Globalization and the Quality of Asian and Non-Asian Jobs

ROBERT J. FLANAGAN AND NYI NINY KHOR

This paper assesses the impact of international trade and investment flows on the evolution of working conditions and labor rights in Asian and non-Asian countries in the late 20th and early 21st centuries. Labor conditions improved as globalization increased during this period. We find that real per capita income growth remains a powerful source of improved labor conditions, and the effect of trade on working conditions is mainly indirect through its impact on per capita gross domestic product (GDP). We find no evidence that eliminating trade barriers degrades labor conditions. We do find evidence that persistent differences in labor conditions between Asia and the rest of the world can be explained by differences in growth and international trade. Finally, we find no evidence that countries with poor labor conditions attract disproportionate flows of foreign direct investment (FDI). Instead, FDI flows seem mainly influenced by considerations of market size, investment risks, and the share of trade in GDP. After holding those influences constant, Asia receives a comparatively small share of world FDI inflows.

Keywords: globalization, labor conditions, foreign direct investments, Asia
JEL codes: F21, F66, J81

1. Introduction

Efforts to reduce barriers to international trade and investment frequently encounter claims that expanding international competition degrades working conditions and labor rights, particularly in developing countries. Opponents of trade liberalization argue that international competition encourages jobs with low pay and poor nonmonetary conditions, such as long work hours and unsafe working environments. They claim further that free trade undermines the four “core” labor rights stressed by most international economic organizations: freedom of association, nondiscrimination, elimination of forced labor, and reduction of child labor. Asian countries figure prominently in lists of low-wage production sites, and anecdotes from Asian countries are frequently invoked to support these assertions. This paper explores the relationships between labor conditions (i.e., working conditions plus
core labor rights) and the growth of international trade and investment, emphasizing differences between Asia and the rest of the world.

We begin by briefly reviewing how labor conditions changed during the globalization of the late 20th and early 21st centuries, contrasting developments in Asian and non-Asian countries in section II. Previous analyses of the relationship between trade and labor conditions focus on the last decades of the 20th century and take a global approach (Flanagan 2006, Kucera 2002); they provide no comparisons of experience in Asia and other regions. We then discuss the mechanisms through which trade might influence working conditions and labor rights and estimate the impact of trade flows on working conditions and labor rights in section III. Section IV examines the links between direct foreign investment, the activities of multinational companies (MNCs), and labor conditions. The final section presents our conclusions regarding the long-run adjustment of labor conditions to trade liberalization.

II. Labor Conditions in Asian and Non-Asian Countries

Whether measured by flows of international economic activity or the restrictiveness of trade policies, the globalization of Asia (along with the Americas) ranked about the middle of the international league tables in the late 20th and early 21st century. By these same measures, Europe was the most globalized region and Africa the least. Globalization increased in each of these regions from the mid-1990s until the recession that ended during the first decade of the 21st century, making this interval a fruitful period to examine possible links between globalization and labor conditions.¹

We first contrast working conditions and labor rights in Asian countries with those in the rest of the world at the end of the 20th century. We then examine how these labor conditions changed in the first decade of the 21st century. Working conditions include measures of pay (annual compensation per manufacturing worker), work hours (weekly work hours, annual work hours, and the percentage working more than 40 hours per week), and job safety (fatal industrial accident rate in manufacturing). Labor rights include indicators of freedom of association (indexes of civil liberties and collective bargaining rights, scaled so that low values indicate superior rights), children’s employment (labor force participation rate of children 5–14 years old), nondiscrimination (gender pay differential), and forced labor (number of types of forced labor and number of forced laborers).² Some of these indicators exist only for

¹The globalization indexes are respectively the Konjunkturforschungsstelle (KOF) index of actual economic flows and the KOF index of trade restrictions. The former index is a weighted average of flows of trade, foreign direct investment, portfolio investment, and income payments to foreign nationals, all taken as a percent of gross domestic product. The latter index is a weighted average of the mean tariff rate, hidden import barriers, taxes on trade, and capital account restrictions. The data along with further details on the construction of the indexes are available at http://globalization.kof.ethz.ch/.

²To enable comparison with global data over time, we follow ILO (2010) by defining children’s participation in work employment as child employment/child labor force participation. This is broader than the term child labor
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Table 1. Labor Conditions in Asian and Non-Asian Countries, Late 20th Century

| Working Conditions                                      | Asian     | Non-Asian |
|---------------------------------------------------------|-----------|-----------|
| Annual Compensation (1995)                             | 2,643     | 17,630    |
| Weekly Work Hours (1995)                                | 46.7      | 39        |
| Annual Work Hours (1995)                                | 1,977     | 1,732     |
| Percent Working over 40 Hours (1995)                     | 73.4      | 57.3      |
| Fatal Accident Rate (2000)                              | 5.5       | 5.9       |
| Labor Rights                                            |           |           |
| Child Labor Force Participation Rate (2000)              | 19.1      | 15.7      |
| Civil Liberties Index (2000)                            | 4.6       | 3.1       |
| Collective Bargaining Rights (mid-1990s)                 | 7.7       | 5         |
| Net Gender Wage Differential                            | –0.085    | –0.105    |
| Forced Labor Varieties (mid-1990s)                      | 1.26      | 0.03      |
| Number of Forced Laborers (mid-1990s)                   | 5,312,927 | 39,670    |

Note: Labor force weighted estimates.
Source: See Appendix.

one year or time period, and data availability varies widely for each country. For no measure of labor conditions do we have data for every Asian country, for example. In the empirical analyses, the value of each country observation is usually weighted by its labor force, with exceptions noted. (See the Appendix for further discussion of these measures and their sources.)

In the late 20th century, monetary compensation was comparatively low, and all measures of work hours were comparatively high in Asian countries (Table 1). Job safety (inversely indicated by the fatal job accident rate) was greater in Asian countries. Turning to measures of labor rights, both measures of freedom of association—the Freedom House index and the freedom of association and collective bargaining index, which focuses on collective bargaining rights—indicate that freedom of association is stronger on average in non-Asian countries. (Recall that each of these indexes is constructed so that lower scores denote superior rights.) Child labor force participation is slightly higher in Asian (19.1%) than non-Asian (15.7%) countries. Both measures of forced labor are higher in Asian countries; on average, there are more varieties of forced labor and more people subject to forced labor in Asia. Finally, by our measure there is somewhat less gender wage discrimination in Asian countries.

or “hazardous work.” In the most recent global review, child labor accounts for about 87% of all child employment, while hazardous child labor accounted for approximately half of child labor (ILO 2010). We discuss this further in the Appendix.

3 Data on labor conditions are most frequently available for the People’s Republic of China; India; Indonesia; Japan; the Republic of Korea; Malaysia; the Philippines; Singapore; Taipei, China; and Thailand.

4 The annual Freedom House index is not limited to worker freedom of association. However, an index of worker rights developed for a 2010 study (Freedom House 2010) was highly correlated with the general Freedom House index for that year. Therefore, the general index, which is available annually, appears to provide an adequate measure of worker rights. See the Appendix for further discussion.

