

**Globalization and Employment Conditions Study**

**Drusilla K. Brown**

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## **I. INTRODUCTION**

The dramatic expansion of international trade and investment over the last six decades has likely promoted economic efficiency. However, the implication for the distribution of income has become the subject of intense debate. In particular, concerns for labor are commonly voiced. Here we focus on the impact of international commerce on wages, working conditions, and core labor protections. We turn first to consider the available empirical evidence on the impact of foreign direct investment (FDI) and trade on the labor market. We then consider two different mechanisms that have been used to address labor's concerns. First, we look at private voluntary initiatives that allow consumers and investors to express their values relating to working conditions. We then turn to some trade agreements that have been used to affect the conditions of work in the export sector. We close with some policy recommendations and directions for further research.

## **II. FOREIGN DIRECT INVESTMENT AND WORKING CONDITIONS**

Physical capital that is internationally mobile has the opportunity to seek out low cost, high quality labor with which to work. The well-articulated fear of labor advocates is that internationally mobile capital will be attracted to labor markets with low wages and poorly protected labor rights. Further, national governments may erode labor protections in order to attract capital. While we cannot exclude the possibility of a global race to the bottom in labor protections, those who believe that FDI feeds a race to the bottom in labor protections have several pieces of empirical evidence with which to contend.

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## **WORKING CONDITIONS AND THE DETERMINANTS OF FDI**

There are several theoretical models of the determinants of FDI. Markusen (1984) and Helpman (1984) identify two main drivers. Horizontal FDI substitutes for international trade and occurs when there are frictions inhibiting trade in goods. Vertical FDI takes place when multinationals seek to access low wage labor for some unskilled components of the production process. In both cases, FDI should be stimulated between headquarters and a host with different factor endowments.

Based on such theoretical reasoning, populist critics of globalization have used anecdotal evidence to support their contention that international economic integration disadvantages labor relative to capital. Trade economists initially had difficulty finding evidence for this view using rigorous statistical analysis. However, over the last five years, some trade economists have argued that this sanguine attitude toward the consequences of globalization for labor is not justified. Hanson et al's (2003) micro-level analysis of FDI flows provides one such example. We turn now to a discussion of the recent empirical evidence.

### ***Empirical Evidence on the Determinants of FDI***

Contrary to theoretical reasoning, early statistical analysis using industry-level data suggested that a difference in factor endowments was *not* an important determinate of FDI location. For example, Brainard (1997) found that U.S. affiliate sales back to the parent were not correlated with a difference in factor endowments between host and parent countries. Similarly, Blonigen, Davies and Head (2003) find that sales by foreign affiliates of parent firms go *up* as skill differences between the home and host go *down*. Thus, they find little evidence that FDI is motivated by differences in factor endowments.<sup>1</sup>

However, more recent analysis such as Yeaple (2003), Hanson, Mataloni and Slaughter (2003) and Feinberg and Keene (2003) uncover a role for relative factor endowments and prices. These studies find that FDI installed in those industries in which the host has a comparative advantage does increase affiliate sales back to the home country.

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<sup>1</sup> See also Markusen and Maskus (1999) and Blonigen et al (2002).

Hanson et al (2003) provide a nice example of how the recent analysis on the determinants of FDI is undertaken. Their principle data source is the U.S. Bureau of Economic Analysis. The U.S. government mandates U.S. multinationals to complete a confidential survey on the operations of the parent and any foreign affiliates in which the parent has at least a 10% equity stake. Data provided include industry identification, imported intermediate inputs, affiliate wages and employment for production and non-production workers and return on capital. Hanson et al have also collected data on industry wide wages from the UNIDO Industry Database and trade barriers from the United Nations Trade Analysis and Information System. Finally, the Heritage Foundation and the *Wall Street Journal* maintain scores on “economic freedom,” such as respect for property rights, extent of government regulation and prevalence of black-market activities.

Hanson et al then regress the cost share of processed imported inputs on trade costs, wages, tax rates, the cost of capital, host country industrial policies and other characteristics. They find that trade costs are strongly negatively correlated with imported intermediate inputs as a share of affiliate revenues. The own-price elasticity of demand for imported inputs is  $-3.28$ . That is, a one percent fall in input prices due to a reduction in trade costs leads to a 3.3 percent increase in the quantity of imported intermediate inputs demanded by the affiliate.

More importantly from the point of view of this report, imported-input demand is negatively related to host-country wages for unskilled workers and positively related to skilled wages. For each one percent increase in unskilled wages, imported input demand declines by 0.32 percent. However, for each one percent increase in skilled wages imported input demand rises by 0.36 percent. That is, U.S. firms appear to be seeking locations in which production wages are low but there is also an abundance of skilled labor.

Sourcing from foreign affiliates also appears to be sensitive to other factors. These include trade costs, preferential market access and trade incentives in export processing zones (EPZs). The benefits of EPZs include tax holidays, expedited transit through customs, and tariff breaks on imported equipment. Indicators of economic freedom are also positively correlated with affiliate activity.

The results obtained by Hanson et al using firm level data are corroborated by Yeaple's analysis of industry level data. Yeaple is able to uncover a role for factor endowments by interacting factor-endowment differences with industry factor intensities. That is, factor endowment differences increase FDI for industries that use the abundant factor intensively in production. However, this effect shows up in a relatively small number of industries such as machinery and electronics.

Clearly, further work is needed to reconcile the analysis from micro-data which finds a strong effect of labor costs in developing countries on FDI flows and that of industry level data which tends to find only a limited effect. Furthermore, Blonigen (2005) argues that our understanding of FDI to developing countries is incomplete. He notes that equations estimated with industry level data under-predict affiliate sales to developed countries and over-predicts affiliate sales to less-developed countries. These results suggest that the mechanism that drives FDI between two industrialized countries is not the same as between industrialized and developing countries.

## **FOREIGN DIRECT INVESTMENT AND CORE LABOR PROTECTIONS**

Given the theoretical argument and limited empirical evidence that capital is attracted to a low-wage environment, it is reasonable to consider the possibility that competition to attract FDI has generated a race to the bottom in labor protections. Further, Rodrik (1999) acknowledges that trade openness may lead domestic producers to seek relief from costly labor standards. However, capital owners are not the only factor of production competing in the political arena. Workers in a globalizing economy also face more wage, price and employment volatility. Governments may equally well be pressured to play a risk-reducing role for labor either through expenditures or regulations.

As an historical matter, labor has typically won this contest in the west. Huberman (2002) examines the evolution of labor protections during the first globalization century. This period is characterized by profound convergence in factor prices. One might expect to observe convergence in labor market institutions as well. However, this is not the case until the eve of WWI. For the most part, countries typically developed idiosyncratic labor protections that reflected their own particular political and social institutions.

Moreover, to the extent that standards converged, they converged up. Huberman and Lewchuk discuss the emergence of the Labour Compact between 1850 and 1913. In their view, the rise in wage and employment instability that accompanied rising trade shares led workers to demand greater government protections against employment risk and uncertainty. Governments that adopted labor protections also found labor willing to support greater trade liberalization. Thus, trade begat labor protections and labor protections begat trade openness.

Rodrik comes to the same conclusion based on analysis of data from the second half of the 20<sup>th</sup> century. Those open economies with the largest terms-of-trade volatility also have larger governments.

Similar results are found by Busse (2004). He explores the determinants of some core labor practices in 70 developing countries for the period 1970-2000. Protections against forced labor, discrimination in employment and child labor are positively related to national income, human capital formation and trade openness.

Indeed, the empirical evidence reported up to 2000 suggested little evidence that a global downward spiral in labor protections had taken place. Examples of such studies include Rodrik (1996), Oman (2000) and OECD (1996, 2000). Kucera (2002) summarizes his results as follows:

- Higher labor costs negatively affect FDI, particularly when controlling for productivity. That is, high wages that are not justified by higher productivity deter FDI.
- Inward FDI is positively correlated with the rights to association and collective bargaining.
- Greater political and social stability and labor force quality promote economic growth which in turn attracts FDI.

Several studies have emerged over the past six years that draw on improved measures of labor protections for a large sample of countries. Kucera (2002) is the first of several to employ finer measures of labor protections. Multiple measures of each right are employed in order to test robustness. For example, measures of free association and collective bargaining include the unionization rate, tabulation of violations from textual sources, labor violations in EPZs and Freedom House indicators of civil liberties, political rights and democracy.

The dependent variable in Kucera's FDI equations is each country's share of global FDI inflows. Control variables include wages in manufacturing, population, per capita GDP, trade share of GDP, exchange rate, urbanization rate and literacy rate. With the exception of wages, FDI share is found to be strongly positively correlated with each of these variables. For each of the core labor protections Kucera finds the following:

- Civil liberties have two effects on FDI. Greater civil liberties are positively correlated with higher wages, which tends to deter FDI. However, after controlling for wages, greater civil liberties attract FDI. On balance, the positive effects outweighed the negative.
- Child labor affects FDI both by affecting labor costs and quality of labor. Child labor is found to negatively affect labor quality and thus deters FDI. Child labor was not found to lower wages. Though results are mixed with low statistical significance, suggesting that child labor has a limited (probably negative) impact on FDI.
- Gender inequality is found to negatively impact FDI. Representation of women in administrative and managerial occupations is positively correlated with FDI. However, significance is weakened when regional dummies are included.

Several authors find results similar to Kucera. For example, Neumayer and de Soysa (2005a, 2005b, 2004) study the relationship between globalization and various core labor protections. They find that countries with more open trade have fewer violations of rights to free association and collective bargaining, more effectively protect women's rights and have a lower incidence of forced labor and child labor. This is true both for the global sample and a sub-sample of developing countries. FDI is uncorrelated with rights violations.

These conclusions are roundly challenged by conventional wisdom. Critics usually point to China as an example of a country that represses worker rights but enjoys enormous success in exporting and attracting FDI. According to the FLA (2005), China has the worst record on wage and hours violations as regulated by national law and codes of conduct as

compared to nearly all other Asian countries. Rodgers and Berik (2006) provide thoroughgoing analysis on this issue. They make several observations:

- China falls in the middle of the regional distribution of wages in the textile and clothing sectors.
- China does not only compete on low wages. They are also the fastest clearing goods through customs and keeping shipments moving.

Ghose (2003) concurs that there is little evidence of a “competitive dilution” of labor standards with one exception. He argues that there is a group of developing countries that have not participated in the recent wave of globalization. These countries have experienced a decline in employment and labor standards. Given the difficulty of measuring labor standards, Ghose argues that the best indicator for international comparison of labor standards is the non-wage component of workers’ remuneration. This is the case as it is highly correlated with wage income. By this measure, labor standards have improved in Asia over the last two decades, though with a dip during the 1997 financial crisis, while declining in Latin America. Indeed, according to Tokman (1997), 90 percent of new jobs in Latin America between 1985 and 1995 were in the informal sector.

However, Singh and Zammit (2004) argue that these variations are more likely associated with variations in the level of economic activity rather than its composition. In light of the fact that globalization typically increases economic activity while altering its industrial composition, Singh and Zammit argue that it is unlikely that globalization is the cause of declining working conditions in some regions.

Baldwin (2003) makes a similar argument with regard to labor standards in industrialized countries. In this connection he notes the precipitous decline in the unionization rate over the last two decades, but does not believe that this turn of events is related to the pressures of globalization. Rather, he notes that de-unionization has occurred in all sectors, trade-exposed or not, and posits that changes in popular attitudes and general disenchantment with unions are the more likely cause.

Indeed, there appears to be little or no evidence of legally mandated changes in labor protections systematically related to FDI flows or globalization generally, with the possible exception of EPZs as discussed below. However, as with other aspects of globalization and

labor, recent trends and empirical results are suggestive of a possible link and, thus, worthy of further exploration.

Much of the informed view of the relationship between trade and employment conditions generally was the result of the emerging consensus among trade economists that globalization was not a significant factor in explaining trends in labor markets in the late 1990s. However, modeling innovations and empirical results reported by Feenstra and Hanson (2003) suggested that trade economists were under-estimating the impact of out-sourcing on wages in industrialized and developing countries.

For this reason, trade economists may need to look again at the impact of globalization on labor practices, not through legally mandated protections, but rather through the types of jobs available, wages and employment benefits. Feenstra and Hanson argue that out-sourcing accounts for half of the decline in wages of unskilled relative to skilled workers in the United States between 1979 and 1990. A similar analysis applied to employer-based access to health insurance and retirement benefits may also demonstrate a globalization link.

