

# **The Great Doubling: The Challenge of the New Global Labor Market**

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Before the collapse of Soviet communism, China's movement toward market capitalism, and India's decision to undertake market reforms and enter the global trading system, the global economy encompassed roughly half of the world's population – the advanced OECD countries, Latin America and the Caribbean, Africa, and some parts of Asia. Workers in the US and other higher income countries and in market-oriented developing countries such as Mexico did not face competition from low wage Chinese or Indian workers nor from workers in the Soviet empire. Then, almost all at once in the 1990s, China, India, and the ex-Soviet bloc joined the global economy and the entire world came together into a single economic world based on capitalism and markets.

This change greatly increased the size of the global labor pool from approximately 1.46 billion workers to 2.93 billion workers (exhibit 8.1). Since twice 1.46 billion is 2.92 billion, I have called this “The Great Doubling”.<sup>1</sup> In this chapter I argue that the doubling of the global work force presents the US economy with its greatest challenge since the Great Depression. If the US adjusts well, the benefits of having virtually all of humanity on the same economic page will improve living standards for all Americans. If the country does not adjust well, the next several decades will exacerbate economic divisions in the US and risk turning much of the country against globalization. National policies toward education, worker rights, taxation, and

investment in social overhead capital can help the economy make the adjustments that will benefit all.

### **The Capital/Labor Balance**

What impact might the doubling of the global work force have on workers? To answer this question, imagine what would happen if through some cloning experiment a mad economist doubled the size of the US workforce. Twice as many workers would seek employment from the same businesses. You don't need an economics PhD to see that this would be good for employers but terrible for workers. Wages would fall.

Unemployment would rise. But if the nation's capital stock doubled at the same time, demand for labor would rise commensurately and workers would maintain their economic position. In the simplest economic analysis, the impact of China, India, and the ex-Soviet bloc joining the global economy depends on how their entry affects the ratio of capital to labor in the world. This in turn depends on how much capital they brought with them when they entered the global system. Over the long run it depends on their rates of savings and future capital formation.

Using data from the Penn World tables on yearly investments by nearly every country in the world, I have estimated the level of capital stock country by country and added the estimated stocks into a measure of the global capital stock. My estimates indicate that as of 2001 the doubling of the global work force reduced the ratio of capital to labor in the world economy to 61 percent of what it would have been before China, India, and the ex-Soviet bloc joined the world economy.<sup>2</sup> The reason the global capital labor ratio fell greatly was that the new entrants to the global economy did not bring

much capital with them. India had little capital because it was one of the poorest countries in the world. China was also very poor and destroyed capital during the Maoist period. The Soviet Empire was wealthier than China or India but invested disproportionately in military goods and heavy industry, much of which was outmoded or so polluting as to be worthless.

The immediate impact of the advent of China, India, and the ex-Soviet bloc to the world economy was thus to reduce greatly the capital to labor ratio. This has shifted the global balance of power to capital. With the new supply of low wage labor, firms can move facilities to lower wage settings or threaten to do so if workers in existing facilities do not grant concessions in wages or work conditions favorable to the firm. Retailers can import products made by low-wage workers or subcontract production to lower cost locales. In 2004, for example, some employers in Central America told apparel workers that they had to work extra hours without any increase in earnings to keep the business from moving to China. With wages in Central America three to four times those in China, the threat was a valid one.

In the long run China, India, and the ex-Soviet bloc will save and invest and contribute to the growth of the world capital stock. The World Bank estimates that China's savings rate is on the order of 40%, higher than the savings rate in most other countries, which will help increase global capital rapidly. Though China is much poorer than the US, it saves about as much as the US because its savings rate far exceeds the US savings rate. Still, it will take three or so decades to restore the global capital-labor ratio to what it had been before China, India, and the ex-Soviet bloc entered the world economy and even longer to bring it to where it might have been absent their entry. For

the foreseeable future, the US and other countries will have to adjust to a relative shortfall of capital per worker and to the power this gives to firms in bargaining with workers.

This will affect workers in different parts of the world differently.