5 This workplace-oriented index is compiled by Kucera (2002).
How did labor conditions change with the globalization of the late 20th and early 21st century? Tracking the changes in conditions requires before and after data for a common set of countries—a requirement that further reduces sample sizes and eliminates meaningful comparisons for some measures.

Previous research found a broad improvement in worldwide working conditions and labor rights during the last decades of the 20th century (Flanagan 2006). The early years of the 21st century also show improving labor conditions around the world (Table 2). Pay, job safety, and freedom of association all improved in both Asian and non-Asian countries. Annual work hours increased more in Asian than in non-Asian countries but it is difficult to disentangle cycle influences from other factors. Child labor also decreased in both Asian and non-Asian countries. During this period, per capita (purchasing power parity [PPP] adjusted) GDP grew at virtually identical rates in the two sets of countries, but the trade share of GDP advanced more rapidly in Asian countries. At least in the descriptive data, there is no sign of a negative relationship between globalization and labor conditions.

Nonetheless, these descriptions do not establish that globalization improves labor conditions or even help us understand how globalization might influence working conditions and labor rights. Having described the evolution of globalization and labor conditions, we now analyze linkages between trade and labor conditions in the early 21st century.

III. Trade and Labor Conditions

Traditional trade theories imply that in countries that specialize in their comparative advantage, labor will move over time into sectors where productivity and

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Table 2. Labor Conditions: Recent Developments

| Working Conditions          | 2008 | % Change since 1999 |
|----------------------------|------|---------------------|
| Hourly Compensation        | 3.7  | 236.6               |
| Annual Work Hours          | 2,156.0 | 1,914.0        |
| Job Accident Rate          | 5.9  | -22.2               |

| Labor Rights               |      |                     |
|----------------------------|------|---------------------|
| Child Labor Force Participation Rate (%) | 14.8 | -22.7               |
| Civil Liberties            | 4.5  | -8.1                |

n.a. = not available.

Note: Labor force weighted estimates.

*Child labor force participation of 5–14 year olds, in 2000 and 2008.

Source: See Appendix.
hence (monetary plus nonmonetary) compensation is highest. In this scenario, countries adopting open trade policies should develop superior working conditions over time as labor moves from import-competing to export production. At the other extreme are arguments that free trade will degrade labor conditions as international competitors seek to gain advantage by cutting labor costs.

If we are to isolate the effects of trade and other mechanisms of globalization on labor conditions empirically, we must first consider how working conditions and labor rights evolve in closed economies. Not surprisingly, the foremost influence on labor conditions is a country’s level of development. Countries with higher income per capita tend to have higher wages, shorter hours of work, and safer jobs. High-income countries also have stronger labor rights—stronger civil liberties and freedom of association, lower child labor force participation, and less forced labor.

Over time, countries that grow most rapidly experience the most rapid advances in working conditions. Even under autarky, a country’s labor conditions can improve with higher rates of technical progress, investments in physical and human capital, and the establishment of institutions that clarify property rights, enforce contracts, and reduce corruption, for example. To an important extent, the inequality in pay, nonmonetary working conditions, and labor rights observed around the world result from differences in the level of economic development and national economic growth rates (Flanagan 2006).

Stressing the important role of economic growth and development should not obscure the huge variance in outcomes around this relationship. Earlier research found that countries at a given level of development vary widely in their labor conditions. The fact that some countries have much better conditions while others have much worse conditions than one would predict from their level of development reflects a myriad of additional factors that influence labor conditions. The rest of this section analyzes one of these factors—the influence of trade flows.

A. Direct and Indirect Effects of Trade

International trade theories predict that free trade will improve a country’s working conditions indirectly by increasing its per capita income. Whether comparative advantage or economies of scale motivates trade, a country’s resources are used more productively in a free-trade environment than under autarky. The greater efficiency permits higher monetary and/or nonmonetary compensation. Transfers of technology that may accompany increased trade flows likewise raise productivity and compensation. In each case, free trade should improve working conditions to the extent that it raises per capita income.

To the extent that trade liberalizations raise per capita income, they become a mechanism for improving a country’s working conditions and labor rights. A large literature has explored and debated the lines of causality between openness to trade and per capita income. After sorting out the significant methodological issues
involved in identifying a relationship, key studies and literature reviews conclude that trade liberalizations tend to raise economic growth (Berg and Krueger 2003, Wacziarg and Welch 2008). This channel provides what we label the indirect effect of globalization on labor conditions. Important distributional effects accompany the long-run gains from trade liberalizations, so that efforts to record the short-run impact of trade liberalization on working conditions with aggregate data pick up some average of the impact on gainers and losers.

Arrayed against the predictions of trade theories are claims that international competitive pressures degrade working conditions and labor rights in countries with open trade policies. How trade would diminish working conditions is a matter of some mystery. Open trade policies raise foreign demand for a country’s exports and for the services of workers who produce those exports. What then happens to wages and nonmonetary working conditions depends on labor supply conditions, which themselves are determined by the domestic labor market alternatives available to workers. Where there is substantial unemployment or underemployment, increased export demand will raise employment without necessarily improving pay and nonmonetary working conditions. This situation may be the norm in countries with significant reserves of underemployed rural agricultural labor or high urban unemployment rates. The additional employment derived from increased export demand will raise total wage income while producing little change in the pay and other employment conditions of individual workers.

For economies with little unemployment, export firms will have to meet additional demand by attracting workers away from other jobs in agriculture, the informal sector, or elsewhere in the formal sector. As export firms improve working conditions to attract workers, non-export firms may improve working conditions in an effort to retain their workers. Labor market competition effectively spreads the benefits of increased export demand to other sectors. Trade liberalizations may also reduce the demand in import-competing industries, so that to an extent, the positive impacts of trade on labor conditions rest on the mobility of resources from import-competing to export industries.

Convincing scenarios in which increased export demand degrades working conditions remain elusive. If increased export production raised monopsony power, trade liberalization could produce such degradation. Nonetheless, it is hard to imagine how increased export production would reduce workers’ choice of employers.

Comparisons of wages in export and non-export firms in both developing and industrialized countries support these arguments. These studies invariably find that after controlling for industry and firm size, export firms pay higher wages than non-export firms, and the “export wage premium” is largest in less developed countries (Aw and Batra 1998, Bernard and Jensen 1995, Hahn 2004, Van Biesebroeck 2003). In short, international competition does not lead exporters to reduce wages below national norms according to these studies. Since the studies rarely can control for all worker skills, the possibility that the employees of exporters have more education, training, and experience than the employees of non-exporting firms remains.
Nevertheless, one can doubt that unobserved worker quality differences account for wage premiums as large as 10%–12% in the Republic of Korea; 15%–17% in Taipei, China; and 40% in Sub-Saharan Africa.