### ***FDI and Child Labor***

The tentative conclusions put forward by Kucera on the negative link between child labor and FDI, discussed in the preceding section, are strengthened by several authors. For example, Busse and Braun (2003) find that multinationals prefer sites with less child labor. However, child labor is positively correlated with the exports of labor-intensive goods.

As with Kucera, Busse and Braun adopt several definitions of child labor. These include child labor force participation rates, secondary school enrollment and measures of enforcement. They then regress FDI per capita on GDP, growth, trade, an indicator of democracy and measures of child labor for 132 countries. They find that FDI is strongly negatively correlated with the child labor force participation rate and positively correlated with secondary school attendance. The analysis is then repeated including only countries with GDP per capita below \$2995 in 2000. The statistical results are essentially unchanged.

In a follow-up study, Braun (2006) explores the reasons why child labor deters FDI. He finds that child labor slows economic development which has a negative impact on foreign investors.

Drawing on Hussain and Maskus (2003), Braun sets up a system of three equations that link child labor, economic growth and foreign direct investment. Child labor is a function of human capital in the previous period and school quality. Human capital is a function of past human capital acquisitions, current child labor and quality of schools. GDP is then a function of human and physical capital. Wages depend on child labor, GDP, the price level and urbanization. FDI then depends on GDP, growth, human capital, degree of trade openness, political stability, wages and whether a country is among the least developed in the sample.

Results are consistent with the hypothesis that child labor reduces human capital formation. Lower human capital formation then lowers the growth rate, making such a country less attractive to foreign investors. Child labor is found to have a negative effect on the stock of human capital. And the stock of human capital has a positive effect on FDI. The author also finds little to no evidence that child labor attracts FDI by depressing labor's cost share.

### ***Labor Standards Enforcement as a Signal for Property Rights Protection***

It is often argued that labor protections attract FDI not because capital owners value the protections of labor *per se*. Rather, labor protections may signal a willingness to protect rights generally or the presence of legal labor protections may be correlated with property rights protections generally. Investors may reasonably conclude that corrupt governments which do a poor job protecting labor rights will also fail to adequately protect the rights of capital owners and investors.

Indeed, World Bank (2003) reports exactly this sentiment from a survey of executives in 107 multinational enterprises in the extractive, agribusiness and manufacturing sectors (2002-2003). For example, investors believed that laws that are unevenly enforced increased investor risk. Laws that are not uniformly enforced raise the possibility that selective enforcement may be used for strategic purposes to accomplish protectionist objectives.

The cross-country statistical analysis of the impact of institutions and/or corruption on FDI is mixed. Wei (2000a, 2000b) finds FDI and corruption are strongly negatively correlated, while Wheeler and Mody (1992) find no significant link. In part, this is a

consequence of the poor quality of available measures of corruption. These indices are often a composite based on surveys of officials, business people, newspaper articles or other assessment.

By comparison, Hines (1996) adopts a natural experiment approach, focusing on the impact of the 1977 U.S. Foreign Corrupt Practices Act. This legislation imposes penalties on U.S. multinationals found bribing foreign officials. Hines finds that the 1977 legislation significantly reduced U.S. outward FDI. These results, of course, do not imply that investors prefer corrupt locations, rather only that domestic laws restricting the conduct of agents in their business activities may limit the ability of investors to navigate corrupt environments.

### **DO MULTINATIONALS PAY HIGHER WAGES?**

Above, we reported that Hanson et al find that U.S. corporations with foreign affiliates are seeking sites with low wages. However, up until very recently, the evidence appeared to strongly support the conjecture that multinationals pay higher wages than domestically owned firms. Aiken, Harrison and Lipsey (1996) report on Mexico, the United States and Venezuela. Using OLS estimation, foreign owned firms pay a 38 percent wage premium in Mexico, 18 percent more in Venezuela and a 12 percent premium in the United States. Griffith and Simpson (2003) report a positive FDI premium for the U.K. Lipsey and Sjöholm (2001) find a 12 percent premium for blue-collar workers in Indonesia and a 22 percent premium for white-collar workers. Velde and Morrissey (2003) find a premium between 8 and 23 percent for Cameroon, Ghana, Kenya, Zambia and Zimbabwe. Görg, Strobl and Walsh (2002) find confirming evidence for Ghana. These studies typically analyze manufacturing survey data and control for worker and plant characteristics the might account for differences in productivity and wages.

Aizenman and Spiegel (2002) argue that this phenomenon occurs in national markets where property rights are poorly enforced. In such situations, *ex post* monitoring compliance with a labor contract will be accomplished by paying an efficiency wage. Aizenman and Spiegel argue that foreign-owned firms have more difficulty monitoring such contracts and, therefore, have to pay a higher wage, in order to achieve compliance. Aizenman and Spiegel find indirect evidence to support their conjecture. Corruption is negatively correlated with

the ratio of FDI to total domestic investment. That is, foreign firms own a smaller share of the capital stock in countries with a high incidence of corruption.

Alternatively, the entrance of multinationals into a labor market may bid up the equilibrium wage. However, if the labor market is not perfectly competitive, wages of domestically-owned firms may not rise in parallel.

Fosfuri, Motta and Rønne (2001) argue that workers in multinationals are exposed to proprietary technology requiring costly training. Multinationals may want to deter manpower turnover in order to retain training investments.

Although these results appear robust, the underlying assumptions are challenged by Martins (2004).<sup>2</sup> He notes, for example, that foreign-owned firms have very different observable characteristics than domestic-owned firms. In order to address some of these concerns, Martins focuses on Portugal. The Ministry of Employment surveys employers and employees in all firms with at least one employee. Firms report on characteristics of the work force (gender, qualifications, tenure, wages and hours worked), geographical location, industry, sales, and foreign ownership share.

Martins first uses OLS estimation and regresses hourly wages on human capital characteristics, firm characteristics and foreign-ownership status. He finds that foreign-owned firms pay 8 to 13 percent more than domestically owned firms. These results for Portugal are consistent with those obtained by Lipsey and Sjöholm (2001) for Indonesia.

However, Martins then uses propensity score matching to assemble a data set of closely matched foreign-owned and domestically-owned firms. Firms are matched on education, experience, tenure, gender, firm size, region and industry. Using propensity matching, foreign-owned firms now pay no more than domestically owned firms. For some specifications, they even pay less.

Several researchers have also used the difference-in-difference approach with varying results. Conyon et al (2002) analyze a panel of UK firms. They find that newly acquired firms exhibit more rapid wage growth than domestically owned firms that are not acquired. However, this rapid wage growth *precedes* acquisition. Such an outcome is consistent with a

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<sup>2</sup> This dataset has also been analyzed by Almeida (2003).

“cherry-picking” hypothesis. Foreign investors are selecting firms that are already more productive and, therefore, paying higher wages.

Alternatively, Girma and Gørg (2003) analyze UK data. They find that that wage growth is higher for newly acquired firms for a subset of industries and buyer nationalities. Lipsey and Sjöholm (2003) redo their analysis for Indonesia and still find higher wage growth for newly purchased firms.

Martins’ work is distinct, however, because he is able to follow individual workers through the acquisition process. This procedure helps control for unobserved worker heterogeneity. He finds that following acquisition, wages *decline* by 3.3 percentage points. He argues that the decline occurs because domestic firms pay above market wages prior to acquisition. Domestic firms that will be acquired pay 11.7 percent more than domestic firms that will not be acquired. However, after acquisition, these newly acquired firms will pay only a 7.1 percent premium. Thus, more highly paid workers suffer a pay cut that averages 4.6 percent following acquisition.

This outcome is consistent with two theoretical models of corporate take-overs. Schleifer and Summers (1988) argue that a take-over allows a new owner to renege on an implicit contract between workers and the previous owner. Alternatively, Lichtenberg and Siegel (1990) argue that take-overs occur when a firm is poorly run. In this case, a poorly run firm would be one that is over-paying its workers.

The conclusions drawn by Martin that foreign firms cut wages following a take-over are suggestive, though not conclusive. His analysis uses state-of-the-art empirical techniques. However, in light of the fact that he was studying only one country during one period of mergers, we cannot generalize his results to all situations. Nevertheless, his results profoundly challenge the conventional view that multinationals pay higher wages. Evidence from other countries and time periods is, thus, necessary before drawing a final conclusion on the impact of FDI on wages.

## **FDI AND ECONOMIC SECURITY**

The decline in wages following a take-over by a foreign firm discussed above is one of the forces that may be eroding a sense of security among workers in a globalizing

economy. Indeed, Scheve and Slaughter (2004) note that capital mobility may make the demand for labor more elastic and may also increase uncertainty in the form of employment and/or wage outcomes. Empirical analysis from Britain during the 1990s finds that increased foreign direct investment (FDI) activity is positively correlated with worker perceptions of insecurity.

Similarly, there are three studies that find job security with foreign-owned firms is lower than for domestic-owned firms. In these studies, job insecurity arises because foreign-owned firms are more likely to shut down and relocate. Two examples are Bernard and Jensen (2003) in their study of the United States and Bernard and Sjöholm (2003) in their study of Indonesia. Harrison and Scorse (2004) also find an increased probability of shutdown by exporters in Indonesia, particularly in the textile, footwear and apparel industry.

### **EXPORT PROCESSING ZONES (EPZs)**

EPZs have grown rapidly over the last thirty years. According to the ILO (2003), 25 countries had EPZs in 1975 while 116 had such zones in 2002 employing 13 million workers. Zones particularly focus on the production of labor-intensive consumer goods such as clothing. These zones are generally found to benefit the host economy through increased foreign exchange and total employment (Jayanthakumaram, 2003). There may also be spillovers to the larger economy in the form of learning, human capital formation and demonstration effects (Johansson and Nilsson, 1997).

Typically, wages are lower in EPZs than the host economy, however, this appears simply to reflect broader gender discrimination within the host economy (Madani, 1999). To the extent that working conditions in EPZs are problematic, this issue arises more in the context of longer work hours, more grueling pace of work and the absence of a right to collective bargaining (ILO, 2003).

The literature on EPZs is summarized and reviewed by Madani (1999). Thus we confine ourselves here to new results reported in the last five years.

The experience with EPZs varies widely. Cling et al (2005) document the remarkable impact of the *Zone Franche* in Madagascar. They argue that this zone accounted for nearly three-fourths of Madagascar's goods exports for 1991-2001, allowing Madagascar to become

the second largest exporter of clothing in sub-Saharan Africa. The export performance of the zone allowed Madagascar to reduce its heavy reliance on exports of agricultural products such as coffee, vanilla, cloves and shrimps.

The expansion in exports is mirrored in employment. Between 1995 and 2001, employment in the zone rose from 3 percent to 10 percent of total employment. One-third of all private formal workers are now employed in the zone.

On the down-side, jobs in the zone were very low-paying compared to others in the economy. Cling et al note that only the informal sector paid workers less than jobs in the zone. Monthly earnings in the zone grew more quickly than for the rest of the economy between 1995 and 2001. This appears to be the result, though, of longer hours of work rather than a higher hourly wage.

However, Cling et al then estimate the wage gap for workers in the EPZ, controlling for experience, socioeconomic group, managerial status, skill, apprenticeship and self-employment status. Once these variables are controlled for, they find a positive and statistically significant premium from working in the zone. Depending on the exact specification, zone workers earn 6 to 17 percent more than comparable workers in the economy proper.

Cling et al also find that benefits are better for workers in the zone than for other workers. This is particularly the case for the payment of social security benefits, paid holidays, access to medical services and, particularly, job security. Workers in the zone are also more likely to receive pay slips and be provided a written employment contract. Finally, jobs in the zone provide better access to skill-upgrading.

Less rigorous analysis reaches similar conclusions. Jayanthakumaran (2003) takes a cost-benefit approach to assessing the value of EPZs. According to this line of reasoning, an EPZ generates a social benefit only if the payment to local factors of production exceeds the opportunity cost of employment in the EPZ. With regard to labor, the question is whether there is a gap between the wage paid in the EPZ and the opportunity cost of EPZ labor. Based on estimates from Warr (1989) and Curry and Lucking (1991), Jayanthakumaran (2003) reports the following premium of EPZ wages relative to opportunity costs:

| <u>Country</u> | <u>Wage Premium in EPZ</u> |
|----------------|----------------------------|
| Indonesia      | 25%                        |
| Korea          | 9%                         |
| Malaysia       | 17%                        |
| Philippines    | 36%                        |
| Sri Lanka      | 25%                        |

That is, the wages paid in the EPZs in these five countries considerably exceed the opportunity cost of labor.

