42 percent) and India (54 to 34 percent).

Moreover, while average incomes will continue to increase with new opportunities for growth, the skill premium—the ratio of skilled wages to unskilled wages—will also increase. Projections from the model developed in chapter 2 suggest that the skill premium in developing countries will rise from 3.5 on average in 2001 to 4.2 in 2030. In India the premium rises from 4.3 to 4.9 in 2030 while in China the increase is even larger, from 5.4 to 7.7. Developments in Sub-Saharan Africa are similar, with a rise from 5.1 to 6.8. The Middle East and North Africa sees only a modest increase in the skill premium from 1.3 to 1.5, while the premium remains constant at 2.2 in Latin America.

Pressures on unskilled workers will intensify in both developed and developing countries . . .

Between 1995 and 2005 the global labor force (employed and unemployed) grew by some 438 million workers, or 16.8 percent (ILO 2006). However, the effective increase in the global labor market is considerably larger, because many workers in the emerging economies were previously only weakly connected to the global economy. Freeman (2005) calculates that the integration of China, India,

and the former Soviet Union has led to a “great doubling” of the global labor force.

The increasingly competitive global market for labor may be the most important issue facing workers worldwide. Freeman (2005) argues that because the workers in these countries brought little capital with them into the global labor force there has been a massive drop in the overall global ratio of capital to labor. In response to the huge amounts of new low-wage labor, therefore, capital should hemorrhage from rich countries and flow to China, India, and the ex-Soviet bloc. At the margin, new investment should take place in China and India, where returns should be highest.

The prognosis from this view is that developing countries with wages higher than those

in China and India risk losing ground following the entry of these countries into global commerce. The sheer size of China and India may also preclude the diversification of the poorest countries into manufactures and so close off a route to growth and development (Cline 2006). In rich countries, low-skilled labor is expected to lose as well, and future growth opportunities will depend on whether the rich countries’ comparative advantage in high-technology sectors can be maintained. According to this view, it is the *quantity* of new entrants from China and India that risks swamping the global market, undermining the prospects of unskilled workers in all other countries, both rich and poor. This may not be the case, however; competition is not always what it appears (box 4.3).

Box 4.3 Is the world flat . . . or just smaller?

In *The World Is Flat*, Thomas Friedman (2005) examines the rise of China and India in global supply chains for both goods and services, describing the increasing pace and intensity of competition across skilled activities as the “flattening” of the globe. But, as Leamer (2006) asks, is flatness the right metaphor? What if the world is not flat, but just smaller?

In the past, geography—physical, cultural, and informational—had limited competition by creating cost-advantaged relationships between proximate sellers and buyers. Three revolutionary forces are now driving a smaller world: (a) the presence of more unskilled workers in the global labor market resulting from liberalizations in China, India, the Russian Federation, and Latin America; (b) new equipment for knowledge workers (the Internet, computers) that has raised productivity, emphasized talent, and reduced the need for helpers; and (c) communications innovations that extend the geographic reach of suppliers and the competition for routine work and standardized products. In a smaller world, exchanges are more contested and relationships between buyers and sellers weaker. In a small world, wages in Los Angeles are set in

Shanghai. Does everyone now live in a world in which distance—physical, linguistic and cultural—no longer isolates jobs from competition? Is the world flat or are jobs protected from competition by relationships and geography?

Competition is not always what it appears . . .

Smallness may confer a larger market without generating many new competitors in sectors where there are highly localized economies of scale, agglomeration (or cluster) effects, and first-mover advantages (consider the success of Hollywood in the global market for cultural products). Where you are still matters. Economic activity is dispersing around the globe, but with very strong clustering to benefit from agglomeration effects. Commerce still declines dramatically with distance (although cultural or linguistic forms of closeness can compensate for physical distance), and trade remains a neighborhood phenomenon, close to home both geographically and organizationally. Consumer preferences and trust contribute to this pattern—U.S. Web surfers still favor foreign sites close to the United States, particularly when financial transactions are involved.

(continued)

Box 4.3 (continued)

Moreover, competition in knowledge products is not necessarily a win-lose proposition: knowledge products have their value enhanced by the existence of other products (software is an example). And not all work is commoditized and sold in global markets. Most exchanges still rely on long-term relationships between buyer and seller—relationships that create the language needed to communicate, that establish the trust needed to carry out the exchange, that allow ongoing servicing of implicit or explicit guarantees, and that monitor and enforce the truthfulness of both parties. This is the difference between negotiated rather than contestable exchanges. Reliability—and liability—form limits to the contestability of high-skilled jobs. To date, global sourcing of intellectual work has been a small drop in a very large bucket, and the developed countries remain extremely well-positioned to compete in the Internet-based segment of the economy.

... but competition—or the threat of it—matters for routine tasks

Global competition is tight for standard tasks for which global markets exist, both in manufacturing and services. Movement of jobs is not the only indicator of global competition—contestability may be reflected in a deterioration of wages and working conditions, rather than the movement of jobs. That is, the possibility of factor mobility creates competitive pressure even in the absence of actual movement. Once this is factored in, the real effect of contestability—of global competition—is hard to assess.

Innovation is key, but innovation moves around the world, and its pace is quickening

Ideas stowaway with goods. As manufacturing work moves to China, so naturally do process innovations—as those closest to production are best placed to work out how to do it better. But will product innovation also move? The Internet has increased the speed and reduced the cost of distributing ideas (subject to the constraints of infrastructure and literacy). Add the integration of former outsiders that has increased the size of the global brain by

two-thirds, and the pace of innovation in the 21st century will be unlike anything previously seen.

Education, infrastructure, and safety nets are essential, but technology guarantees that inequality will persist

Global sourcing of services presents issues similar to those posed by manufacturing. The lessons are clear—make the education and infrastructure investments needed to keep high-paying, noncontestable, creative jobs at home, and argue for strong protection of intellectual property rights (IPRs) to preserve the value of knowledge goods sold abroad. But it is important to recognize that technology can accentuate inequality by magnifying the importance of talent and enabling it to reach a much larger customer base. Education may help to remedy the income-inequality problems caused by technology, but there are limits. First, if training is more effective for the talented, they are likely to receive more of it—and the amount of training needed to equalize incomes may be enormous and a great social waste. (How much training does it take to turn a World Bank economist into a Pavarotti? And is this a good use of resources?) Second, many jobs involve job-specific tacit knowledge gained only through on-the-job experience. But will workers invest in acquiring these skills if the job is likely to disappear? Will the incentives for skill acquisition also disappear? Policies are needed to facilitate the formation of long-term relationships between workers and employers and so instill the confidence to make relationship-specific investments from which great returns can flow.

Metaphors matter

The landscape of global competition is not flat, at least not much of it. The flat plains of open competition for mundane tasks certainly exist, but much of the landscape is hills and mountains—where endowments, human capital, and policy matter. That landscape is also constantly changing—today's hill might be tomorrow's plain, creating new opportunities and obstacles and demanding continual adaptation.

Source: Leamer 2006.

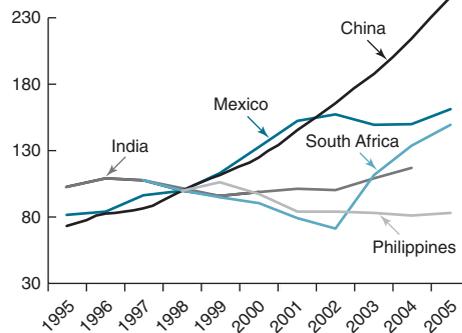
Productivity differences matter. Firms in rich countries combine unskilled workers in production with more and better capital and technical know-how than do firms in poor countries. What matters is whether the wage gap is greater than the difference in productivity—and whether productivity differentials can be maintained. Similarly, the least developed countries in Africa that have lower wages than China and India will be able to compete in the global market—but only if their levels of productivity are close to those in India and China. The sources of productivity differences across countries will be discussed in more detail below.

There is another problem with the view that the global market will be swamped by products from China and India. The law of comparative advantage implies that there will always be opportunities for other countries to export, even though China and India will come to dominate certain sectors. In general, as the global demand for Chinese manufactured products increases, dollar-denominated wages in China will tend to increase, in response to higher wage demands from Chinese workers (especially if the rural and urban labor markets remain partially segmented) and from the inevitable additional upward pressure on the yuan.

There is evidence that this process is already underway (figure 4.3). In 2004, real wages in China were 2.11 times the level of 1989, and the rate of wage increase accelerated in 2004–05, especially in the coastal regions (Yusuf, Nabeshima, and Perkins 2006). In 2005 alone, according to the People's Bank of China, average wages for Chinese workers rose by 14.8 percent (*China Daily*, “Worker Shortage Drives Salary Rise,” May 27, 2006). Thus China's development should not keep the poorest countries from being able to export low-skill-intensive products, as long as these countries can manage to create and sustain a business climate that supports investment and trade. In Africa, competitiveness based on low-cost labor is undermined by high indirect costs, with the main barriers being corruption, crime, and inadequate

Figure 4.3 Average wages in China have increased more than in other countries

Internationally comparable average wage rates, indexed, 1998 = 100



Sources: *China Statistical Yearbook 2005*, People's Bank of China, International Labour Organization (Philippines, South Africa), IBGE (Brazil), Banco de Mexico, Ministry of Statistics and Programme Implementation (India); exchange rates from IMF International Financial Statistics. Wages are average wages for China, the Philippines, and South Africa, average private sector wages in Brazil, and manufacturing wages for India and Mexico.

Note: 1998–2000 wages for the Philippines have been estimated using observed wages from 2001 and projecting them backward using GDP per capita growth rates.

infrastructure (Eifert, Gelb, and Ramachandran 2005). The poor business environment leads to lower returns to labor in production, depressing labor demand and real wages.

Even within sectors where China is expected to dominate world trade, there are examples of growing exports of other developing countries. The removal of quotas in the United States and the European Union on imports of textiles and clothing products from China and India was expected by some to decimate exports of these products from other developing countries. For example, it was suggested that one million jobs would be lost in Bangladesh and that half the factories in the industry in Sri Lanka would close down (Oxfam 2004). However, exports of clothing from both of these countries to the United States have increased since the quotas were dismantled. Sri Lankan exports in 2005 were 6 percent higher than in 2004 (with a further growth of 3 percent over the first six months of 2006 relative to the same period in 2005).

