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## **Globalization and Labor**

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Globalization – the export and import of goods and services, international capital mobility, labor mobility, and technical knowledge transfer across national borders -- connects economies and influences the economic well being of workers worldwide. Imports reduce the demand for workers in a country by substituting foreign labor whose work is embodied in the imports for domestic labor. Exports increase the demand for workers by selling what they produce to other countries. With labor paid different wages among countries, firms have sizable incentives to offshore some jobs to foreign countries, including many service sector jobs that had been historically non tradable. Capital mobility changes the capital stock with which workers operate, raising or lowering demand for labor. Immigration, business trips, international study, and tourism affect the supply and demand for labor. And, most important of all, the flow of knowledge across borders allows economies to improve their technical prowess and operate along the global production possibility frontier even when they lack the scientific base to expand the frontier. Although economic analyses generally treat trade in goods and services, capital flows, labor flows, and the transfer of knowledge separately these four facets of globalization have feedbacks and connections that help determine their impact on the economy and work force.

At the end of the 20<sup>th</sup> century globalization became a more powerful driver of labor market outcomes than ever before. The collapse of Soviet communism, China's shift to market capitalism, and India's market reforms and entry into the global trading system produced a single

economic world based on capitalism and markets. Before those changes, the global economy encompassed roughly half of the world's population – the advanced countries, Latin America, the Caribbean, Africa, and some parts of Asia – while the other half lived in separate economic spaces. Workers in the US and other higher income countries and in market-oriented developing countries did not face competition from low wage Chinese or Indian workers nor from workers in the Soviet empire. The entry of these economies into the world trading system in the 1990s increased the global labor pool from approximately 1.46 billion workers to 2.93 billion workers - - “the Great Doubling”.<sup>1</sup>

All of the facets of globalization grew at the turn of the 21st century.<sup>2</sup> World trade increased relative to world GDP so that world exports rose to 27 percent of world GDP in 2005 compared to just 12 percent of world GDP in 1970. Foreign direct investment, which had been 2-3 percent of global gross capital formation in the 1970s rose to 7-20 percent of gross capital formation in the 1990s-2000s. The share of foreign equities in investors' equity portfolios rose from negligible numbers to about 15 percent in the early 2000s. Immigration from developing countries to advanced countries increased so that in 2000 8.7 percent of the population in the high income countries had been born elsewhere. The single biggest recipient of immigrants was the United States, where the share of immigrants nearly tripled from 1970 to 2005 and where roughly one in five workers aged 25-39 was foreign-born. As for the transfer of knowledge, university enrollments grew rapidly worldwide and multinationals moved production to

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<sup>1</sup>Freeman, Richard April 2005 “ The Great Doubling: America in the New Global Economy” Usury 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> These data are from Freeman, Richard, People Flows, Journal of Economic Perspective, Spring 2006, pp 150-151. IMF, World Economic Outlook data base provides trade statistics <http://www.imf.org/external/pubs/ft/weo/2004/01/data/dbasubm.cfm>.

developing countries. China, in particular, made rapid gains in measures of technological prowess.<sup>3</sup>

Comparing the different facets of globalization, the fact that the ratio of immigrants to the world work force is lower than the ratio of trade and international capital flows to activity in goods and capital markets suggests that immigration is the least developed. In part, this may reflect the greater personal cost in moving from one country to another than to ship goods or capital from one country to another. But there is a political economy reason as well. Even countries committed to freer trade and capital mobility do not allow for free immigration.

Economists analyze the effects of globalization on economic performance and the well being of workers using two types of models. They use the Heckscher-Ohlin<sup>4</sup> workhorse models of trade to analyze trade between advanced countries and developing countries. These models take country factor endowments (labor skills, natural resources, capital) as given and examine how these differences affect trade, capital flows, and labor flows, and through them prices, wages, and returns to capital. In these models trade and factor mobility operate as substitute ways to reduce the economic effects of differing factor endowments and thus to reduce price and wage differences across countries. Restrictions of trade induce capital or labor flows that substitute for the restricted trade, and conversely, restrictions on factor mobility induce trade.<sup>5</sup>

