Labor Regulations, Unions, and Social Protection in Developing Countries:

Market distortions or Efficient Institutions?

Richard B. Freeman
Harvard and NBER
Centre for Economic Performance, LSE

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Abstract

This essay reviews research on the impact of government regulations and collective bargaining on labor outcomes in developing countries. The main findings of the research are that: 1) labor institutions vary greatly among developing countries; 2) in many countries minimum wage regulations produce spikes in wage distributions in covered sectors, with modest effects on employment; 3) in some countries, minimum wages spillover to raise wages in the informal sector as well; 4) some regulations and mandated benefits increase labor costs and reduce employment modestly while the costs of others are shifted largely to labor; 5) wages are inversely related to unemployment across areas; 6) unions affect non-wage as well as non-wage outcomes; 7) labor institutions do not generally impede economic adjustments but can be critical in countries experiencing great change; 8) the informal sector increased its share of the work force in the developing world in the past two decades.

Taken as a whole, the research rejects the widely used two sector Harris-Todaro model as fitting developing country labor markets and the notion that “urban bias” due to labor institution is a major growth impediment in favour of a more nuanced view of what institutions do. The persistence of large informal sectors even in developing countries with high rates of growth puts a premium on increasing our knowledge of how informal sector labour markets work and finding institutions and policies to deliver social benefits to workers in that sector.
Once about a time – not so long ago – the international financial institutions and many in the economics and policy establishment believed that they knew how to create sustainable growth in developing economies. They had a toolkit of policy prescriptions that they could take from country to country to cure economic ills. For the labor market, the package called for reduced regulations and lower social protection, cuts in public sector pay and employment, weaker union powers, and greater reliance on market wage setting compared to collective bargaining or administrative rules. The enemy of growth was “urban bias” (Lipton, 1977) -- government or union setting of pay and work conditions that benefit modern sector workers but reduce the flow of workers from low productivity informal and rural sectors to the modern sector. The World Bank’s 1990 Development Report presented the prevailing wisdom: “Labor market policies – minimum wages, job security regulations, and social security – are usually intended to raise welfare or reduce exploitation. But they actually work to raise the cost of labor in the formal sector and reduce labor demand ... increase the supply of labor to the rural and urban informal sectors, and thus depress labor incomes where most of the poor are found.” (World Bank 1990, p. 63).

Underlying this perspective was the Harris-Todaro (1970) two-sector model that attributed joblessness in developing countries to institutionally imposed high urban wages. The model posited that the high wages induced rural workers to migrate to urban areas, where they became unemployed while waiting for good jobs. Migration continued until the rate of unemployment equated the expected urban sector earnings (the wage times the probability of employment) to rural earnings. In this situation, an increase in modern sector employment at the institutionally determined wage does not raise GDP. This is because the addition of a high productivity job induces enough rural workers to migrate into urban unemployment to reduce rural output by the increased output due to the new urban job.1

World Bank and International Monetary Fund economists also worried that labor institutions would undermine structural adjustment programs designed to cure balance of payments deficits or other economic ills. In their analysis, elimination of a balance of payments deficit required that a country shift resources from labor-intensive non-traded goods and services to capital-intensive traded goods sectors. The least costly way to do this was to devalue the currency, which raises the price of tradable goods and services relative to non-traded goods and services and thus attracts resources into the traded sectors. Unions or other institutions that raise wages to offset the devaluation would stop relative prices from moving in the desired direction. The country would have to undergo a recession to reduce imports and raise exports, which would be far more costly than the devaluation.

At the 1992 World Bank Annual Conference on Development Economics, I reviewed the extant evidence that labor institutions harmed economic development and stymied adjustments to macro-economic problems per this analysis and found it sparse and unconvincing (Freeman, 1993a). The strongest evidence was from Lucas and Fallon (1988), who compared the response of employment to output and wages in 35 industries in India and 29 industries in Zimbabwe before and after these countries strengthened labor laws. Their analysis showed that industries adjusted employment to changes in output as rapidly after the laws as before the laws but that employment was lower at the same output after the laws (ie

1 Let W be the wage in the urban sector and Wr be the wage in the rural sector. Then the two sectors have equal expected earnings when eW = Wr, where e is the ratio of employment (E) to labor force (L) in the urban sector. Since this means that EWr = LR, dL = W/WR dE. An increase in E increases the urban work force, which in turn reduces the rural output.
that productivity improved). Absent evidence that firms complied with the laws and that other factors did not affect outcomes over the same period (they noted that Zimbabwe became independent co-terminus with the change in labor regulations), I viewed the results as suggestive at best. I was more impressed by the large declines in real minimum wages and average earnings in many African and Latin American countries during the 1980s as indicating that labor regulations were more “sawdust” than “hardwood”.