Exports of clothing from Bangladesh to the United States increased by 21 percent in 2005 and by a further 28 percent over the first six months of 2006.

Nevertheless, the growth of Chinese exports of textiles and clothing has had negative impacts on other countries. Many jobs have been lost in Mexico’s *maquiladoras* because activities in sectors such as clothing have been unable to compete with China in the U.S. market. Clothing exports from African countries have declined substantially since 2004, amid reports of substantial loss of jobs in the sector. It is clear, therefore, that the emergence of China and India as major exporters will entail significant adjustment in some sectors in some countries. The adjustment costs are likely to be higher in countries that offer a less favorable climate for business and investment and that suffer from more rigidities in product and labor markets.

It should not be forgotten that trade and FDI have contributed to unparalleled reductions in poverty in China and can continue to do so. The poverty rate (people living on less than \$1 a day) in China fell from almost 60 percent in 1980 to 17 percent in 2003. While lifting more than 400 million people out of poverty is a remarkable achievement, close to 200 million people still live on less than \$1 a day, many of whom stand to benefit from China’s continued trading strength.

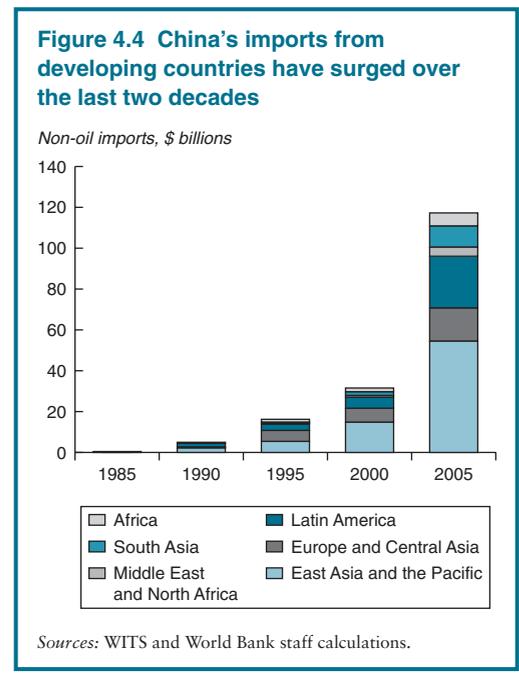
For other countries the impact of the integration of the large emerging economies should not be qualitatively different from the pressures that globalization has exerted on labor markets over the past 30 years, as summarized above. Unskilled workers in both rich and developing countries are likely to face greater volatility of employment and continuing downward pressure on relative wages. The following section will discuss how policy makers can help to ameliorate these costs.

... but opportunities for export and growth will remain for all countries

The entry of large economic entities into the global market offers opportunities as enormous

as the challenges it poses for developed and developing countries. The large markets of China and India have changed the dynamic of South-South trade and offer developing countries a route to decreased dependence on rich countries, whose demand for products produced in the poorest countries has been relatively stagnant for years. Demand in Asia, and primarily in China and India, has been the main source of the acceleration in African exports since 1990. Asia also has been a key source of recent export growth for Latin America. Overall, China’s share of the world’s non-oil imports grew from 1.8 percent in 1990 to 6.5 percent in 2004, implying substantial opportunities for its trading partners to expand exports and create jobs (figure 4.4).

As a result of Asia’s increasing demand for resources there is an increasing correlation between growth in China and India and growth in developing countries that have a comparative advantage in natural-resource-intensive products (Lederman, Olarreaga, and Soloaga 2006). Even resource-abundant countries that have not increased exports to Asia—such as Bolivia, Colombia, and



Ecuador—have seen benefits from higher world prices for their exports. Lederman, Olarreaga, and Soloaga (2006) also find fairly strong complementarity rather than substitutability between the exports of China and Latin America to third markets. They attribute this complementarity to the growing importance of production networks and the ability of Latin American firms to join them, the impact of cheaper imports of intermediate inputs on export competitiveness, and learning by exporting larger amounts to China. Nevertheless, they suggest that if Latin American and Caribbean countries were to refrain from protectionist policies that prevent them from using cheap inputs from China and India and were to invest more in skills, research and development (R&D), and institutions, they would be able to further exploit opportunities in the new global economy.

The surging demand in Asia for minerals has been the primary driver of growing South-South trade. But China and India offer huge potential for a range of other products as well, including agricultural products. However, trade restrictions keep many developing countries from gaining market access for many such products.¹² For most developing countries multilateral trade negotiations are potentially a major route to better access to growing markets in Asia and to better prices for traditional exports. The key feature of access to markets in Asia for developing countries in Africa and Latin America is that access should occur on a most-favored-nation basis—that is, each country should be entitled to the best trade terms an importer offers to any nation. Therefore market access is best addressed through multilateral trade negotiations, so that tariff concessions made by China and India are immediately available to all developing countries, regardless of their size and global importance.

Lower duties in Asia can buoy the export prospects of other developing countries in three ways. The first is through lower tariffs on products currently exported by these developing countries or that are the focus of

export-diversification efforts. Markets in Asia are very large, but key products for developing countries face high tariff barriers. For example, cocoa beans face applied tariffs of 30 percent in India and 8 percent in China (in contrast to zero protection in developed countries). Second, for traditional commodities, even if the reduction in tariffs in Asia does not lead to new exports for a specific developing country, there will be a positive effect through the impact on world prices. Third, it is important to consider the tariffs on the final products that use resource-intensive inputs exported from developing countries. Reducing such protection will expand the demand for those inputs. It would also reduce tariff escalation and ease one of the constraints that limit higher value-added activities from being undertaken in developing countries.

Moreover, both China and India have become significant sources of FDI for both developing and developed countries. India's outward FDI stock grew from \$0.6 billion in 1996 to \$5.1 billion in 2003. China and India now occupy positions 54 and 72 (out of 132 economies) in terms of outward FDI performance (UNCTAD 2005).¹³ About two-thirds of *cumulative* Indian FDI has gone to other developing countries, but developed countries (in particular the United States) are important markets at the moment. The leading developing country is Mauritius, which attracts about 10 percent of Indian investment flows. In the information technology sector, Indian firms' success in global sourcing exposed them to new knowledge and business methods from developed-country companies and induced outward FDI through demonstration and spillover effects. Liberalization of the Indian government's policies on outward FDI since 2000 also proved critical. Restrictions on maximum overseas investments as a percentage of net worth have been removed, as have the requirement to obtain prior approval for investments from the Reserve Bank of India and prohibitions against overseas investments in the same activity as the company's core activity in India (UNCTAD 2004).

Fears that China and India will quickly dominate high-technology sectors are misplaced

Some worry about the impact of the rising numbers of skilled workers in China and India.¹⁴ Freeman (2006) suggests that the increase in these numbers together with increased capacity for technological advancement will undermine the advantage that rich countries have in high-tech, high-productivity activities. Trefler (2005) has put this issue concerning long-run comparative advantage in the following way: will China and India dominate high-tech goods and services to the west, leaving, for example, “Americans to mend the socks of Chinese business executives”? The prognosis that China and India will swamp the global market not only with low-skilled-intensive products but also skill-intensive high-tech products is based on the assumption that success in high-tech sectors depends on the absolute number of scientists and engineers rather than the relative number of such workers in the overall workforce. This view also fails to take account of a well-established literature that identifies the critical importance of domestic institutions in driving and sustaining innovation-based growth.¹⁵

Much evidence supports the view that growth and income levels do not depend solely on the physical amounts of capital and labor that are available in a country; instead, they depend on how those factors are combined in production. Cross-country variations in per capita income cannot be accounted for by differences in endowments of capital and labor, but by variations in productivity. For example, in 1988 output per Chinese worker was about 6 percent of that of the typical U.S. worker. Most of that difference was due to lower productivity in China rather than lower capital per worker or lower levels of human capital. If productivity levels had been the same, output per worker in China would have been more than 50 percent of that in the United States (Hall and Jones 1999).

Innovations matter. To understand differences in levels of income across countries and differences in rates of growth of per capita income, it is necessary to explain the sources of variations in productivity. Innovation is at the heart of such explanations. In recent models of endogenous growth, innovations lead to new products and processes that are to some extent protected by patents and other institutional mechanisms that return profit to the innovator and bolster the incentive to invest. Where protection of the innovation is less than full, a certain amount of “disembodied” knowledge becomes accessible to other innovators and so adds to the stock of knowledge available to all, reducing the costs of future research and development (see Helpman 2004 for a survey).

Some of a country’s R&D effort may thus be accessed by other countries, even as it augments the national stock of knowledge. The main conduits for such technology transfer are FDI and trade. In this way the innovative efforts of rich countries push out the global technology frontier and support the growth of their total factor productivity. Developing countries, which invest little in R&D, can achieve long-run productivity growth through a process of continually catching up to the technology frontier. Policies that attract FDI from rich countries, openness to technology-intensive imports, and learning by exporting into the most demanding markets are crucial for this catching up. This learning can also be enhanced by temporary movement of people.¹⁶

Multinational firms exhibit the highest levels of total factor productivity and create more knowledge inputs than other types of firms. Criscuolo, Haskel, and Slaughter (2004) find that globally engaged firms generate more ideas than their purely domestic counterparts, not only because they employ more researchers, but also because they have access to a wider pool of knowledge. That pool is deepened by contacts with suppliers and customers and, for multinationals, by the intrafirm stock of ideas. Others (Bernard, Knetter, and

Slaughter 2004, cited in Criscuolo, Haskel, and Slaughter 2004) find that the parents of U.S.-based multinationals perform about two-thirds of all private R&D in the United States but are a small fraction of 1 percent of the total number of U.S. firms. Thus, it appears that openness to trade is important not only for poor countries to absorb new technologies created by firms in developed countries, but also for wealthier countries to stimulate investment and productivity growth.

So do institutions. Even after taking into account innovation efforts, a substantial amount of the variation in per capita income levels and growth rates across countries remains unexplained. What accounts for the rest of the variance? Institutions and institutional quality are now accepted as the reason why some countries have higher productivity than others and why growth rates have differed across countries, even when factor endowments and rates of innovation are similar (Helpman 2004). For example, Hall and Jones (1999) conclude that “a country’s long-run economic performance is determined primarily by the institutions and government policies that make up the economic environment within which individuals and firms make investment, create and transfer ideas, and produce goods and services.”