### **Effect on Workers**

The flow of capital to China and India to employ their low-wage workers will increase wages in those countries. Indeed, as their rates of economic growth have zoomed, real earnings have risen. In China, the real earnings of urban workers more than doubled between 1990 and 2002. Poverty fell sharply despite China having a huge rise in inequality. Real wages in India also rose rapidly.

But workers in many of the developing countries in Latin America, Africa, and Asia did not fare well. Employment in Latin America, South Africa and in parts of Asia shifted from the formal sectors associated with economic advancement to informal sectors, where work is precarious, wages and productivity low, and occupational risks and hazards great. The entry of China and India to the world economy turned many developing countries from the low wage competitors of advanced countries to the high wage competitors of China and India. Countries like Peru, El Salvador, Mexico, and South Africa can no longer develop by producing generic low wage goods and services for the global market place that the “Washington Consensus” model of development envisaged that they would do. The backlash against the orthodox World Bank/IMF form of globalization in Latin America reflects this failure.

The doubling of the global workforce challenges worker well-being in the US and other advanced countries. First, it creates downward pressures on the employment and

earnings of less skilled workers through trade and immigration. The traditional answer to this pressure is that the advanced countries should invest more in educating their workers. During the early 1990s US debate over the impact of the NAFTA treaty with Mexico, proponents of the treaty argued that because US workers were more skilled than Mexican workers and thus more capable of producing high tech goods, the US would gain high-skilled jobs from increased trade with Mexico while losing low-wage less-skilled jobs. US less skilled US workers would benefit from trade by investing more in human capital.

The argument that the US will gain skilled jobs while losing less skilled jobs would seem to apply even more strongly to China and India. The average worker in China and India has lower skills than the average Mexican worker. From this perspective Chinese and Indian workers are *complements* rather than *substitutes* for American workers. Their joining the global labor pool reduces the prices of the manufacturing goods the US buys and raises demand and prices for the high-tech goods and services the US sells, which benefits educated labor. Lower prices for shoes, t-shirts and plastic toys and higher prices for semi-conductors and business consulting and finance would be in the interest of all US workers save perhaps for the last shoemaker or seamstress.

But these analyses ignore the second challenge that the advent of the highly populous low wage countries to the global economy poses for the US and other developed countries. This is that these countries are becoming competitive in technologically advanced activities. The model that economists use to analyze trading patterns between advanced countries and developing countries assumes that the advanced countries have highly educated workers that enable them to monopolize cutting edge innovative sectors while the developing countries lack the technology and skilled work

force to produce anything beyond lower tech products. In this model, American workers benefit from the monopoly the US has in the newest high tech innovations. The greater the rate of technological advance and the slower the spread of new technology to low wage countries, the higher paid are US workers compared to workers in the developing countries.

But in such a model the spread of higher education and modern technology to low wage countries can reduce advanced countries' comparative advantage in high-tech and adversely affect workers in the advanced countries. In 2004 as many engineers and computer specialists troubled over the off-shoring of skilled work, Paul Samuelson reminded economists that a country with a comparative advantage in a sector can suffer economic loss when another country competes successfully in that sector.<sup>3</sup> The new competitor increases supplies, which reduce the price of those goods on world markets and the income of the original exporter. Workers have to shift to less desirable sectors – those with lower chance for productivity growth, with fewer good jobs, and so on. Some trade specialists reacted negatively to Samuelson's reminder. What he said was well known to them but irrelevant. In the real world it would never happen.

Samuelson is right, and his critics are wrong. The assumption that only advanced countries have the educated work force necessary for innovation and production of high tech products is no longer true. Countries around the world have invested in higher education so that the number of college and university students and graduates outside the US has grown hugely. In 1970 approximately 30% of university enrolments worldwide were in the US, in 2000 approximately 14% of university enrolments worldwide were in the US. Similarly, at the PhD level, the US share of doctorates produced around the

world has fallen from about 50% in the early 1970s to a projected level of 15% in 2010.<sup>4</sup> Some of the growth of higher education overseas is due to European countries rebuilding their university systems following World War II and some is due to Japan and Korea investing in university education. By the mid 2000s several EU countries and Korea were sending a larger proportion of their young citizens to university than the US. But much is due to the growth of university education in developing countries, whose students made up nearly 2/3rds of university enrollees in 2000. China has been in the forefront of this. Between 1999 and 2005 China increased the number of persons graduating with bachelor's degrees fivefold to four million persons.

