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How Integrated Are Chinese and Indian Labor into the World Economy?

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China and India are similar in many ways. Both are populous, physically large, socially diversified, economically poor countries. In 1978 they had roughly the same per capita GDP in terms of purchasing power parity (Maddison, p.304). But their labor forces have very different characteristics. A significantly higher fraction of China's population is in economic employment, China is significantly more urbanized, less of China's labor force is in agriculture, and in rural areas a significantly higher fraction of rural employment is non-agricultural. Population growth in both countries has declined significantly in recent decades, but the decline has been markedly sharper in China. India has significantly greater protection against imports than China, although it has lowered non-agricultural tariffs in recent years. India is less hospitable to foreign direct investment (FDI) than is China, and is more dependent on official foreign assistance. By 2000 India's real per capita GDP had doubled from 1978; China's had nearly quadrupled. These differences, and others, influence the degree of integration of these economies into the world economy, and in particular the role that their labor forces play in the world economy.

We start with a description of key population and employment characteristics of China and India. Section 2 will describe their policies, and outcomes, with respect to

foreign trade and foreign investment. Section 3 will offer theoretical considerations about how a poor country, and in particular its labor force, might be integrated into the world economy. Section 4 discusses emigration from China and India in recent years. Section 5 then pulls together the empirical and theoretical material and offers some judgments about current and future integration of the two countries into the world economy.

Population and Employment

Table 1 presents the populations of China and India from 1980 to 2005, and US Census Bureau projections to 2050, along with estimates of the number of people in the age bracket 15-64, roughly those who could be in the labor force, and the number of people in the age bracket 20-24, roughly those entering the labor force. Several features are noteworthy. First, population growth has been slowing in both China and India, and is expected to continue to do so. China's population grew by 1.5 percent a year in the decade 1980-90, declined to 0.6 percent a year 2000-05, and population is expected to peak in 2032, declining thereafter. India's population grew by 2.0 percent 1980-90, declined to 1.4 percent in 2000-05, and growth is expected to continue to decline to 0.7 percent a year between 2030 and 2040. These declines reflect significant declines in birth rates – indeed to below reproduction rate in China's case – with implications for the age structure of the population. Those aged 15-64 accounted for 66 percent of China's population in 1990, rising to 71 percent in 2005, and is expected to decline to 67 percent in 2030 and 63 percent in 2040 as the population ages, and as snew entrants to the labor force decline. (China's median age will rise from 25 years in 1990 to 32 in 2005 to over

41 in 2030.) The corresponding percentages for India are 59 percent in 1991, 64 percent in 2005, and 68 percent in 2030. In China the important 20-24 age group, those receiving advanced education and generally the most flexible component of the labor force, is already declining from year to year, and is expected to decline at an annual rate of 3 percent in the period 2020-2025. That age group in India continues to grow in the near future, but reaches a peak in 2020 and in the subsequent five years will also be declining, albeit at a much more modest 0.1 percent a year.

In short, the potential labor force has grown more rapidly than the population in both countries, producing the so-called "demographic dividend" as birth rates decline and young adults increase more rapidly than dependent children – and before dependent elders become quantitatively significant. This process has about run its course in China, but will continue on a moderate scale in India for some decades, resulting (on this account) in some slowdown in China's future growth, but permitting somewhat faster growth in India.

Of course, translating the demographic dividend into actual growth depends also on labor force participation rates, and on actually employing potential workers productively. There is a significant difference between China and India on participation rates. Fifty-seven percent of China's population was employed in 2000, compared with 37 percent in India. [CSA; India from Ghose, p.5107]. Part of the difference can be explained by the difference in age structure, with 68 percent of China's population being between 15 and 64 in 2000, compared with 63 percent in India in 2001. In addition, however, participation rates among women was far lower in India. This may be explained in part by the higher rural and agricultural population in India, where women in

fact work hard at home but are not considered employed in the conventional sense. There is also a stonger tradition, encouraged by the Communist Party, for women to enter the labor force in China, whereas in India some religious groups actively discourage it. There is also the Hindu tradition that Brahmins, as priests, do not work; this tradition is breached in urban areas, but not in all rural areas.

Even if persons are in the labor force (i.e. they are working or looking for work), they may not be employed productively. Official figures on unemployment has been low in both countries - on the order of three percent of the urban labor force. But these low figures certainly understate the involuntary idleness among workers in both countries. Hu Angang (2005, p.233) reckons that real urban unemployment in China was nearly thrice the official figure in 2000: 17 million rather than the official six million. The official figure had risen to 8.3 million by 2004, 4.2 percent of the urban labor force (China Statistical Abstract, p.47). In India the official unemployment rate was 2.8 percent in 2000 [calculated from Ghose, pp. 5107, 09], but Ghose (2004) explains why the very concept of "unemployment" is not very meaningful in a country like India, where most of the labor force is in the informal or unorganized sectors of the economy, and work available to individual workers may be highly sporadic, averaging only a few days a month. Such people are not unemployed on conventional definitions, but they are not fully or productively employed either. Thus, argues Ghose, true underemployment in India (against a baseline assumption of six days a week of work) is on the order of 13 percent of all employed persons (Ghose, Table 8), more than four times the official rate.