The quantity and quality of research on labor institutions in developing countries has increased greatly since the early 1990s. Some countries changed labor regulations in ways that provide good pseudo-experiments of whether institutions help or hinder the working of labor markets. Micro data files on individuals and establishments became widely available, permitting deeper probing of hypotheses than is possible with aggregate data. Newly developed data sets with country labor codes and institutional practices allowed analysts to see whether developing countries with stronger labor institutions had better or worse growth experiences than those with weaker institutions.

In light of all this, what have we learned about the relation between labor institutions and economic outcomes?

The recent research has not uncovered a general law for the effects of institutions on outcomes — economic circumstances and institutions probably vary too much among countries to support any single generalization — but it has yielded new and in some cases surprising findings on how institutions affect outcomes. This has led to a more measured view of what institutions do than in the World Bank’s 1990 proclamation. Here are the main findings from the research:

1) Contrary to my initial skepticism, compliance with regulations in the formal sector of many developing countries is sufficient to show up in spikes in the distribution of wages around minima. Most studies find that minimum wages reduce employment modestly, so that the minima generally help the low paid, though some studies find larger negative employment effects which imply the opposite (section 2).

2) In some countries, minimum wages induce spikes in the distribution of earnings in the informal sector, suggesting that minima determine reservation wages (section 2).

3) Wages and unemployment are negatively sloped across geographic areas, consistent with the wage curve and contrary to the Harris-Todaro model (section 3).

4) Some labor regulations and mandated benefits increase labor costs and reduce employment modestly while the costs of others are shifted largely to workers (section 4).

5) Unions are associated with higher wages and non-wage shares of compensation and with lower turnover and less dispersion of pay. Estimates of the union effects on profits and productivity differ across countries. (section 5).

6) Cross-country regressions yield inconclusive results on the impact of labor regulations on growth (section 6).

The research has helped move analysts at the World Bank and other international institutions to moderate their initially negative assessments of labor institutions.2 Readers

2 The 1995 World Development Review was the first major Bank statement in this regard: “Free trade unions are the cornerstone of any effective system of industrial relations. Unions act as agents for labor … monitor employers’ compliance with government regulations … can help raise workplace productivity and reduce workplace discrimination … (contribute to) … political and social development.” (World Bank 1995, p 79). In 2003 the Inter-American Development Bank declared: “Labor regulations are not cost-free, but deregulation is not the
familiar with the retreat of the Bank and the IMF from obiter dicta on free trade, unrestricted capital flows, and laissez faire policies will note that this fits with the new modesty of these institutions about what economists can scientifically assert about growth-inducing policies.  

7) That labor institutions do not generally impede economic adjustments does not mean that those institutions are irrelevant to development. They can be critical when countries experience great change, as in China’s growth spurt and Argentina’s preservation of social stability and democracy after its 2001-2002 economic collapse (section 7).

8) In the 1990s-2000s, the informal sector’s share of employment increased or held steady in virtually all developing countries, including those with healthy growth and limited regulations (section 8). Even without deregulating the formal sector, an increasing proportion of workers in developing countries are working in largely unregulated markets.

1. The Debate over Labor Institutions

Developing countries, like advanced countries, evince substantial differences in labor institutions that could impact economic outcomes and growth. To quantify this variation, I summarize in exhibit 1 the mean and standard deviation of five measures of the institutional orientation of formal sector labor markets. The five measures are: the labor component from the Fraser Institute’s index of economic freedom (2006); the Botera, et al (2004) indices of the strength of employment laws and laws regarding collective rights; the power of firms to set wages and hire and fire freely (World Economic Forum, 2007); and rates of unionization (ILO 1996). I have scaled the indices so that high values mean that a country relies more on market forces than on institutions in determining outcomes. I differentiate developing countries by level of income and distinguish the traditional advanced countries (the West and Japan) from recently developed countries (the Asian Tiger economies and others). Appendix A gives the measures for each country.

The average values of the measures in exhibit 1 show that developing countries have markedly lower union density and are more likely to rely on firms/markets than collective bargaining/regulations to set wages compared to advanced countries. While the Botero et al measure of employment law is less favorable to institutions in developing countries than in advanced countries, the measures of hiring and firing practices, collective relations law, and the overall Fraser Index show little difference between advanced and developing countries. The newly industrialized countries are usually the most market-oriented. The correlation matrix at the bottom of the exhibit shows that the four indices are moderately positively...

answer.... Unions are neither the sand in the wheels of the labor market nor the solution to low wages.... better labor market performance is compatible with lower earnings inequality ... The new agenda requires a strengthened labor authority and a complex network of public and private institutions” (Inter-American Development Bank, 2003 pp 7-8).