Although there has been little previous attention to theoretical links between free trade and core labor rights, increased trade alters some of the incentives that influence these rights. Consider first the effects on children in employment. Since child labor force participation falls as adult incomes increase, trade liberalization should reduce the numbers of working children through the positive effects of free trade on per capita income. Increased trade carries with it a potential countervailing effect on child labor force participation, however. For a given level of family income, the relative return to current work versus schooling, summarized by the rate of return to schooling, will influence the extent of children’s employment. If reducing trade barriers raises the wage of unskilled work and reduces the return to schooling, the relative attractiveness of schooling to children and their families falls. On the other hand, if trade expansion includes technology transfers that raise returns to schooling, incentives for children to attend and remain in school increase.

Consider next employment discrimination. The leading theory of labor market discrimination predicts that increased competition to hire labor should erode discrimination by providing labor force minorities with additional employment opportunities with employers who have less discriminatory tastes (Becker 1957). To the extent that open trade policies increase the number of export firms and/or MNCs competing for labor in local labor markets, discrimination by employers may decrease (Bhagwati 2004, pp. 75–76).

In theory, the linkage between trade and workers’ freedom of association rights is ambiguous. One underlying question is how free trade influences the relative bargaining power of labor and management. On the one hand, a larger number of export firms or MNCs are likely to reduce any employer monopsony power, thereby increasing workers’ choice of employers and hence their bargaining power. On the other, competition from imports and the increased ability of local employers to outsource may reduce workers’ bargaining power. In short, the net effect of open trade policies on bargaining power must be settled empirically.

To summarize, the hypothesis that increased trade will degrade working conditions and labor rights lacks theoretical support, except in the dubious case that monopsony power grows with trade. Theoretical considerations also suggest that to the extent that free trade influences labor conditions, it will be indirectly through the effect of trade on a nation’s GDP. We now turn to the evidence on links between trade and labor conditions in the late 20th and early 21st centuries.

B. Trade and Labor Conditions in the Late 20th Century

Econometric analyses reported in an earlier study (Flanagan 2006) tested whether a country’s openness to international competition was significantly related to labor conditions, given a country’s level of development, in the late 20th century.
As implied by international trade theories, openness influenced working conditions (pay, work hours, and job safety) only indirectly, by raising per capita income, in both cross-section instrumental variables and fixed effects estimation. The openness measures, which tested for a direct effect, were not statistically significant—in short, trade liberalization improved working conditions mainly by raising per capita income. The study found no negative impact of international competition on working conditions.

That study also found more complex links between labor rights and trade (captured by both the Sachs– Warner index of openness and the trade share of GDP). For 1980–1995, both the adoption of free trade policies and increased trade shares were associated with lower child labor force participation rates after controlling for per-capita GDP and institutional structure (Flanagan 2006). Greater openness to international markets therefore reduced the number of working children in two ways. To the extent that trade raised per capita income, fewer families needed to rely on children’s labor force participation to obtain the necessities of life. Greater openness was also directly associated with lower children employment rates in addition to its indirect effect through income. We do not know the exact explanation for the direct effect, but the possibility that trade raises returns to schooling is one candidate. The finding of a significant positive direct trade effect undermines the hypothesis that free trade reduces the return to schooling for children. It also signals an important policy implication: Using trade sanctions to induce countries to reduce child labor is counterproductive.

Countries with more open trade policies had superior civil liberties, and civil liberties improved more rapidly in countries that adopted open trade policies, ceteris paribus. There was no significant relationship between civil liberties and trade volumes, however. Open economies had neither more nor less forced labor than closed economies after controlling for level of development, institutional structure, and the possibility of reverse causation. In short, openness reduces forced labor indirectly by increasing per capita income.

This earlier study indicates that with few exceptions the dominant trade influence on labor conditions is indirect, through its effect in raising GDP. It also confirms that trade is not generally associated with poorer working conditions or labor rights. However, that study does not target specific regions and, in particular, does not explore allegations that free trade degrades labor conditions in Asian countries. We now turn to this question.

C. Trade and Labor Conditions in the Early 21st Century

The debate over the effect of international economic integration on labor conditions has continued into the 21st century, with particular interest in conditions in Asian countries. Both economic growth and trade expansion proceeded apace until the end of the century’s first decade. Between 1995 and 2008, the average
growth of (PPP-adjusted) per-capita GDP was similar—about 5.5% for both Asian and non-Asian countries. When weighted by labor force size, however, growth was more rapid in Asian countries (8.7%) than in non-Asian countries (4.8%), reflecting in part very rapid growth in the People’s Republic of China (PRC) and India. The trade share of GDP grew much more rapidly in Asian countries. Within each set of countries, trade share growth was more rapid in smaller countries. These regional differences alone imply more rapid advancement of labor conditions in Asia than in the rest of the world.

To assess the links between trade and labor conditions, we estimate the following cross-country regression model using a database of 58 countries at varying stages of development for each labor condition in 2005.\(^7\)

\[
LABOR\ CONDITION_i = a_0 + a_1 \ln GDPCAP_i + a_2 TRADE_i + a_3 ASIA + e_i
\]

The independent variables are the natural logarithm of per capita (PPP-adjusted) GDP and the TRADE share of GDP in each country \(i\) and a dummy variable for Asian economies.\(^8\) Although theoretical considerations imply a link from trade to labor conditions, we must also consider the possibility that a country’s labor conditions could influence its volume of trade as alleged by some critics of globalization. Given this potential endogeneity, we provide instrumental variables estimates of the effect of trade on labor conditions.\(^9\) If the coefficient, \(a_2\), lacks statistical significance, trade has solely an indirect effect on the labor condition through its (unobserved) effect on per-capita GDP. Where \(a_2\) is statistically significant, greater international economic integration has both direct (\(a_2\)) and indirect effects on the labor condition. Table 3 provides the coefficient estimates and robust standard errors, weighted by each country’s labor force size.

The estimates first confirm the powerful effect of per-capita GDP growth in improving working conditions, but per-capita GDP is not significant in the civil liberties regression—a result that changes in the unweighted regressions discussed in the next paragraph. These estimates also indicate that the trade expansion of the early 21st century had only indirect effects (i.e., via increased per-capita GDP) on labor conditions. The fact that estimates of \(a_2\), the direct effect of trade, are not statistically significant indicates that the net effect of the trade expansion on labor conditions is positive and results from the GDP-enhancing effects of increasing trade. Neither the direct nor the indirect effects of trade diminish labor conditions. The results for the \(ASIA\) dummy variable are not significant: After adjusting for

\(^7\) Unreported cross-country estimates for years 2000 and 2008 produced similar qualitative results.

\(^8\) The index of open versus closed trade policies developed by Sachs and Warner (1995) is not available for the 21st century. In some regressions, we used the KOF index of global flows described in footnote 1 instead of TRADE, but these experiments produced no material changes in the results.