China has moved people out of agriculture considerably more rapidly than India. While the two countries were similar in the share of agricultural employment in 1980, at

69 percent of total employment, by 2001 China had created many more non-agricultural jobs in rural areas; 33 percent of rural employment was non-farm and half of the income in rural areas was generated by non-agricultural activity (Li Xiaoxi, pp.101, 104). In 2000 India, 59 percent of employment was in agriculture. [Ghose, p. 5109]. By 2000 China's agricultural employment had fallen to 50 percent of the labor force, and to 46 percent in 2004. In 2000 industry (including construction) accounted for 16 percent of India's employment (manufacturing for 11 percent), up from 14 percent in 1981, compared with 22 percent in China, up from 18 percent in 1980. In short, both countries increased industrial employment as a share of total employment, implying significantly more jobs considering the growth in total labor force, but the increase in share, while larger for China, was modest in both countries.

The "organized" sector in India, to which labor market laws and regulations apply, in principle covers all organizations that employ more than ten persons. But it accounts for a remarkably small share – nine percent [in 1996, calculated from SY]-- of total employment; and more than two-thirds of the organized sector is government or quasi-governmental organizations. Regular wage and salary workers – those with regular employment paying a regular wage – accounted for about 40 percent of employment in urban areas in 1999/00 (Sundaram and Tenduklar, Table 12).

In 1981 China and India had about the same degree of urbanization: 23 percent of the population in India, 21 percent in China. During the subsequent two decades China urbanized much more rapidly, such that by 2000 36 percent of the population lived in urban areas. Rural population remained essentially unchanged in numbers, while 245 million (equivalent of nearly all the population growth) urbanized. By 2004 the urban

share had risen further to 42 percent, resulting in a decline in rural population by 50 million (CSA, p.39). India, in contrast, urbanized much more slowly, and more slowly than had been forecast by Indian authorities, such that by 2001 only 28 percent of the population was urbanized. The rural population increased by 218 million over the period 1981-2001, while the urban population increased by 125 million (Mohan/Dasgupta, 2004, Table 2).

Trends in manufacturing employmennt have also been very different in the two countries. Due to severe labor regulations applying to firms of over ten employees, private manufacturing employment in India's "organized" (i.e. closely regulated) sector is astonishingly low and actually declined slightly over the period 1981 to 1991, to 4.5 million (another 1.9 million were employed in state-owned manufacturing enterprises) [YS, p.99]. This figure rose by a modest 2.9 percent a year over the 1990s, but remained under six million, compared with a 9.0 percent annual growth in output (Banga, Table 3). According to India's 1991 census, a total of 28.7 million persons worked in "industry" in that year, organized and unorganized, including the more than 800 manufacturing activities that were reserved to the household sector (which accounted for 6.8 million persons) [YS, p.88]. This was up modestly from the 25.1 million so engaged in 1981. By 2000 the total had grown to perhaps 40 million (calculated from data in Ghose).

Besley and Burgess (2004) have examined employment in 16 Indian states over the period 1958-1992. They find that those states that passed pro-worker legislation (within the framework established by Union legislation in 1947) experienced lower growth in manufacturing output, lower growth in employment in registered manufacturing firms, and increases in urban poverty compared with those states that

passed pro-employer legislation or none at all, suggesting that over-regulation of the labor market goes some way toward explaining the small size of the private organized sector.

In 1980 China had 77.1 million persons in the "secondary sector," which covers manufacturing but also mining, utilities, and construction. This rose steadily to 166 million in 1998, then declined for four years before increasing again to 169 million in 2004, but almost all the recent increase has been in construction [CSA, pp.45, 140]. Employment of urban SOEs declined by 45 million between 1995 and 2004 [CSA, p.46].

China's industrial labor market was highly regimented in 1980, with both wages and employment of individuals being determined by the state. These regulations were gradually relaxed and in 1995 a labor contract system was introduced, such that by 2001 72 percent of SOEs determined their wages, and 81 percent of non-SOE enterprises (Li Xiaoxi, p. 103). Enterprises are "entitled to employ or lay-off labor on the basis of the labor contract and in accordance with the market conditions and the performance of the enterprise" (Li Xiaoxi, p.109). By 2005 it could fairly be said that China's urban labor market was largely free, subject only to some remaining restrictions on internal migration within China, restrictions that were routinely violated, and are in the process of being formally relaxed.

Internal migration in China seems to be more substantial than it is in India. Li (p.107) reports that 60 million Chinese, nearly five percent of the population, lived outside their province of origin in 2000, and that half the migrants are women (p.510), representing a large increase from 1990 and earlier, when the authorities seriously limited rural to urban migration. Migrants from the countryside typically have less formal

education and fewer technical skills than urban workers, and tend to concentrate in construction, transportation, cleaning, household services and other jobs that mainly require manual labor. As noted above, nearly all the growth in China's population over the period 1980-2000 has become urban, leaving the rural population virtually unchanged, and its share down by 16 percentage points (and a further 6 percentage points 2000-04).

Rural-urban migration is also occurring in India, but the share of urban population has grown by only 4.5 percentage points over the two decades 1981-2001, to 28 percent, compared with 36 percent in China. [Mohan/Dasgupta, tables 1, 2]. In contrast with China, India's rural population grew by 218 million over two decades, by 42 percent. These figures are of course influenced by the more rapid population growth in India, by 1.9 percent a year compared with China's 1.3 percent over the two decades. Nonetheless, the urbanization was much less, by three percentage points of total population, than Indian authorities expected in the mid-1980s [M/D, table 6]. Most of the increase in urban population over the period occurred through natural increase (and some reclassification); only 13 million persons (net), 1.8 percent of the total population, migrated from rural to urban areas during the decade 1981-91 [M/D, table 8], and the number cannot have been much greater during the 1990s, since the rate of urbanization did not accelerate.