At the same time, low income countries have increased their presence in the most technically advanced areas. China has moved rapidly up the technological ladder; expanded its high tech exports, and achieved a significant position in research in what many believe will be the next big industrial technology – nano-technology. China's share of scientific research papers has increased greatly. India has achieved a strong position in information technology and attracts major R&D investments, particularly in Bangalore. China and India have increasing footprints in high tech because as large populous countries, they can produce as many or more highly educated scientists and engineers as advanced countries even though the bulk of their work force is less skilled. Indeed, by 2010 China will graduate more PhDs in science and engineering than the US. The quality of university education is higher in the US than in China, but China will improve quality over time. India has produced many computer programmers and engineers. And Indonesia, Brazil, Peru, Poland – name the country – more than doubled their university enrolments in the 1980s and 1990s.

Multinational firms have responded to the increased supply of highly educated workers by “global sourcing” for workers. This means looking for the best candidates in the world and locating facilities, including high tech R&D and production, where the supply of candidates is sufficient to get the work done at the lowest cost. Over 750 multinational firms have set up R&D facilities in China. Off-shoring computer programming or moving call centers to lower wage countries is the natural economic response to the availability of educated labor in those countries. I have called the process of moving up the technological ladder by educating large numbers of students in science and engineering “human resource leapfrogging” since it uses human resources to leapfrog comparative advantage from low tech to high tech sectors. The combination of low wages and highly educated workers in large populous countries makes them formidable competitors for an advanced country.

The bottom line is that the spread of modern technology and education to China and India will undo some of the US’s monopoly in high tech innovation and production and place competitive pressures on US workers. Eventually, the wages of workers in China and India will approach those in the US, as have the wages of European, Japanese, and to some extent Korean workers, but that is a long way off.

Finally, the development of computers and the Internet enhances the potential for firms to move work to low cost operations. Business experts report that if work is digital – which covers about 10% of employment in the US – it can and eventually will be off-shored to low wage highly educated workers in developing countries. The most powerful statement by a business group on this issue was given in 2005 by the Institute of Directors in the United Kingdom:



*“the availability of high-speed, low-cost communications, coupled with the rise in high-level skills in developing countries meant off shoring has become an attractive option outside the manufacturing industry. Britain has seen call centres and IT support move away from Britain, but now creative services such as design and advertising work are being outsourced. There is more to come. In theory, anything that does not demand physical contact with a customer can be outsourced to anywhere on the globe. For many UK businesses this presents new opportunities, for others it represents a serious threat. But welcome it or fear it, it is happening anyway, and we had better get used to it.”*

### **Transition to a Truly Global Labor Market**

By bringing modern technology and business practices to most of humanity, the triumph of global capitalism has the potential for creating the first truly global labor market.

Barring social, economic, or environmental disasters, technological advances should accelerate, permitting huge increases in the income of the world and eventually rough income parity among nations that will “making poverty history”. But even under the most optimistic scenario, it will take decades for the global economy to absorb the huge work forces of China, India, and potentially other successful developing countries. Post world war II, it took 30 or so years for Western Europe and Japan to reach rough parity with the US. It took Korea about fifty years to move from being one of the poorest economies in the world to the second rung of advanced economies. If the Chinese economy keeps growing rapidly and wages double every decade as in the 1990s, Chinese wages would approach levels that the US has today in about 30 years, and would approach parity with the US in two or so decades later. India will take longer to reach US levels. This period of transition to a truly global labor market presents both new opportunities and serious threats to worker well being in the US and other advanced countries.

How American workers fare in the transition will depend on a race between labor market factors that improve living standards and factors reduce those standards. On the improvement side are the likely higher rates of productivity due to more highly educated workers advancing science and technology and the lower prices of goods made by low wage workers overseas. On the reduction side are the labor market pressures from those workers and the worsening of terms of trade and loss of comparative advantage in the high tech industries that offer the greatest prospects for productivity advances and the most desirable jobs. Which factors win the race depends in part on the economic and labor market policies that countries, the international community, unions, and firms choose to guide the transition. I can envisage a good transition scenario and a bad transition scenario.