In a similar vein, Blanco de Armas and Sadni-Jallab (2002) consider the impact of EPZs in Mexico on employment patterns. They report that during the 1990s, employment in Mexico outside of the Maquilas has been virtually flat. In 1988, non-maquila manufacturing employment in Mexico was 2.7 million jobs. By 1990, this figure had only risen by 2.8 million and never exceeded 2.9 million in any year during the decade. By comparison, employment in the maquilas rose from 350,000 jobs in 1988 to 980,000 jobs in 1998. It is difficult to attribute all of this differential growth to Mexican EPZs. Investors intent on investing in Mexico may simply have been choosing maquilas because of their low cost. Nevertheless, it appears that all of the increase in manufacturing employment in Mexico during the 1990s was for the purpose of exports and the existence of the maquilas may have enhanced Mexico as an export platform.

However, there is little evidence that the Mexican maquilas are leading to skill-upgrading. Blanco de Armas and Sadni-Jallab report that the fraction of workers employed in the maquilas that are rated as “skilled” was only 6.6 percent in 1988 and rose only to 7.2 percent in 1998. By comparison, 27.2 percent of workers in nonmaquila manufacturing were rated as “skilled” in 1988.

Aggarwal (2005) uses a survey approach to analyze the labor issues relevant to the success of EPZs in India, Sri Lanka and Bangladesh. Investors were asked a range of questions relating to their reasons for selecting a particular location. Investors were found to care about such features and physical infrastructure, tax benefits and location near cities and ports. As far as labor is concerned, investors viewed access to an educated and disciplined labor force as more important than low wages. However, investors also sought zones that

were excluded from enforcement of labor laws. In fact, nearly 100 percent of respondents rated labor law exclusions as “most import.”<sup>3</sup>

Thus, in this particular set of cases, it does appear that some governments have eroded labor protections in order to attract FDI. However, as will be discussed below, it is possible that the labor protections afforded in these cases may have exceeded the efficient level.

Perman et al (2004), report that many EPZs attract responsible companies which offer attractive working conditions and competitive compensation. However, there are some important exceptions. Trade unions were not allowed in Bangladesh EPZs until November 2006 and when they were permitted restrictions on free association were imposed. Similar restrictions apply to unions in Togo. Unions were also prohibited in Kenya until 2003 and were only allowed following a series of violent confrontations between workers and anti-riot police.

Even in cases where workers’ rights are legally mandated, there may be poor enforcement. Workers’ rights organizations provide a long list of anecdotes involving violent repression of free association, gender discrimination, excess hours of work and significant health and safety concerns. In some cases, poor conditions of work in EPZs are similar to those in the economy proper and, thus, are not directly attributable to the laws allowing EPZs to come into existence. Further, we observe some cases in which working conditions are better and some worse than the economy overall.

Thus, it appears that EPZs provide jobs and conditions of work that are broadly comparable to those available in the economy proper. However, there also appears to be some erosion of formal labor protections. Further, there is no systematic analysis relating rights protections in the EPZs to economic performance of these zones. That is, do EPZs that limit labor protections attract FDI and function more efficiently? As of yet, we have little to no evidence on this question.

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<sup>3</sup> Other possible responses included “not important,” “important,” and “very important.”

### **III. INTERNATIONAL TRADE AND WORKING CONDITIONS**

We turn now to consider the impact of trade in goods and services on the outcome for workers. We consider first evidence of the impact of trade on wages and employment. We then look at discrimination in employment, child labor, employment security and a race to the bottom in labor protections.

#### **TRADE OPENNESS AND WAGES**

Openness to trade may affect wages through several channels. Conventional trade theory suggests that trade will raise wages in labor-abundant countries and lower wages in capital abundant countries. Trade may also have the effect of weakening union control of a labor market, weakening control of a monopsonistic employer on a labor market, undermining legislated or enforced labor protections or strengthening the hand of labor in the domestic political arena. A second strand of this literature addresses the link between trade and poverty. We do not address that literature here but rather direct the reader to three recent surveys. See, in particular, Winters, McCulloch and McKay (2004), Goldberg and Pavcnik (2004) and Gunter and van der Hoeven (2004).

Rama (2003) provides a “big-picture” assessment of the impact of trade on wages. Rama uses annual wage data from Freeman and Oostendorp (2000, 2001) to assess the net impact of trade openness on wages. Three different measures of openness are employed: (i) ratio of trade to GDP, (ii) openness policy as indicated by low tariffs, limited NTBs, absence of marketing boards, no central planning, and low black-market foreign exchange premium and (iii) ratio of FDI to GDP. Log of wages by occupation is regressed on these measures of trade openness, also controlling for, GDP per capita, and measures of political and economic liberty. All regressions include fixed effects for country, year and occupation. Thus, they capture the impact of changes in policy over time.

All specifications report a negative and statistically significant effect of trade and trade policy on wages. However, openness to FDI is correlated with higher wages. Rama calculates that a 20 percentage point increase in the ratio of trade to GDP leads to a 5-6 percentage point decline in wages. By contrast, a one percent increase in the ratio of FDI to GDP is correlated with a one percent increase in wages.

FDI also appears to be an important determinant of the wage premium paid to skilled workers. Rama finds that each one percent increase in the ratio of FDI to GDP correlates with a five percent increase in the return to a year of education. Trade share of GDP, however, appears to have little impact on wage dispersion. A similar result is found using micro data from *maquiladoras* by Feenstra and Hanson (1997).

Rama then introduces long lags between changes in trade policy and wages. He finds that, while the impact of trade on wages in the short-run may be negative, the impact turns positive after about four years and is strongly positive after five years. It appears, then, that international trade is good for overall economic growth. The positive impact eventually works its way down to workers. This short-run negative impact appears to be the consequence of protracted periods of unemployment that accompany trade-associated economic dislocation.

### ***Trade and the Skill Premium***

One issue that has received considerable attention over the past decade and a half is the widening gap between the wages paid to skilled and unskilled labor. The current debate began when labor economists noted that between 1979 and 1995, the real wages of U.S. workers who did not complete high school exhibited a 20.2 percent decline. Over the same period, high school graduates experienced a smaller 13.4 percent decline. In contrast, workers with 16 or more years of education had a 3.4 percent rise in wages. In light of the fact that U.S. imports appeared to be increasingly unskilled labor-intensive, this decline in the relative returns of unskilled labor is precisely what the Stolper-Samuelson Theorem would lead us to expect from a globalizing economy.

Trade economists, however, were skeptical of the trade-to-wages explanation, preferring instead to attribute the rise in the return to skilled labor to skilled-labor biased technological change. Trade economists based their conclusions on three arguments: (1) the volume of trade is not large enough and sufficiently unskilled-labor intensive to explain such a large swing in wages, (2) prices of unskilled-labor intensive imports were not falling, as required for a Stolper-Samuelson explanation, and (3) virtually all industries were shifting away from an unskilled-labor intensive technique of production even as unskilled labor was

becoming less expensive. All three of these pieces of evidence point to skilled-labor biased technological change rather than international trade as the major cause of the rise in the skill premium between 1980 and 1995.

Williamson (2005) argues that the failure to find a trade-wages link today is a consequence of focusing on data only from 1979. He believes that if analysis were to span the entire period of the second global century, 1940-present, trade would emerge as an important explanation of the growing wage gap between skilled and unskilled workers.

Feenstra and Hanson (2003) concur, *albeit* for a different reason. They argue that in order to accurately capture the impact of trade on wages today, we need to model the recently emergent phenomenon of out-sourcing. Western producers in many industries are increasingly taking the most unskilled-labor intensive parts of their production process and relocating them in low-wage developing countries. They note that such a phenomenon closely mimics a technological improvement. Testing their out-sourcing framework, Feenstra and Hanson find that international trade may well have been as important as computerization in moving the relative wages of skilled and unskilled workers.

By contrast, the liberalization experience of East Asia typically found a narrowing of the distribution of income as trade was largely unskilled-labor intensive. However, the more recent evidence suggests trade that is widening the distribution of income in developing countries, as well. Winters et al suggest that the very low skill level of the least skilled workers in developing countries may be of little use to multinationals. Equivalently, skilled labor by developing country standards may be relatively unskilled by industrial country standards. Thus, when trade-oriented producers employ labor in developing countries, they may draw principally from the top end of the skill distribution.

Indeed, this outcome is consistent with evidence relating FDI and child labor. Considerable research finds that multinationals are deterred by a prevalence of working children.

For example, Feenstra and Hanson (1997) find a bias toward skilled labor demand in Mexico. In this case, U.S. multinationals outsource intermediate input production to Maquiladora plants. This intermediate input production is unskilled-intensive from the U.S. perspective but skill-intensive from Mexico's perspective. Thus, the return to relatively-

skilled labor is bid up in both locations. Robbins and Grindling (1999) similarly find that trade liberalization in Costa Rica raised the demand for workers in the upper end of the skill distribution.

Winters et al argue that the distribution of the demand for skill during a liberalization, therefore, depends importantly on which sectors liberalize. Manufacturing may draw workers with a primary education or higher. By contrast, agriculture is the one sector that can reliably hire illiterate workers. Thus, liberalization in this sector is particularly important if trade is to benefit the poorest of the poor.

Indeed, Hanson and Harrison (1999) find that the structure of tariffs in Mexico disproportionately protected unskilled workers. A similar pattern of protection is found by Attanasio et al (2004) for Colombia, Currie and Harrison (1997) for Morocco and Pavcnik et al (2004) for Brazil. Thus, it is not surprising that the relative wages of unskilled workers declined following liberalization.

Ferreira and Litchfield (1999), in their study of Chile, however, find that this deterioration in the wages of unskilled workers following trade liberalization in Latin America is temporary. Inequality in Chile did indeed worsen during the 1980s. But by the 1990, the incidence of poverty declined and unskilled workers enjoy a considerably higher income.

Goldberg and Pavcnik (2004), however, challenge this Stolper-Samuelson type explanation for the rise in the skill premium in developing countries following liberalization. In order for trade to alter relative wages through the Stolper-Samuelson channel, workers must move from one occupation to another. Indeed, it is the rise in demand by firms in the expanding sector for the factors these firms use intensively that bids up their relative return. The problem, though is that most studies observe relatively little inter-sectoral factor reallocation. Attanasio et al (2004), for example, find no statistical link between tariff changes and employment shares by industry.

Studies that analyze plant or firm level data support Goldberg and Pavcnik's view. These studies find considerable factor mobility. However, workers appear to move from one firm to another within the same industry rather than moving from one industry to another. That is, the more efficient firms survive, increasing the overall productivity of the sector. To

the extent that these higher quality firms also employ more skilled labor, the demand for skill will rise.

Goldberg and Pavcnik also note that the share of workers that are skilled has increased across most industries over the last two decades. The rise in employment of a factor that is also increasing in price is only consistent with cost-minimization if that factor has also become relatively more productive. Thus, skill-biased technological change seems a likely explanation for the observed change in relative wages.

Trade may still be a factor in the rise in the skill premium, nevertheless. This would be the case if trade openness is increasing the importation of skill-biased technology. For example, Wood (1995) argues that intensified competition from abroad will induce firms to adopt new technologies as a strategy to compete. Attanasio et al find support for this hypothesis for Colombia. Between 1984 and 1998, sectors experiencing the largest tariff reductions also increased their employment of skilled workers.

Similarly, Acemoglu (2003) argues that when developing countries open to trade, they often increase their imports of technology-embodied equipment such as machines, office equipment, etc. This equipment will be complementary with skilled labor and thus may bid up the skill premium.

Yet a third explanation is offered by Aghion et al (2003). In this model, trade liberalization exposes import-competing firms to competition. Those close to the technology frontier may be able to survive by upgrading their technology. But those far from the technology frontier are unlikely to survive the intensified competition. The impact of trade then depends on which industries are most flexible and adaptable. Labor market institutions can play an important role in determining the ability of a firm to adapt.

A fourth perspective on the growing skill premium in developing countries is suggested by Harrison and Hanson (1999). They argue that exporting, itself, is a skill-intensive activity. Firms that import machinery and materials also employ a higher share of white-collar workers. This piece of evidence may, in part, explain why export oriented firms pay higher wages.