Ricardian models treat differences in technology as the fundamental determinant of trade and factor flows and examine how investments in technology create comparative advantage. In

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<sup>3</sup> The Georgia Technology Policy and Assessment Center. Between 1993 and 2003, China more than doubled its rating in technological standing. <http://www.tpac.gatech.edu/hti.php>

<sup>4</sup> This is the basic model of comparative advantage. See [http://en.wikipedia.org/wiki/Heckscher-Ohlin\\_model](http://en.wikipedia.org/wiki/Heckscher-Ohlin_model)

<sup>5</sup> Mundell, Robert "International Trade and Factor Mobility", The American Economic Review, Vol. 47, No. 3. (Jun., 1957), pp. 321\_335.

these models factor mobility magnifies differences in factor endowments as labor and capital move to economies where the technological advantage creates greater demand for them. Trade and factor mobility are complements in the sense that a technologically advantaged sector which uses, say highly skilled labor, will attract highly skilled immigrants to help it expand.

Because factor endowments and technology differ across countries and change over time, both sets of models are needed to make sense of globalization and labor.

### **When Factor-Endowments differ**

Identifying skilled labor, unskilled labor, capital, and natural resources as the relevant factors of production, trade patterns between advanced and developing countries fit the Heckscher-Ohlin model to a first approximation.<sup>6</sup> Countries with abundant skilled labor, such as the US, export goods produced by skilled workers, and import goods made by low skill labor while countries with natural resources export those resources and import goods and services made with other inputs. But H-O models are silent on the huge volumes of trade among advanced countries with similar factor endowments and on the huge volumes of trade within industries.<sup>7</sup>

In addition, the pattern of factor flows is not consistent with the H-O model. Unskilled labor migrates from developing countries where it is relatively abundant to advanced countries where it is relatively scarce, as the model predicts, but skilled labor also migrates to advanced countries, while it should move in the other direction. The brain drain, which is a sizable part of

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<sup>6</sup> Debaere, Peter, "Relative Factor Abundance and Trade" Journal of Political Economy, volume 111 (2003), pages 589–610 gives a reasonably favorable reading of the H-O model while Trefler, Dan "The Case of the Missing Trade and Other Mysteries" The American Economic Review > Vol. 85, No. 5 (Dec., 1995), pp. 1029\_1046 is more critical.

<sup>7</sup> Ruffin Roy, "The Nature and Significance of Intra-Industry Trade" Dallas Federal Reserve Bank, [www.dallasfed.org/research/efr/1999/efr9904a.pdf](http://www.dallasfed.org/research/efr/1999/efr9904a.pdf)

immigration, magnifies differences in factor proportions across countries, and thus creates a problem for analyses that view factor flows as responses to factor endowments.

The model also has predictions about the impact of globalization on factor prices that do not fit reality. It predicts that trade and factor flows will lower the relative returns to scarce factors and reduce the returns to abundant factors. This implies that globalization should increase wage differentials and inequality in advanced countries and reduce wage differentials and inequality in less advanced countries. Globalization is associated with rising inequality in advanced countries, but it is also associated with rising inequality in many developing countries, creating a problem for the model.<sup>8</sup> One explanation for this is that the skilled workers in the developing countries are more comparable in their skills to the unskilled workers in the advanced countries, so that when the developing countries export products previously made by the unskilled workers in advanced countries, it raises demand for the skilled workers in the developing countries. But there may be other factors at work as well.<sup>9</sup>

### **Wage and factor price equalization**

Goods and factor flows motivated by national differences in factor endowments should reduce the cross-country dispersion of prices, the cost of capital, and the wages of comparable workers. The factor price equalization theorem predicts that under specified conditions, trade alone will equalize factor prices. While some trade theorists dismiss factor price equalization as a

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<sup>8</sup> The surprising increase in inequality in developing countries associated with globalization has been found in numerous studies. For a review of many studies, see Goldberg, Pinelopi Koujianou and Nina Pavcnik “Distributional Effects of Globalization in Developing Countries” *Journal of Economic Literature*, Volume 45, Number 1, March 2007, pp. 39-82(44).