Most of the inter-state migration in India is male, and largely between the ages of 15 and 44. Rural women often migrate, but typically through marriage to men in neighboring villages. Tripathy and Dash (1997), on the basis of interviews of over 500 families in eight Orissa villages in 1993-94, report that most male migration is to towns

or cities in other states. They find that migration widens knowledge, experience, and tolerance, and opens people to new ideas. Families with migrants are notably better off than those without, more able to pay off their debts to money-lenders, the bane of landless workers constantly in hock; buy more food and better clothes; build better houses; and buy more or better agricultural inputs, such as seeds, fertilizer, and pumps. Migration also lowers the birth rate (since males are away for long periods) and introduces new attitudes and new ideas. Remittances are very important to the families of migrants, and improves rural well-being.

Broadly similar findings for internal migrants result from a survey of over 400 village households in southern China [Zhang et al., 2003, cited in Appendix A, by the FAO, to OECD (2005)].

Basic educational attainment is notably higher in China than India, although both have made significant advances in the last two decades. Adult literacy was 84 percent in China in 2000, 57 percent in India. Youth literacy (age 15-24) was 98 percent in China, 73 percent in India, up from 93 percent and 60 percent respectively in 1985. Secondary school enrollment rates were 50 and 39 percent, respectively, in 1998 [UNDP, HDR 2002, p183-4]. India historically placed less emphasis on primary education than did China, especially in rural areas, and more on university education. By 2005 India had 2.5 million new university-level graduates, ten percent in engineering [Economist, 12/17/05, p.58].

China undertook a major expansion of university-level education during the past decade (1995-2004), increasing the number of institutions by two-thirds to 1731, more than doubling the number of faculty to 858,000, more than quintupling the number of

students to 13.3 million, and quadrupling the number of graduating students to 2.5 million, including 151,000 graduate degrees [CSA, pp.175-6]. By 2004 nearly a quarter of the relevant age cohort was entering tertiary education.

Openness to the World Economy

Both China and India had essentially closed economies thirty years ago. While both traded with the world, trade -- and indeed economic activity generally -- was highly controlled by their governments, and much trade was through bilateral barter agreements with other countries. Both have moved significantly toward more open economies since 1980, although communist China started earlier and proceeded more aggressively than did democratic India. Liberalization of the domestic economy began in China in 1978, and in India in the early 1980s. Liberalization of foreign trade and investment soon followed in China, but it was not until after the 1990-91 financial crisis that it began in earnest in India. Both countries have accepted Art. VIII of the International Monetary Fund, requiring currency convertibility for current account transactions - India in August 1994, China in December 1996. (India joined the IMF on independence in 1947, but invoked a transition clause for nearly half a century; China joined the IMF in 1980.) Both countries maintain controls on capital movements, particularly outward movement of resident capital. Both officially encourage the inflow of foreign direct investment (FDI), but India does so more hesitatingly and with more restrictions on foreign ownership than does China. Both have reduced import barriers significantly, but China has gone much further, partly as a result of its accession to the World Trade Organization (WTO) in 2001. Even after its reductions, India remained one of the most protected

markets in the world, with average tariffs of 33 percent in 2003/04 (47 percent on agricultural goods), compared with China's 16 percent in 2000 (Dahlman/Utz, p.28). Among developing countries, India was exceeded only by Egypt and a few small African countries in its restrictiveness in 2002, according to UNIDO's index of inward openness (UNIDO, p. 159). [According to Rakesh Mohan of the RBI India recently reduced its maximum import tariff on non-agricultural goods to 15 percent, but that may not include the supplemental import duties that India sometimes imposes.]

Actual interactions with the rest of the world reflect these policies, as well as continuing (although declining) hostility to foreign goods and investment among Indian intellectuals. Remarkably, even in 1980 China's exports were more than twice India's exports of \$8 billion. China ran a small trade surplus; India ran a large trade deficit imports were nearly \$14 billion, financed in large part by foreign aid, including food aid. By 1990 China's exports had grown to \$52 billion, India's to \$18 billion. By 2002 the two figures were \$326 billion and \$51 billion, respectively. Imports into both countries rose in tandem, China maintaining its modest trade surplus (which however grew dramatically in 2005) and India its trade deficit. Thus India's exports increased a respectable 8.9 percent a year -5.5-fold -- over the two decades ending in 2002, but China's increased a startling 14.7 percent a year – fifteen-fold – over the same 20 years. India's export growth accelerated over the period, and exceeded 20 percent in 2004, but China's export growth stayed ahead of it, growing nearly 35 percent in 2004 [GDF 2005, p.130] – a boom year in the world economy --, to 6.5 percent of world exports. India has received much attention in recent years for outsourcing by American and European firms, especially in computer softward and back-office work. But even India's exports of

services lag that of China, reaching \$25 billion in 2002, to China's \$39 billion, although \$19 billion of India's exports were in communications and software, compared to China's \$13 billion (travel was much more important to China) [Dahlman/Utz, p.30].

In 2003 the ratio of exports to GDP reached 35 percent in China, while that ratio was 15 percent for India, up from six percent in 1982. (In December 2005 China revised upward its estimate of GDP for 2004 by 17 percent, mostly correction for under-reporting of domestic services, so this adjustment would lower China's recent export-to-GDP ratio to 30 percent.)