More recently, Bustos (2005) has examined the role of trade in the Argentinean manufacturing sector. She finds that trade expansion drives the adoption of new technologies

by increasing market size, improving technology transfer and relaxing borrowing constraints. There are significant barriers to success in exporting posed by large fixed costs of technology adoption. Thus, only the most efficient firms enter this activity. Further, foreign-owned firms have greater access to capital and thus are more able to overcome these technology barriers. Several interesting theoretical and empirical results emerge that have bearing on the relationship between international trade and outcomes for workers:

- Exporters and foreign-owned firms make greater investments in technology than non-exporters,
- Firms in the middle of the technology distribution and new entrants into the export market make the greatest investments in technology, presumably to catch up with large incumbent exporters.
- Analyzing a firm-level dataset that includes information on worker education and technology adoption, Bustos finds that the increase in demand for skill following liberalization comes specifically from upgrading within firms.
- Technology upgrading and skill upgrading are complements.

Hanson (2006) provides yet another take on the relationship between trade and wages in developing countries based on his analysis of the impact of the Mexican trade liberalization during the 1990s. Hanson finds that prior to the 1990s episode of liberalization, the northern part of Mexico was already more trade exposed than the south. This difference in relative exposure may in part explain the fact that incomes in the north were already higher than in the south during the pre-liberalization period. The 1990s liberalization increased the trade-exposure gap between the northern and southern regions of Mexico. As a consequence, Hanson finds that the return to labor in the low-exposure states fell by 10 percent relative to high exposure states following the 1990s liberalization.

Hanson's results for Mexico are echoed in anecdotal evidence from China. Most of the trade liberalization in China has focused on the coastal cities. The subsequent rise in income in these cities accompanying the liberalization produced a widening gap between the urban coastal cities and the interior. By contrast, in a recent working paper, Topalova (2006) finds that the most trade exposed rural poor in India gained less than other groups.

### ***Trade and the Industry Wage Premium***

Although the rise in the skill premium is an important source of the increase in wage inequality that accompanies an opening to international trade. Goldberg and Pavcnik also document considerable cross-sectoral variation in wages that are not explained by variations in gender, age, experience or education.

In a model in which labor is immobile between sectors, an increase in low cost imports will reduce the return to labor in the import-competing sector. Heckman and Pagés-Serra (2000) argue that labor market rigidities in developing countries may contribute to intersectoral labor immobility. This hypothesis is consistent with the observation that trade liberalization in developing countries is more likely to produce wage adjustments than intersectoral reallocation of labor.

Though it is clear that these cross-sectoral wage differences exist, it is not clear that trade has much of an impact on them. Felician (2001) and Pavcnik et al (2004) find no link between trade and industry wage premiums for Mexico and Brazil, respectively. By contrast, Goldberg and Pavcnik (2004) find that the industry wage premium declined for industries suffering the largest cut in tariff protection in Colombia. However, the trade linked reduction in the sectoral wage premium was small.

### ***Trade and Employment***

There are a large number of studies analyzing the effects of trade liberalization on employment. However, as noted by Winters et al, most of these studies are partial equilibrium in nature and thus tend to over-state the impact of any exogenous changes. Even so, most studies find a relatively small impact of trade liberalization on employment.

Rama (1994) analyzes data from 39 sectors in Uruguay for the period 1979 to 1986. Assuming a model of monopolistic competition, he finds that trade protection does, indeed, affect employment but not wages. Currie and Harrison (1997) provide some evidence as to why such wage effects might be small. They analyze data from Morocco and find that the impact of trade on wages and employment depends on the degree of imperfections in the output market. For competitive markets in which profit-margins are small, import penetration does, indeed, reduce employment. However, for those markets in which the

profit-margins are larger, there is virtually no change in wages or employment. These results suggest that, at least for these cases, increased trade exposure was principally pro-competitive.

The link between trade and productivity gains is supported by several studies. This includes Harrison (1994) for Cote d'Ivoire, Krishna and Mitra (1998), Aghion et al (2003) and Topalova (2003) for India, Kim (2000) for Korea, Pavcnik (2002) for Chile, Fernandes (2003) for Colombia, Muendler (2004) and Hay (2001) for Brazil. Though, there is less evidence that these productivity gains translate into higher wages. In fact, according to Rama, Revenga (1997) and others, wages may have declined after trade liberalization.

Ravenga (1997) also finds small employment effects for Mexico. Tariff reductions had no statistically significant effect on employment. The removal of import quotas did reduce employment but the impact was very small. In the Mexican case, however, labor had appropriated some of the rents created by import protection. As a consequence, the pro-competitive effects of trade not only reduced profit margins but also reduced wages in manufacturing. On average, wages in manufacturing declined by 3-4 percent, but declines as high as 10-14 percent were observed for some sectors.

Similar small employment effects are found in other studies as well. These include Marques and Pagés-Serra (1998) for Latin American and the Caribbean, Levinsohn (1999) for Chile and Moreira and Najberg (2000) for Brazil.

A somewhat stronger response of wages and employment to trade liberalization is detected by Milner and Wright (1998) in their study of Mauritius industry-level data. Initially wages and employment decline following trade liberalization. However, over the long-run, they find strong positive effects on wages and employment. This is particularly the case for women working in the apparel industry. Surprisingly, employment also grows in the import-competing sector.

Larger negative changes in factor prices are detected by Lal (1986) in a study of the Philippines. This study captures Stolper-Samuelson type effects that relate trade-induced changes in relative goods prices to factor prices. In this case, the non-tradables sector is taken to be labor-intensive. As the relative price of non-tradables declines so too do wages paid to labor.

Similarly, Winters (2000) finds Stolper-Samuelson type effects for India during the 1990s. In this case, employment shifts from the informal manufacturing sector to the formal manufacturing sector. Winters takes the non-traded sector to be “informal-intensive” and the traded sector to be “formal-intensive.” Thus, trade liberalization raises the demand for labor in the formal sector and increases wages, as well.

#### **TRADE, FDI AND GENDER DISCRIMINATION IN EMPLOYMENT AND WAGES**

The pro-competitive effect of trade is thought to potentially reduce some discriminatory behavior with regard to the employment of and wages paid to women. However, women may also have a different skill set than men, producing a differential impact of international trade.

There are two types of empirical analysis of this issue. Four studies link wages and trade comparing male to female wages following an episode of trade liberalization within a single country. One study looks at wages across countries.

García-Cuéllar (2000) and Artecona and Cunningham (2002) analyze data for Mexico. They compare the gender gap in industries for which there has been an increase in import penetration or termination of import licensing requirements relative to other industries. Wage discrimination is found to fall disproportionately in these sectors. By comparison, Berik, vander Meulen Rogers and Zveglic (2004) find gender discrimination in wages rising with international trade in their analysis of Taiwan and South Korea (1980-1999).

Black and Brainard (2004) consider the evidence on trade and nondiscrimination for the United States. They note that the intensification of competition that comes about with globalization should pressure firms engaging in gender discrimination to end this sub-optimal practice. They indeed find for U.S. industries between 1976 and 1993, the residual gender gap narrowed more rapidly in concentrated industries than in competitive industries. Thus, the pressures of international trade appear to erode the ability of firms in concentrated industries to indulge a taste for discrimination.

Oostendorp (2004) attempts to reconcile these seemingly contradictory results using cross-country data. This study employs the ILO October Inquiry, 1983-1999, which reports

wages by gender in 161 occupations for 80 countries. In the base dataset, the average occupational gender gap is 13 percent in developed countries and 4 percent in developing countries.

A simple regression of wage gap on per capita GDP reveals a positive correlation between wage discrimination and income. This analysis, though, does not take into account occupational segregation by gender, which may also be correlated with income. In order to control for cross-country heterogeneity, Ootendorp then compares the change in the gender gap for high growth rate countries relative to low growth rate countries. In this case, the slow growth rate countries exhibit a widening of the gender gap whereas the high growth countries exhibit a narrowing of the gap.

Trade and FDI are also found to have a negative impact on the gender gap. Trade and FDI, in this study, are measured as a percent of GDP. Both of these indicators of openness are also negatively correlated with the gender gap. That is, more globalized economies have a smaller wage gap between men and women within occupation.

As with economic growth, countries are then sorted into those that are increasing trade more rapidly than others and those that are slower. As with economic growth generally, countries with the fastest growth in trade exposure are also experiencing a decline in the gender wage gap. Not only has the average declined for the entire group of countries, but also declined within 70 percent of the countries included in the rapidly globalizing group. The opposite is the case for the slow globalizers.

While this negative relationship between trade and gender discrimination holds for trade, it does not hold for FDI. Countries receiving the largest increase in FDI as a fraction of GDP also exhibit an increase in gender discrimination.

Multiple regression analysis is then employed. Countries are again sorted into low income and high income. Occupational gender discrimination is then regressed on GDP per capita, trade openness and FDI. Interestingly, discrimination is positively correlated with GDP per capita in low-income countries, but not in high-income countries. Thus, there appears to be some non-linearity in the relationship between gender discrimination and income.

The relationship between trade and the gender wage gap continues to be negative for both groups of countries. However, for FDI, we again observe a non-linearity. The gender gap falls with FDI in low-income countries but rises in high-income countries.

Some difference between high and low-income countries is expected. Trade would normally be expected to raise the return to low skilled workers in developing countries and raise the return to skilled workers in developed countries. To the extent that women are differentially low-skilled, we would expect to see trade improving the relative lot women in developing countries. Women in developed countries would only gain if the pro-competitive effect of trade increased pressure on firms engaging a taste for discrimination.

Oostendorp then sorts occupations into high-wage and low-wage. Presumably, high-wage occupations are also high-skilled occupations. The results are the following:

- Trade and FDI reduce the gender wage gap for high skilled workers in high-income countries and low skilled workers in low-income countries. This is consistent with the hypothesis that as trade expands production in those goods in which a country has a comparative advantage, there is an increase in the relative demand for female workers and a rise in their relative wage.
- Trade and FDI reduce the gender wage gap for low-skilled workers in high-income countries. This is consistent with a pro-competitive effect on discriminating employers in contracting industries in high-income countries.
- FDI increases the gender gap for high skilled occupations in poor countries. Thus, the pro-competitive effect of trade does not appear to be an important determinant of wage discrimination in developing countries. It is also possible that the technology embodied in FDI also raises the demand for skill, limiting the pro-competitive effects of globalization.

Finally, Oostendorp considers whether these results might arise due to cross-country variations in wage-setting institutions, intra-country trade and occupational segregation. Unions and/or collective bargaining are found to significantly reduce the gender gap in developed countries. However, the results relating to trade are unaffected. Nor do variables capturing intra-country trade affect the sign of the estimated coefficients of the trade

variables. Tests for the impact of occupational segregation are unsuccessful due to the small number of observations.

Of course, trade may affect women not only through wages but also through new employment opportunities. Often new opportunities created by trade openness disproportionately affect women. An example of this phenomenon is detailed in Kabeer (2000), which provides an analysis of the creation of new jobs and opportunities for young women in the Bangladesh apparel industry.

A similar tale is told by Head (1998) concerning the impact of changes in EU trade policy related to canned fruit and its impact on female workers in Paarl, South Africa. These workers were devastated by the loss of an important export market. Finally, Milner and Wright (1998) find that trade liberalization in Mauritius raised the relative wages of women (and unskilled workers generally) in the export sectors.

#### **TRADE AND CHILD LABOR**

The evidence presented above suggests that FDI is not particularly attracted to markets with child labor. The question we turn to now concerns the impact that trading opportunities have on child labor.

In their thorough going analysis of Vietnam's integration into the global rice market, Edmonds and Pavcnik (2005) find that the incidence of child labor depends on each family's asset holdings. Between 1993 and 1998, Vietnam removed rice export restrictions producing a 29 percent increase in the domestic price of rice. From a theoretical perspective, the subsequent rise in the return to land and labor in rice production has an ambiguous impact on working children. On the one hand, the rise in adult wages in rice production increases the opportunity cost of household production. As a consequence, the rise in the wages of rural mothers may lead some families to draw their daughters out of school and into household production. Similarly, the rise in the wages of children working in the rice sector could increase the opportunity cost of child leisure and schooling. Families for which these substitution effects dominate may actually respond to the rise in the price of rice by increasing child labor. On the other hand, rising household income will increase the demand

for quality children. Rising household wealth will relax the liquidity constraints that families face when trying to make education investments in their children.