To compete with the United States, the European Union, and Japan in innovation and high-tech products, China and India will require institutions similar to those of the OECD countries. The two countries are a long way from having such institutions at present. Moreover, building them takes a long time and is unlikely to occur within 25 years (Trefler 2005). Thus the United States leads in innovation-based growth not because it has more scientists and engineers, but because it has an institutional framework that allows companies such as Microsoft, Apple, and Yahoo to exploit new ideas.

Recent research has highlighted how institutional quality can determine comparative

advantage and so influence the commodity structure of trade. Nunn (2005) shows that countries with a good institutional environment for contract enforcement will tend to have a comparative advantage in producing and exporting goods that require relationship-specific investments.¹⁷ Countries with poor contract enforcement will suffer from underinvestment and thus higher costs of production for goods that require relationship-specific investment. Such investments are more likely to be necessary in industries in which firms have some form of firm-specific asset, which in turn are more likely to be high-technology and innovation-intensive industries. The same is equally true for services.

The structure of all countries’ exports is thus influenced by the nature of domestic institutions. The growth of exports from China and India in some products and services that require relationship-specific investment has been facilitated by having good institutions in particular enclaves of the economy such as special economic zones. The ability of these countries to substantially increase exports of these goods and services further will depend on the ability to engender economywide institutional change, something that will be much harder to achieve and will occur more slowly.

Continual technological innovation and changes in demand make comparative advantage a dynamic concept. It is very difficult to predict in which sectors and tasks countries will be efficient producers. Thirty years ago, who could have predicted the emergence of the iPod or known how the value added in production and the return to knowledge would be distributed across countries (box 4.4)?

The opportunities of global production chains will encourage the upgrading of domestic institutions, as countries compete on quality and efficiency as well as price—just as they have for another set of domestic institutions related to labor standards. Rather than a race to the bottom, with declining

Box 4.4 Global production and the iPod

Take just one component of the iPod nano, the central microchip provided by the U.S. company PortalPlayer. The core technology of the chip is licensed from British firm ARM and is modified by PortalPlayer's programmers in California, Washington State, and Hyderabad. PortalPlayer then works with microchip design companies in California that send the finished design to a "foundry" in Taiwan (China) that produces "wafers" (thin metal disks) imprinted with hundreds of thousands of chips. The capital costs of these foundries can be more than \$2.5 million. These wafers are then cut up into individual disks and sent elsewhere in Taiwan (China) where each one is tested. The chips are then encased in plastic and readied for assembly by Silicon-Ware in Taiwan (China) and Amkor in the Republic of Korea. The finished microchip is then warehoused in Hong Kong (China) before being transported to mainland China where the iPod is assembled.

Working conditions and wages in China are low relative to Western standards and levels. Many workers live in dormitories and work long hours.

It is suggested that overtime is compulsory. Nevertheless, wages are higher than the average of the region in which the assembly plants are located and allow for substantial transfers to rural areas and hence contribute to declining rural poverty. PortalPlayer was only established in 1999 but had revenues in excess of \$225 million in 2005. PortalPlayer's chief executive officer has argued that the outsourcing to countries such as India and Taiwan (China) of "non-critical aspects of your business" has been crucial to the development of the firm and its innovation: "it allows you to become nimbler and spend R&D dollars on core strengths."

Since 2003, soon after the iPod was launched, the share price of Apple, the company that produces and sells the iPod, has risen from just over \$6 to over \$60. Those who own shares in Apple have benefited from the globalization of the iPod.

Sources: C. Joseph, "The iPod's Incredible Journey," *Mail on Sunday*, July 15, 2006; "Meet the iPods's 'Intel,'" *Business Trends* 32(4)(April), 2006.

wages and standards as countries compete on trade and investment, globalization is encouraging gradually *higher* labor standards, both directly in terms of attracting FDI and indirectly, through higher growth (box 4.5).¹⁸

Implications for middle-income countries. While China and India are unlikely to threaten Western dominance of "big idea" innovation, Puga and Trefler (2005) suggest that the great capacity of these countries for lower-level incremental innovations may have important implications for middle-income developing countries. The presence of many well-trained scientists and engineers in China and India means that Western firms looking to invest will tend to be attracted to these countries—for their greater capacity to assist the firm in incremental innovation—rather than to other countries, such as Thailand and Mexico. Puga and Trefler refer to the rapidly increasing number

of U.S.-owned patents with at least one inventor who is a resident of China or India. Thailand and Mexico have not witnessed such growth.

But Cravino, Lederman, and Olarreaga (2006) find no evidence that FDI by Western firms in China and India is displacing FDI in Latin America. In a detailed econometric exercise, Bravo-Ortega and Lederman (2006) find no statistical evidence that current patenting activity by China and India has had an impact on the number of patents of Latin American countries. They do find some evidence, however, that the stock of patents to which China and India have contributed is feeding the innovation process in Latin America. In other words, innovators in Latin America can learn from innovations undertaken in China and India.

Thus both economic theory and the available evidence suggest that while the sheer size of new entrants into the global economy poses

Box 4.5 Does globalization lead to a race to the bottom on labor standards?

Looking at the relationship between core labor standards (freedom of association and collective bargaining; and elimination of forced labor, child labor, and discrimination in employment) and trade, the OECD (1996) finds no empirical support for the view that low-standards countries will enjoy gains in export-market shares to the detriment of high-standards countries. There is also no evidence that low core labor standards are associated with low unit labor costs: real wages actually grew faster than productivity growth in a number of low-standards countries from the mid-1980s to the mid-1990s. While core labor standards will not necessarily affect comparative advantage negatively and indeed may have a positive affect, noncore or economic standards such as working time and minimum wages may affect trade performance negatively (OECD 2000a).^a However, the picture is not clear; Dehejia and Samy (2002) find no clear link between labor standards and a country's competitiveness. Rodrik (1996) finds that labor standards are a significant determinant of labor costs when one controls for productivity, but not of comparative advantage, which is mostly determined by factor endowments.

Evidence on FDI also suggests that firms are attracted to countries with higher, not lower, labor standards (OECD 2000b; Aggarwal 1995; Rodrik 1996; Brown, Deardorff, and Stern 2002).^b Multinationals invest principally in the largest, richest, and most dynamic markets; with the significant exception of China, countries where core labor standards are not respected receive a very small share of global flows. Even in China, the average foreign affiliate pays wages 30 percent higher than the average in state-owned enterprises and has higher occupational safety and health standards than Chinese-owned firms (Lardy 2004). Overall, multinational firms provide incentives to improve, rather than worsen working conditions; pay higher wages than alternative employment; and tend to promote, rather than repress worker rights (Brown, Deardorff, and Stern 2002).

In some countries, labor regulations do not apply and a range of labor standards issues still arise in export processing zones (EPZs), which now employ

around 50 million persons worldwide. That said, the majority of EPZs are covered by national labor laws, and physical conditions and wages tend to be better than in the rest of the economy (ILO 1998). EPZs with poor working conditions do not attract long term investment—"smart" EPZs have introduced measures to continuously upgrade labor (OECD 2000b).

Why not a race to the top?

Globalization may be forcing a race to the top, as it places a new emphasis on speed, efficiency, and quality as well as cost, shifting the focus from cheap labor to productive labor (ILO 1998; Aggarwal 1995). Countries can gain an advantage by improving labor standards. Strengthened core labor standards can increase economic growth and efficiency by raising skill levels, thereby creating an environment that encourages innovation and higher productivity (Stiglitz 2000; OECD 2000a). At the same time, in the sectors with a reputation for poor labor standards (clothing, footwear, and sporting goods) consumers are increasingly demanding products produced under acceptable working conditions, with monitoring and certification, often by trusted non-governmental organizations.

Indeed, efforts to promote labor standards at a global level have been increasing; examples include the 1998 International Labour Organization (ILO) Declaration on Fundamental Principles and Rights at Work (under which monitoring and reporting on core labor standards is extended to all members) and development cooperation programs to reduce child labor. More controversially, trade agreements have been used to promote compliance with labor standards. The United States suspends access under the Generalized System of Preferences (GSP) in the event of noncompliance, while the European Union grants additional access for compliance. Labor provisions or side agreements figure in U.S. free trade agreements. Links to the World Trade Organization (WTO) have faced strong resistance from developing countries.^c Other market-based mechanisms, such as labeling schemes or codes of conduct for firms (at the OECD, ILO, and firm level) have expanded, with

(continued)

Box 4.5 (continued)

most U.S. Fortune 500 companies now embracing such codes (see OECD 2000a; Stern 2003).^d

Labor standards rise with income (Stern 2003; OECD 2000a), and the path to higher growth for developing countries lies in seizing the opportunities of global production networks in goods and services. But this in turn requires efforts to raise productivity and create a stable and attractive environment for FDI. And the evidence suggests that improving core labor standards and creating frameworks for sound and stable labor relations can contribute to both of these goals, with the potential to create a virtuous circle of rising wages and standards for workers in developing countries.

^aBates (2000) distinguishes between core labor standards, which are viewed as fundamental human rights and can create the framework conditions for the economy to operate efficiently, and developmental or economic labor standards

(for example, minimum wages), which will vary depending on the level of income in a given society.

^bData on freedom of association rights in 75 countries that represent virtually all of world trade and all inward and outward FDI show no significant deterioration in these rights in any of the 75 countries between 1980 and 1999 (the period during which competition for FDI heated up). Data show significant improvement in those rights in 17 countries (OECD 2000b).

^cMoran (2004) provides a persuasive analysis of the practical problems of using dispute settlement under trade agreements to enforce labor standards, given the lack of international agreement on exactly what core labor standards mean and what is required for adequate implementation and the reliance on incomplete, nonrepresentative, noncomparable, and potentially biased sources of information.

^dMore recently, attention has shifted beyond core labor standards to the concept of decent work (work that is freely chosen, provides an income sufficient to satisfy basic economic and family needs, respect for rights and representation, basic security through some form of social protection, and adequate conditions) (ILO 2004).

a number of challenges to other countries, both developed and developing, there are enormous opportunities. To grasp these opportunities requires that countries have in place a policy environment that allows competitive advantages to be exploited and the key sources of growth to flourish, while ensuring that those workers adversely affected are assisted in adjusting by moving to new sectors and/or by augmenting their particular skill set. In other words, while aggregate gains are available to all countries, some industries, firms, and workers will incur some pain. Appropriate policy responses are discussed further below.