A similar story to merchandise exports can be told about FDI, where foreign firms hold equity and have a voice in management – sometimes the controlling voice – in local firms. India experienced some disinvestment by foreign firms in the mid-1970s (as IBM and Coca Cola withdrew because of unacceptable impositions), and then records <u>no</u> inward FDI until 1991, from which point it rose steadily, reaching an estimated \$5.3 billion in 2004. Net FDI inflows into India had cumulated \$28 billion over the period 1991-2003. [IFS; GDF 2005, p.145].

China records \$440 million of inward FDI in 1982 (the first year of BOP records), growing steadily over the years, first exceeding \$2 billion in 1987, first exceeding \$20 billion in 1993, and reaching an extraordinary \$56 billion in 2004, never having dropped below \$35 billion a year – more than India's cumulative FDI – since 1995 [IFS, GDF]. Relative to GDP, China's FDI has been around five percent, India's barely approaching one percent in the past few years. In addition to formal restrictions on foreign ownership, India maintains numerous non-discriminatory barriers to private business. In international comparison, the procedures to start a business are complex, and the time and cost

involved are high; it is extremely difficult, and costly, to fire workers; the time and cost of enforcing contracts are high; and closing a business on average takes ten years, with an exceptionally low financial recovery rate (Dahlman/Utz, appendix 8).

Both countries have experienced foreign purchases of equity – not involving management – in roughly equal measure in recent years: net inflows into India of \$31 billion over the period 1996-2004, compared with \$37 billion into China.[GDF, p.146].

Care must be taken in interpreting these figures. It has been said that as much as one-third of the inward FDI into China is actually resident capital, run through a foreign shell (often based in Hong Kong, a separate economic entity, or in the British Virgin Islands), entering China under the guise of FDI to take advantage of the tax and other privileges that the Chinese government accords to FDI. Perhaps another third comes from persons of Chinese origin living in Hong Kong, Taiwan, or Singapore. But India also has a large expatriate population, which has only more recently begun to invest in India on any scale.

Similarly, the rapid growth of Chinese exports needs to allow for the fact that exports are recorded at invoice value, and that China has become a processing and assembly location for imports from many other economies, especially Korea, Taiwan, and southeast Asia. Thus the domestic value added in many Chinese exports is relatively low, on the order of 20-30 percent. As we have seen, China's employment in manufacturing has actually declined in recent years, in sharp contrast to the extraordinary growth in exports of manufactures. A high fraction of the exports – perhaps 60 sixty percent – arises from foreign-invested firms in China, whether FDI or joint-ventures, where productivity (and wages) are notably higher than in domestic firms. Nonetheless,

manufacturing value-added in China experienced a significant increase, from \$116 billion (in 1995 dollars) in 1990 to \$460 billion in 2002, or 12 percent a year [calculated from UNIDO, p. 157]. Manufacturing share of GDP rose from 33.1 percent in 1990 to 34.5 percent in 2002. In India, in contrast, manufacturing value-added rose from \$41 billion to \$81 billion over the same period, or "only" six percent a year; and the share of manufacturing in GDP fell from 16.6 percent to 15.8 percent – as indeed it did in most rich countries of the world, and in many other developing countries.

Conceptual and Theoretical Considerations

It is useful to distinguish among three concepts of a country's economic relations to the rest of the world, or to other countries: engagement, integration, and influence. "Engagement" occurs whenever a country's factors of production (e.g. labor) produce for sale in another country, either through migration to that country or through exports. "Integration" occurs when product or factor markets are so closely linked that prices move together. Complete integration is rare, being approximated most closely by some commodity markets and by short-term financial markets in rich countries. But a key indicator of integration is how closely prices move together. It is noteworthy that in principle integration can be high even with low levels of international transactions, so long as markets are open and linked, e.g. the price of domestically produced oil is determined by world oil prices. Thus we may want to say that factors are "engaged" in the world economy even if their production is sold into the domestic market, so long as the relevant market is integrated into the world market. That is a question of semantic taste.

Markets may not be integrated and labor and capital may not be engaged and still there could be a significant international "influence" on the domestic economy, e.g. through foreign assistance, or through inward transfer of technology, or through changes in the terms of trade. Thus the rise in world oil prices in the 1970s influenced both India (an oil importer) and China (an oil exporter) by affecting their budget constraints even though domestic prices were insulated from world price changes. The green revolution was made possible in India by importing technology, even though domestic food prices were insulated from world price developments.

Economic integration implies that when economic agents try to improve their economic well-being by responding to incentives for higher income, they succeed, even when the opportunities are in different sectors or in different geographic areas. Global integration occurs when such success spans many different countries. An important part of this process is the movement of workers, especially from rural to urban areas within countries, or from poor to rich countries internationally, or at least to where better economic opportunities exist. International migration will be discussed in the next section. Suffice it to say here that there are major policy obstacles to international migration – few countries welcome non-homogeneous immigrants – as well as the usual human obstacles of cost, risk, language, and cultural alienation.