Edmonds and Pavcnik find that households with large and medium-sized landholdings reduced the amount of time their children work and increased leisure and schooling. The effect is particularly pronounced for older girls. Thus, the income effect dominated some of the other forces that might have drawn children further into rice or household production. However, children in families with small landholdings increased their supply of labor to the rice market. Thus, trade increased the employment opportunities for these children. Furthermore, urban households suffered a decline in real income when the price of rice rose. These families also increased the time their children spent working. It should be noted, though, that on balance, child labor declined in Vietnam following the liberalization of the rice market. A 30 percent increase in the price of rice resulted in a nine percentage point decline in child labor.

Edmonds and Pavcnik (2006) report similar results for a cross-country analysis. Trade openness and child labor are *negatively* correlated. Each one percent increase in trade openness reduced child labor by 0.7 percent. Edmonds and Pavcnik find that the negative correlation between child labor and trade is primarily driven by the positive correlation between trade openness and income growth.

Neumayer and de Soysa (2005b) extend the results of Edmonds and Pavcnik to include FDI. Not only do countries open to trade have a lower incidence of child labor, countries with a larger stock of foreign capital also have fewer working children. Indeed, there seems to be little empirical evidence that capital owners are attracted to markets in which child labor is common. In fact, the opposite appears to be the case.

## **TRADE AND JOB SECURITY**

Exposure to international trade inevitably leads to short term employment disruptions as workers move from one sector to another. Indeed, Edwards and Edwards (1996) find a positive correlation between duration of unemployment and degree of liberalization by sector. However, Matusz and Tarr (1999), surveying a large number of studies, find that

these trade-related increases in unemployment are quite short. Harrison and Ravenga (1998) find that the adjustments in Costa Rica, Peru and Uruguay were nearly instantaneous.

## **TRADE AND THE INFORMAL SECTOR**

The consequences of trade for labor interests in developing countries turn critically on the impact that it has on the informal sector. Firms facing new competitive pressures from imports may seek to cut costs by shifting some of their employment to the informal sector. These workers in the informal sector typically lack standard legal protections provided by minimum wage law, hiring and firing regulations and basic worker benefits such as social security. Furthermore, there is considerable evidence that workers in the informal sector earn lower wages even after controlling for observable worker characteristics. Theoretical support for such behavior is provided by Goldberg and Pavcnik (2003).

Three studies have empirically analyzed the probability of employment in the informal sector following a trade liberalization. Currie and Harrison (1997), in their study of Morocco, find that public-sector firms increase the proportion of temporary workers following trade liberalization. However, in a study of Brazil, Goldberg and Pavcnik (2003) are able to control for individual worker characteristics. They find that cross-sectional variation in tariff changes is not a significant determinant of the probability of employment in the informal sector after controlling for individual worker characteristics.

In contrast, Golberg and Pavcnik find that trade liberalization was accompanied by an increase in informal employment in Colombia. However, this relationship disappeared following a labor market reform that provided firms with increased flexibility in terminating workers.

Thus, it appears to be the case, that trade liberalization does not increase the probability of informal employment, provided there is sufficient labor market flexibility. In the case of Colombia, the culprit was high severance payments. However, this literature does not address the question as to whether benefits in the formal sector are reduced with a liberalization.

## **TRADE AND A RACE TO THE BOTTOM IN LABOR PROTECTIONS**

We turn finally to consider the impact of trade on the regulation of core labor practices. Governments may be motivated to reduce protections if they affect comparative advantage. However, it is also possible workers implicitly pay for the protections they receive with lower wages. The evidence on this point is mixed. We observe both protections that alter comparative advantage and, thus, are vulnerable in a globalizing environment and those that are simply part of the cost-minimizing compensation package.

Busse (2002) addresses this question in the context of the Heckscher-Ohlin (H-O, factor proportions) model. The impact of labor practices on comparative advantage depends on how each particular practice affects the supply of unskilled relative to skilled labor. Forced labor and child labor likely expand the relative supply of unskilled workers. By contrast, discrimination in employment, particularly if the practice prohibits women from working in particular industries, may reduce the supply of labor. The impact of unions on the supply of labor is ambiguous. If the union is trying to exercise monopoly control of the supply of labor, then it will reduce the supply of labor and reduce comparative advantage in labor-intensive goods. However, it is possible that the union actually helps the labor market function, improving communication between workers and employers. Any subsequent productivity improvements may enhance productivity in labor-intensive goods.

Busse (2002) then estimates a standard H-O equation. The dependent variable is exports of labor-intensive goods (textiles, clothing, footwear, toys, etc.) as a fraction of total exports. As a baseline, unskilled labor-intensive exports are taken as a function of the endowment of labor, land, and the literacy rate. As expected, unskilled labor exports are positively correlated with the labor-land ratio and negatively related to the literacy rate.

Busse then considers the marginal impact of the various labor practices. Discrimination in employment is measured by the female labor force participation rate; child labor is measured by the labor force participation rate for children aged 10-14. Rights to free association and collective bargaining are measured by the OECD's indicator of union rights. An index of forced labor is drawn from ILO documents. Busse also includes the number of ILO conventions ratified relating to core labor practices.

Labor force participation by females improves comparative advantage in unskilled labor-intensive goods. However, by contrast, weak protections against child labor and forced labor are also correlated with comparative advantage in unskilled labor-intensive goods. Similarly, countries with a strong right to organize also export fewer labor-intensive goods than their labor endowment would lead us to expect.

The cross-country evidence presented by Busse (2002) is complemented by analysis undertaken by Botero, Djankov, La Porta, Lopez-de-Silanes and Schleifer (2003). They code labor regulations in 85 countries and find that stricter labor regulations are correlated with lower labor force participation, higher unemployment and a larger unofficial economy.

Establishing causality can be difficult given limited institutional changes and an inability to control for other factors that might be driving policy-making and market outcomes. In order to address this problem, Besley and Burgess (2004) use a panel of data from a single country and a single piece of legislation.

Besley and Burgess focus on the Industrial Disputes Act of 1947 and the impact that organized labor may have had on the business climate and economic growth in India between 1958 and 1992. This act was passed at the national level, as was most legislation regulating industry during this period. However, individual state governments could introduce state-specific amendments relating to worker-employer relations. During the period of study, 113 amendments were introduced. The authors characterized these amendments as “pro-labor,” “pro-capital” or “neutral.” The authors then test whether cross-state variations in the type of amendment to the Industrial Disputes Act can account for some of the variation in economic performance across states. They find that pro-worker regulations resulted in lower output, employment, investment, productivity and urban poverty in the formal manufacturing sector.

Besley and Burgess hypothesize that labor regulations affect the business climate through two channels. Labor protections may raise the cost of employing labor, which they term the *relative price effect*. They also argue that labor protections may increase the ability of labor to extract rents from capital investments that are sunk. The authors refer to this as the *expropriation effect*.

Besley and Burgess estimate a cross-sectional time series. The dependant variable is the economic outcome. There are state and time fixed effects, a vector of other exogenous

variables and regulatory measure in the previous period. Economic outcome variables include state output per capita, agricultural output, non-agricultural output, output in the construction sector, manufacturing, and registered manufacturing. Based on an examination of the type and frequency of amendments, six Indian states are characterized as “neutral,” six as “pro-employer,” and four “pro-worker.”

They find that pro-labor regulation appears to push workers out of the non-agricultural sector into the agricultural sector (in which the legislation does not apply) and from registered manufacturing to non-registered manufacturing. Thus, regulation appears to affect production only in those sectors to which it would apply.

The results are robust even after adding a number of controls such as development expenditure, electrical capacity, labor market conditions, and political history. However, once state-specific time trends are introduced into the estimation, the legislation variables are no longer statistically significant. The authors argue thus that the orientation of amendments is affecting the time trend of economic growth. Regulations do not appear, however, to increase wages per worker but do reduce capital formation and value-added.

The authors argue that the evidence leaves little doubt that pro-worker amendments lead to lower investment, employment, productivity and output. Furthermore, workers did not benefit from this type of legislation and more were pushed into the informal sector.

This debate over the effect of labor protections and economic development is far from resolved, however. Portes (1994), for example, argues that labor protections that specifically reduce labor mobility are the main culprit. Some labor regulations promote economic growth. In the words of Stiglitz (2002, p. 175) an, “...open, transparent, and participatory *processes* are important ingredients in the development transformation ...” Both Stiglitz (2002) and Rodrik (1997) advance the case that strong civic rights reduce conflict and instability.

Distinguishing between types of labor legislation, thus, is an important next step in the development of the literature linking economic labor protections and economic growth. This can be accomplished by focusing on specific types of regulation.

### ***Job Security and Civic Rights***

Heckman and Pagés-Serra (2000), analyzing data from 16 Latin American countries, find a positive correlation between an index of job security and self-employment. However, surprisingly, they also find that the weakening of job security also increases self-employment.

By contrast, Galli and Kucera (2004) focus on civic rights, particularly the rights to unionize, engage in collective bargaining and strike. They focus on Latin America since this region experienced considerable changes in labor regulations over the past three decades. Focusing on data from 1990-1997, Galli and Kucera find that the Freedom House index of civil liberties is positively correlated with employment in large firms and negatively correlated with employment in small firms and self-employment. That is, protection of civil liberties is negatively correlated with informal employment. These results are stable even after controlling for urban unemployment, urbanization, value-added as a percent of GDP for agriculture, industry, manufacturing and services.

One of the challenges posed by the studies which rely on cross-country, -region, or – time changes in regulation is endogeneity. Did labor regulations begat bad economic times or did bad economic times begat labor regulations? Researchers have an array of strategies for addressing this concern with their analysis. MacIssac and Rama (2001), in their analysis of the impact of mandatory severance pay in Peru on consumption and labor costs, control for endogeneity by analyzing household survey panel data.

Households within the 1991, 1994 and 1997 Peru living standards survey eligible for a severance payment can be determined by their survey responses. In order to be eligible, a terminated worker must meet a set of criteria.

A standard wage equation is then estimated, controlling for gender, schooling, experience, position in the household, region of residence and cultural background. They find that private sector workers entitled to severance pay earn 12 percent less and work longer hours than those not eligible. Thus, it appears to be the case that workers pay for severance pay through lower wages. That is, severance pay is a worker-funded employment insurance program.

Severance pay is also found to have a significant consumption smoothing effect for terminated workers. Terminated individuals who are not covered consume 12 percent less than workers eligible for benefits.

Similarly, Lai and Masters (2005) find that mandatory maternity and pregnancy benefits in Taiwan lowered wages for covered females. Analyzing the Manpower Utilization Survey (1978-1996), they find that wages and employment of young women covered by the legislation declined relative to young men and older women.

Taiwan adopted the Labor Standards Law in 1984, which requires that firms pay eight weeks of maternity leave, provide pregnant employees with jobs suitable to their condition and allow time for breast-feeding infants. Nor are firms allowed to terminate females who marry or become pregnant.

The authors then compare the wages of eligible females in covered sectors relative to females in uncovered sectors before and after 1984. Men and older women are also used as comparison groups. The legislation appears to have lowered wages for young women 4-5 percent relative to men, and 4 percent relative to older women. Employment for young women also falls on the order of 10-15 percent relative to males and older females. Statistical significance is marginal but increases after passage of the Labor Inspection Law in 1993.

### ***Minimum Wage Legislation***

Standard economic theory would suggest that imposing a minimum wage on a market will reduce employment. Indeed, standard estimates from the United States suggest that the elasticity of teenage employment with respect to the minimum wage is  $-0.1$  to  $-0.3$ . (See Rama for a review.) However, Card and Krueger (1994) challenge this view, arguing that there may be little or no employment effect in labor markets that are monopsonized.

The increase in the minimum wage in Indonesia during the 1990s provides an interesting opportunity to assess minimum wage legislation in a developing country context. Rama (unknown) and Harrison and Scorse (2004) both find little to no effect of the Indonesian legislation. Harrison and Scorse, in particular, argue that monopsonistic

employment practices were particularly problematic in the textile, footwear and apparel sectors.

During the 1990s, Indonesia quadrupled its minimum wage in nominal terms, resulting in a doubling of the real minimum wage. Harrison and Scorce find that by 1996 foreign owned firms were more likely to be in compliance than domestic owned firms, even controlling for worker and plant characteristics. Furthermore, export oriented firms were also more likely to be in compliance.