New challenge II—global sourcing of services

Workers in previously sheltered services face international competition

The global competition in goods that has been under way for decades is now visible in services, as falling telecommunications costs and greater openness to FDI enable different parts

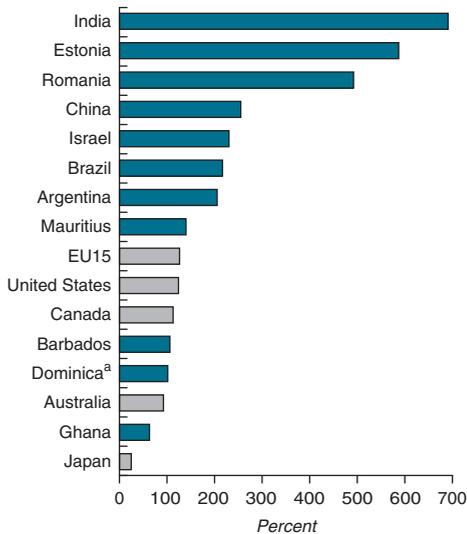
of the services value chain to be performed in different locations around the globe—a phenomenon that has come to be known as “outsourcing” or “offshoring,” but could perhaps be most accurately termed “global sourcing of services.”¹⁹ Global sourcing has increased competition in services markets for a wide variety of activities, from low-skilled functions such as data entry, word processing, and call centers to higher-skilled activities such as software development, consultancy, medical services, and R&D. A range of services previously thought to be nontradable are now being provided electronically over large distances.

Global sourcing allows firms to benefit from around-the-clock production (for just-in-time delivery of both goods and services) and lower wage costs. Estimates of the total cost savings from global sourcing vary across a wide range—for example, from 15–30 percent (Atkinson 2004) to 30–60 percent (industry estimates cited in Kirkegaard 2005).

While absolute numbers to date are not large, growth rates have been high, and global sourcing of services is expected to grow by

Figure 4.5 Developing-country exports of business services are growing rapidly

Growth in export of business services, 1994–2003



Source: Data from IMF *Balance of Payment Statistics*.

Note: “Business services” are defined as total services minus transportation, travel, and government services.
a. 1994–2002.

30 percent per year over 2003–08.²⁰ While developed countries still dominate the trade, some developing countries experienced fast growth in exports of business services between 1994 and 2003: nearly 700 percent for India; more than 200 percent for China, Brazil, and Argentina; and more than 100 percent for Mauritius, Barbados, and Dominica (figure 4.5).

Sourcing locations expand and change over time, and technology advances are likely to allow more services to be provided offshore. As costs in Ireland rose, activities moved to India and the Philippines. Now, as costs in India rise, other locations, including some in Eastern Europe, are becoming popular (Atkinson 2004). Language patterns influence location decisions, but these are not immutable.²¹ Against this backdrop, countries across all regions and levels of development—from Senegal to Sri Lanka, Argentina to Zambia—are now seeking to become sites for services sourcing.

The number of service jobs that migrate from rich to poor countries could be large

Estimates to date of the scale of potential job movements from global sourcing of services vary widely according to the definitions and methodology used. A great deal of attention was initially given to a report by Forrester Research (2002) that estimated that 3.3 million service jobs would move offshore from the United States by 2015. However, when put into perspective—the U.S. economy creates about 30 million jobs per year—that number is quite small. Even for the job categories deemed to be vulnerable to outsourcing, including management and computer operations, the predicted impact amounts to just over 0.5 percent of existing employment (see Bhagwati, Panagariya, and Srinivasan 2004).

Blinder (2006) asserts that a much broader range of services will be liable to global sourcing (almost all of those activities that do not require direct personal delivery) as communications costs decline further and technology continues to advance. His rough estimate is that between 28 and 42 million jobs in the United States could move overseas as a result of global sourcing. OECD (2005c) concludes that close to 20 percent of total employment could potentially be affected by information and communications technology-enabled offshoring of services.

The potential size of the future market for global sourcing of services remains a matter of debate, reflecting uncertainties over how the dividing line between tradable and nontradable services will shift over time (see box 4.6).

Even if these higher predictions come to fruition they do not imply a corresponding lower level of employment. The impact of global sourcing of services on the overall level of unemployment in rich countries may be small, especially in countries that are effective in generating new jobs.

Global sourcing will benefit both developed and developing countries

The shift in jobs resulting from global sourcing of services is unlikely to be a zero-sum

Box 4.6 The number of services jobs liable to be moved abroad: large or small?

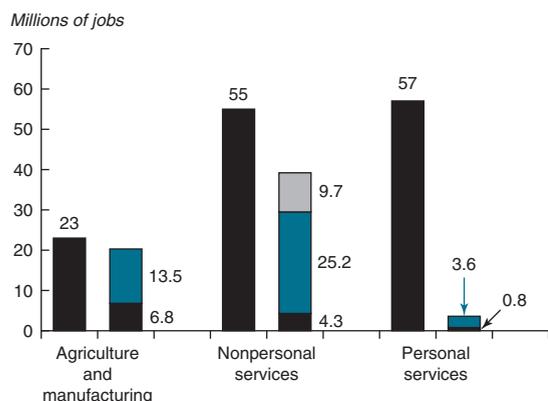
To identify the tradability of industries and occupations, Jensen and Kletzer (2005) use indicators of regional concentration of production in the United States to group industries into three categories of tradability, leaving a similar number of industries in each category (the more the geographical concentration, the higher the degree of tradability). They then use this degree of tradability of the sector to estimate the number of jobs that are prone to global sourcing.

Results are very sensitive to assumptions about what is considered tradable. The first figure below presents possible effects for the U.S. economy (excluding public administration), distinguishing between the agriculture and manufacturing sector, nonpersonal services, and personal services. For each category, the first bar shows the number of workers currently employed, while the second bar shows the number of jobs that may potentially be globally sourced under three possible scenarios. The lowest part considers only the highly concentrated industries as tradable; here fewer than 4.5 million jobs in the nonpersonal services sector could be lost overseas. In contrast, the middle part of each

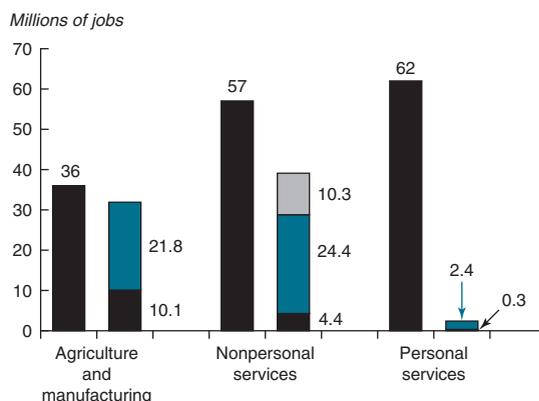
second bar adds those jobs that could potentially be lost if all jobs in all tradable sectors (including those where production is only relatively geographically concentrated) could be sourced globally. This changes the picture dramatically; more than half the jobs in nonpersonal services could be affected by globalization (about 30 million jobs).

In Jensen and Kletzer’s analysis there is a distinct difference in the vulnerability to global sourcing between wholesale and retail activities, which are less concentrated and therefore deemed less prone to global sourcing (about 36 percent of jobs in these sectors are at risk), and professional services (where 71 percent of jobs are at risk). However, technological change may make global sourcing more relevant to the wholesale and retail activities. The top part of the second column shows that an additional 9.7 million jobs could be lost if the sensitivity to global sourcing for professional sectors were equal to that of the other nonpersonal services (the light gray part in the second column for nonpersonal services). The second figure below shows the same analysis for the European Union (EU15). The figure suggests that the

Jobs and potential for outsourcing, United States



Jobs and potential for outsourcing, EU15



Sources: Jensen and Kletzer 2005; World Bank staff calculations.

Note: The first, black bar for each sector represents the number of workers currently employed in that sector. The second bar indicates the number of jobs potentially globally sourced. The black section represents only workers in highly geographically concentrated industries subject to global sourcing; the other two sections represent workers in less geographically concentrated industries (see text).

Box 4.6 (continued)

potential future adjustment for the EU15 is somewhat skewed toward the agricultural and manufacturing sectors, where currently a higher share of total employment can be found than in the United States.

A further important caveat to these estimates is that only certain elements of production in tradable sectors can be sourced overseas. Equally, there could be activities in the production process of largely nontradable services sectors that could be globally

sourced. For these reasons it is preferable to identify tasks, rather than sectors, as tradable or nontradable (see box 4.7). Jensen and Kletzer make a crude attempt at this by repeating their exercise for broad occupational groups. They find that 11 percent of total employment is represented by tradable occupations in industries that are classified as nontradable. Similarly, about 22 percent of the total workforce is found in nontradable occupations in tradable industries.

game, owing to the presence of significant offsetting factors. While workers whose jobs are liable to offshoring will face lower labor demand and downward pressure on their relative wages, workers who are *complementary* to the offshored activities will see a rise in their productivity and an increase in relative wages. In addition, global sourcing will augment the productivity of firms that utilize the opportunities presented by lower labor costs overseas. These firms are more likely to expand than other firms, increasing their demand for labor, some of which will be for local tasks that can be fulfilled by the type of worker affected by offshoring, thus offsetting, to some extent, the impact of offshoring on wages (Grossman and Rossi-Hansberg 2006).

Moreover, demand is not inelastic—lower wages for software workers in developing countries raise global demand for software, benefiting all countries. Some OECD countries are experiencing a net inflow of service jobs from outsourcing (Amiti and Wei 2004); investment by foreign companies in the United States, for example, exceeded investment by U.S. companies in foreign countries every year over 1996–2001 (Atkinson 2004),²² and several OECD countries have experienced double-digit growth in exports of business services. For example, exports grew at 11 percent in both the United States and Australia (OECD 2005a).²³

There is also little evidence to date that tradable service activities have lower employment growth than other service activities, or that net outward investment or imports of business services are associated with significant declines in the share of employment potentially affected by outsourcing (Jensen and Kletzer 2005; OECD 2005a; Amiti and Wei 2004). However, growth is lower at the lower end of the skill distribution—although this may also indicate that these jobs are most readily substituted by technology. Worker displacement rates are higher in tradable services, but affected workers have higher skills and higher predisplacement earnings than displaced manufacturing workers (Jensen and Kletzer 2005).