3 Indicative of this thinking: “Rising trade volumes are unambiguously related to growth, but the direction of causation is unclear.” Zagha, Nankini, & Gill (IMF, 2006); ”some of the more extreme polemic claims made about the effects of financial globalization on developing countries, both pro and con, are far less easy to substantiate than either side generally cares to admit.” Kose, Prasad, Rogoff, & Wei (IMF, 2007); “greater caution toward certain forms of foreign capital inflows might be warranted”– Prasad, Rajan, & Subramian (IMF, 2007); “expectations about the impact of reforms on growth were unrealistic….our knowledge of economic growth is extremely incomplete…an economic system may not always respond as predicted (Zagha, Nankini, & Gill, 2006). “The Washington Consensus has been dead for years.” Wolfensohn (2004). On the role of government see World Bank (1993).
correlated. This could reflect genuine differences in country policies or practices or measurement error. Union density is even less correlated to them, possibly reflecting the wide differences in what it means to be union across developing countries noted later.

The standard deviations below the means show considerable variation in institutions within groups. In 5 of the 6 measures, the variation is larger among the advanced countries than among the developing countries. This is due in part to the divergence between the market-oriented US and the other English-speaking countries and the more institution-oriented countries in the European Union (Freeman, Boxall, Haynes, 2007). Finally, to the extent that institutions distort the operation of labor markets per the 1990 World Bank statement, the measures suggest that labor markets work better in some developing countries than in some advanced countries. By the Fraser Institute’s index for labor, for example, the Ugandan labor market should work better than the German or Swedish labor markets.

Since institutions usually reduce dispersion of earnings across and among groups, another way to get some indication of the importance of institutions in advanced and developing countries is to compare the dispersion of earnings among nominally similar workers. Exhibit 2 graphs the standard deviation of ln earnings among occupations and industries in countries by GDP per capita. It shows greater dispersion in lower income than in high income countries. To the extent that high dispersion reflects informational or other market failures, institutions have greater scope to improve outcomes in developing countries than in advanced countries. But we do not know the cause of the higher dispersion.

**Theoretical perspectives**

Economists have three types of theories for analyzing labor institutions.

The first, which I have labelled *distortionism*, views institutions as distorting economic performance because in their absence unfettered markets would produce competitive equilibrium. Consider analyses of unionism in a market where wages are at the competitive level and the union bargains for higher wages. The higher cost of labor leads unionized firms to reduce employment, which forces some workers to move to lower paid less productive non-union work, lowering economic efficiency. The higher the elasticity of demand for labor, the greater is the distortion in resource allocation.

The second type of theory treats institutions as mechanisms for efficient bargaining. Models of efficient bargaining predict that when firms/workers bargain they “leave no money on the table” and thus allocate resources optimally. This is the Coase Theorem at work in the world of labor institutions (Freeman, 1993b). This analysis suggests that institutionally determined rules, such as employment protection legislation, affect distribution but not production. More modestly, it suggests that through legal arrangements or shadow economy side-payments, there are “natural limits to the efficiency losses engendered by such regulations” (Squire and Suthiwart-Narueput, 1995).

The third type of theory focuses on ways institutions facilitate the flow of information and foster cooperative behaviour that could raise productivity. In this vein Freeman and Lazear (1995) modelled works councils as institutions that increase communication inside firms and allow management and labor to make more informed and presumably better decisions. In addition, when dispersion of pay is high for non-competitive reasons such as monopsony (Manning, 2000), informational failures, or other factors, collective bargaining or government regulations can bring wages closer to the market-clearing level.

In sum, there are arguments that institutions reduce efficiency, raise efficiency, and do not affect efficiency. To determine which arguments are valid requires evidence on the actual links between institutions and outcomes. On the basis of extant micro-data and
I propose a five-fold sieve for evaluating research on the impact of institutions:

1) The institution should affect the outcome it is meant to affect. For instance, if the policy is a minimum wage, and the minimum is enforced, it should change the distribution of wages, producing a spike in frequency around the minimum.

2) Before/after evidence that the institution alters quantities that impact aggregate output. In the minimum wage case this would be evidence that the minimum reduced employment. If an institution affects wages but not quantities, it could be efficiently redistributing income while leaving output unchanged, per efficient bargaining models.