However, Harrison and Scorce attach an important caveat to their results. Firms that were export oriented began the decade with *poorer* compliance performance than firms supplying the domestic market. It was not until the middle of the 1990s that export-oriented firms produced a record of compliance that exceeded that of domestic producers. Harrison and Scorce speculate that anti-sweatshop agitation early in the decade along with U.S. threats to retract tariff preferences under the Generalized System of Preferences (GSP) may have raised wages in export-oriented firms. That is, they find some evidence that Western buyers were sourcing from low-cost vendors paying below-market wages. Such firms may therefore have been a worthy target of human-rights activists.

Harrison and Scorce hypothesize that the distinctive impact of minimum wage law was the consequence of pressure from anti-sweatshop activists. Indeed, the evidence from other analysis suggests that minimum wage legislation has limited consequence for labor market outcomes. For example, Maloney and Nuñez (2003), analyzing data from Latin America, find little evidence of a spike in wages near the legislated minimum. Nor is there evidence that the proportion of workers earning less than the legally mandated minimum is smaller in the formal sector than in the informal sector, as reported by Gindling and Terrell (1995) for Costa Rica.

Fairris (2005) finds similar results for the United States. He analyzes the impact of the Los Angeles Living Wage Ordinance.<sup>4</sup> Using a quasi-experimental research design, he finds that starting pay of low wage workers rose by \$1.74, paid days off rose by two days and there has been no change in employer-paid health benefits. Employers also enjoyed some

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<sup>4</sup> *Industrial Relations*, vol. 44, no. 1, January 2005, is dedicated to analysis and empirical evidence relating to the *Living Wage Debate*.

benefits such as a reduction in turnover, absenteeism, overtime hours, and training expenses. Nor did the ordinance impact the use of part-time workers, or intensity of supervision.

#### **IV PRIVATE, VOLUNTARY AND INTER-GOVERNMENTAL AGREEMENTS AND WORKING CONDITIONS**

Given the limitations of using international trade negotiations within the WTO to manage humanitarian externalities arising from the labor practices in trading partners, we turn now to other channels through which these concerns might be mediated. Freeman (1994) argues that product labels can be used to identify products that are made under humanitarian working conditions. Several such certification agencies are actively monitoring production facilities in Asia and Latin America. The efforts of these groups are detailed in Elliott and Freeman (2003).

Elliot and Freeman advance the case for product labeling, citing considerable evidence of the willingness of consumers to pay higher prices for humane working conditions. For example, a Mary Mount Survey implemented in 1995, 1996 and 1999 found that 85% of respondents said they would pay \$1 more for a \$20 item. Similarly, a University of Maryland survey undertaken in 2000 found that consumers would be willing to pay \$3 more for a \$20 garment. Finally, citing standard laboratory evidence from the 2-player Dictator's Game in which one player is instructed to split \$100 with a second player, only 20% of players opted to keep the entire amount for themselves. The survey evidence is particularly strong where it pertains to child labor and safe working conditions.

In a recent working paper, Hiscox and Smyth (2006) find a striking willingness to pay for labeled products.<sup>5</sup> Although there is significant evidence of a willingness to pay for fair trade products, the realized market is quite small. Levi and Linton (2003) analyze the impact of fair trade in the coffee market. They find that coffee campaigns have improved the lives of small-scale coffee farmers and their families. The benefits accrue by increasing wages, links to farming cooperatives and access to capital markets and technological assistance. However, the coffee cooperatives are only able to sell about half of their crops at the fair

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<sup>5</sup> Though intuitively appealing, product labels are limited in their ability to accomplish their principle objective of improving working conditions for workers in developing country. See, in particular, Basu, Chau and Grote (2006), (Brown, 2006) and Davies (2005).

price. The Fair Trade Federation (2000) estimates that global sales of fair trade products is \$400 million. Yet, most of the evidence on the impact of these initiatives is anecdotal based on the promotional literature of the intermediaries.

## **CERTIFICATION**

Many apparel vendors now regard acceptable conditions of work as a selling point for their products and have looked to the various product-labeling agencies to certify compliance with a set of working-conditions codes. For example, the Social Accountability International (SAI) in New York issues certificates of compliance with a set of labor practices.

Although these certification efforts began with the intent of monitoring factory conduct, they have over-time emerged, at least in part, as a channel through which optimizing labor management practices have been transmitted from the certification industry to apparel vendors. Factories seeking SAI (Social Accountability International) certification may work for several years to achieve certification readiness. The process includes information sessions in labor management practices provided by SAI certified trainers. SAI, in particular, has not only sought to sell its labor standards certification as a product attribute attractive to consumers, but also to make the case to vendors that adherence to SAI approved labor practices will increase efficiency and lower the cost of production. To this end, SAI has encouraged and supported cost-benefit analysis of achieving certification readiness.<sup>6</sup>

The Kenan Institute Asia (2003) followed six Thai apparel factories between May 2000 and May 2003 as these factories worked their way toward SAI certification. Researchers weighed the cost incurred from initial and surveillance audits, training, and health and safety against the benefits of lower accident, manpower turnover and reject rates and improved production efficiency. One of the significant challenges a factory faces in attempting to achieve certification is the control of excessive over-time hours without reducing total factory output or worker compensation. This can only be accomplished by increased capital investments unless, of course, the factory can find a strategy for increasing labor productivity. In one case, KIA researchers identified a factory seeking SAI

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<sup>6</sup>See, in particular, <http://www.cepaa.org/Participation%20Opportunities/ParticipationOpportunities.htm>.

certification that learned to use pay incentives linked to individual or group performance to control excessive overtime. By contrast, a second factory in the study failed to make significant changes in its human resource management practices. Rather, they simply resorted to subcontracting work to an uncertified factory during periods of high demand. These two cases neatly demonstrate that the certification process can spur factories to search for and discover labor management practices that are both more humane and profitable. However, it is possible to achieve certification without doing so.

The SAI protocol was also adopted by Chiquita Banana in Latin America. Werre (2003) documents significant benefits for workers, as a consequence. Findings include:

- Auditing indicated that many permanent workers were classified as temporary and, thus, did not receive full compensation and benefits, and
- A new Occupational Health and Environment Management system was installed in Costa Rica, resulting in a 40 percent reduction in the number of accidents.

Benefits of certification were also enjoyed by the intermediaries.

- The decline in the accident rate lowered the cost of insurance, and
- Several European retailers chose Chiquita as their main supplier due to Chiquita's commitment to humane labor practices and sustainable agriculture.

## **FAIR TRADE**

Although SAI is only engaged in certification, a second set of organizations engage in both monitoring and marketing. Case study analysis of fair trade initiative overseen by Fair Trade Labeling Organization (FLO) in bananas grown in the Dominican Republic was undertaken by Shreck (2002). The benefits to banana growers include:

- Growers receive a premium of \$1.75 per 40 pound box financed by consumers.
- Some of the labeling premium paid by consumers was also used to finance road preparation and the purchase of irrigation equipment.
- Provide loans which were available to help certified firms recover from Hurricane George in 1998.
- Improve farm infrastructure and improve fruit quality.

Shreck also highlights some problems with this initiative.

- Many producers did not know what FLO certification implied or how to differentiate certification from other forms of development aid.
- Certified firms are more likely to devote all of their land to banana production, raising concerns about crop diversification and its benefits.
- The irrigation equipment purchased following Hurricane George created a significant debt burden that took years to repay.
- Some growers felt that the exporter was able to capture the premium. The payment structure was confusing and it was not always clear to the grower who was receiving the labeling premium.

A more formal analysis is undertaken by Bacon (2005). A research team surveyed 228 farmers in Northern Nicaragua on their experience accessing organic and fair trade markets. Coffee prices currently are at their lowest in a century. This appears to be the result of the disintegration of the international coffee agreement and a worldwide coffee market glut. Permanent employment in Central America's coffee market declined by 50 percent and seasonal employment by 21 percent (IADB, 2002). As a consequence, Nicaragua has been experiencing a rural-urban migration to the urban poverty belts. Conversion of coffee agro-forestry systems in Costa Rica to treeless cattle pastures has accelerated hillside erosion (Bacon, 2005, p. 498.).

Bacon's survey results are as follows:

- Small scale farmers do not have access to the certification procedure used to determine coffee quality and, therefore, price. However, small coffee growers gain access to the quality certification process through cooperatives and marketing associations.
- Cooperatives allocate some of the price premium paid by fair trade and organic markets to investment in infrastructure, debt retirement, housing and education.
- Of farmers who had diversified into organic, fair trade or roaster-direct market channels, 8 of 180 feared losing their farm to debt. By comparison, of those that did not diversify, 8 of 44 had similar fears. Though, it should be noted, that this survey response procedure

does not account for endogeneity. Those growers with the financial wherewithal to make investments in diversification may be more financially sound than other growers.

The impact of fair trade on coffee producers in Tanzania is reported by Parrish et al (2005). Access to fair trade outlets increased financial capital at the farmer level by 42 percent. They argue that fair trade organizations more closely link farmers to the global market, improve financial flows that reach the local level, and improve the bargaining power of farmers vis-à-vis the market.

A similar positive outcome is reported by Doherty and Tranchell (2005) in their study of the Day Chocolate Company (Day). Day provides small-scale cocoa farmers in Ghana with direct access to global markets by making farmers equity owners in the company. Between 1947 and 1993, cocoa exporting was state-run, with the price determined by the state. Liberalization of this market was undertaken in 1993 at the behest of the World Bank. Liberalization exposed farmers to new risks but also allowed them to organize into larger more cost competitive units.

#### **CORPORATE CODES OF CONDUCT**

The certification and marketing of products meeting minimal labor standards has also been undertaken by some large reputation-sensitive brands. Many western corporations that source from factories in the south and east have developed corporate codes of conduct that establish minimum conditions of work for their suppliers. Corporate codes are not without their critics. Esbenshade (2004), for example, argues that corporate codes may displace government regulation or labor organizations and exist principally to limit the legal liability of the buyers. Further, auditing of code compliance by auditors internal to the MNC may not have an interest in identifying violations. A proliferation of codes, one for each customer, may also be confusing and inefficient for the factories. Complaints, in particular, of *monitoring fatigue* are common.

In order to determine the impact of corporate codes on working conditions, Locke et al (2006) analyze a rich data set that includes compliance performance for 468 factories supplying Nike with footwear, apparel and sporting equipment. They find the following:

- Factories in countries with a high *rule of law*<sup>7</sup> index also have better code compliance. Variation in their index of the *rule of law* explains nine percent of the variation in code compliance in the absence of regional fixed effects. When regional fixed effects are introduced, *rule of law* loses some of its explanatory power but remains statistically significant.
- Larger factories have poorer code compliance performance than smaller factories.

The authors suggest that smaller factories may be easier to control and monitor than larger factories. However, there are two other possible explanations. First, presumably factories become large because they are more profitable. Thus, this result suggests that poor working conditions jointly produce more profitable factories and poorer compliance performance. That is, good working conditions may not be good for business.

Second, very large factories may be engaged in mass production of relatively simple items whereas the smaller factories are more likely to be producing the higher quality more complex products. To the extent that a more sophisticated workforce is necessary to produce higher quality products, these high end smaller factories may have found it profit-maximizing to employ more sophisticated labor management practices.

- The compliance performance of foreign owned firms is no better or worse than domestically owned firms.
- The frequency and nature of the contact between Nike and the factories has a significant relationship with compliance performance.

On the one hand, frequent factory visits by Nike personnel, from both compliance and production units are positively correlated with compliance performance. Factories that have achieved the rank of strategic partner within the Nike supply chain also have better compliance performance. On the other hand, compliance performance is poorer for factories that have a longer relationship with Nike or dedicated a large fraction of their production capacity to Nike.

The authors suggest that Nike's sourcing and production teams encourage their main suppliers to use more sophisticated management practices such as *Lean* and *TQM*. These

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<sup>7</sup> The rule of law index is derived from Kaufmann et al (2004) and measures the extent to which agents have confidence and abide by applicable national and local law.

production systems emphasize product quality and communication within the factory. As a consequence, there may be some spillover from the management of the production process over to the management of labor.

These results are also consistent with the possibility that the Nike sourcing unit has recently been developing relationships with factories that have stronger compliance performance. Indeed, Locke et al report that 43 percent of prospective factories fail Nike's initial pre-screening approval process.