The key labor-market issues raised in rich countries by the global sourcing of services are the nature of the new jobs that will replace those transferred overseas, and the difficulties that firms and workers may face in adjusting to this new facet of globalization. Workers previously sheltered from global competition are facing greater job insecurity, downward pressure on their wages, and potential costs of adjustment in moving from one job to another or in upgrading their skills to obtain new employment following displacement. These issues are explored in more detail below, following a brief discussion of an appropriate framework in which to assess the nature and impacts of global sourcing.

Global sourcing of services offers opportunities as well as challenges

Global sourcing of services is creating considerable opportunities for development in poor, low-wage countries, through export possibilities and through access to cheaper service inputs that raise productivity when used in other sectors. Global sourcing is providing important new employment—in India, employment in the information technology (IT) sector is now three million, although this is concentrated in five or six urban centers (Yusuf, Nabeshima, and Perkins 2006). Employment creation is at a wide range of skill levels, reflecting the range of activities open to global sourcing. In the relatively low-value segments such as call centers, wage costs are important determinants of location (along with language skills), and competition is fierce among developing countries. At the high end, global sourcing of services may be reducing incentives for skilled migration by creating new opportunities at home. A large number of those employed as a result of global sourcing are women, offering a different route to development than those based on the growth of agriculture and manufacturing.

While India and China are likely to come to dominate the market for global sourcing of services, comparative advantage will ensure that there are opportunities for many developing countries. Small island economies in the Caribbean, for example, have been able to attract certain back office activities from the United States, such as data entry. The services revolution and global sourcing are offering opportunities for new exports and for attracting services-related foreign investment for a range of poor countries. IT and global sourcing offer new and alternative drivers of development that circumvent some of the key constraints to growth driven by the expansion of exports of agricultural and manufactured goods.

This is most apparent for landlocked countries and small (often island) economies that face very high transport costs. For example, development in Rwanda has to confront an

extremely adverse location, one of the highest population densities in the world, and a high population growth rate. While increasing the quality and quantity of exports of traditional agricultural exports (coffee) and minerals is crucial to increases in incomes for the poor in the short to medium term, the government of Rwanda has identified the provision of IT-intensive services, both locally and abroad, as a base for growth in the long run, to provide for employment and turn the country's large, but very young, population into a driver of development rather than a constraint.

The important new opportunities for developing countries are accompanied by considerable challenges related to the provision of necessary infrastructure, the design and implementation of appropriate regulation, better education to increase the supply of human capital, and the creation of strong marketing profiles and reputations for reliability.²⁴ Access to relatively cheap and reliable electricity, a critical problem for many poor countries, will be necessary. High-quality telecommunications infrastructure must be accompanied by a competitive framework for the provision of telecommunications services. Liberalization of the trade and investment regime, complemented by an appropriate and effective regulatory environment, can help ensure the efficient and competitive provision of the telecommunications backbone services.

Many developing countries could assist their nascent IT sectors by joining the Information Technology Agreement (ITA) of the WTO. The agreement covers the main categories of IT products, computers, telecommunications equipment, semiconductors, semiconductor manufacturing equipment, software, and scientific instruments, and commits members to bind tariffs at zero on these items. Joining the ITA can provide a strong signal to investors, both domestic and foreign, of a country's commitment to an open IT environment by ensuring access to necessary equipment at world prices. The ITA has 43 members (with the European Union treated as one), among them industrial countries and

some large and small developing countries, such as China, the Arab Republic of Egypt, El Salvador, India, Mauritius, Moldova, and Morocco. As yet, however, none of the least developed countries is a member.

But does the global sourcing of services have different implications for labor in developed and developing markets?

Trade in services that use skilled labor intensively is not new. In the standard analysis of multinational firms, parent companies in developed countries are seen as exporting a range of services such as design, management and engineering consultancy, marketing, and finance to their overseas subsidiaries in poorer countries. What is new is trade in the opposite direction, as services both within multinationals and through arm's-length trade flow from low-wage countries to richer markets.

An immediate implication of this new development is that the standard factor-endowments model of trade (countries export goods and services that make intensive use of factors abundant in their country) cannot explain why skilled-labor-intensive services are being exported from countries with very scarce skilled labor. A common explanation involves the absence in developing countries of the knowledge-based assets that are complementary to skilled labor. The lack of these assets limits the use of skilled labor at home and keeps such workers cheap even though they are relatively more scarce than in rich countries. Globalization in the form of the transfer of know-how to complement cheap skilled labor in poor countries leads to trade in skilled-labor-intensive services.

There is much discussion of whether the global sourcing of service activities to low-wage countries presents features and issues different from those associated with global trade in goods. Bhagwati, Panagariya, and Srinivasan (2004), for example, argue that global sourcing of services has effects that are not qualitatively different from those emanating from the sourcing of goods. In both cases, there are gains from trade and national incomes

rise, but displaced workers face some costs of adjustment.

For Treffer (2005), by contrast, the fact that skilled workers lose their jobs when services are sourced from low-wage countries has important economic implications that do not arise when low-skilled jobs disappear. The loss of relatively high-wage jobs and the pressure on the wages of high-skilled workers may reduce economic incentives to invest in and to acquire skills. In addition, in knowledge-intensive service activities skilled workers are more likely to have obtained some industry- and firm-specific knowledge that is lost when the job is lost. This may have a direct negative impact on productivity, especially if the knowledge is complementary to other skills or factors. In developing countries the opposite will tend to occur. The transfer of know-how, the increasing demand for skilled workers, and the upward pressure on skilled wages will tend to increase the incentives to acquire skills. This will increase demands on the education system in developing countries, which in many cases is likely to become a constraint on this process.

The rapid pace of change and flexibility demanded by competitive global markets, along with new trends such as global sourcing of services, will lead to potentially rising adjustment costs falling on a wider range of—more highly skilled—workers. These trends all argue for countries to review their domestic policy and institutional frameworks to ensure that their advantages can be exploited and that affected workers are supported when they incur adjustment costs.

Policies to confront the labor market challenges of globalization

Focusing on factors that determine the growth of productivity will be key to confronting the challenges of globalization without neutralizing its opportunities. This will require a change of mindset by policy makers, who must grasp and internalize the fundamental changes in the nature of international production and trade (see box 4.7).

Box 4.7 Trading goods and services or trading tasks?

In the classic conception, international trade is the exchange of complete goods and services across national boundaries. Countries gain from specialization in particular sectors of the economy, such as textiles and steel. Within firms, gains are had from higher productivity, that is, by allowing workers to specialize in particular tasks. In the past, effective coordination of these efforts, and the combination of tasks to produce a product, required proximity. Communication required physical presence and the transportation of intermediate inputs was slow and costly. Specialization led to geographic concentration of production. International trade occurred if consumers lived in another country.

However, the nature of production has changed. Revolutions in transport and communications technologies have led to enormous reductions in cost, allowing tasks to be separated in time and space, and weakening the link between specialization and geographic concentration. Instructions and information can be effectively conveyed over long distances and intermediate inputs can be transported quickly and much more cheaply than before. Thus, increasingly it is *tasks* in addition to final goods and services that are exchanged across national boundaries, resulting in global production networks of activity in a wide range of sectors. In this new global economy there are additional gains from specialization, as firms take advantage of differences in the cost of labor and skills across countries to allocate tasks internationally.

Some tasks can be offshored more easily than others. What matters is the extent to which a particular task is contested globally (Leamer 2006). This is more likely for standard, mundane tasks that can be coordinated through codifiable information and less

likely for complex tasks that require tacit information. The latter often require relationships and are often best performed in clusters of individuals. Your neighbors matter. Even for some mundane tasks, such as mowing the grass, physical presence is required.

In this new global environment, interventions that target particular sectors will be ineffective relative to initiatives to provide an environment that supports activities and tasks. This entails greater emphasis on a business environment that facilitates the entry and exit of firms across all sectors and policies and infrastructure and regulations that support the free flow and low cost of imported inputs (whether physical or information) to which domestic workers can contribute their tasks. What matters is the quality of roads, ports, telecommunications, and electricity together with relatively low tariffs on imported inputs and effective regulation of key backbone services.

Finally, the increasing importance of trade in tasks creates a challenge for the measurement of international trade flows. Currently imports of goods are recorded according to their invoice value as they cross the border and the whole value of the import is attributed to the country in which the last substantial transformation occurred. There is no system by which the countries that contributed value added to the product are identified. Thus, for example, the value of the iPod discussed in box 4.4, when imported into the United States, is attributed to China, where it is assembled. Yet most of the value of the iPod is added by tasks undertaken in other countries.

Sources: Grossman and Rossi-Hansberg 2006; Leamer 2006.

In the new environment, productivity growth requires openness to new ideas and the ability to exploit new technologies and opportunities. Economies need to be sufficiently flexible to enable resources to move from low-productivity to high-productivity tasks and activities, which policy makers cannot identify beforehand. This places a premium on institutions and policies that encourage innovation,

investments in human capital, and reductions of barriers to the flow of knowledge, capital, and labor. This process is not without adjustment costs, and complementary policies are needed to ensure that particular groups in society do not bear a disproportionate share of the pain.

The appropriate policy mix that provides a framework for productivity growth will vary

over time and according to country characteristics, such as level of development and size. Nevertheless, key ingredients will be openness to trade and FDI and an attractive climate for investment and for innovation, investing in education, and repositioning labor-market policies to focus on protecting workers, not jobs. Rich countries have a particular responsibility to maintain and, indeed, increase the openness of their markets to goods and services produced in poor countries. A related issue is the impact that globalization and openness may have on a country's capacity to raise tax revenues to fund infrastructure for trade or training for affected workers.