3) Evidence that the outcome attributed to the institution did not occur in another setting absent the institution. This is a difference in difference analysis where the institution is the treatment and the other setting is the control. Since potentially many countries, sectors, or workers without an institution can serve as counterfactuals, the analysis should demonstrate that outcomes in the control are a good predictor of outcomes in the affected group before the institutional change (Abadie et al., 2007). Otherwise, the control is unlikely to be a good guide to how the affected group might have fared absent the policy.

4) Evidence that the estimated effect of the institution is sufficiently large to alter aggregate outcomes. The share of the work force in the formal sector where institutions operate is small in most developing countries, so that institutions are unlikely to affect aggregate outcomes unless they have very large effects on the formal sector, sizeable spill overs to the informal sector, or are located in critical sectors, for instance traded goods.

5. Identification of the effect of an institutional innovation from the outcomes it purportedly affects. This applies Andrews’ (1993) test for structural changes in time series data with unknown change points to cross country data. The statistical test identifies a break in the data that ideally lines up with the change of policy expected to have caused the change. In cross country time series data, the question is whether breaks in outcome measures can identify countries that adopted particular policies in particular periods – for instance, whether up ticks in economic growth occurred in countries that chose, say Washington Consensus style policies (assuming that the policies are growth-enhancing) at the time when the policies would likely take affect. To my knowledge, this test has not been applied in cross-country growth regression models.

2. Micro-evidence on minimum wages

The response of employment to minimum wages depends on the shape of the labor demand schedule in the range of the minimum. For all its contentiousness, the literature on minimum wages in the US and other advanced countries generally finds modest responses in employment (Card and Kreuger 1997; Neumark and Wascher, 2006). The evidence that responses are often negligible does not mean that demand curves do not slope downward or that a high minimum wage cannot decimate employment. Rather, it suggests that governments set minimum wages with due consideration to the risk that minima can cause more harm than good.

The studies summarized in Exhibit 3 find that in many developing countries, minimum wages raise the pay of low paid workers in the formal sector by enough to produce spikes in the distribution of earnings around the minimum wage and that changes in the minimum change the wages for low paid covered groups. Harrison and Scorese (2003) find that during the 1990s epoch of globalization, compliance with minimum wages increased in Indonesia in both multinationals and domestic firms. Surprising, at least to me, is evidence from Latin America that minimum wages raise wages in the informal sector (Gindling and
Terrell, 2005, Lemos, 2004b, Kristensen and Cunningham, 2006; Maloney and Nunez, 2003). In Brazil this is known as the “Efeito Farol” or lighthouse effect. In some cases, increases in the minimum appear to raise wages more in the informal sector than in the formal sector.

A positive effect of the minimum on the uncovered sector runs counter to the partial equilibrium model that economists often use to analyze minimum wages. In this model labor displaced from covered employment moves to the uncovered sector and depresses wages there, per the 1990 Bank statement given at the outset. One interpretation of the positive wage spillover is that workers base their reservation wages on the minimum, perhaps because the high dispersion of pay in developing countries provides little guidance as to what wage they might expect. If low paid workers in the informal sector are paid less than low paid workers in the formal sector, their wages would increase more if the minimum induced all workers to have the same reservation wage. But perhaps something else is going on that is not captured in the model4 or perhaps the measures of wages in the informal sector are poor.

The pattern of change in minimum wages in developing countries also raises doubts about models that treat the minimum as exogenous. Looking at changes in real minima wages in 23 developing countries in the 1980s-1990s, Squire and Suthiwart-Narueput found declines in the real minimum in 16 countries. Presumably governments allowed real minima to fall because they believed that in times of economic crisis falling real minima saved jobs. In this vein, Rama (2000) shows that African counties in the CFA zone changed minimum wages in response to changes in the terms of trade, national output, and consumer prices.

Turning to employment effects, more studies find that minimum wages reduce employment than not, but the estimated impacts are generally modest, limited for instance in Indonesia to small firms (Alatas and Cameron, 2003; Rama, 2001). There is, however, considerable variation in employment effects across countries and studies. Indicative of the variation, the estimated impact of the minimum on employment differs between countries in the same study (Bell, 1997), in the same country depending on specification groups covered (Lemos, 2007 reports no employment effects in the public or private sectors whereas Lemos 2004a small negative employment effects in the long run and Lemos 2004b reports modest negative employment effects in the formal and informal sectors), and between neighboring countries examined by the same analysts (Gindling and Terrell 2007a find an elasticity of employment to the minimum in Costa Rica of -0.10 vs Gindling and Terrell, 2007b, who find an elasticity of employment to the minimum in Honduras greater than -1.0). Whether these differences reflect differences in country labor markets, in enforcement, or in research designs is difficult to tell. Studies that use panel data to identify the workers directly impacted by the minimum find larger employment effects than studies that estimate the effect from employment statistics for a wider group. Most studies find elasticities considerably less than unity, implying that increases in the minimum have the potential for being a viable anti-poverty tool. Indeed, analysing the link between minimum wages and poverty in 22 developing countries Lustig and McCleod find that changes in real minimum wages are associated with declines in poverty, which requires that the elasticity of demand be low. But the high elasticity found by Gindling and Terrell for Honduras shows that there can be exceptions, so that each country case (and each potential change in the minimum in each country) must be considered carefully.