\(^9\) The variables used to instrument the trade share variable, as suggested by gravity models of trade, are dummy variables for small countries, island countries, and landlocked countries and the land to labor ratio.
Table 3. Trade and Labor Conditions, 2005

| Working Conditions                  | In Per Capita GDP | Trade Share of GDP | Asia | R² | Countries |
|------------------------------------|-------------------|--------------------|------|----|-----------|
| Hourly Pay (ln)                    | 1.36              | -0.00015           | 0.08 | 0.94 | 48        |
|                                   | (0.11)*           | (0.0035)           | (0.26)|    |           |
| Annual Work Hours                 | -152.05          | 0.85               | -13.96 | 0.51 | 55        |
|                                   | (57.44)*          | (1.29)             | (107.23) |    |           |
| Labor Rights                      | Freedom of Association | -0.46     | -0.01           | 1.94 | 0.40 | 56        |
|                                   | (0.63)            | (0.02)             | (1.28)   |    |           |

Notes: Instrumental variables estimates; labor force weights; robust standard errors.
*p-value < .01.
**p-value < .05.
Source: Authors’ computations.

international differences in per-capita GDP and trade shares, labor conditions were no different in Asia and the rest of the world midway through the first decade of the 21st century.

We encountered two notable differences when we recomputed the regressions without labor force weights. First, the coefficient on ASIA was significantly positive in both the hours and civil liberties regressions. Ceteris paribus, Asian countries had longer work hours and fewer civil liberties, but only when each country’s data were equally weighted. Second, higher trade shares were associated with lower pay. Apparently, these effects are concentrated in smaller Asian countries.

We also conducted panel data analyses of the relationship between national labor conditions, per-capita GDP, and several measures of globalization for 1995–2008. The globalization measures include the trade share of GDP and the KOF indexes of global flows and trade restrictions described in footnote 1. The direction of causation between labor conditions and globalization remains a central concern, but the instruments used in the cross-section estimation lack the time variation required to serve as appropriate instruments in the analysis of panel data. Instead, we use lagged values of the globalization measures as instruments.

We estimate random effects models in which labor conditions are a function of per-capita GDP, instrumented measures of globalization, and a dummy variable for the Asia region to determine whether labor conditions in the region vary significantly from what one would expect based on economic fundamentals. The panel instrumental variables analyses confirm the importance of per capita income in improving labor conditions, but yield no statistically significant findings of direct influence from any of the globalization indexes. Whether measured by

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10 The following Asian economies are in the database: the PRC; Hong Kong, China; India; Indonesia; Japan; the Republic of Korea; Malaysia; the Philippines; Singapore; Taipei, China; and Thailand.
11 Unreported regressions using lagged globalization measures rather than using the lagged values as instruments also found no statistically significant links with the measures of labor conditions.
the trade share of GDP (see Table 4) or the (unreported) KOF indexes of global economic flows or restrictive trade policies, there is no significant direct linkage between globalization and labor conditions in the early 21st century. Instead, globalization has an indirect influence on labor conditions through its positive effect on GDP. There is another parallel with the earlier unweighted cross-section analyses: After controlling for the influence of per-capita GDP and trade or global flows, the Asia region had significantly higher work hours, fewer civil liberties, and lower pay. When each country’s observations receive equal weight, regional differences in growth and trade do not fully account for the regional differences in labor conditions.\footnote{12}

Challenges to liberalizing trade policies sometimes single out labor conditions in export processing zones (EPZs) in Asia and other countries for special criticism. During the late 20th century, such zones spread to 130 countries and played a particularly prominent role in the export-led growth in Asia. The zones produce a disproportionately large share of a nation’s exports but account for a small share of total employment.

While the national data used in the foregoing estimations should include information from export processing zones (EPZs), we have computed wage differentials between EPZ and non-EPZ workers using data gathered by the International Labour Organization (ILO) in several Asian economies (Figure 1). As late as the 1980s, there was some evidence of relatively low EPZ wages in the Republic of Korea and Malaysia (Oh 1993, Kusago and Tzannatos 1998). By the late 20th century, however, overall average wages in EPZs equaled or exceeded wages outside the zones after accounting for worker characteristics (Robertson et al. 2009), despite the fact that the right to organize unions remains restricted in EPZs in many countries.

\footnote{12}Weighted estimation was not available for random effects analysis.
With the relaxation of many capital controls, a significant increase in investment flows between countries accompanied the late 20th to early 21st century globalization. As with international trade, much of the growth regained ground lost during the retreat from the late 19th century globalization. A parallel growth of MNCs accompanied the resurgence of foreign direct investment (FDI).

These developments raise two sets of questions about the relationship between foreign investment and labor conditions. First, do labor conditions influence FDI inflows? Do cheap labor, poor labor conditions, and weak support of labor rights attract FDI? And if labor conditions influence FDI flows, how important is their influence relative to other influences, such as market size and investment risks? These issues are addressed in an econometric analysis of the determinants of FDI flows.

Second, irrespective of what attracts FDI to a host country, how do the human resource management policies of MNCs influence host country labor conditions? Allegations that foreign investment degrades host-country labor conditions often rest on examples of appalling labor conditions at some Asian workplaces. But are these anecdotes typical? In particular, do MNCs on balance degrade or improve labor conditions in host countries? This question is best addressed by micro studies comparing the working conditions at MNCs with comparable host-country firms. The rest of this section examines evidence on each of these issues.
Table 5. **Foreign Direct Investment Inflows, 1990–2009**

|                     | Share of World FDI Inflows, % |
|---------------------|-------------------------------|
|                     | 1990–1992 | 1999–2001 | 2007–2009 |
| World               | 100.0     | 100.0     | 100.0     |
| Developed Countries | 75.3       | 78.1       | 60.7        |
| Developing Countries | 24.3       | 21.1       | 33.6        |
| East Asia           | 6.3       | 8.2       | 9.9        |
| South Asia          | 0.3       | 0.5       | 2.5        |
| Southeast Asia      | 7.4       | 2.2       | 3.2        |

FDI = foreign direct investment.

Source: UNCTAD, World Investment Report 2010, Annex Table 1.

A. **Labor Conditions and FDI Flows**

The 19th-century globalization included significant international capital flows, but most FDI flowed from capital-rich European countries to less-developed countries, where capital was scarce and its marginal value was accordingly high. Following the interwar retreat from global economic activity, international capital flows regained their earlier peaks during the 1990s, but with a distinctive change in the destination of investments. Most capital no longer flows toward the least developed nations where capital is scarce. Capital-poor developing countries received less than a quarter of world FDI flows during the late 20th century (Table 6). Instead, “capital transactions seem to be mostly a rich–rich affair, a process of ‘diversification finance’ rather than ‘development finance’” (Obstfeld and Taylor 2003, p. 175). Only in the early 21st century did the share flowing to developing countries begin to increase, although it had reached only a third of FDI inflows by the end of the century’s first decade. The entire continent of Africa received less than 4% of world inflows in 2007–2009—little different from the 1990s. While the volume of FDI received by Asian countries increased, their share of FDI inflows changed little over the past 20 years and their share of the flows to developing countries declined (Table 5).

Even this snapshot of FDI flows undermines the notion that countries with inferior labor conditions attract international investment flows. With most FDI now flowing between industrialized nations, which offer superior labor conditions, efforts to find cheap labor and weak labor standards cannot be the primary factor motivating the international distribution of FDI.