Up to a point, international trade can be a functional substitute for migration, while avoiding some of the costs. Workers can make products in excess of domestic needs and sell them abroad, thereby earning a better livelihood at home. Economists have an elegant theory of comparative advantage based on relative factor endowments – conjectured by the Swedish economic historian, Eli Heckscher, developed further by his

student Bertil Ohlin, and formalized by Paul Samuelson - now known as H-O or HOS theory. The key point is that under free trade countries will specialize in products that use intensively factors that they have in relative abundance. This is obvious in the case of natural resources or agriculturally productive land, which are not evenly distributed among countries, but it also applies to labor and capital. For example, countries with a relative abundance of unskilled labor (compared with land, capital, and skilled labor) will export products which require a relatively high amount of unskilled labor in their production, e.g. apparel. When certain demanding conditions are met, such specialization can even result in equalization of factor prices across countries, through trade alone, without migration. This remarkable result has fascinated economists ever since Samuelson first propounded the theorem in 1948; but the conditions for equalization are extremely severe (including competitive product and factor markets, homogeneous factors of production, a menu of identical technologies available to all countries, unique factor-intensity in production of each product, and the relevant countries producing a list of commodities in common that is large enough to cover all factors). They are not observed in practice.

Indeed, there is some question about the applicability of the HOS theory to a world of rapid but uneven technical change and factors that are not, and cannot be, homogeneous except in the very long run. Concretely, in the short- to medium-run both skilled labor and capital are specialized for the industries in which they work, resulting in a large number of specialized, not homogeneous, factors of production. Over the long run capital can be redeployed (as old capital depreciates) and labor can be retrained or replaced with new members of the labor force, trained differently; but over this same

long run, measured sometimes in decades rather than years, the technology of production will also have changed significantly, and differentially by country, despite growing international diffusion of technology.

Nonetheless a weak version of the insight propounded originally by Heckscher may be thought to have some applicability, particularly where unskilled labor can be found in abundance, as in China and India. Thus we should see such countries exporting goods and services that require relatively high amounts of unskilled labor; and this specialization on the world scene would put downward pressure on unskilled labor markets in countries where unskilled labor was less abundant, reducing wages and/or employment of such labor, and should raise the wages of unskilled workers in countries where it is in relative abundance, compared with a situation in which trade is not allowed or is seriously inhibited. We discuss below the extent to which such phenomena can be observed.

Emigration

As noted above, international migration is one mechanism through which integration of factor markets might take place. Globally, migration has taken place on a large scale; in 2000 an estimated 175 million people lived outside their countries of origin – about four percent of the world's population over age 14. Both China and India are countries of substantial net emigration, with an estimated 1.95 million persons a year having left China during 1995-2000 and an estimated 1.4 million persons have left India [WDI 2005, table 6.13]. The outstanding stock is unknown, but 20 million Indians were estimated to live outside India in 2000 [High-level Committee on the Indian Diaspora

(2001), cited by Sidel in Geithner et al., p.217; this probably included second- and thirdgeneration Indians; see Martin et al, p.198], with Burma at 2.9 million having the most numerous Indian population, followed by the United States at 1.6 million. (The US Census of 2000 records 1.02 million persons born in India living permanently in the United States, and 0.99 million born in China, third and fourth after Mexico and the Philippines, respectively.) The stock of emigrants from China must be at least as great, since an estimated 16 million Chinese emigrated in the decade 1990-2000. These large numbers represent a small fraction, roughly two percent, of their respective populations. They would however represent a significantly larger fraction of the urban labor force, assuming they were predominantly working-age persons from urban areas. And they would represent a still larger fraction of the highly educated population. For example, 48 percent of Chinese living in OECD countries had a teriary education, and 60 percent of Indians, compared with two and five percent of the home populations, respectively (Doquier and Marfouk(2004), reported in Kapur and McHale, p.149). The United States issues H1B visas allowing foreigners with special talents or skills to work in the United States for three years (renewable for three years). About 134,000 such visas were issued for initial employment (i.e. excluding renewals) in 1999; about half the petitions (which must be made by US employers) granted in 1999-2001 were for Indians, largely in information technology, followed distantly by Chinese, Canadians, and British. Indians accounted for seventy percent of the 100,000 decline in visa petitions granted between 2001 and 2002, after the "dot.com" bubble burst (Mann, chap. 3.3).

Not all emigrants, however, are highly educated. Many moderately educated Chinese from Fujian province were allegedly smuggled abroad, especially into the United

States [Kwong], and many low-educated Indians work in the oil-rich Gulf states, the former being illegal under US law, and the latter on temporary work permits.

There is a complex set of potential economic relations between an emigrating population and those that remain. Concerns expressed decades ago about a "brain drain" from developing to rich countries have not disappeared, but they have become much more nuanced in recent years, especially for China and India, where an extensive overseas diaspora is playing a significant and increasing role in their home countries through remittances, returnees, venture capital, entrepreneurship, and marketing access abroad. In a world endowed only with workers and capital, emigrants drawn from the average population, taking their capital with them, under competitive conditions would leave those behind neither better nor worse off than before, except insofar as publicly financed education was paid for by borrowing from future income. Allowance for productive land, which cannot migrate, would leave those behind somewhat better off. But such statements in practice need to be heavily qualified in a number of ways, especially if the migrants are educated better than average. On the other hand, the possibility of emigration may create an incentive for more people to become better educated than otherwise, even though many of the hopefuls do not actually emigrate. (See Kapur/McHale for an up-to-date discussion of the impact of emigrants on those remaining behind; also Global Economic Prospects 2006.)

Greater Integration?