<sup>9</sup> Zhu, Susan Chun and Daniel Trefler. “Trade and Inequality in Developing Countries: A General Equilibrium Analysis” *Journal of International Economics*, 65 (2005) January pp: 21-48

theoretical curiosum, the logic of globalization dictates market pressures toward equality of wages as well as other prices across country lines.

In fact, the prices of many goods and services differ only moderately across countries. For instance, in 2004 the price of McDonald's Big Mac sandwich showed a narrow distribution across countries. The 80<sup>th</sup> percentile of Big Mac prices among 65 countries was \$2.65 while the 20<sup>th</sup> percentile of Big Mac prices was \$1.40 – a 1.9:1 spread<sup>10</sup>. Similarly, estimates of international differences in the cost of capital show a ratio of costs at the top 25<sup>th</sup> percentile of countries to costs at the bottom 25<sup>th</sup> percentile of 1.43.<sup>11</sup> By contrast, the variation of wages in the same occupation is much greater. The 1998-2002 Occupational Wages Around the World data show that wages for the country at the top 20% point of the earnings distribution of countries for a *given narrowly defined* occupation are about twelve times the wages in the country at the bottom 20% point of earnings distribution using exchange rates to compare currencies and are four to five to one using purchasing power parity units.<sup>12</sup> While part of the variation is likely due to differences in the education and skill of workers in the same occupation in advanced and developing countries, this cannot explain the wide variation in the earnings of, say, barbers in low income countries and in high income countries. The off shoring of computer programming and call centers to India in the 2000s has highlighted the fact that in some

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<sup>10</sup> [http://www.economist.com/markets/bigmac/displayStory.cfm?story\\_id=2708584](http://www.economist.com/markets/bigmac/displayStory.cfm?story_id=2708584)[http://www.skfriends.com/big\\_mac\\_index.htm](http://www.skfriends.com/big_mac_index.htm) with data for 65 countries.

<sup>11</sup> This averages estimates from five different sources from Hail, Luzi and Christian Leuz. 2004. "International Differences in the Cost of Equity Capital: Do Legal Institutions and Securities Regulation Matter?" University of Pennsylvania, December. <[http://papers.ssrn.com/sol3/papers.cfm?abstract\\_id=641981](http://papers.ssrn.com/sol3/papers.cfm?abstract_id=641981)>, Table 1

<sup>12</sup> Freeman, Richard B. and Remco H. Oostendorp (2001) "The Occupational Wages around the World Data File," *International Labour Review*, 140 (4), 379–401.

occupations workers in low income countries have similar skills to those in more advanced countries. What differs are the wages paid across countries.

The greater cross-country dispersion of wages than of prices or the cost of capital suggests that globalization has impacted the price of labor less than other prices. One possible reason is that, as noted earlier, international migration is smaller relative to the work force than is trade relative to world production or flows of capital are relative to capital formation. This explanation requires that trade and capital flows affect directly the prices of goods/services and the cost of capital more than they indirectly affect wages.

### **The labor standards debate**

Globalization has made labor standards – workplace safety, freedom from discrimination, rights to unionize, hours and wage regulations -- in developing countries a major issue for the international community. Human rights activists in advanced countries campaign to get multinational firms to implement better labor condition in their plants and in those of their subcontractors in developing countries. The activists contend that consumers are willing to pay for the higher standards through higher prices and will avoid products made under bad conditions. There is indeed evidence that consumers will pay a bit more for “fair trade” products and will shun products made under poor conditions.<sup>13</sup> In response to activist pressures, many multinationals have developed and implemented codes of conduct for their operations in developing countries. The activists fear that low standards in developing countries will produce a global race to the bottom in standards. The fear of a race to the bottom in standards seems

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<sup>13</sup> Kim Elliot and Richard Freeman, Can Labor Standards Improve Under Globalization? Institute for International Economics, 2003 ADD REFERENCE TO

misplaced. Labor standards have risen in advanced countries during the period of rapidly increased trade with developing countries and have risen in many developing countries as well.<sup>14</sup>

Some advocates of free trade regard the activist pressure for improved labor standards in developing countries as disingenuous protectionism. “The talk of “exploitation”, failure to pay a “living wage” ... (is) little more than cynical manipulation of our moral instincts and an obfuscation of the reality to pursue our economic interest”<sup>15</sup>“The demand for linkage between trading rights and the observance of standards with respect to the environment and labour would seem to arise largely from protectionist motivation.”<sup>16</sup> But the activists are not rival producers of imported products whose goal is to move production from developing countries to advanced countries. Rather they are students, consumers, and human rights activists who seek to organize retail markets so that consumers pay higher prices for items made under better conditions. Their motivation is intrinsic, not pecuniary interest.