We have explored this implication more formally in a panel data analysis of the distribution of world FDI inflow shares across countries between 2003 and 2009, a time period governed by the availability of some key variables. Our strategy is to estimate a baseline model and then to see if the explanatory power of the model improves with the addition of measures of labor conditions. The baseline analysis assumes that investors seek to maximize their expected return and tests the hypotheses that these returns depend on market size, investment risks, the availability of
complementary inputs, and a country’s openness to international trade. In measuring market size, we capture both the number of potential consumers (population) and their income (per-capita GDP).

Our preferred measure of investment risk is a Euro money country creditworthiness scale reported in the *World Competitiveness Yearbook*. Higher scale values imply lower risk and hence higher FDI shares. We also tested for the influence of several institutional and regulatory factors that might influence the cost of doing business in a country. The ratio of government consumption expenditure to GDP is frequently used in growth studies as a proxy for the degree of government intervention in the economy, but this variable was not statistically significant in our analyses. Other variables were based on *World Competitiveness Yearbook* survey responses of business executives’ perceptions of the regulatory environment, personal security, the protection of property, and bribery and corruption. Two of these measures—survey responses to the statements “Bribing and corruption do not exist” (Bribe) and “Labor regulations do not hinder business activities” (Labor Regulation)—were significantly related to a country’s share of world FDI inflows in some regressions. Each of these variables is measured on a 0 to 10 scale with higher values indicating stronger agreement with the statements.

The regressions also tested for complementarity between FDI and land (the area of a country in millions of square kilometers) and with the skill of the labor force. Skill is measured variously by the percent of the population achieving at least tertiary education, executive survey responses indicating whether “skilled labor is readily available,” and (inversely) by the percent of the population over 15 years old that is illiterate. The trade share of GDP (lagged 1 year) tests for the effects of international economic integration on a country’s FDI inflow share.

The analysis finds that countries with large markets, low investment risks, and a large trade share of GDP attract larger shares of FDI inflows (Table 6, regression 1). FDI and land appear to be complements. We found no significant correlation between any of the measures of labor skill and FDI inflow shares. At least in the early 21st century, there was no evidence that FDI shares increased in countries with abundant unskilled labor, ceteris paribus. The overall regression fit is good, with the model accounting for more than 60% of the variance in FDI inflow shares among 55 countries between 2003 and 2009.

The baseline model highlights factors that would tend to reduce FDI shares in Asian countries as well as factors that would tend to raise them. Relative to the rest of the world, Asian countries on average have lower per-capita GDP, higher investment risks, and more concerns about bribery. On the other hand, average population size and trade share are larger in Asia. Nonetheless, the baseline model does not capture all the factors producing relatively lower FDI inflow shares in Asia.

We made a preliminary assessment of the effect of national labor regulations on FDI by adding a labor regulation variable to the baseline specification (Table 6, regression 2). The coefficient was significantly positive, meaning countries in which
Table 6.  **FDI Share Regressions, 2003–2009**

|                      | 1    | 2    | 3    | 4    | 5    | 6    | 7    | 8    |
|----------------------|------|------|------|------|------|------|------|------|
| **GDP per capita**   | 0.412| 0.395| 0.295| 0.324| 0.308| 0.349| 0.834| 0.272|
|                      | (0.186)**| (0.186)**| (0.174)*| (0.176)*| (0.177)**| (0.184)*| (0.294)**| (0.27)**|
| **Population**       | 0.675| 0.673| 0.966| 0.953| 0.958| 0.947| 1.015| 0.895|
|                      | (0.090)**| (0.090)**| (0.095)**| (0.095)**| (0.097)**| (0.098)**| (0.105)**| (0.101)**|
| **Land area**        | 0.039| 0.048| −0.099| −0.106| −0.107| −0.1| −0.115| −0.044|
|                      | (0.07)| (0.07)| (0.07)| (0.07)| (0.07)| (0.07)| (0.07)| (0.07)|
| **Country credit-worthiness** | 0.02 | 0.021| 0.019| 0.017| 0.015| 0.014| 0.009| 0.026|
|                      | (0.009)**| (0.009)**| (0.008)**| (0.009)**| (0.01)| (0.01)| (0.01)| (0.013)**|
| **No bribe/corruption** | 0.085| 0.066| 0.095| 0.098| 0.099| 0.084| 0.141| 0.029|
|                      | (0.049)*| (0.05)| (0.046)**| (0.046)**| (0.047)**| (0.049)*| (0.057)**| (0.06)|
| **Trade shares (lagged)** | 0.382| 0.374| 0.517| 0.509| 0.503| 0.506| 0.512| 0.763|
|                      | (0.128)**| (0.128)**| (0.124)**| (0.124)**| (0.125)**| (0.144)**| (0.158)**| (0.158)**|
| **Friendly labor regulations** | 0.066| 0.116| 0.109| 0.115| 0.111| 0.107| 0.088| (0.088)|
|                      | (0.05)| (0.044)**| (0.045)**| (0.046)**| (0.046)**| (0.057)**| (0.057)**| (0.051)**|
| ASIA = 1             | −1.275| −1.305| −1.244| −1.232| −1.542| −1.401| −1.542| −1.401|
|                      | (0.274)**| (0.275)**| (0.283)**| (0.288)**| (0.345)**| (0.383)**| (0.383)**| (0.383)**|
| PRC = 1              | 0.68 | 0.906| 1.013| 1.073| 1.128| −0.331| (0.197)*| (0.14)|
|                      | (0.64)| (0.68)| (0.70)| (0.76)| (0.74)| (0.197)| (0.14)| (0.14)|
| **Civil liberty index** | −0.085| −0.09| −0.074| −0.074| −0.062| −0.062| −0.062| −0.062| (0.08)|
|                      | (0.09)| (0.09)| (0.11)| (0.11)| (0.11)| (0.11)| (0.11)| (0.11)|
| **Skilled labor availability** | 0.043| 0.032| 0.085| 0.085| 0.085| 0.085| 0.085| 0.085| (0.05)|
|                      | (0.05)| (0.06)| (0.06)| (0.06)| (0.06)| (0.06)| (0.06)| (0.06)|
| **Manufacturing wage** | −0.331| (0.197)*| (0.14)| (1.13)| (1.13)| (1.13)| (1.13)| (1.13)|
| **Annual hours**     | 0.14 | 0.14 | 0.14 | 0.14 | 0.14 | 0.14 | 0.14 | 0.14 |
|                      | (1.13)| (1.13)| (1.13)| (1.13)| (1.13)| (1.13)| (1.13)| (1.13)|
| **Real effective exchange rates** | −0.046| −0.046| −0.046| −0.046| −0.046| −0.046| −0.046| −0.046| (0.57)|
|                      | (1.916)**| (1.926)**| (1.814)**| (1.815)**| (1.878)**| (2.003)**| (8.983)**| (3.447)**|
| **Overall R2**       | 0.595| 0.599| 0.678| 0.682| 0.681| 0.684| 0.714| 0.698|
| Observations         | 350  | 350  | 350  | 350  | 350  | 257  | 264  | 41   |
| Number of countries  | 55   | 55   | 55   | 55   | 55   | 50   | 50   | 41   |

Notes: robust standard errors in parentheses. * significant at 10%; ** significant at 5%; *** significant at 1%.