One measure of integration between two markets is what happens to wages (and other factor prices), especially wages of unskilled workers. According to HOS theory,

integration of labor-abundant economies into the world economy should increase the real wage of unskilled workers, as more products that use unskilled labor intensively are exported from those countries. The test is not decisive, since wages can change for many reasons, especially when an economy is growing rapidly. The impact on wages in China and India is complicated by the fact that both have millions of workers in low-productivity agriculture; while the numbers have declined in relative terms, and in China in absolute terms, a large reservoir of agricultural labor remains, putting downward pressure on the domestic wages of unskilled workers. Further difficulties arise from the inadequacy of data. To quote the Indian Economy Yearbook of Statistics (p.97): "Data relating to earnings of workers are scanty and disorganized."

India experienced a significant amount of inflation during the 1970s and 1980s (although modest compared with many other developing countries), and the money earnings did not keep up, so "the trends [to 1996] in real earnings of the workers engaged in factories show a steep decline since the early seventies." (SY, p.9). However, the real earnings of casual rural workers increased by 2.8 percent a year 1981-1995 [calculated from SY, Tables 5.8, 10.8-10.9]. Bhalla (p.124), arguing that these are the most poorly paid of Indian workers, also suggests a rise of about 3 percent a year 1983-1999. This growth in real wages is puzzling, given the increase in the man-land ratio as India's rural population and labor force increased, but that was apparently more than compensated by increased irrigation, technical improvements in agriculture, and increased use of agricultural inputs such as fertilizer. There has been too little rural-to-urban migration in India to make much difference, although cases can be found (e.g. in Orissa) where land has gone idle because the workers have migrated and the land-owning brahmins cannot

till their land both because of inadequate farming skills and because it would be beneath their priestly dignity.

In the urban "organized" sector wage determination is heavily influenced by the governments (which taken together account for two-thirds of organized employment), so these wages are not really determined by competitive market forces (Banga, 2/05). This marks a sharp contrast with China today, where wages and other conditions of employment are determined by enterprises, paying what is necessary to get the labor they need (see Li Xiaoxi, ch.3). It is ironic that both the European Union and the United States officially consider China a non-market economy, implying that in assessing anti-dumping duties surrogate economies are used to calculate costs, and the surrogate sometimes used is India!

Given the structure of the Indian economy, labor regulations, trade policy, and religious practice (where in rural areas the occupation-determining caste system is very much alive), it is difficult to conclude that the Indian labor force, taken as a whole, is integrated into the world economy at all, or even well integrated across India. The exception is the much-publicized IT and business back office activities, where perhaps one million workers (according to the FT, 12/05) are employed in ways that plug them into the rest of the world, and where earnings are influenced by that connection. But this is a small and relatively well-educated portion of India's labor force. Moreover, although India produces many engineers annually, most are unsuitable for working abroad (as engineers) or in foreign firms in India; McKinsey (p.32), on the basis of surveys of human resource managers in dozens of firms, concluded that only about 25 percent of India graduate engineers would qualify (and only 10 percent of the Chinese graduates),

and many of these would be inaccessible because of unwillingness to move near a major airport. Kapur/McHale (p.98) also discuss the large number of faculty vacancies, the large classes, and the generally poor teaching in Indian universities. In practice, India remains largely a closed economy.

The future may be different, if trade is increasingly liberalized and more inward FDI occurs. India's exports in 2002 were \$51 billion, about the same as China's in 1990. The next decade could see a dramatic rise in the integration of India's labor force into the world economy. Despite the great surge of exports of apparel by China following the expiration of the Multifiber Agreement in 2005, India also experienced a sharp increase in exports to the United States. The basis for China's exports are high volume/low cost. India seems to have done much better in the upscale, lower volume, higher mark-up market, from an industry still based on the skills of master tailors rather than mass production (Tewari). Thus India may succeed in finding a special role in the world market for apparel.

Cutting in the other direction, however, are attempts by governments, state as well as union, to incorporate the IT sector increasingly into the "organized" sector, that is, to subject it to heavy labor market regulation by closing the loopholes that have permitted it to function more flexibly to date.

China is markedly different. Again, the data are limited. But we have average monthly earnings of employees in town-and-village enterprises (TVEs), which in terms of employment are overwhelmingly (94 percent) in rural areas [CSA, p.46] and draw on largely unskilled rural workers. Real earnings rose 81 percent 1978-1995, or 3.5 percent a year on average, and 240 percent (4.8 percent a year) over the period 1978-2004,

reaching 9814 yuan per month (\$1185) by 2004. These earnings were significantly below average earnings in SOEs (16,729 yuan a month) and less than half average earnings of 20,440 yuan in foreign enterprises. "Foreign" enterprises exclude those whose owners are from Hong Kong, Macao, and Taiwan, where average earnings at 15,727 yuan were less than earnings in SOEs, although sixty percent more than in TVEs. [CSA, p.51]. (Real earnings are calculated by deflating money earnings by a consumer price index. This procedure may give inadequare allowance for the fact that urban Chinese must these days purchase many items, such as housing, health care, and even education, that were once provided in kind.)

Although there are many casual workers in China, especially in agriculture and recent migrants into the cities, regular employment is much more common than in India. The rapid growth in wages pulled people out of agriculture, and indeed whole families sometimes migrated to the vicinity of cities, where older migrants look after children and work the farms vacated by villagers who now work in factories, while young adult migrants are also employed in factories.