In the **good transition**, India, China, and other low wage countries close the gap with the US and other advanced countries in the wages paid their workers rapidly as well as in their technological competence. Their scientists, engineers, entrepreneurs develop and produce new and better products for the global economy. This reduces costs of production and dominates the declining terms of trade in the advanced countries, so that living standards get better. The US and other advanced countries retain comparative advantage in enough leading sectors or niches of sectors to remain hubs in the global development of technology. The world savings rate rises so that the global capital labor ratio increases rapidly. As US GDP grows, the country distributes some of the growth in the form of increased social services and social infrastructure – national health insurance, for instance -- or through earned income tax credits so that living standards rise even for workers whose wages are constrained by low wage competitors during the transition.

In the **bad transition**, China and India develop enclave economies in which only their modern sector workers benefit from economic growth while the rural poor remain low paid and a sufficient threat to the urban workers that wages grow slowly. The global capital stock grows slowly as Americans maintain high consumption and low savings. At one point citizens in the US begin to blame globalization for economic problems, and try to abort the transition and introduce trade barriers and limit the transfer of technology. To add to the nightmare, huge within-country inequalities in China, India, and other countries produce social disorder that creates chaos or gets suppressed by a global “super-elite” who use their wealth and power to control a mass of struggling poor. The bad scenario resembles some recalcitrant Marxist’s vision of global capitalism.

The challenge to the US is to develop business, labor, and government policies to assure that the country and the world make a good transition. What might this entail?

First this requires that the US invest in science and technology and keep attracting the best and brightest scientists, engineers, and others from the rest of the world. The US leads in science, technology, and higher education in part because it attracts huge numbers of highly educated immigrants. In the 1990s dot.com and high tech boom the US increased employment of scientists and engineers greatly without increasing the number of citizens graduating in science and engineering and without raising the pay of scientists and engineers relative to that of other professions. It did this by greatly increasing the share of foreign-born workers in the S&E work force (see Exhibit 8.2). Sixty percent of the growth of PhD scientists and engineers were foreign-born, with the largest numbers coming from China and India. Some of the foreign born were US educated. But most of those with BS degrees and roughly half of those with higher

degrees graduated overseas and came to fill jobs. The country needs to maintain itself as an attractive open society to keep a large flow of highly educated immigrants.

From the perspective of US university graduates, however, the immigration of large numbers of highly educated workers and global sourcing of jobs to low wage countries threatens economic prospects. It gainsays the notion that skilled Americans need not worry about competition from workers overseas. If you study or work in science and engineering, where knowledge is universal, you should worry. Your job may not go to Bombay or Beijing but you will be competing with persons from those countries and other low wage countries. For the US to maintain its global lead in science and technology it has to encourage American citizens to go on in these fields as well as attracting foreign talent. This requires more spending on basic research and development, allocating a larger share of research grants to young researchers as opposed to senior researchers, and giving more and higher valued scholarships and fellowships. The US needs to educate citizens with skills that differ sufficiently from those being produced in huge numbers overseas and to equip US workers with complementary physical and social overhead capital.