Source: Authors’ computations.
business executives believe labor regulations do not hinder economic activity receive a larger share of world FDI, other influences being equal. Unlike other measures of labor regulation by country, this variable is available for several years, but it provides no indication of which labor regulations concern potential foreign investors the most.

Do geography and location matter? There is a widespread notion that the Asian region is especially attractive to FDI given the predominance of the export-led growth model in the region. However, when a dummy variable for Asian countries is added to the baseline regression model, the result is significantly negative and the statistical properties of the regression improve (Table 6, regression 3). Even after holding the effects of the independent variables constant, the Asian region receives a comparatively smaller share of world FDI inflows.

We also investigate whether the PRC receives a disproportionate share of FDI, and our results again do not suggest that this is the case (Table 6, regression 4). In fact, the evidence in the subsequent robustness checks suggests that the significant flow of FDI into the PRC can be explained by the list of independent variables included in the baseline model.

Our central interest in the FDI analysis is to assess claims that FDI is attracted to countries with poor labor conditions. We test for the influence of a country’s labor conditions on FDI by adding measures of working conditions (such as average manufacturing wages, annual hours worked, and civil liberty measures) to the baseline econometric model (Table 6, regressions 5–7). With one exception (the marginally significant negative coefficient on wages), high FDI shares are not significantly correlated with poor labor conditions in these regressions. Notably, adding information on labor conditions to the analysis does not alter the earlier findings for either the Asian region or the PRC. Lastly, we investigate the effects of real effective exchange rates on FDI shares, and the result does not suggest that “cheaper” prices significantly determine FDI flows to these countries.

Overall, our findings show that FDI patterns between 2002 and 2009 were still significantly driven by factors that have been highlighted by previous literature surveys (e.g., Blonigen and Piger 2011). On one hand, “traditional” FDI determinants such as GDP per capita, population of host country, and the risk factors of host countries play an important role. On the other hand, institutional factors such as freedom from onerous and predatory bribery or corruption, as well as market-friendly labor regulations (which should not be interpreted as the equivalent of a complete lack of regulation), seem to exert more impact on FDI decisions rather than poor labor conditions alone.

The evidence on patterns and determinants of FDI inflows has a bearing on two views of why companies locate production abroad in the first place. One view holds that foreign investment is attractive when it offers specific location advantages such as mineral deposits or cheap labor. This view apparently underlies assertions that poor labor conditions attract foreign investment. An alternative view holds that MNCs transfer important productive inputs that host countries lack—unique
technology, managerial skills, and superior knowledge of organizational design and production methods (Hymer 1960, Caves 1996, Markusen 2002). MNCs need such firm-specific “knowledge capital” if they are to overcome their lack of familiarity with local regulations, marketing practices, human resource management policies, and other aspects of management that are sensitive to differences in local cultures. Under the knowledge-capital view, the possession of firm-specific assets that can profitably be combined with local inputs in host countries drives foreign investment—not an effort to exploit local inputs.

The fact that neither broad patterns of FDI inflows nor statistical analyses of the determinants of those inflows reveal evidence of significant links between foreign investment and labor conditions supports the “knowledge capital” hypothesis over the “location advantage” hypothesis of investment motivation. The difference in these views is also important for understanding the impact of MNCs on host-country labor conditions—the topic of the next section. Combining such firm-specific assets with local inputs should raise, not lower, the productivity of host-country affiliates. In short, the knowledge capital scenario explains why MNCs might offer higher wages than their host-country competitors.

Why are the results of the analysis of FDI inflows so inconsistent with the location-advantage hypothesis? Poor labor conditions signal low productivity as well as low wages, and not all investments thrive in a low-productivity environment. Moreover, countries with poor labor conditions tend to be countries in which direct risks to investment are high. Risks of expropriation and repudiation of contracts are highest in countries with few civil liberties, for example. These risks effectively counter whatever advantages cheap labor might provide.

B. MNCs and Labor Conditions

The impact of a multinational company on working conditions in a host country depends on the extent to which it must compete with other MNCs or host country firms for its workers and on the local elasticity of labor supply. If multinationals establish inferior conditions in newly-constructed plants, they will face recruiting and retention difficulties when competing with other firms for labor. If they instead acquire local companies and try to worsen working conditions, they will encounter increased quit rates as workers leave to join host-country firms offering superior conditions.

Whether the arrival of MNCs can improve working conditions depends on labor supply conditions in the host country and the human resource management policies of the firm. As noted earlier in the paper, in markets with a limitless supply of labor available at the current wage, increased labor demand from MNCs or host-country firms will raise employment, but not wages. When workers require inducements to overcome the costs of changing employers, however, labor supply is less elastic, and increases in labor demand from MNCs will raise both wages
and employment. When firms compete for labor, the effect of increased demand on wages depends on what workers are willing to accept—not on what firms may wish to pay.

If MNCs do not compete with other firms for labor services, they may force labor conditions below competitive levels. Firms in isolated locations may have such “monopsony” power, but situations in which labor has no choice of employers seem too rare to accept monopsony as a general phenomenon. Indeed, by adding to the number of employers in a labor market, the arrival of MNCs should improve labor conditions by reducing monopsony power in host-country labor markets.

The conclusions of the research community on the impact of MNCs on wages are nicely summarized in the following statement (Lipsey and Sjöholm 2001): “It seems to be a universal rule that, in every country, foreign-owned firms and plants pay higher wages, on average, than domestically owned ones. That is true not only in developing countries, but also in high income countries, such as Canada, the United States, and the United Kingdom.” The persistence of higher pay in MNCs implies that labor productivity in foreign affiliates exceeds productivity in host-country firms. Comparisons of value-added per employee confirm this implication. According to United Nations data for the mid-1990s, foreign-affiliate productivity exceeded domestic firm productivity by 37% (Hong Kong, China), 65% (Malaysia), 137% (PRC), and 373% (Taipei, China). Significant but smaller productivity premiums for foreign affiliates were recorded in most major European and North American countries (UNCTAD 2002).

Some of the superior productivity and pay of foreign affiliates reflects differences in industry and firm size. In comparison to host-country firms, foreign affiliates also hire employees with more observable and unobservable skills (Malchow-Møller, Markusen, and Schjerning 2013). Wages also grow more rapidly in foreign-owned firms, suggesting that they may provide more specific training or other on-the-job learning opportunities than host-country firms (Table 7). Even after controlling for these factors, however, studies still find foreign-affiliate paying premiums (in the order of about 3%–5%). These premiums may reflect differences in management quality between foreign and domestic firms.