Supporting open access to markets, innovation, and a strong business climate

Openness to trade in goods, services, and ideas provides a critical stimulus to innovation and productivity growth, both for countries at the global technology frontier and those catching up. But because trade and technology can lead to lower relative wages and greater employment volatility for some workers, policy makers are often tempted to meet the challenges of globalization by increasing trade protection. Doing so compromises a key source of growth. As a former finance minister of a developing country that undertook successful reforms stated, "Trade shocks are better dealt with through more, rather than less, trade."²⁵

Trade policies interact critically with other elements of the business and investment climate. Reaping the benefits of globalization requires not only openness to trade and investment but also physical infrastructure and a policy framework that enables actual and potential exporters to effectively exploit their advantages. High costs of clearing customs, poor port infrastructure, weak telecommunications services, and poor regulation, for example, raise costs and hamper competitiveness. These major challenges for developing countries, particularly the least developed, must be addressed if trade liberalization is to be effective in stimulating trade,

investment, and growth. Domestic policy reforms, underpinned where necessary by increased "aid for trade" from the international community, will be essential in helping the poorest countries benefit from the opportunities of new global markets.

In addition, policies that affect innovation and access to technology are crucial. For the least developed countries, moving up the technology ladder by acquiring technological know-how from overseas through trade and FDI will be a key driver of growth over the next 20 to 30 years. Innovation and learning will continue to play essential roles in raising productivity and sustaining growth in rich countries and increasingly in the middle-income countries, placing emphasis on the institutions that frame incentives to invest in R&D and in the acquisition and application of knowledge.²⁶ In the middle-income countries there will be opportunities to be had from incremental innovations to processes that improve the tasks undertaken for foreign firms and to products that can be tailored for growing domestic markets. In the richer countries it is innovation and learning creating new goods, services, and new processes for producing them, that will be of greater importance. The key elements of a policy framework to support innovation and learning will differ between countries according to level of development as well as size but to varying degrees will include the following:

- *Investing in human capital* to overcome shortages of skilled labor, including due to migration. Learning-by-doing in firms increases with its workers' human capital.
- *Supporting public research through universities and research centers, and facilitating interaction with private businesses* to ensure dissemination of "basic" knowledge that stimulates research for commercially exploitable innovations.
- *Defining—and enforcing—adequate intellectual property rights* to encourage domestic investment in innovation and acquisition of technology through FDI.²⁷

- *Promoting access to finance*, especially for new entrants and small and medium enterprises (SMEs), which are more likely to be innovative (Geroski 1990).
- *Careful review of fiscal incentives to stimulate R&D and innovation*, taking into account that evidence of effectiveness is scarce (de Ferranti and others 2002) and that there could be crowding out or in of private investment (Jaumotte and Pain 2005).

Providing more people with lifelong learning

In all countries investment in education will become an ever more critical determinant of labor-market performance in the context of greater global competition and increasing rewards to skills. Higher-skilled workers are better at dealing with changes, including adoption of new technologies, new workforce organizations, and ongoing pressures for adjustment and shocks, and also support the creation of well-functioning institutions (World Bank 2006; Hoekman and Javorcik 2006).²⁸ Countries need to focus not only on enrollment in education but also on quality and relevance, a fact underlined by the prevalence of youth unemployment in both developed and developing countries.

Education systems everywhere face new challenges, however. In the face of rapid changes in technology and business organization, these systems struggle to keep pace with demand for new skills—a trend likely to be exacerbated by global sourcing of services. For individual workers, this means rapid changes in the value of their skills, demanding constant retraining and skill upgrading. But workers facing more rapid obsolescence or devaluation of skills may have lower incentives for skill acquisition. Moreover, firms already faced with competitive cost pressures and concerns that they will not benefit from their investment in training as their workers leave for other firms, will increasingly have access to a global pool of workers with the desired skills to substitute for the existing workforce. This

could place greater pressure on the education system to provide the industry-specific skills previously provided by firm-level training; while continuing volatility could also place a premium on providing workers with the general skills that enable continuous adaptation.

In sum, education systems will be expected to provide more people with more opportunities to learn across a broader menu of educational and skill-development options at more stages of their lives than ever before. This will require a new model of education and training, as well as ongoing reform of traditional methods, providers, and financing of education (box 4.8).

Protecting workers, not jobs

While globalization offers new opportunities for workers, it can also entail greater movement—for example, between jobs, sectors, or regions—and this brings with it additional risk. This calls for policies that shift the emphasis from measures designed to protect those in employment—which, as discussed earlier, can discourage job creation—to mechanisms aimed at ameliorating the potentially negative effects of greater labor movement through targeted labor-market policies and social safety nets. While the precise combination of labor-market programs and income support measures will need to be determined at the national level—taking account of local circumstances and involving all relevant stakeholders—and there can be important differences in the types of programs that are most effective in developing and developed countries, some general lessons can be drawn.

In all countries, income support programs will remain the core of worker assistance. In OECD countries, the redistributive impact of the tax-transfer system increased in the late 1980s and 1990s (Brenton 2006). In developing countries, the design of such programs raises specific challenges.

- *Unemployment benefits* can ease adjustment and maintain public support for structural change, but if set too high

Box 4.8 Key challenges for education systems in the new global economy

While some of the key challenges relate to problems that education systems have traditionally faced, such as increasing access to and quality of education, others relate to revisiting the nature, type, and purpose of educational offerings to equip a globally competitive workforce. In key respects, traditional educational methods are ill-suited to providing the lifelong learning that is necessary in the new global economy (World Bank 2003).

Increase access. In Sub-Saharan Africa and South Asia, more than 40 percent of those aged 25 and over in 2000 had not completed any formal education. In developing countries, public funding—directed through public educational institutions or to individuals (loans or vouchers)—can help expand access (World Bank 2005). Recent policies in Brazil that addressed supply-side constraints in the education system by establishing a minimum spending level per student have proven successful in increasing enrollment rates substantially (de Mello and Hoppe 2005). While the central government transfers funds to the local governments in case these are unable to finance the prescribed spending levels, demand for education is increased by using school attendance as a requirement for certain types of income transfers to low-income households.

Provide access at all ages. Preschool and early childhood programs establish a solid basis for subsequent learning^a while primary and secondary education give workers the basic skills that enable them to learn new skills required by technology-induced changes (OECD 1996).^b Lifelong learning helps workers to adjust, but government support (for instance, via a training levy) may be needed (World Bank 2005). In many emerging economies, improving the access to secondary and postsecondary education will be critical in view of the rising skill premium.

Improve quality.^c Efficient increased spending should be combined with strengthened incentives to teach and learn, and with improved accountability (World Bank 2006). Quality assurance mechanisms (including regionally) and national qualifications frameworks raise standards and facilitate international recognition.

Focus on learning to learn, equipping workers to learn throughout their working lives, and

continuously upgrade how they produce in whatever sector they might be employed (de Ferranti and others 2002). This means moving away from a model in which the teacher is the source of knowledge to a system where educators function as guides to multiple sources of knowledge.

Include a range of providers. Including private sector as well as public sector providers can promote greater access to education and greater variety in educational offerings. Additionally, foreign institutions can help upgrade standards, although sound regulation is needed to ensure quality and access, and to provide clear and nondiscriminatory conditions for investors. Here again, government measures to ensure broad access may be necessary.

Strengthen the links between education and work. The mismatch between graduates' skills and labor-market needs in many developing countries argues for greater links between the private and public sectors. In the Middle East and North Africa, skills geared toward public sector jobs are ill-suited to the needs of industry, while the traditional focus on law, philosophy, and theology in education in much of Latin America and the Caribbean is argued to have slowed the development of natural resource sectors (de Ferranti and others 2002). Postsecondary education should be balanced between academic and technical-vocational training (OECD 1996), with the latter assessed, certified, and formally recognized.

^aIn developing countries, early childhood and preschool programs show returns of \$2–5 for every \$1 invested (World Bank 2006).

^bFor a full discussion of ensuring access and quality in education, see World Bank (2006). For a discussion of issues in the delivery of basic education services, see *World Development Report 2004: Making Services Work for Poor People*.

^cChildren in Argentina, Chile, and Mexico perform about two standard deviations below children in Greece, one of the poorest-performing countries in the OECD. In reading competence (based on the OECD's Programme for International Student Assessment [PISA] 2001), the average Indonesian student performed at the level of a French student at the seventh percentile (World Bank 2006). More than 20 percent of firms in many developing countries rate inadequate skills and education of workers as a major or severe obstacle to their operations (World Bank 2005).

and given for too long, can slow down adjustment. In developing countries, informality makes targeting of benefits difficult as the unemployed may also have jobs in the informal sector, and the registered unemployed may be middle- rather than low-income workers (Hoekman and Winters 2005).²⁹ However, unemployment insurance may also be an alternative source of credit for self-employment. Individual savings accounts or similar types of unemployment insurance may be a better solution for developing countries, although there is a risk that workers have insufficient resources.

- *Mandatory severance pay* is the most common income support program in developing countries, as compliance is complaint-driven and an expensive bureaucracy is not required. However, if overly large, severance pay may discourage hiring or reforms as costs become unmanageable.
- *One-off compensation programs* have also been used in both developing (public sector downsizing) and developed (restructuring of declining industries) countries. While supporting relatively well-off workers (the previous beneficiaries of rents), they are often seen as politically necessary for reform—although experience suggests that they have often not succeeded in attaining their stated goals.³⁰
- *Wage insurance* gives workers a proportion of their former wage for a set period of time, conditional upon their finding new employment. This eases adjustment, provides an incentive to take a new, albeit lower-paying, job and (in effect) subsidizes on-the-job retraining—the most effective kind (Kletzer 2001).

Global competition and movement of workers argues for separating health care from employment status. The possibility that in future more types of workers could experience

periods of unemployment or more frequent job change argues for new mechanisms to ensure that they are not left without access to essential health services. Moreover, health care benefits provided by firms are a burden on globally contestable jobs and make employers wary of forming long-term relationships with prospective employees (Leamer 2006). In developing countries, extending universal basic medical care not linked to other aspects of formality could help to reach the poorest, but risks increasing incentives for informality (Arias and others 2005). One option is general health provision, funded by tax revenue rather than attached to employment; a more modest alternative is the creation of a health insurance subsidy for displaced workers, as proposed by Kletzer (2001).³¹

Active labor-market programs can be effective in keeping workers in the labor market and upgrading their skills, but experience has been mixed and programs need to be designed to suit the conditions in developing countries.³² While there is considerable experience in the OECD countries,³³ less is known about policies in developing countries.³⁴ For the latter, the key issues are the size of the informal sector, limited administrative capacity, and the absence of broader social safety nets. Leakage risks are higher, as the unemployed may also have informal jobs and may not be low-income. Policies need to improve conditions in the informal sector, but avoid creating additional incentives for informality.