There is much regional variation in earnings in China. Within TVEs (largely unskilled labor) average monthly earnings by province in 2004 varied from a low of 7373 yuan to a high (in Shanghai) of 20127 yuan, a ratio 2.7. (For comparison, average earnings of workers covered by unemployment insurance by state in the United States, a much less homogeneous group, varied only by 1.7 across states in 1996.)

But there is a problem with interpretation of the dramatic increase in wages that has taken place in China. As we have seen, China's employment in manufacturing has fallen, not risen, despite a sharp increase in exports of manufactured goods. Wage

increases reflect not merely integration into the world economy – manifested in increased exports, especially from foreign enterprises or joint ventures – but also a significant restructuring of the economy, including the entire manufacturing sector. No doubt this restructuring was facilitated by the opening of China's economy, and especially by the growth in exports, but it differs from the process characterized by HOS theory, which assumes the demand for unskilled labor would have risen.

Furthermore, wage differentials for well-educated Chinese have risen, not fallen as strict HOS theory would require. Differential earnings for those with tertiary education over those with primary education rose from about 25 percent in 1988 to 75 percent in 1999; and differentials of high school graduates over primary school graduates rose from 12 percent to 35 percent over the same period of time (Hu, p.204). Indeed, China is increasingly able to recruit back to China students that have been educated in US or European universities.

The high rate of investment in China has raised capital-labor ratios dramatically (from admittedly low levels two decades ago), by nearly 11 percent a year in 1995-2001. Labor productivity has risen correspondingly, by over seven percent a year over the period 1978-2001. But capital productivity has fallen since 1995, pulling down the growth in total factor productivity to less than half its 1978-1995 rate during the period 1995-2001 (Hu, p.201). It no doubt fell further during the investment boom of 2003-2004.

In conclusion, we can say that during the past two decades there has been increasing <u>engagement</u> by portions of China's labor force with the world economy, much less so in the case of India. Although it is much greater than twenty years ago,

<u>integration</u> with the world economy remains highly incomplete, again especially for India, where it can be said it has hardly taken place at all, with the partial exceptions of the IT sector and parts of the automobile and apparel sectors. Nonetheless, the world economy has had an increasing <u>influence</u> on both countries, through introduction of foreign technologies, changes in terms of trade brought about by rising prices for raw materials (especially oil), and sensitivity of some sectors to changes in demand in the world economy. Finally, there seems to have been some <u>convergence</u> in real incomes, in that real wages of the least skilled members of the labor forces in both countries have risen more rapidly than the wages of low-skill workers in the United States and Europe; and skill differentials have widened, as elsewhere in the world, suggesting that wages of high-skill workers have also risen relative to those in the United States and Europe.

Conjectures about the Future

China still has much potential for moving unskilled workers out of agriculture into more productive economic activities, and has a demonstrated capacity to do it. Therefore China will continue to grow the service sector and the production and assembly of light manufactures, with an increasing ratio of domestic value added (thus reducing China's dependence on imported components). However, China is now the third largest exporting country in the world, exceeding Japan, and thus Chinese products will meet increasing market resistance compared with when China was smaller, for two quite different reasons: China's market share is now high in many products, and it will be more difficult to pry customers away from favored suppliers. Second, China will encounter increasing protectionist resistance from competitors determined to hold onto

their markets, especially (now that China is entitled to non-discriminatory treatment under its WTO membership, except for transitional provisions against import surges from China that lapse in 2008) in the form of anti-dumping cases, the current and grossly misused favorite form of protection in the European Union, the United States, and indeed a growing number of countries. India already has the largest number of anti-dumping duties against Chinese firms.

As educational attainment rises in China, it will gradually increase production of more sophisticated products, just as Japan, Korea, and Taiwan did earlier. But the impact on the composition of China's trade will be limited, at least for some years, by the demands of China's military modernization for the higher skills, including production of military equipment, and especially by its abundance of unskilled labor, which will keep China's international comparative advantage in products that use the unskilled labor.

India is much less well positioned than China. Internal mobility, both geographic and occupational, is very much lower, and India has been much less successful in creating new non-agricultural jobs for unskilled labor in the tradable sectors. India no doubt will continue to excel at aspects of information technology and outsourced backoffice work, but even that will be limited by the availability of suitably skilled manpower. Exports of manufactured goods will continue to develop further, particularly selected apparel, auto parts, and perhaps motorcycles, bicycles, and similar light manufactures, as well as some engineering goods. India's exports have a much higher ratio of domestic valued-added than do China's. But India will be subject to stiff competition from China, Indonesia, Vietnam, and Bangladesh in less sophisticated manufactured goods, and from eastern Europe (especially in European markets), Brazil, China, and perhaps Indonesia

for more sophisticated products. India's belated adoption of special economic zones may increase both foreign direct investment and exports from India, but at this stage it is too early to tell both how "streamlined" the bureaucratic requirements will actually be and whether the required infrastructure improvements will be made.

Some of the most skilled Indians will continue to emigrate, at least temporarily, to rich countries – especially English-speaking countries, but also to Germany and the Netherlands. They will meet competition from Eastern Europeans, including Russians, where technical education is as good or better. Even after extensive liberalization (compared with India's starting point, but not compared with other important emerging markets), the Indian economy remains remarkably self-absorbed and inward oriented. This inward orientation is undoubtedly changing, but the pace of change in the coming decade is still open to question. And if Indian exports do grow dramatically, following the lead of China 15 years ago, they too will encounter some protectionist resistance, India's management of its economy will come under greater scrutiny, and no doubt many allededly "unfair" practices will be found (e.g. electricity prices below cost).