V. Concluding Comments

During the late 20th and early 21st century, a broad improvement in working conditions and labor rights around the world accompanied a significant expansion of international trade and investment. The analyses reported in this paper clarify the ties between these two developments. Trade itself advances working conditions and labor rights to the extent that increased trade flows raise per capita income. We find no separate direct influence of trade on labor conditions, however. The linkage between increased trade and improved labor conditions is consistent with
Table 7. Ratio of Compensation in MNCs and Local Manufacturing

| Country                  | 2000  | 2008  | Avg. Annual % Change |
|--------------------------|-------|-------|----------------------|
| Bangladesh               | 21.29 | 19.28 | -1.2                 |
| Brunei Darussalam        | 8.48a | 15.23 | 11.4                 |
| China                    | 7.24  | 3.10  | -7.1                 |
| Hong Kong, China         | 2.24  | 2.27b | 0.2                  |
| India                    | 11.63 | 11.43b| -0.2                 |
| Indonesia                | 20.58 | 13.56 | -4.3                 |
| Japan (1)                | 1.36  | 1.14  | -2.0                 |
| Korea, Republic of (1)   | 2.01  | 1.73  | -1.7                 |
| Malaysia                 | 2.66a | 2.29  | -3.5                 |
| New Zealand (1)          | 1.24  | 1.08  | -1.6                 |
| Philippines (1)          | 4.99  | 3.22  | -4.4                 |
| Singapore (1)            | 1.46  | 1.27  | -1.6                 |
| Sri Lanka                | 21.25 | 11.39 | -5.8                 |
| Taipei, China (1)        | 1.73  | 1.69  | -0.2                 |
| Thailand                 | 4.02  | 4.05  | 0.1                  |
| Viet Nam                 | 3.62  | 6.87  | 11.2                 |

MNC = multinational company
MNC wage def: Average monthly compensation per worker paid by the foreign affiliates of the US MNCs per year
1-Manufacturing wage data – Average direct pay per employee (BLS); or the other countries – data were obtained from ILO-Laborsta or CEIC.
a-2000 data: Brunei Darussalam-2001, Malaysia-2004.
b-2008 data: Hong Kong, China-2007; India-2007.
Sources: BEA, BLS, ILO, and CEIC.

Concerns that reducing trade barriers will degrade labor conditions in a developing country are not supported by our analyses.

Instead, trade barriers can unintentionally undermine some labor rights. Consider the effect of applying trade sanctions against countries using child labor in the production process. Effective trade sanctions will reduce per-capita GDP, national income, and employment. Reductions in adult employment create pressures for increased child labor force participation in order to preserve family income. The goal of reducing the incidence of working children is better served by expanding, not contracting, employment opportunities for adults.

Although examples drawn from Asian countries are often used to support general claims that globalization degrades working conditions, we find no special “Asia” effect on labor conditions in our analyses when each country’s data are weighted by the size of its labor force. That is, differences in per-capita GDP and trade shares fully account for differences in labor conditions between Asian and non-Asian countries. Analyses with unweighted data find that Asian countries have relatively high work hours and low freedom-of-association rights after controlling
for GDP and trade influences. In short, labor conditions lag most in the smallest Asian countries.

Our analyses also do not find evidence that countries with poor labor conditions attract disproportionate shares of FDI. Market size and investment risk are the dominant influences on FDI. After accounting for their influence, actual labor conditions play a negligible role in the destination of FDI inflows. Perceptions of the constraints imposed by national labor regulations can influence a country’s FDI share, however. After accounting for the influence of these factors, the Asian region receives a smaller share of world FDI inflows than other regions. Detection of the factors driving this Asia effect is an important topic for future research.

Finally, our review of the growing literature on the impact of MNCs on host-country labor markets finds no evidence that multinationals depress wages. Instead, the evidence seems consistent with the “knowledge capital hypothesis” that foreign firms bring firm-specific technical and managerial advantages that produce the higher productivity that supports higher wages.

References

Aw, Bee Yan, and Geeta Batra. 1998. Department of Economics Working Paper. University Park, PA: Pennsylvania State University. Available at http://elibrary.worldbank.org/doi/pdf/10.1093/wber/12.1.59?bcsi_scan_2ebfe9ac2732bb8b=ze2rADINnLAXLzbRnj34QGdXrKOlAAAAtjejZAA==&bcsi_scan_filename=12.1.59

Bales, Kevin. 2004. Disposable People: New Slavery in the Global Economy. Berkeley, CA: University of California Press.

Becker, Gary S. 1957. The Theory of Discrimination. Chicago: University of Chicago Press.

Berg, Andrew, and Anne Krueger. 2003. Trade, Growth, and Poverty: A Selective Survey. In Boris Pleskovic and Nicholas Stern, eds. New Reform Strategies. Washington, DC: World Bank.

Bernard, Andrew, and J. Bradford Jensen. 1995. Exporters, Jobs, and Wages in US Manufacturing, 1976–1987. Brookings Papers on Economic Activity: Microeconomics 1995: 67–119.

Bhagwati, Jagdish. 2004. In Defense of Globalization. New York: Oxford University Press.

Black, Sandra, and Elizabeth Brainerd. 2004. Importing Equality? The Impact of Globalization on Gender Discrimination. Industrial and Labor Relations Review 57(4): 540–559.

Blonigen, Bruce, and Jeremy Piger. 2011. Determinants of Foreign Direct Investment. NBER Working Paper Series No. 16704. Cambridge, MA: National Bureau of Economic Research.

Busse, Matthias, and Sebastian Braun. 2003. Trade and Investment Effects of Forced Labor: An Empirical Assessment. International Labour Review 142(1): 49–71.

Caves, Richard. 1996. Multinational Enterprise and Economic Analysis. (2nd Edition) Cambridge: Cambridge University Press.

Flanagan, Robert. 2006. Globalization and Labor Conditions. Oxford: Oxford University Press.

Freedom House. Online. Available: http://www.freedomhouse.org/ (last accessed 12 December 2013).

———. 2010. The Global State of Workers’ Rights: Free Labor in a Hostile World (Online). Available: http://www.freedomhouse.org/
Hahn, Chin Hee. 2004. Exporting and Performance of Plants: Evidence from Korean Manufacturing. *NBER Working Paper Series* No. 10208. Cambridge, MA: National Bureau of Economic Research.

Hymer, Stephen Herbert. 1960. *The International Operations of National Firms: A Study of Direct Foreign Investment*. PhD diss., Massachusetts Institute of Technology, Cambridge.

International Labour Organization (ILO). 2005. *A Global Alliance against Forced Labor*. Geneva: ILO.

——. 2010. *Global Child Labour Developments: Measuring Trends from 2004 to 2008*. Geneva: ILO.

International Institute for Management Development (IMD). *World Competitiveness Yearbook*. Lausanne: IMD. Available online at: [https://www.worldcompetitiveness.com/OnLine/App/Index.htm](https://www.worldcompetitiveness.com/OnLine/App/Index.htm) (last accessed 12 December 2013).

Kucera, David. 2002. Core Labor Standards and Foreign Direct Investment. *International Labor Review* 141(1–2): 31–70.