The result that Nike dedicated factories have a poorer compliance record is surprising. One would have expected that the more dependent a factory is on a single buyer the greater the leverage that the buyer will have in the relationship. However, Locke et al consider the possibility that multiple buyers demanding compliance performance increases the pressure a factory feels to comply with buyer demands relating to working conditions. There may also be greater learning and information-sharing across buyers which promote code compliance.

Locke et al then turned to the question as to whether there is any evidence that the auditing process improves working conditions. Of the factories in their data set, 117 were audited twice. Of these factories, there is a significant increase in the average audit score for the re-audited factories. One might suspect that poorly performing factories were selected for a second audit. The only firms that survived are those that improved their compliance performance. However, in fact, the average score for the re-audited factories is statistically equal to the score of the factories that were only audited once. Thus, it does not appear that the re-audited factories were drawn from the low end of the compliance performance distribution.

Factories most likely to receive a second audit were strategic partners and factories that dedicated a large fraction of their production capacity to Nike. Factories in countries with weak legal labor protections were also more likely to be re-audited. Indeed, Nike deliberately devotes its monitoring capacity disproportionately to those factories with which it would like to develop a long-term relationship.

Weil (2005) finds supporting evidence that buyer enforced code-compliance can improve working conditions in his analysis of the U.S. apparel industry. The U.S.

Department of Labor has put pressure on large manufacturers to monitor the compliance with minimum wage law by their subcontractors. The Labor Department then conducts random inspections of these subcontracting factories. This paper reports analysis from a set of random inspection-based surveys of apparel contractors in Los Angeles for the period 1996-2000.

Weil finds that minimum wage compliance pressure is greatly increased when buyers collaborate with government agents to enforce wage laws. The prospect of lost business for a non-compliant factory poses a far greater pecuniary penalty than the fines imposed by the U.S. government. Furthermore, the probability of detection is far higher when buyers coordinate enforcement with government officials. Weil also finds that compliance performance is higher for factories producing goods requiring worker skills.

#### *Code Compliance and the Transmission of Labor Related Knowledge Capital*

We have already discussed two cases above in which MNCs can have a mitigating effect on market failures that give rise to inefficiently poor working conditions. First, MNCs can play a role in helping factories internalize the external effect that their conditions of work have on western consumers. Second, Harrison and Scorse have identified the role that western corporations played in weakening the monopsonistic employment practices exercised by apparel, textile and footwear firms in Indonesia.

However, corporate codes have come to play a third role in improving working conditions in developing countries. Historically, there is some serendipity in discovering profit-maximizing management practices. That is, there may be a failure in the market for information. U.S. apparel firms eighty years ago were led to experiment in labor management practices as a strategy to compete with armaments factories for labor. The working conditions exposées of the last 15 years have had a similar impact on Asian factories.

Ichniowski, Shaw and Prennushi (1997) have well demonstrated, for the U.S. steel industry, that more sophisticated human resource management systems are positively correlated with plant-level productivity and product quality. In other words, enlightened labor management practices are good for business. However, history tells us that notions of

enlightened labor management are difficult to accept. Factory managers often do not change their labor management practices until external events force experimentation. Anti-sweatshop activity appears to have played a role in precipitating precisely this type of experimentation in innovative labor practices in global apparel supply changes that are both more humane and more productive.

Sable, O'Rourke and Fung (2000) provide a critical assessment of the process and mechanisms through which multi-nationals may affect working conditions in global supply chains. They argue that corporations with far flung global supply chains have "mastered the disciplines that foster excellence and innovation among their own ... suppliers." The specific knowledge that these firms have concerning continuous improvement in production efficiency and product quality can turn to more social concerns, as well. Through a process of setting their own corporate codes of conduct, educating factories on acceptable labor management practices, and partnering with NGOs that deliver services to workers and monitor working conditions, corporations with global supply chains can meaningfully improve the lives of workers in their supply chains and model exemplary corporate behavior for their competitors.

Riisgaard (2005) details the example of the 2001 agreement between Chiquita and the Latin-American Coordination of Banana Workers Union. Corporations that engage in a program of continuous improvement in labor practices may be rewarded by socially conscious consumers and stockholders. There may also be price, quality and productivity benefits to the extent that these more humane work practices are also more efficient.

Theorizing by Sabel et al is supported by anecdotal evidence. Compliance with corporate codes of conduct began as a policing operation during the early 1990s. However, over time, some compliance officers have become increasingly discontented with the *check-list* approach to compliance. One compliance officer described his practice of adopting a more holistic approach to compliance. Rather than simply noting a factory's compliance with a list of working conditions, the compliance office has begun to take each example of a failure to comply as an opportunity to teach factory management about strategies for improving its production process. In one example, the compliance officer noted that a recent change in the layout of the production floor had exposed workers to a new safety hazard.

The compliance officer took the opportunity to point out to the factory that it did not have a strategy for “managing change.” He then discussed with the factory the range of issues that must be addressed systematically each time a change in the production process is contemplated.<sup>8</sup>

Consider two further illustrations from apparel manufacturing. Compliance officers commonly focus attention on low average wages and long hours of work. Inevitably, policing wages and hours of work led some compliance officers to consider the core cause of low worker productivity.<sup>9</sup> During factory inspections, it was common to observe some idle workers and others with piles of garment components next to their workstations. Ultimately, compliance personnel were able to link the inefficient allocation of work on the floor to low factory productivity and, therefore, low wages and long hours of work. The solution to this problem then lay not in policing factory conduct but, rather, providing factories with information on production technology that would balance the flow of work through the factory.

Factories have also been encouraged to introduce pay incentives linked to productivity. Once a factory manager understands that a carefully designed and well-articulated payment scheme could increase productivity, the factory now has an incentive to actually pay the wages promised. The hope is that code violations relating to non-payment of wages may thus become less common in factories with incentive-based pay.<sup>10</sup>

Thus, some of the strategies for achieving corporate code compliance could potentially raise factory profits, providing factories an incentive to voluntarily remain in compliance. Under such a scenario, the corporate code is no longer a binding constraint. Factories voluntarily adopt labor practices that exceed those required by their corporate customers.

If these innovative practices relating to labor management are, in fact, profit-maximizing, the challenge to corporate compliance officers is greatly diminished. In light of the fact that the corporate code is not a binding constraint for such innovating factories, compliance officers can simply observe the HR system rather than adherence to an array of

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<sup>8</sup> Confidential communication, January 27, 2004.

<sup>9</sup> Confidential communication, February 13, 2004.

<sup>10</sup> Confidential communication, February 2, 2004.

complex codes. That is, innovative labor management practices provide a factory with an observable signal to the corporate compliance officer that the factory is in compliance with the corporate code

Two empirical papers find some tentative results on the impact of corporate codes of conduct on the adoption of efficiency-enhancing labor management practices. Brown et al (2006) examine a buyer-organized demonstration project around anemia and intestinal parasites undertaken in seven Bangalore apparel factories. In this case the two buyers were U.S. headquartered multinationals which source from but do not own Indian apparel factories. A careful experimental design and identification strategy was especially important for evaluating the true impacts of treatment, since the “raw” pre-post comparison was confounded by other factors, misleadingly suggesting little benefit of the intervention. The study period for this intervention is co-incident with factory organizational changes that were implemented in anticipation of the termination of the Multi-Fiber Arrangement (MFA) on January 1, 2005.

They use evidence on gender, marital status, birth control practices and anemia status to identify treated workers who should exhibit a differential impact of treatment due to the progression from helminthic infestation to anemia and/or treatment with a full medically appropriate regimen of medications. The *difference-in-difference-in-difference* estimated impact of a full regimen of treatment with the de-worming drug Albendazole and iron supplements is 6.18, representing an eight percent increase in productivity for anemic workers. For one ownership group that exhibited significant cross-worker externalities of treatment, productivity increased by 10 percent for the entire factory. The large productivity gains from treatment stand in sharp contrast to the very low cost (\$0.08 per year per worker for the de-worming drug).

Prior to treatment, anemic workers were found to be as productive as non-anemic workers, even controlling for age, education and experience. Given that treatment significantly raised the relative productivity of anemic workers, this result implies that anemic workers have some innate ability that compensates for the adverse consequences of their poor health and are, thus, latent high productivity workers. It is likely that anemic

workers with average innate ability are terminated or self-select out of factory employment due to their poor health.

The treatment program also lowered manpower turnover, reducing the probability that an anemic worker would leave the factory during the eight-month duration of the study by as much as 38 percent. Results indicate that the retention rate improves because anemic workers value the access to medical treatment for their poor health rather than the impact treatment had on their productivity.

They conclude that the level of health care within these factories prior to the intervention was not profit-maximizing for the factory or the supply chain for at least six inter-related reasons:

- The payoff from the productivity gains from treatment considerably exceeded the cost;
- Positive productivity externalities were generated from treated anemic workers to non-anemic workers due to other inefficiencies in production line organization;
- The abilities of the factories' inherently most productive workers were not realized due to poor health;
- High turnover related to illness impaired the ability of the factory to retain investments in worker skills;
- Workers value access to health care as a component of the compensation package; and
- Attention to worker health may generate positive reputation effects for the entire supply chain.

The buyers directed the intervention and subsidized its cost. Such a role was critical for identifying this profit-increasing labor management innovation for all vendors in their supply chains for at least three reasons:

- The buyers had a stronger prior belief concerning the impact of worker health on productivity than the factory managers;
- Most vendor ownership groups are too small to experiment with more than one production systems innovation at a time; and

- Changes in market conditions confounded experiments in labor management practices. These last two considerations, in particular, created substantial cross-supply chain externalities of experimentation by a sub-set of vendors.

Health related activities have become an important part of CSR activity by multinationals. For example, Malick et al (2004) report on the partnership between the Academy for Educational Development and ExxonMobile to produce and distribute insecticide treated bed nets in Africa.

A team of Tufts researchers has also looked at the impact of corporate code compliance on a broader array of HR practices. This analysis is based on interviews of management personnel in 44 factories in Bangalore and Chennai concerning their human resource (HR) management practices.

Factories in the study were first sorted by HR practices and fell into three main groups. Group I had very low pay and skill-development for tailors, preferring instead to invest in supervisors. Supervisors were expected to have considerable experience and a very large proportion of pay was based on production incentives. Group II made little investment in supervisors, preferring to recruit workers for skill and experience. Group III recruited and invested in both workers and supervisors.

Recruiting and compensation were then related to retention in skill investment. First, over-reliance on the use of pay-incentives had a negative effect on the retention of skilled workers. For each 10 percentage point increase in salary earned from production incentives the proportion of A-grade tailors promoted internally from the pool of B-grade tailors dropped by 4.7 percent. Furthermore, factories that had tried incentives in the past but discontinued their use also showed a higher promotion rate. These factories had a 14.8 percent higher internal promotion rate than other factories. The only pay incentive that appears to positively impact skill retention is the attendance bonus. For each 100 rupee increase in the attendance bonus there is a 6.0 percent increase in the B-tailor promotion rate.

Second, internal promotion rates were highest for the factories that recruited and invested in both tailors and supervisors. Investing in supervisors only produced the poorest skill retention rate.

Like Locke et al, the Tufts team also found that factories that have more contact with their customers are also more successful in retaining skilled workers. For example, a factory that is visited 100 times a year by a buyer representative promotes 8 percent more B-grade tailors than factories that receive few or no visits per year. However, the direction of causality is unclear. Do well run factories attract buyers or do buyers promote improved factory management?

It also appears to be the case that factories develop a reputation among the pool of prospective employees that affects its hiring success. First, factories with low pay and weak HR systems spent more days searching to fill a position. However, the most significant impact showed up in worker performance.

Data on individual worker characteristics and work performance was collected for two factory ownership groups. Factories in Ownership Group 1 employ a fairly basic HR system. Pay is average, with little use of pay incentives. These factories also provide little additional employment benefits other than those required by law. New recruits are screened for skills only. The factory has no minimum education requirement. These factories also rely predominantly on recruiting workers from the factory gate. Finally, little is invested in formal training.

By contrast, factories in Ownership Group 2 typically pay above average, offer benefits beyond those required by law and have adopted several innovations in their HR systems. Innovations are particularly notable in training. Most of these factories have well-developed training programs.