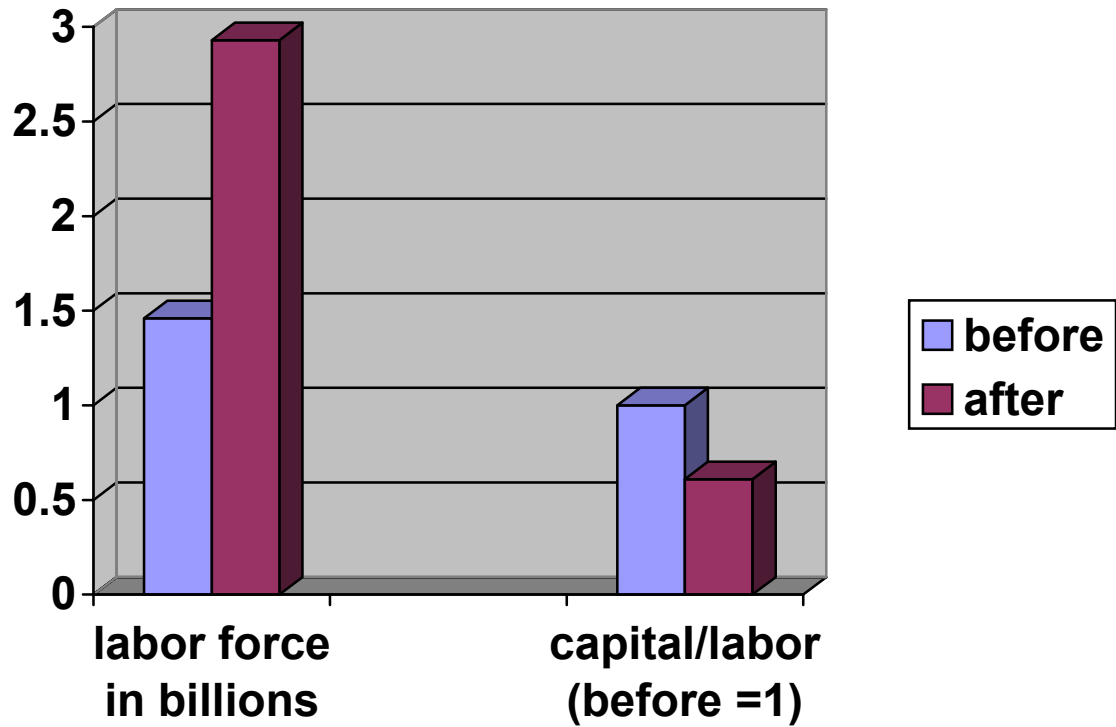
For less skilled and lower paid Americans, there is need to restructure the labor market for their services so they do not fall further behind the rest of the country. Some of the policies that can help them through this period are “tried and true”: a strengthening of rights at work that would allow them to gain a share of the profits of firms in non-traded goods markets through trade unions; higher minimum wages; expansion of earned income tax credit; and provision of social services such as health insurance that makes

them less costly to hire. Given the doubling of the global labor force, these workers will need greater social support in advancing in the economy than in years past.

## **Conclusion**

The world has entered onto a long and epochal transition toward a single global economy and labor market. There is much to welcome in the new economic world but also much to fear. The country needs to develop new creative economic policies to assure that workers fare well during this transition and that the next several decades do not repeat the experience of the past twenty or thirty years in which nearly all of our productivity advance ended up in the pockets of so few.

**Exhibit 1: Workers in the Global Labor Force and the Global Capital/Labor Ratio, 2000, Before and After China, India, and ex-Soviet bloc join global economy**



*Source: Employment from ILO data, [laborsta.ilo.org/](http://laborsta.ilo.org/) Millions of Economically Active Persons, 2000 Capital-labor ratio, calculated from Penn World Tables as described in Freeman 2005, scaled so before is 1.00.*

**Exhibit 2: Huge Supplies Outside U.S. Raise Foreign-born shares of Scientists and Engineers**

	1990	2000
Bachelor's	11%	17%
Master's	19%	29%
PhD	24%	38%
PhDs <45	27%	52%
Post-docs	51%	60%

*Source: Freeman, Richard 2006*

## Endnotes

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<sup>1</sup> Freeman, Richard April 2005 “ The Great Doubling: America in the New Global Economy” Usery Lecture, April 8, 2005. Georgia State University; What Really Ails Europe (and America): The Doubling of the Global Workforce, The Globalist, June 3, 2005 <http://www.theglobalist.com/StoryId.aspx?StoryId=4542> .

<sup>2</sup> Freeman, 2005.

<sup>3</sup> Samuelson, Paul A. 2004. “Where Ricardo and Mill Rebut and Confirm Arguments of Mainstream Economists Supporting Globalization”. *Journal of Economic Perspectives* 18: 135-146.

<sup>4</sup> Freeman, Richard 2006 “Does Globalization of the Scientific/Engineering Workforce Threaten US Economic Leadership? *Innovation Policy and the Economy* volume 6.