Emigration from both China and India, particularly those who study abroad and then settle there, will undoubtedly continue to enrich the economies of the host countries, especially the United States, Britain, Australia, and Canada, which have a demonstrated capacity to absorb such immigrations, and their children, into mainstream society. Increasing returnees will also enrich the home countries with their education and experience abroad, including their experience in business. The numbers are likely to remain small relative to national populations, but significant on certain margins, e.g. engineers in the United States.

A discussion of the future of manufacturing in the United States goes well beyond the scope of this paper. Suffice it to say that public discussion of the issue has unhelpfully confused trends in manufacturing employment and manufacturing output. Manufacturing is likely to proceed as agriculture did before it, with continued declines in employment (in absolute as well as relative terms) combined with continued increases in output, as productivity continues to rise at a faster rate than output and routine jobs are increasingly mechanized. US manufacturing employment reached its all-time peak in 1979 at 19 million workers; by 2005 manufacturing employment had fallen to 14 million (some of the decline due to reclassification of jobs that were outsourced by manufacturing firms to domestic service providers), while real manufacturing output had doubled. This long-term trend will continue, and is only marginally sensitive to imports from countries such as China and India.

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	Primary	/ Energy	С	Dil
	2001	2025	2001	2025
	(qu	ads)	(million bar	rels per day)
China	40.9	109.2	4.9	14.2
India	13.8	29.3	2.2	4.9
USA	96.3	132.4	19.6	27.3
Japan	21.9	24.7	5.4	5.3
World	403.9	644.6	78	119.2

Table 2Demand for Primary Energy and for Oil, 2001 and 2025

Normal units of measurement have been converted into quadrillion British Thermal Units at the following rates:

petroleum: 1 million barrels a day = 2.03 quads per year

coal: 1 million short tons = 0.0184 quads

gas: 1 trillion cubic feet = 1.034 quads

nuclear power: 1 billion kwh = 0.0105 quads

Source: US Department of Energy, International Energy Outlook 2005

(quads)

	(Quads)							
	1990	2001	2010	2020	2025	Growth (2002-25) percent		
Coal	20.7	25	42.4	55.9	59.7	3.6		
Oil	4.7	9.9	18.7	25	28.8	4.5		
Gas	0.5	1.1	2.7	4.3	6.7	7.8		
Nuclear	0	0.2	0.8	1.7	2.1	9.8		
Hydro	1.3	2.6	5.2	6.2	6.7	3.4		
Total:	27	40.9	73.1	97.7	109.2	4.1		

Table 3Chinese Primary Energy Consumption

Source: EIA (2005), App. A

		Table 4	a					Table 4	4b	
				China's	Imports of S	elected Primary Pro	ducts			
		Quantities	(net)		I	5	Value (\$bi	llion)		
	1985	1990	1995	2000	2004		1985	1990	1995	2000
Iron ore (million)	10	14.2	41.1	70	208.1	Iron ore	0.18	0.43	1.23	1.86
Steel scrap (million)	-	0.1	1.3	5.1	10.2	Steel scrap	-	-	0.02	0.51
Nickel ('000)	0.03	0.16	0.57	12	65.7	Nickel	-	-	-	0.07
Aluminum ('000)	483	61	388	615	611	Aluminum	0.56	0.11	0.51	0.94
Copper ('000)	346	37	188	3316	5353	Copper	0.5	0.1	0.41	2.52
Rubber ('000)	228	333	631	1560	2379	Rubber	0.22	0.38	0.75	1.35
Cotton ('000)	0.4	559	740	52	1907	Cotton	-	0.93	1.38	0.08
Wool ('000)	105	44	284	301	245	Wool	0.4	0.24	0.94	1.04
Timber (m ⁵)	10.7	3.8	2.6	13.6	26.3	Timber	0.85	0.42	0.37	1.66
Wheat (mil.)	5.63	12.33	11.59	0.88	7.23	Wheat	0.76	1.82	2.03	0.15
Maize (mil.)	6.17	13.56	20.27	3.15	9.75	Maize	0.86	2	3.58	0.59
Soybeans (mil.)	-	-	0.29	10.42	20.23	Soybeans	-	-	0.08	2.27
Petroleum *(mil.)	0.72	-	34.01	93.13	167.01	Petroleum	0.18	0.68	5.13	20.06

*including products

Source: China Statistical Yearbook, various issues

2004 12.71 2.23 0.9 1.94 6.3 2.94 3.18 1.2 2.8 1.64 2.23 6.98 46.58

	Table 5 Commodity Prices, 1990-2004 (1990=100)			
	1995	2000	2004	
Iron ore	87.7	88.9	117	
Steel scrap				
Nickel	92.8	97.3	155.9	
Aluminum	110.1	94.7	104.4	
Copper	110.2	68.2	107.6	
Rubber	182.8	79.9	156	
Cotton	119.1	71.6	75.2	
Wool (Aust. 48)	114.3	87.9	172.9	
Timber (Malaysian Sawn)	143.1	115.8	112.6	
Wheat	130.6	84.1	115.7	
Maize	113	80.8	102.4	
Soybeans	139.7	113.9	172.3	
Petroleum (WTI)	74.9	123.2	168.4	

Source: IMF, International Financial Statistics