In both developed and developing countries successful interventions are comprehensive, oriented to labor demand, linked to real workplaces, and carefully targeted (box 4.9). Interventions are also more effective when the economy is growing. But longer-term assessments are needed (most cover one to two years) and a range of effects—deadweight (impact would have been achieved in the absence of the program), substitution (participants substitute for nonparticipants in the labor market and the employment effect is zero), and displacement (firms with subsidized

Box 4.9 Overview of the impact of active labor-market programs

Employment services. Generally have a positive impact on employment and earnings and are cost-effective. But they are of limited use where structural unemployment is high and labor demand low. May be less effective in developing countries where informality is high and implementation capacity limited.

Public works. Effective, including for informal workers, as a short-term safety net in developing countries but do not improve future labor-market prospects, especially where a stigma is attached to participation. Wages need to be sufficiently low to target those with low incomes and few job prospects, and projects should also target poor areas. Can be most redistributive, but require government expenditure.

Training. Can result in higher employment rates, if not earnings. Programs work best with active employer involvement (on-the-job training), and limited evidence from developing and transition economies suggests better results for women than men. But firms are reluctant to train lower-skilled workers; in the OECD countries the least qualified are only a quarter to a third as likely as the highly qualified to participate in job-related training. A growing number of countries fund enterprise-based training via compulsory levies (usually 1 percent of payroll), with reimbursement based on training provided in some cases (examples include Singapore and Mauritius).

Retraining after mass layoffs. No positive impact, except with a comprehensive package of employment services, and expensive. Workers are often geographically concentrated with industry-specific skills. Best results have been achieved with longer programs that include some worker contribution to costs.

Training for youth. Less successful than earlier investments in the education system. Some success in Latin America with programs that integrate training with remedial education, job search assistance, and social services. For example, the “Jovenes” programs of Argentina, Chile, Peru and Uruguay are targeted at disadvantaged youth. They combine training and work experience with other services, include the private sector, and are financed by tripartite levy-grant schemes or the government. They have substantial and positive impacts on employment and earnings, but can be small scale, may not be cost-effective, and participants can displace other workers.

Employment subsidies. Mostly for disadvantaged groups, although some countries (Belgium, France, the Netherlands) provide for all low-paid work. A significant share of overall active labor-market program (ALMP) spending in several OECD countries. Most do not have a positive impact and have substantial deadweight (workers would have been employed without the subsidy) and substitution (worker displaces a nonsubsidized worker) costs.

Microenterprise development and self-employment assistance. Some evidence of positive impacts for older and better-educated workers, but take-up is low and business failure rate is high.

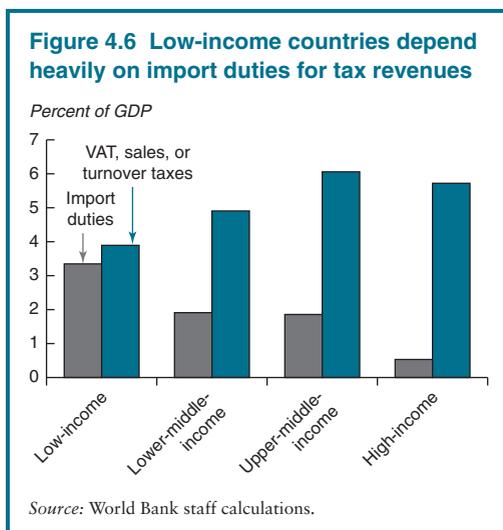
Sources: Betcherman, Olivas, and Dar 2004; World Bank 2005; Rama 2003; Arias and others 2005; OECD 2005a, 2005d; Heckman and Pagés 2000.

Note: Betcherman, Olivas, and Dar (2004) build on an earlier World Bank study of 72 scientific (that is, using a control group) evaluations of ALMPs by Dar and Tzannatos (1999) by adding 87 new studies, 39 of which cover programs in developing and transition economies. Similar conclusions on a number of points have been made in OECD reviews (see Martin 2000).

workers displace those without)—need to be taken into account. Given their mixed record, and the challenges of appropriate design, governments need to be realistic about what active labor-market policies can achieve.

Globalization may undermine funding for programs to support labor

While integrating into the world economy requires that import taxes be kept low and relatively uniform, for the least developed



countries they are a key source of revenue relative to value-added tax (VAT) and sales taxes (figure 4.6). High-income countries are able to recover revenues lost from trade liberalization from other sources: on average, middle-income countries recover 45–60 percent of lost tariff revenues while least developed countries recover less than 30 percent (Baunsgaard and Keen 2005).

But many countries collect far less in tariff revenue than the applied tax rates would suggest, owing to the widespread (discretionary) granting of exemptions. Exemptions make the tax regime opaque and difficult to administer and can lead to a distorted incentive structure that discriminates against small firms with less influence. Further, there is little evidence that exemptions have a significant impact on investment, their primary justification. Many countries could substantially reduce applied tariffs while maintaining or even increasing revenue if exemptions were removed and collection improved. However, it is still necessary to address the development challenge highlighted in figure 4.6 of moving from easy-to-collect trade taxes to harder-to-collect consumption and income taxes.³⁵ Simply implementing a VAT is not sufficient; a high degree of collection efficiency (the ratio of actual to potential revenues) is needed.³⁶

While feelings of greater economic insecurity among workers may lead to greater demands for social insurance, it has been argued that globalization is limiting the capacity of governments to fund such protection—and to support the productivity-enhancing measures discussed above. The fear is that globalization and greater mobility of capital and wealthy workers will undermine the tax base, as these factors move to the lowest tax locations, compromising social welfare programs for those bearing the burden of adjustment. There is little evidence of this process in developed countries (OECD 2000b), however, and the preferences of wealthy individuals for education, health, law and order, and social welfare suggest that fears of large numbers of skilled workers emigrating to low tax havens are unlikely to be justified. Moreover, much of the knowledge of these workers is gained and creates value from interactions and synergies with clusters of other similar workers. As Leamer (2006) says, it matters who your neighbors are.

The international community—working together—can help realize the potential of globalization

The rise of China, India, and other emerging economies amounts to a huge increase in the supply of unskilled labor on a global scale. This could heighten the existing—and growing—inequality between skilled and unskilled workers in both developed and developing countries that has resulted from a mix of technology and trade effects. There are fears that there will be no space for other countries, particularly developing countries, to compete in low-wage exports or in attracting global capital flows. In addition, because China and India are rapidly upgrading the skills of their workforce, and services activities along the value chain are being globally sourced, skilled workers everywhere are increasingly facing competitive pressure. There are mitigating forces, however; China and India offer huge markets for the exports of other countries, their own wages are bound to grow rapidly, and developing the full range of institutions

needed to underpin a modern, dynamic market economy will take time.

This new global climate poses challenges—but also offers considerable opportunities—for all countries. The countries best placed to address the challenges will be those best able to seize the opportunities and generate the new sources of growth and wealth needed to finance additional investments in social safety nets and education. In many developing countries, domestic reforms to reduce rigidities in the labor market and improve the climate for business and innovation will be critical. All countries will need better mechanisms to cushion adjustment costs and distribute the benefits of growth to offset the tendencies toward inequality and volatility. But collective action by the international community will also be needed in two important respects. First, as the pressures of globalization increase the calls for beggar-thy-neighbor protectionism, the international community will need to band together to preserve and extend the open markets that have underpinned recent advances in growth and poverty reduction. In the absence of open global markets, many of the new opportunities from the coming globalization will disappear. Second, the international community needs to provide the financial and technical support—the “aid for trade”—to enable the poorest countries to overcome the infrastructure and capacity constraints that limit their ability to take advantage of new trade opportunities.

Notes

1. Trade among developing countries is also growing significantly; South-South trade now constitutes one-quarter of developing-country exports, and this trade is growing 50 percent faster than world trade.

2. A recent U.S. study (Brofenbrenner and Luce 2004) concludes that the Bureau of Labor Statistics (BLS) grossly underestimates the total number of jobs lost to global production shifts. While the BLS reported 4,633 private sector workers in establishments with 50 or more employees who lost their jobs because of global outsourcing from January to March 2004, the authors, drawing on media reports, find evidence of a minimum of 25,000 jobs lost over that period. Moves were often to several destinations

simultaneously and most were in manufacturing, although there was a significant increase in shifts of white-collar-services jobs to India.

3. Ghose (2003) identifies a group of manufacturing-exporting developing countries that have shown impressive growth in employment in the sector, from about 50.9 million in 1980 to 82.8 million in 1997 (or from 79 to 88.7 percent of total employment over the same period). In this group are China, the Arab Republic of Egypt, India, Indonesia, Israel, the Republic of Korea, Malaysia, Mauritius, Morocco, the Philippines, Singapore, Sri Lanka, Taiwan (China), Thailand, and Turkey. However, other manufacturing-exporting countries have witnessed declines of 13.5 to 10.6 million (21 to 11.3 percent) over the same period—this group consists of Argentina, Brazil, Hong Kong (China), Malta, Mexico, Pakistan, and South Africa. Note that Mexico’s figures do not include the *maquiladora*; if they did, the country would have appeared in the first group.

4. A further question is the distribution of gains between labor and capital. However, this issue has proven difficult to analyze and beyond the immediate scope of this chapter, which focuses on the distribution within labor markets between skilled and unskilled workers.

5. Whether the impacts of greater openness operate more or less through wages as opposed to employment depends on labor-market institutions, the efficiency of capital markets, and social policies. Hence in the United States, the more flexible labor market and more efficient financial sector mean that wages bear a greater share of shocks than in the European Union. In developing countries, it also appears that wage responses are greater than employment impacts, suggestive both of labor-market rigidities and industry rents engendered by trade policy (Hoekman and Winters 2005).

6. For full-time workers in the United States between 1979 and 1995, real wages of those with 12 years of education fell by 13.4 percent, and real wages of those with less than 12 years of education fell by 20.2 percent. During the same period, real wages of workers with 16 or more years of education rose by 3.4 percent so that the wage gap between these groups grew significantly (Feenstra and Hanson 2003).