Kusago, Takayoshi, and Zafiris Tzannatos. 1998. Export Processing Zones: A Review in Need of Update. *Social Protection Discussion Paper* No. 9802. Washington, DC: World Bank.

Lipsey, Robert E., and Fredrik Sjöholm. 2001. Foreign Direct Investment and Wages in Indonesian Manufacturing. *NBER Working Paper Series* No. 8299. Cambridge, MA: National Bureau of Economic Research.

Malchow-Møller, Nikolaj, James Markusen, and Bertel Schjerning. 2013. Foreign Firms, Domestic Wages. *Scandinavian Journal of Economics* 115(2): 292–325.

Markusen, James. 2002. *Multinational Firms and the Theory of International Trade*. Cambridge: MIT Press.

Obstfeld, Maurice, and Alan Taylor. 2003. Globalization and Capital Markets. In Michael Bordo, Alan Taylor, and Jeffrey Williamson, eds. *Globalization in Historical Perspective*. pp. 122–183. Chicago: University of Chicago Press.

Oh, Won Sun. 1993. *Export Processing Zones in the Republic of Korea: Economic Impact and Social Issues*. Geneva: ILO.

Robertson, Raymond, Drusilla Brown, Gaelle Pierre, and Maria Laura Sanchez-Puerta, eds. 2009. *Globalization, Wages, and the Quality of Jobs: Five Country Studies*. Washington, DC: World Bank.

Sachs, Jeffrey, and Andrew Warner. 1995. Economic Reform and the Process of Global Integration. *Brookings Papers on Economic Activity* 26(1): 1–95.

United Nations Conference on Trade and Development (UNCTAD). 2002. *World Investment Report 2002*. New York: United Nations.

——. 2010. *World Investment Report 2010*. New York: United Nations.

United Nations Industrial Development Organization (UNIDO). 2002. *International Yearbook of Industrial Statistics*. New York: United Nations.

Van Biesebroeck, Johannes. 2003. Exporting Raises Productivity in Sub-Saharan African Manufacturing Plants. *NBER Working Paper Series* No. 10020. Cambridge, MA: National Bureau of Economic Research.

Wacziarg, Romain, and Karen Horn Welch. 2008. Trade Liberalization and Growth: New Evidence. *World Bank Economic Review* 22(2): 187–231.

Weichselbaumer, Doris, and Rudolf Winter-Ebmer. 2003. A Meta-analysis of the International Gender Wage Gap. *IZA Discussion Paper* No. 906. Bonn: Institute for the Study of Labor.
Appendix: Sources and Concepts

This paper considers three dimensions of working conditions—pay, hours of work, and job safety—and four dimensions of labor rights—child labor, employment discrimination, freedom of association, and forced labor. For the data sources for analyses of the late 20th century, see Flanagan (2006, Appendix A). Analyses for the first decade of the 21st century use the database in the World Competitiveness Yearbook, downloaded from the IMD website. This database includes data acquired from international organizations and national governments as well as special survey data acquired by IMD from cooperating research institutes around the world. Annex IV of the World Competitiveness Yearbook provides a complete guide to all sources. To this database, we added variables provided by the ILO. This Appendix notes conceptual differences in data for the late 20th and early 21st century.

We use the annual compensation per worker in manufacturing to measure pay in the late 20th century (UNIDO 2002). This measure includes direct wages plus contributions by employers to social security programs. For the early 21st century, pay consists of hourly earnings per worker in manufacturing. Three measures of work hours are analyzed in the late 20th century: (i) the proportion of employees who usually work more than 40 hours a week; (ii) weekly hours of work in manufacturing; and (iii) annual work hours for all employees. The early 21st century analysis uses the last measure.

In contrast to data on pay and work hours, there is no general measure of job safety available for a large sample of countries. This paper uses the rate of fatal on-the-job injuries per 100,000 employees, available from the ILO. (Consistent data on nonfatal accidents are very scarce.) We have adjusted the ILO data to a common base (100,000 employees), but given the wide variation in reporting practices, changes over time within a country are likely to be more informative than cross-country comparisons.

Indicators of labor rights now exist for a substantial cross-section of countries, but measures for only two of the four core labor rights—workplace freedom of association and child labor force participation—are available for multiple years. For child labor force participation, we use data provided by the ILO (2010), which defines children’s participation in work employment as child employment, and assigning a narrower definition to the term child labor, as defined by the ILO Minimum Age Convention, 1973 (No.138) and ILO Worst Forms of Child Labor Convention, 1999 (No. 182). Thus, child labor is a subset of the broader category child employment (child labor force participation). Nonetheless, there is a large overlap between the two categories: in 2008, 86.8% of all working children were also categorized under child labor. The data are estimated based on 60 national household surveys carried out in 50 countries, covering the period from 2004 to 2008.

Most of our analyses of freedom of association rights use a broad measure of civil liberties developed by Freedom House (http://www.freedomhouse.org/). The
Freedom House index evaluates actual national practices rather than constitutional guarantees and ranges from 1 to 7 with the lowest scores indicating the strongest liberties. A recent study (Freedom House 2010) permits an evaluation of how well the general civil liberties index captures workers’ freedom of association. For 2010 only, Freedom House developed a five-point measure of worker rights for each country, with the highest scores indicating the strongest rights. The cross-country correlation between that index and the general civil liberty index in 2010 is –0.91 (where the negative sign reflects the different scaling of the two measures). For the mid-1990s only, there is an index of workplace freedom of association and collective bargaining rights (Kucera 2002). The index, based on an evaluation of 37 potential interferences with rights to form unions and bargain collectively, ranges from 0 to 10 with low numbers reflecting superior workplace freedom of association rights.

We measure labor market discrimination as the percentage difference between male and female wages that remains after adjustments for gender differences in schooling, experience, and other performance-related variables. The focus on gender provides a benchmark for discrimination that is widely applicable across countries. The data come from a meta-analysis of 263 published papers offering 788 estimates of gender pay differentials in various years from the 1960s through the 1990s in 63 countries (Weichselbaumer and Winter-Ebmer 2003). The meta-analysis generated estimates of net gender wage differences for each of the countries, after controlling for year and characteristics of the study. The estimated country effects constitute the measures of discrimination used in this study. Only one observation per country is available—dated here as 1985, about the middle of the period covered by the studies in the meta-analysis.

We rely on two approaches to measuring the prevalence of forced labor. The first approach estimates the number of forced laborers. One study estimates 27 million forced laborers worldwide in the late 1990s and provides tentative country-by-country estimates with many caveats (Bales 2004). We use the midpoint of this estimated range for each country. The ILO later published a much lower estimate of 12.3 million victims of forced labor worldwide based on double-sampling of reports between 1995 and 2004 (ILO 2005). The report stated reasons why this figure might be an underestimate and did not report estimates by country. The second approach counts the varieties of forced labor found in a country, as indicated in qualitative reports by the US Department of State and human rights organizations. Ranging from 0 to 8, this variable is available only for the late 1990s (Busse and Braun 2003).