What underlies the concerns of free trade advocates is fear that standards will impair the comparative advantage of developing countries. Motives aside, even policies intending to help workers in developing countries could harm them if those policies were so costly that they reduced the cost advantage of developing countries to expand in some low wage labor intensive sectors. However, the huge gap in labor costs between countries suggests that improved standards cannot threaten comparative advantage. Part of the cost of standards falls on workers

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<sup>14</sup> One indication of this is that advanced and developing countries have signed on to more International Labor Organization conventions during the period of globalization than ever before. Even the poorest countries have sought to reduce the use of child labor. See Elliot and Freeman.

<sup>15</sup> Bhagwati, Jagdish. 2000. *The Financial Times*, May 1.

<sup>16</sup>Srinivasan, T.N. 1994. “International Labor Standards Once Again!” In *International Labor Standards and Global Economic Integration: Proceedings of a Symposium*. Bureau of International Labor Affairs, US Department of Labor. Washington, July. p 36.



who prefer higher standards to lower standards; and part will be paid by consumers who want products made under good conditions. Some standards that raise costs to firms, moreover, benefit developing economies over the long run. Child labor laws, and school attendance laws, for instance, increase human capital formation; while occupational safety regulations reduce injuries and fatalities that may burden a country's medical or welfare system. In any case, as long as countries have flexible exchange rates, they can buy whatever labor standards they want without suffering economic disaster. If Brazil chooses to spend more on occupational health and safety than China, Brazilian firms will be at a competitive disadvantage *at a given exchange rate*. But the Brazilian currency will depreciate relative to the Chinese currency, and all Brazilians will bear the cost of the health and safety standards through the higher cost of imports. Brazilian industries which spend a lot more to meet health and safety standards will contract as Brazil's comparative advantage shifts to industries that do not need to spend much more. Globalization does not restrict national choices in labor standards or in other areas of social choice.

### **Globalization when technology differs**

In a truly global labor market the same worker could earn roughly comparable real pay in different countries, as measured in purchasing power parity terms<sup>17</sup>. The labor market at the outset of the 21<sup>st</sup> century was far from this. A worker from a low income country could make upwards of six times the earnings in their home country by immigrating to an advanced country.<sup>18</sup> Why? Because the advanced country had higher capital-labor ratios, superior infrastructure, greater legal protections of property and persons, and more *advanced technology*

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<sup>17</sup> Purchasing power parity (PPP) price indices take into account differences in the relative prices of goods and services—particularly non-tradables—across countries. Using PPPs to compare national income and wages gives more realistic comparisons of living standards than using exchange rates to translate wage in domestic currency into, say, dollars.

<sup>18</sup> Freeman, Richard “People Flows” *Journal of Economic Perspectives*, Vol. 20, No. 2, Spring 6

that raised productivity compared to productivity in the immigrant's native country. Ricardian models focus on how differences in technological efficiencies create comparative advantage that causes trade and factor mobility. The differences could be due to technological knowledge, organizational structure, or economies of scale that give 'first mover' advantages to the firm/country that produces the good first. Countries with a comparative advantage in a sector – higher productivity relative to other sectors compared to trading partners – will export output of that sector and import goods and services from sectors in which its trading partner has a comparative advantage. The sector with comparative advantage will expand, raising the wages of the factors that it uses the most and attracting those factors from the country and the rest of the world. If an advanced country has comparative advantage in, say high tech that uses many computer scientists, persons with computer science degrees will immigrate to the country and strengthen its advantage in that sector. Trade and mobility magnify differences in factor endowments. Since countries will shift resources toward sectors in which they have comparative advantage, world output will rise, and so too will the wages of workers.