7. Some of the overall increases in the skill premium could also be related to the artificially low prices for skilled labor prior to opening. Modest increases are also found in China and Vietnam (World Bank 2002).

8. Economic literature has mainly focused on the impact of globalization on labor demand elasticities. Authors such as Rodrik (1997) argue that globalization has led to an increase in the labor demand elasticity, with the result that changes in product prices now have magnified impacts on wages and employment. The

empirical support for this link is mixed, although estimating elasticities is prone to difficulties. Rodrik (1997) finds that the interaction between trade openness and variation in a country's terms of trade is positively linked with volatility of growth and government expenditures. The latter, Rodrik argues, reflects the increasing demand for social protection as globalization increases insecurity. On the other hand, Iversen and Cusack (2000) argue that what is required is to show that volatility from international markets is greater than that in domestic markets; they find that in developed countries there is no correlation between trade openness and output, earnings, or employment volatility. Others have tried to link trade liberalization to changes in labor demand elasticities. Slaughter (2001) finds that labour demand elasticities for low-skilled workers in the United States have increased over time but with no clear link to trade variables. Fajnzylber and Maloney (2005), for a set of Latin American countries, and Krishna, Mitra, and Chinoy (2001) for Turkey do not find strong support for this link. On the other hand, Hasan, Mitra, and Ramaswamy (2003) find a strong link between trade reform and wage and employment volatility in India. Nevertheless, even though a positive link between globalization and observed measures of volatility has not been found, globalization may still have contributed to greater risks and to heightened economic insecurity (Scheve and Slaughter 2002).

9. Data for 19 developed and developing economies suggest that flexible hiring and firing rules are positively associated with higher rates of entry of new firms, which are often better at harnessing new technologies (World Bank 2005).

10. Alternatively, of course, it could be argued that strict employment protection is a response to the higher level of anxiety of workers in these countries. If that is the case, however, one would also have to conclude that protection has not been very effective in reducing that anxiety.

11. Skilled workers are considered to be those with some secondary education, plus those with secondary education or above. This selection does not take into account the quality of the education received or comparability among countries.

12. This is notwithstanding the fact that trade liberalization in India and especially China has advanced greatly over the last 15 years, in China driven in part by World Trade Organization (WTO) accession and in India by unilateral reforms.

13. It should be noted that Hong Kong (China) is the world's third-largest outward investor, with flows of about \$40 billion in 2004 (UNCTAD 2005).

14. There is controversy around the exact number of graduates from Chinese and Indian institutions. For example, a recent study by Duke University indicated

that engineering graduates from Chinese universities numbered only 351,000 per year as opposed to previous estimates of over 600,000. Note that the new number is still two and a half times as many graduates as in the United States; however, China's population is four times as large.

15. It is interesting to note that the Soviet Union overtook the United States in the number of research workers (Nolting and Feshbach 1980) but did not succeed in achieving strong and sustained innovation-driven growth.

16. Migration of skilled workers can be positive for the country of origin when those workers come back. In Morocco, high-skilled labor has started to return, bringing substantial know-how and technological knowledge into the country, increasing productivity and boosting innovation in terms of improved business practices.

17. The value of a relationship-specific investment is significantly higher within a buyer-seller relationship than outside it. An example is where suppliers or sub-contractors to a car producer make investments in design modifications that improve the fit or ease of assembly with other parts but which are not relevant to the production process of other car makers. Such investments tend to be associated with longer-term contractual commitments between producers and their suppliers and less repeated bargaining (Joskow (1987)). Spencer and Qui (2001) find that such relationships in the Japanese car industry tend to limit the range of imports to less important parts and that it is possible that no parts are imported despite lower production costs overseas.

18. Looking at U.S. imports from 10 major developing countries (which together accounted for 26.5 percent of U.S. imports at the time of the cited study), Aggarwal (1995) noted that sectors with egregious labor conditions were not a primary share of these countries' exports; that standards were often lower in less export-oriented or nontraded sectors; and that, within the export-oriented sector, labor conditions in firms more involved in exporting were either similar to or better than those in other firms. Raynauld and Vidal (1998) showed that, since 1980, countries with low standards had not increased their share of global exports and two-thirds of 39 countries with low labor standards had seen their international competitiveness (as measured by unit labor costs) stagnate or decline (decline reflects either a decline in labor productivity relative to the nominal cost of labor or a rise in the nominal cost of labor relative to its productivity) while 14 of the 18 high-standards countries had increased their international competitiveness.

19. "Outsourcing" or "offshoring" have both been used to refer to the global sourcing of

services—technically “outsourcing” refers to the sourcing of an activity outside a company (such as the contracting out of billing services), which can also take place within the domestic market, while “offshoring” is the movement of production of a service outside a country. For firms, offshoring need not be outsourcing when the activity stays within a foreign affiliate; from the perspective of national labor markets, it is the movement of production to another territory that is the focus of interest. Strictly speaking, not all FDI is offshoring, as in cases where a foreign affiliate is built to service the local market in the host country (Kirkegaard 2005).

20. Note that balance of payments (BOP) statistics imperfectly measure the full extent of global sourcing of services because of classification and data limitations; figures should be taken as an underestimate.

21. Atkinson (2004) notes that a concerted effort by the Chinese government to expand acquisition of English could see China moving beyond non-language-based services to other business services.

22. Care needs to be taken with comparisons between outsourcing and inward FDI, as the foreign establishment may be created primarily to serve the domestic market (see note 19). That said, the comparison may be more relevant in terms of the contribution of foreign companies to job creation within the United States, to offset the movement of jobs overseas.

23. For every \$1 of call-center work offshored by U.S. firms, an estimated \$1.43 is reinvested in the U.S. economy; the amounts are \$1.33 and \$1.42 for information technology services and high-end knowledge services (such as equity research, tax preparation, and risk management), respectively. The net benefit to the U.S. economy of shifting \$1 previously spent in the United States to India could be as high as 12–14 cents per dollar (*McKinsey Quarterly*, October 2003).

24. The absence of international standards for many service sector activities reinforces the importance of reputation in attracting new clients.

25. Nicolás Eyzaguirre, former Minister of Finance from Chile, comparing the experiences of Chile and Argentina, in a presentation to the Mauritius High Level seminar in September 2006.

26. Rates of return can also be influenced by the lack of competition. If incumbents are able to extract large rents that are not endangered, the incentive to innovate is severely restrained because the returns will replace some of the rents they are actually collecting, reducing the net value of innovation. Evidence indicates that monopolies are not particularly innovative and that small firms stimulate innovation (Geroski 1990). Opening markets by reducing external barriers and creating better regulatory frameworks for natural monopolies is hence likely to raise rates of innovation.

27. However, IPR protection must be balanced against the need to avoid stifling competition.

28. Education can also promote access to technology and development of new sectors: in 21 countries in Latin America and the Caribbean, an increase of five years in the average level of education in those above 15 was associated with an increase in FDI of 3 percent of GDP (de Ferranti and others 2002).

29. While the informal sector can also be a way of managing risk, there are limits to its role as a safety net, as it often generates most of the flows into unemployment (about 60 percent in Argentina, Brazil, and Mexico) and is ineffective in cases of multiple/covariate shocks (Arias and others 2005).

30. In the United States, the structure of the political system (including, for example, passage of Trade Promotion Authority in Congress) and nature of pressures have led to the development of trade-specific adjustment measures (Brenton 2006). Under the U.S. Trade Adjustment Assistance (TAA) program, qualified workers can receive an additional 52 weeks of unemployment insurance provided they are enrolled in an approved training program; a similar program was created for the North American Free Trade Agreement (NAFTA) in 1993. TAA and NAFTA payments are about \$300 million annually (Kletzer 2001). The European Union is also now considering a Globalization Fund of half a billion euros to help retrain and relocate 35,000–50,000 workers a year whose jobs are lost to global sourcing and trade. Money would be available in the case of layoffs of at least 1,000 people in regions with a population of at least 800,000 where the unemployment rate was already higher than the European or national average; or where several companies in a sector laid off at least 1,000 workers over six months in regions with a population of up to three million and where the job losses added up to 1 percent of total employees in that sector. While the fund will cover a relatively small number of workers, it is seen as important in resisting growing calls for protection (Kanter 2006). It is not clear, however, that there is an equity argument for distinguishing between trade-affected and other workers, such as those affected by technological change. In some circumstances—such as mass layoffs—trade-specific assistance may be more cost-effective. However, it should be used sparingly, aimed at orderly adjustment, be time-limited, and include both services and manufacturing workers as well as workers who have lost their jobs from both import and export competition (OECD 2005d).

31. Under Kletzer’s proposal for the United States, all full-time displaced workers would be eligible to receive a health insurance subsidy for up to six months, or until they found a new job, whichever is earlier.

32. ALMPs include employment services, training, public works (which offer short-term employment on

community projects in sectors such as construction, rural development, and community services), wage and employment subsidies, and self-employment assistance.

33. Over 1990–2002, average national expenditure on ALMPs in OECD countries remained relatively constant at about 0.75 percent of gross domestic product (GDP). This average masks wide differences, however, with some European countries spending over 1 percent of GDP while the United States, Japan, Korea, and the United Kingdom spent under 0.4 percent. Training accounted for the bulk of spending (36 percent), followed by public employment services (24.5 percent) and job subsidies (19.5 percent). Transition economies show similar (but lower) patterns of spending (Betcherman, Olivas, and Dar 2004).

34. There is some evidence that Latin American countries have been investing significantly in youth training and public works programs, but in Africa there is very little active programming on any significant scale (Betcherman, Olivas, and Dar 2004).

35. For many resource-rich developing countries facing rising demand from China and India and higher world prices, a crucial opportunity that has to be addressed is translating higher revenues into investments in social and educational programs that enhance competitiveness and support diversification. For these countries, the priority for domestic reform must be to address governance and corruption issues associated with distributing the revenues from resources. This must be supported by the global community through increased efforts to discipline the activities of firms and governments in countries demanding these resources.

36. Countries with smaller agricultural and larger urban sectors, with strong political institutions, with higher per capita incomes, and that are more open to trade tend to have higher collection efficiencies for VAT (Aizenman and Jinjarak 2006).

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