3 Wage Curve

4 In a general equilibrium closed economy, the minimum would shift capital as well as labor to the informal sector, which could raise wages there if the shift raised its capital/labor ratio.
The wage curve is an empirical relation between wages (w) and unemployment (u) that is usually written in log-log form: \( \ln w = a + b \ln u + X \), where X refers to other factors that affect wages (Blanchflower and Oswald, 1994). The wage curve is generally estimated with cross section data across regions in a country and thus tests the Harris-Todaro prediction that high wages induce high rates of unemployment. Studies in advanced countries find a negative relation between wages and unemployment, presumably because high unemployment drives down wages to help equilibrate the supply-demand imbalance. If the wage curve for developing countries fit the Harris-Todaro model, this would signal a major difference between labor markets in developing and advanced countries. Migration in response to exogenously set wages would dominate the link between wages and unemployment in developing countries whereas wage adjustments to a supply-demand imbalance would dominate the link in advanced countries.

Between 1993 and mid 2007 researchers estimated wage curves for 13 developing non-transition economies: Argentina (Galiana, 1999), Brazil (Amadeo and Camargo, 1997; Barros and Mendonica, 1994, Chile (Berg and Contreras, 2004); Mexico (Lugo, 2006), Uruguay (Bucheli and Gonzalez, 2007) in Latin America, Burkina Faso (Lachaud, 1998), Cote D’Ivoire (Hoddinott, 1993), South Africa (Kingdon and Knight, 1998, 2006), in Africa; and Turkey (Ilkkaracan and Raziye, 2003), Korea (Blanchflower and Oswald, 1994), Taiwan (Rodgers and Nataraj, 1999) China (Sabin, 1999; Wu 2004), India (Bhalotra, 1993). These studies obtain negative coefficients on ln unemployment of the same order of magnitude as the coefficients in advanced countries – an elasticity of about -0.10. The negative estimated relation between unemployment and wages implies that the Harris-Todaro model does not represent how labor markets work in the developing countries in the period covered, though perhaps it did in the immediate post-colonial period.

This conclusion is consistent with analyses of labor market adjustments in the 1990s in Sub-Saharan Africa, whose experience motivated the model. For South Africa Kingdon and Knight (2004) reject the two sector story of urban joblessness on the grounds that unemployed workers do not forego informal sector jobs to search for a high wage urban job. Rama’s (2000) analysis of the CFA African countries rejected ”the hypothesis that labour market policies and institutions were the obstacles preventing wages in the formal sector from adjusting to a more unfavorable international context” (p. 495). Summarizing research on African labor markets, Kingdon, Sandefur, and Teal (2006) conclude that real wages were “more downwardly flexible than previously thought and … surprisingly responsive to unemployment rates” though large wage differentials remain between the formal and informal sectors. Similarly, sizable flows of labor between the informal and formal sector in some countries also argues against the Harris-Todaro model (see section 8).

In short, the evidence rejects the two sector model that makes institutions the prime cause of divergences between earnings and productivity among sectors. Something beyond labor institutions must account for the large pay differences among industries and occupations shown in exhibit 2. Given that the two sector model does not fit reality, we must seek look elsewhere for the causes of the great dispersion of pay in developing countries: Efficiency wages or gift exchanges? Implicit profit sharing between firms and workers?

5 Note that the inverse relation indicates that the adjustment process is insufficiently powerful to clear the labor market and eliminate the correlation in the time frame covered. There is debate about the applicability of the wage curve analysis to the US, but US studies also find unemployment and wages positively related.
Unmeasured differences in human capital? Transportation or communication problems that make the sectors separate islands in the economy?

4. Employment Regulations and Mandated Benefits

Debates over employment regulations and mandated benefits focus on the effect of these policies on the cost of employment, which depends on how workers value them and on the extent to which the policies solve market failures due, say, to adverse selection (for instance in firms offering health care). Most studies analyze the incidence of regulations/benefits and the consequences for employment.