The "North-South" model provides a platform for analyzing trade between advanced countries (North) and developing countries (South) when investment in technology creates comparative advantage. In this model the North's advantage is in innovative high tech products because it has many scientists, engineers, and other high skill workers while the South's advantage is in producing standard products that use less skilled labor. The wages of ordinary workers in the North exceed those in the South because the North earns a monopoly rent on technological innovation. The wage advantage is higher the greater the rate of technological innovation relative to the rate of knowledge transfers to the South. The result is an industry or

product life cycle that begins with an innovation in the North and ends with production in the South.<sup>19</sup>

When technology creates comparative advantage, the productivity advances in one country can affect the economy of a trading partner positively or negatively depending on whether the advance occurs in goods/services that the trading partner exports or goods/services that it imports. If a trading partner improves productivity in an import, this will reduce the cost of production and price of the import, which benefits the country that imports the good as well as (in most cases) the exporter. But if a trading partner improves technology in an export, this can harm the exporting country, just as an improved technology in a competitor can harm a firm. The increased supply of the exported good will drive down its price and thus the income of the country that originally dominated the production.

This produces “conflicting national interests” in trade when countries make their comparative advantage rather than take it as given by factor endowments.<sup>20</sup> If a foreign competitor gains comparative advantage in industries that have desirable attributes— that employ large numbers of highly educated and skilled workers or offer great opportunities for rapid technological advance – the lead economy will have to shift resources to less desirable sectors – and lose some of the advantages it had gained from trade. Applying these analyses to debates over off shoring and technological transfer in the US, Paul Samuelson reminded trade

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<sup>19</sup> Krugman, Paul “A Model of Innovation, Technology Transfer, and the World Distribution of Income” *The Journal of Political Economy*, Vol. 87, No. 2. (Apr., 1979), pp. 253-266 gives a clear exposition of this model.

<sup>20</sup>This is the theme of Ralph Gomory and William Baumol in Global Trade and Conflicting National Interests, MIT Press 2000

economists that while the spread of technology around the world raises world output and productivity it need not be in the interest of technological leader.<sup>21</sup>

### **Globalization/Labor Debates: Human Resource Leapfrogging**

The rapid growth of higher education in populous developing countries, notably China and India, challenges the assumption that the advanced countries will inevitably have comparative advantage in high tech sectors. The share of scientific papers from Asia has risen substantially, due largely to increased scientific activity in China, which is moving to the front of science and technology. Digitalization of work has led to off shoring computer related work, particularly to India. To take advantage of low priced scientists and engineers in these countries, multinational firms have established research centers in them. While the South has far fewer scientists and engineers per capita than the North, it can compete in high-tech because success at the technological frontier depends on the *absolute* number of scientists and engineers in an area, not simply on the number relative to the total work force. A country like China or India can have proportionately fewer scientists, engineers, and entrepreneurs per capita than an advanced country but still have absolutely more of these workers than the advanced country available at lower wages. By graduating large classes of scientists, engineers, and other university specialists and deploying them in the high tech innovative sectors that the advanced countries had viewed as their birthright, the populous developing countries can move to the technological frontier through “human resource leapfrogging”.

The increased supply of highly educated workers around the world should expand the production possibility frontier rapidly, which will benefit all countries. In addition, the lower prices of high tech goods and services produced in developing countries, such PCs from China

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<sup>21</sup>Samuelson, Paul “Where Ricardo and Mill Rebut and Confirm Arguments of Mainstream Economists Supporting Globalization” Journal of Economic Perspectives Vol. 18 No. 3 Summer 2004

and call center technical advice from India, benefit all consumers. But increased competition from low wage countries in sectors where advanced countries have had comparative advantage can reduce or eliminate their advantages in those sectors. Comparative advantage in high tech or most other sectors is not the birthright of any country. In sum, globalization of technological progress will raise world output and income, but it is likely to benefit workers in developing countries more than those in advanced countries, and could reduce the living standards or rate of growth of the living standards of workers in the advanced countries engaged in activities where workers in low income countries are good substitutes.