The question, though, is how do these additional HR components affect the pool of prospective employees? One measure of impact is to consider the return to education. Typically, more highly educated workers should also be more productive. However, these more productive workers may self-select to factories that will reward their greater ability. As a consequence, educated workers in the factories that offer a more attractive work environment should also be more productive.

This appears to be the case for workers in Ownership Group 2. A worker with a primary level of education has a production efficiency rate that is 2.2 percentage points higher than workers who are illiterate. Workers with a secondary education are 2.9

percentage points more efficient. Workers with some post-secondary education have an efficiency rate that is 10 percentage points higher than that of illiterate workers.

By contrast, the opposite is the case for factories in Ownership Group 1. The more *highly* educated a worker is the *lower* the efficiency rate. How do we account for this contrasting performance? It appears likely that the educated workers that are also disciplined and coordinated have not even presented themselves for employment at factories in Ownership Group 1. Rather, these highly productive workers know that they will get a greater return on their abilities with employment in factories in Ownership Group 2. The only educated workers that present themselves for employment to Ownership Group 1 are those who have some off-setting characteristic such as poor hand-eye coordination or inability to concentrate on a single task for long periods of time.

This result suggests two conclusions. First, screening new recruits on educational attainment is, indeed, a desirable practice. However, before doing so, it is important to pay a competitive wage and offer competitive benefits and training. Otherwise, screening on educational attainment will inadvertently lead a factory to select low-productivity workers.

In the course of interviews, factory managers were also asked what percent of their workforce was hired in the preceding 12 months. This figure is closely related to manpower turnover. A natural question is which factors appear to play a role in lowering turnover? Statistical analysis suggests the following conclusions.

**Production Technology.** Factories that are technologically more sophisticated experience considerably less manpower turnover. Factories in the top quartile in their use of advanced production technology had a 33.6 percent lower turnover rate than factories in the bottom quartile.

**Human Resource Management.** Factories with more innovative HR systems have considerably less manpower turnover. HR systems were measured in terms of recruiting, screening, training and compensation. Factories in the top quartile of pay had a 27 percent lower turnover rate than other factories. Further, factories in the second HR systems quartile had a turnover rate that was 24 percentage points lower than the factories using the most basic HR systems. Factories in the third quartile had a turnover rate that was 12 percentage points lower than factories in the second quartile. Thus, there is a considerable payoff in

terms of lower turnover for the most basic innovations in recruiting, screening, training and benefits.

**Customer Relationship.** Factories with a closer relationship to the buyer also experienced lower manpower turnover. The intensity of the relationship is measured along three dimensions:

- Is the factory a key supplier to a major buyer?
- Does the factory have a dominant buyer which purchases more than 50 percent of output?
- Number of visits per year by a customer representative.

The Tufts team found that the turnover rate for factories with the closest relationship had an 18.2 percent lower turnover rate than factories with the weakest relationship with their customers.

There are at least four possible explanations for a negative correlation between a close buyer relationship and manpower turnover. First, customers may educate their vendors in the use of more sophisticated technologies. Second, customers may educate factory managers concerning efficient labor management that lower turnover. Third, the presence of the customer on the factory floor may inhibit factories from using negative labor-management practices. Fourth, buyers prefer vendors with positive labor management practices.

However, in this statistical analysis, we have controlled for production and human resource management technology. Thus, it appears to be the case that buyers are affecting manpower turnover above and beyond the impact that they are having on production and human resource management technology adoption. That is, buyers are inhibiting labor management practices that are difficult to measure but increase manpower turnover or buyers are selecting factories that have already discovered that certain negative labor management practices hurt manpower retention.

These researchers then attempted to determine what factors might be driving factories to adopt more innovative labor management practices. One might expect that the complexity of the garment produced, capacity expansion or the quality of the managers would be important determinants of the choice to adopt HR management innovations. However, this does not appear to be the case.

First and most surprisingly, garment complexity does not appear to drive training. If anything, the factories producing the most complex garments are doing the smallest amount of training by all measures. However, there is a strong positive relationship between factories choosing a labor-intensive technique of production and training for new hires. This suggests that factories that have figured out how to manage workers using positive techniques are better able to employ labor in this labor-intensive production setting. The obvious corollary is that factories which have not learned how to effectively manage labor are forced to use a more costly capital intensive technique of production.

#### **WHERE DOES THE LITERATURE ON VOLUNTARY INITIATIVES STAND?**

Clearly there is some intriguing evidence that when corporate codes and fair trade initiatives are earnestly implemented, the consequences for workers can be positive. Though this literature originally focused on meeting the demands by consumers for production-process standards, the more recent evidence supports the view that these initiatives are addressing an array of market malfunctions that are considerably more interesting than a failure in the market for compassion. Focus on the management of labor has intensified competition in the labor market, thereby weakening the monopsonistic hiring practices of factories. Corporate codes have also led to efficiency improvements in factory management that raise total factor productivity, thereby reducing excessive overtime and potentially raising wages. Factories have also been encouraged to explore labor management practices that increase labor productivity. Rudimentary labor management techniques typically involve managing workers in much the same way that capital is managed. As a consequence, most innovation is organized around capital. However, optimal labor management involves acknowledging the humanity of human inputs. Innovations around the management of labor, therefore, require a sensitivity to the unique characteristics of workers.

## **V. INTERGOVERNMENTAL AGREEMENTS ON TRADE AND LABOR PRACTICES**

There is limited scope for protecting the interest of labor within the WTO Charter. Governments are limited to the use of Article XX(e) which allows the prohibition of imported goods made by prison labor. For this reason, the link between labor practices and trade is more commonly found in regional trade agreements.

Charnovitz (2005) discusses the manner in which labor standards have been incorporated into regional trade agreements, detailing the manner in which labor standards can be brought into trade negotiations outside of the WTO. Agreements involving the United States tend to emphasize transparency and access to courts. By comparison, the European Union is more likely to emphasize public participation and discourse. In both cases, labor provisions typically only require governments to enforce their own national laws.

NAFTA is the only agreement that establishes an inter-governmental commission to facilitate coordination on labor issues. As of May 2005, 31 cases have been submitted to national administrative offices (Hufbauer and Schott, 2005, pp. 120.) These cases mostly involve the right to free association. Most of these cases are still under review and trade sanctions have not been a factor in any of them.

By comparison, provisions of the U.S. Generalized System of Preferences place considerable demands on recipients. Beneficiaries are expected to adopt internationally recognized labor protections including the rights to free association and collective bargaining, prohibition of forced labor and exploitative child labor and acceptable conditions of work including minimum wages, maximum hours and basic protections for health and safety.

Threats by the United States to withdraw preferences often trigger a dramatic response on the part of the threatened government, as documented by Compa and Vogt (2001) and Frundt (1998). The deeper question, though, is whether this frenzied response actually improves conditions of work and economic efficiency. Schrank (2006) provides some interesting evidence on this question. He argues that pressure on the Dominican Republic to improve its working conditions succeeded by stimulating human resource upgrading. Skill upgrading then also facilitated the transition to more sophisticated

production systems. As a consequence, compliance with legal labor protections also made industry more efficient and competitive.

The Dominican Republic responded to U.S. demands in three stages. First, a new labor code was adopted in 1992 which protected the rights to organize, strike and receive a *just* wage. Second, during the mid-1990s, the Dominican government began to develop capacity to enforce new labor protections. During the mid to late 1990s, the inspection force was up-graded and fully professionalized. Inspectors were trained to help employers comply with the law engaging in human resource development and employing “best practices” relating to labor management. These training programs were paid for with a training tax imposed of firms in the EPZs.

Based on interviews with industry managers, training for line workers and middle managers helped the apparel factors transition from linear to modular production systems. Industry developed more generally as newly trained workers and managers were subsequently able to enter more sophisticated product markets such as consumer electronics, information technology and services.

Similarly, Polaski (2004) describes the Cambodian experiment in which the Cambodian government, the U.S. government, the ILO, NGOs and apparel retailers partner to expand markets for apparel factories with responsible labor management practices. Polaski analyzes the compliance reports from ILO inspections. She reports that nearly 70 percent of factories that were inspected at least twice implemented at least one-third of the ILO recommended changes in labor practices. Greatest progress was made on payment of wages and health and safety, with 95 percent in compliance by the second inspection. Similarly, rights to free association are now protected in 76 percent of factories. Factories had more difficulty remedying violations around hours of work. Only 41 percent of factories were in full compliance with limits on overtime and 33 percent had made no improvement.

It is difficult to assess the impact on productivity. However, there is evidence the buyers were attracted to the overall package of price, quality and working conditions offered by Cambodian factories. Polaski found that exports of non-quota goods expanded more rapidly than quota-constrained exports. The cost of the program was quite minimal, averaging \$2.33 per worker per year.

## **VI. POLICY RECOMMENDATIONS AND DIRECTIONS FOR FUTURE RESEARCH**

So where do we stand on the relationship between globalization and outcomes for workers? Much of the economic analysis undertaken in the 1990s, particularly by trade specialists, was fairly optimistic: (1) the impact of trade on labor was small but largely positive; (2) trade appeared to have little impact on wages and the distribution of income; (3) foreign-owned and export-oriented firms paid higher wages and (4) there was little to no evidence of a race to the bottom in labor protections.

However, several empirical results suggest that trade economists may have been under-estimating the impact of out-sourcing on wages in industrialized and developing countries. Further, there is now important evidence that multinationals may not pay higher wages than domestically-owned firms. For these reason, trade economists may need to look again at the impact of globalization on labor practices, not through legally mandated protections, but rather through the types of jobs available, wages and employment benefits. Careful analysis of the determinants of employer-based access to health insurance and retirement benefits may support the anecdotal evidence that trade is indeed substantially eroding labor's income share.

A second line of analysis concerns the mechanisms through which trade may be affecting workers. Standard trade theory tells us to look at relative factor abundance to determine relative factor rewards. However, there may be a set of labor market inefficiencies that are aggravated by greater globalization.

Consider, for example, the factors that undermine the bargaining power of workers vis á vis factory managers. Both from historical experience and in factories around the world today, workers are often very young, female, poorly educated or illiterate and may not speak the language of their supervisors. Workers migrating to urban areas from the countryside may not even have market experience with any arrangement other than a barter economy.

Several factors then conspire to preserve the bargaining imbalance. The use of the police power of the state to intervene in capital-labor strife on the side of capital has historically played a significant role in preventing workers and factory managers from

negotiating a market clearing equilibrium wage. Indeed, we have reported above anecdotes in which police action, particularly in EPZs, have been used to repress free association.

A second factor, often mentioned in passing but under-appreciated, is the role that macro-economic mismanagement plays in undermining the bargaining power of workers. The presence of a pool of unemployed workers out the back door of the factory greatly dampens the willingness of workers to give voice to their grievances. We have also seen that frequent economic downturns have the effect of wiping out the gains that workers might have won during a preceding period of economic growth.

Third, multinationals roaming the globe seeking out the lowest production cost may unwittingly seek out precisely those firms that are most successful at engaging in monopsonistic exploitation. Anti-sweatshop activists have played an important role in unleashing the cascade of events that have addressed some of the market malfunctions that produce poor outcomes for workers in a globalizing economy. Harrison and Scorse, in their analysis of wage formation behavior in Indonesia during the 1990s, make a compelling *primie facie* case that a labor-management bargaining imbalance was particularly acute in the textiles, apparel and footwear industries. Factories, forced to raise wages as a consequence of government action and anti-sweatshop agitation, were able to do so without cutting employment or production.

Anti-sweatshop agitation has also been critical in transforming the state's role in worker-management conflict from one taking the side of capital into one of honest broker. NGO or government sponsored programs targeted at providing a general education and informing workers about their options can also help redress the bargaining imbalance.

Ensuring a competitive labor market is a straightforward task, at least in principle, and is essential to guarantee that increased globalization is welfare-improving. Furthermore, given the growing evidence that trade is in fact distinctively widening the distribution of income, the time has undoubtedly arrived to identify efficient strategies for broadly distributing the gains from trade.

On a more positive note, there is some evidence that humane labor management practices are also more efficient. Several studies provide an indication that at least some labor management innovations increase profitability. Multinationals can play a critical role

in helping the vendors in their supply chains uncover labor practices that are both more humane and more efficient. Multinationals also have a role in helping producers access specialty markets that are willing to pay for more costly sustainable and humane production techniques. More evidence on this topic is clearly needed and, thus, represents an important and emergent line of inquiry in our understanding of globalization and its consequences for labor outcomes.

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