**employment regulation**

Employment protection legislation (EPL) seeks to protect the jobs of current employees by requiring that firms pay severance if they lay them off and in many cases gain approval for dismissals from a labor court or works council. Closely related regulations forbid firms from hiring replacements during a labor dispute and guarantee workers the right to return to work after the dispute. Both types of regulations deal with property rights at work – whether the worker or the firm “owns” the job. Regulations that give greater ownership to workers should reduce job turnover and tilt market outcomes toward experienced workers against new entrants. By making layoffs more expensive, EPL increases the cost of hiring workers (whom the firm may lay off in the future), which risks reducing total employment.

For advanced countries, two decades of studies spurred by the OECD have quelled the fears that EPL greatly affects employment. Most studies find that EPL laws redistribute employment to incumbent workers with no clear impact on aggregate employment or unemployment (OECD, 2004, 2006).6 For developing countries, research has just begun. In Latin America, job security provisions and costs of dismissals are extensive and thus more costly than in advanced OECD countries (Heckman and Pages 2000). But studies do not find clear effects on total employment. For Chile, time series data (Edwards and Edwards 2000) and household data (Montenegro and Pages 2004) show no statistically significant link between changes in EPL laws and employment. Montenegro and Pages find that EPL regulations shift employment from young unskilled workers to senior skilled workers, as in advanced countries. Using establishment data, Petrin and Sivadasan (2007) find no effects of 1984 and 1991 changes in Chile’s employment regulations on employment, the number of hires and fires, or the speed of employment adjustment. Estimating the marginal productivity of labor from a Cobb-Douglas production function, they obtain a large gap between wages and marginal productivity whose changes they attribute to changing EPL laws. Their direct analyses of employment are more convincing to me than their analyses of changing gaps between estimated productivity and wages.7

In 1990 Colombia lowered severance pay and gave firms greater latitude to lay off workers. Comparisons of employment between the formal and informal sectors before and after the change provide a good way to identify the impact of the laws. Using the Colombian National Household Survey, Kugler (2004) found that the weakened EPL was associated with growth of employment and a decline in job tenure in the formal sector relative to the

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6 In 2004 the OECD summarized the literature as saying that “the evidence of the role played by EPL on aggregate employment and unemployment rates remains mixed” (p 81)
7 See their figure 4, which shows the gap between the estimated marginal product of labor and wage over time. There is a clear rise in the gap after the 1984 change in regulations but not after the 1991 change, whereas there is a large jump in the estimated gap between the blue collar marginal product and wage in 1995 when the law did not change.
informal sector, and with increased job separations and hires in the formal sector. This churning induced a modest fall in unemployment duration and aggregate unemployment. The most extensive study of the impact of labor laws on economic outcomes is Besley and Burgess’s (2003) analysis of Indian state labor regulations. Besley and Burgess created an index of changes in the laws governing employment protection and industrial disputes for Indian states from 1947 to 1997 and made before-after contrasts of employment and output in states that did/did not change the laws and between the formal and informal sector within states. Their main specification showed that pro-worker regulations induced firms to shift employment and output from the formal to the informal sector, although they report that results “are not robust to including state-specific time trends.” (Besley and Burgess, fn 21).8 Decomposing the index of laws, Pages (2007) found that most of the impact was through the laws on industrial disputes.

Bhattacharjoea (2006) criticizes the index as being based on: 1) misreading legal changes in three states (Andhra Pradesh; Maharashtra, Rajasthan); 2) coding laws so that passing three laws in one year in one direction counts less than passing the same laws in three separate years; 3) failing to take account of the way state labor laws interact with other labor laws. The result is that some of the patterns “stand out for anyone who is reasonably familiar with India”: Kerala, known as pro-labor, is coded as pro-employer while Gujarat and Maharashtra, known as pro-employer, are coded as pro-worker. But Bhattacharjoea does not show that these errors/disagreements in coding affect the results.

mandated benefits

Mandated benefits are non-wage compensation (social insurance, compensation for injuries at the job, maternity leave, vacation or holiday pay, and so on) that governments require firms to provide workers or to pay taxes for government provision. Employers often complain about the cost of the benefits as if they are add-ons on wages. But if workers desire the benefit and if wages are flexible workers will pay part and possibly the full cost through lower wages. Summers (1989) argued that mandated benefits can be a more cost-effective way to deliver public goods than government provision through general taxes. Studies of the incidence of mandated benefits for advanced countries show that workers bear the full incidence in some cases (Gruber, 1994) and a sizable share of the cost in others (Gruber and Krueger (1991); Ooghe, Schokkaert, and Flechet (2003)). Workers are more likely to bear a large proportion of the cost when they value the benefit highly.