### **Does Globalization rule the roost? Will it?**

In 2000 I posed the question “Are your wages set in Beijing?” to direct attention at the impact of globalization on wages in advanced countries.<sup>22</sup> My answer then, and now, is to the negative. National labor markets, and the policies and institutions that unions, firms, and countries use to regulate those markets affect wages and worker well being independent of what happens in other countries. The dispersion of wages for similar work around the world shows that globalization does not rule labor markets. But the pressures of globalization on wage setting around the world are rising as the highly populous economies of China and India increase their share of the global economy. Globalization makes what happens in Beijing ... and Calcutta ... and Rio ... and Warsaw etc, important drivers of labor market developments worldwide. Still, the persistence of regional variation in labor market outcomes in the US, where there are no restrictions on goods, factor flows, or knowledge flow across states, suggests that even though global economic forces are likely to increase their impact on wages and other outcomes, they

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pp. 135-146

<sup>22</sup> Freeman, Richard B. (1995). Are Your Wages Set in Beijing? *Journal of Economic Perspectives* 9-3: 15-32.

will not “rule the roost”. There will remain space for variation in labor markets among countries just as there is for regional and local markets within countries.

## References

- Bhagwati, Jagdish. 2000. *The Financial Times*, May 1.
- Debaere, Peter, “Relative Factor Abundance and Trade” Journal of Political Economy, volume 111 (2003), pages 589–610
- Elliot, Kimberly and Richard Freeman, Can Labor Standards Improve Under Globalization?
- Freeman, Richard B. (1995). Are Your Wages Set in Beijing? *Journal of Economic Perspectives* 9-3: 15-32.
- Freeman, Richard “People Flows” *Journal of Economic Perspectives*, Vol. 20, No. 2, Spring 6 2006
- Freeman, Richard April 2005 “The Great Doubling: America in the New Global Economy” User Lecture, April 8, 2005. Georgia State University;
- Freeman, Richard. 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>
- Goldberg, Pinelopi Koujianou and Nina Pavcnik “Distributional Effects of Globalization in Developing Countries” *Journal of Economic Literature*, Volume 45, Number 1, March 2007, pp. 39-82(44)
- Gomory, Ralph and William Baumol in Global Trade and Conflicting National Interests, MIT Press 2000
- Hail, Luzi and Christian Leuz. 2004. “International Differences in the Cost of Equity Capital: Do Legal Institutions and Securities Regulation Matter?” University of Pennsylvania, December. <[http://papers.ssrn.com/sol3/papers.cfm?abstract\\_id=641981](http://papers.ssrn.com/sol3/papers.cfm?abstract_id=641981)>
- Krugman, Paul “A Model of Innovation, Technology Transfer, and the World Distribution of Income” *The Journal of Political Economy*, Vol. 87, No. 2. (Apr., 1979), pp. 253-266
- Mundell, Robert “International Trade and Factor Mobility”, *The American Economic Review*, Vol. 47, No. 3. (Jun., 1957), pp. 321\_335.
- Ruffin Roy, “The Nature and Significance of Intra-Industry Trade” Dallas Federal Reserve Bank, [www.dallasfed.org/research/efr/1999/efr9904a.pdf](http://www.dallasfed.org/research/efr/1999/efr9904a.pdf)
- Samuelson, Paul “Where Ricardo and Mill Rebut and Confirm Arguments of Mainstream Economists Supporting Globalization” Journal of Economic Perspectives Vol. 18 No. 3 Summer 2004 pp. 135-146
- Srinivasan, T.N. 1994. “International Labor Standards Once Again!” In *International Labor Standards and Global Economic Integration: Proceedings of a Symposium*. Bureau of International Labor Affairs, US Department of Labor. Washington,

Trefler, Dan “The Case of the Missing Trade and Other Mysteries The American Economic Review > Vol. 85, No. 5 (Dec., 1995), pp. 1029\_1046

Zhu, Susan Chun and Daniel Trefler. “Trade and Inequality in Developing Countries: A General Equilibrium Analysis” Journal of International Economics, 65 (2005) January pp: 21-48