Many developing countries mandate benefits for workers. Most Latin American and Caribbean countries use payroll taxes to fund retirement, work injury benefits, and health care in national social insurance systems. Most have paid vacations, and some have maternity leave as well as other benefits that could increase the cost of labor. Analyses of the incidence of mandated benefits in Latin America give different results by benefit and country. Gruber (1997) estimated that when Chile switched funding social security from payroll taxes to general revenues, the reduction in payroll taxes was passed entirely onto workers in the form of higher wages. This implies that the payroll taxes had no effect on labor demand. But using a similar methodology to analyze changes in the payroll tax in Colombia, Kugler and Kugler (2003) find modest shifting of the tax, which implies that the

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8 Indicative of the political sensitivity of the analyses, the Indian Ministry of Finance (2006) misread the study as showing that “states which have more pro-worker regulations lost out on industrial production” when the finding is that more pro labor laws shifted production to the informal sector, conditional on omitting state time trends (as cited by Bhattacharjoea, 2006).
tax raised the cost of labor in the formal sector, and affected demand. When Colombia changed its mode of funding severance pay from a pay-as-you-go system to private accounts in which the employer deposited a proportion of the worker’s wage, Kugler (2005) estimated that 60% to 80% of the cost shifted to workers in the form of lower wages. This suggests that under the pay-as-you-go system workers were dubious that firms would pay severance if financial difficulties forced layoffs whereas the private accounts guaranteed that they would get severance pay.

5. Union Monopoly and Voice Effects

A rose is a rose is a rose … but unions are different from unions are different from ...

Developing countries unions range from China’s All Chinese Federation of Trade Unions, a government controlled bureaucracy that seeks to advance worker interests within bounds set by the Communist party to independent enterprise unions in Korea and Malaysia, Peronist unions in Argentina, COSATU in South Africa, which played a major role in the anti-apartheid struggle, and so on. Most developing country unions are weak. Many are more involved in political activity than in collective bargaining. But enough unions in developing countries engage in collective bargaining to enable researchers to examine what unions do to wages in the tradition of Lewis (1963, 1986) and what they do to non-wage outcomes in the tradition of Freeman and Medoff (1984).

Presumably because data is limited and unionization rates low, there have been relatively few studies of the economic effects of unions in developing countries. Most studies compare cross-section outcomes between union and nonunion workers/firms with similar characteristics. There are no longitudinal analyses of workers or workplaces that change union status to illuminate causal relations. But some countries have made dramatic changes in the legal status of unions, outlawing collective bargaining in some periods and allowing unions to operate freely in others. This gives insight into the functioning of a union-free economy compared to an economy with free unions.

Exhibit 4 summarizes the findings on the link between unionism and economic outcomes in the eleven countries for which I found quantitative studies.

The most extensive work is on Mexico. The estimated union/nonunion wage differential ranges from 5% or less to 10%-15%, with unions having their biggest effect on the wages of lower paid workers. This implies that they reduce wage dispersion and inequality. Using data on establishments, Fairress (2006, 2007) provides the best estimates of union impacts on non-wage outcomes. Unionized establishments devote a higher share of compensation to non-wage payments and undertake more training of workers than do nonunion establishments. But the effect of unions in reducing quits – critical to the exit-voice interpretation of union economic effects – is limited to foreign-owned firms. Even without a substantial effect on quits, however, productivity is higher in unionized establishments by enough that there is no adverse effect of unions on profits, though this could reflect selectivity of unionized firms rather than any causal impact of unions on firm performance. In other studies, Maloney and Ribeiro estimate that unions increase employment in Mexico, which suggests that they lower productivity; while Popli (2006) shows that the lower dispersion of pay between union and nonunion workers narrowed from 1984 to 2000.

Uruguay has operated union-free and with free unions. From 1973 to 1984 Uruguay’s military dictatorship outlawed collective bargaining. With the return of democracy, unions regained the right to bargain with employers. From 1985 to 1991 unions represented some 60% of production workers in tripartite industry level bargaining with government and
employers. Thereafter management and unions bargained without government involvement. Labor market outcomes differed with these regime shifts. During the dictatorship real wages fell 49 percent while the rate of unemployment varied cyclically, reaching 16% in 1983 (Cassoni, Allen, and Labadie, 2000). Free to operate with the return of democratic rule, unions raised wages, which induced firms to invest in capital, but unionized firms had sufficiently higher productivity that firms suffered no profits loss (Cassoni, Labadie, and Fachola). Using establishment data, Cassoni, Allen, and Labadie (2000) found that elasticities of employment to output and wages were lower with collective bargaining than in the union-free environment, suggesting that unions reduced employment flexibility.

For Brazil, Arbache reports a union wage premium in manufacturing on the order of 5% to 7%, but also finds, contrary to most studies, higher wage dispersion among union workers than among nonunion workers. Menezes-Filho et al (2005) estimates that union density within Brazilian manufacturing firms is associated with a union wage effect of 12%, and that unionized firms have lower productivity and profitability but that those that introduced profit-sharing schemes had substantial increases in productivity and profits. The studies for other Latin American countries, based on small surveys, focus on effects of unions on the firm’s performance. They find that unions are associated with lower productivity or profits. The study for Peru reports lower profits but comparable productivity in unionized firms as in nonunion firms, which implies that higher union wages reduced profits. Urizar H. and Lee (2005) find that in a sample of 37 large coffee plantations in Guatemala unions are associated with 10% lower productivity in cross-section regressions but not in fixed effects analyses of the five plantations that changed union status over the period.

Quantitative studies of unions in Africa have concentrated on wage effects. In South Africa, unions appear to raise wages by 10% to 20%. Since South Africa has high unemployment, this could be interpreted as supporting the Harris-Todaro model, but Butcher and Rouse note that the union share of the South African work force is too small for the estimated wage effects to explain the country’s unemployment. In fact, the wage curve for South Africa cited in section 3 shows an inverse relation between wages and unemployment. In other African countries, Blunch and Verner estimate that unions raise wages by about 6% in Ghana, with the effect coming largely from higher wages for lower paid workers while Verner reports a larger union-nonunion differential of 16%. Tsaffack-Nanfosso estimates a union/nonunion wage differential of about 14% in the Cameroon and finds that the standard deviation of log earnings among unionized workers is considerably lower than among nonunion workers. But three studies find lower wages among unionized worker in Africa. Estimates for Zimbabwe show higher productivity as well as lower pay in union workplaces (Verner, 1999). Estimates give lower union wages in Cameroon in 1993 and 1994 (Ballew and Thomas, 1994); and in Senegal in 1980-85 (Terrell and Svejnar, 1989). Since it is hard to imagine independent unions negotiating lower wages for members, these were presumably not “normal unions” doing collective bargaining. At various times, governments in these countries suppressed independent unions or ran unions as appendages of the governing party. What is needed is a study of the circumstances and behavior of African trade unions

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9 He reports a 51% union wage effect using a selectivity term, but has no way to identify the likelihood of being union beyond functional form. Models of this type often yield extremely high or low estimates that reflect the absence of any genuine instrumental variable. (Freeman and Medoff, 1982).

10 Unions in Senegal and Cameroon have been in conflict with governments over time, and
to inform the quantitative analyses.

Malaysian unions operate primarily at the establishment level because the government restricts industrial unions. Standing (1992) uses establishment data to give an extensive picture of union/nonunion differentials in Malaysia. He finds that unions reduce skill differentials and lower quits, and are associated with higher productivity, more product and process innovations, more firm-sponsored training, and greater enrollment in a pension plan. The differences between the outcomes for firms with unions and nonunion firms far exceed the differences in outcomes between firms with plant level unions and those that had industrial level unions.

Finally, Korea, like Uruguay, has had distinct regimes governing unionization. Before Korea achieved democracy in 1987, the government allowed only an official union movement to operate and used state police powers to assist employers in labor disputes. Democracy brought with it a near doubling of union membership but union density fell in the 1990s and 2000s (Jeong, table 2.1). Some Korean unions formed a second more militant federation, and the older federation became more aggressive as well. There is considerable hostility between unions and employers and often between unions and the government, which shows up in a high number of workdays lost due to industrial action. Governments have tried unsuccessfully to ameliorate the intensity of disputes by establishing Tripartite Committees for social dialogue and requiring that firms introduce works councils.

Because Korean unions are largely enterprise based, with membership restricted to regular employees, studies assess union effects by comparing regular employees in firms with and without collective bargaining agreements, and comparing non-regular workers between those firms as well. The estimated impact of Korean unions on wages is in the low single digits. Fields and Yoo (2000) found that the union differential doubled during the period of rapid union growth, but this was from a modest 3% to a still modest 6%. Park (2006) reports a union differential of 5% for all workers, larger for women (12%) than for men (2%), but also finds that non-standard workers, who are excluded from the enterprise union, are paid less in union establishments. Unionism is also associated with greater employment of non-standard workers, suggesting that firms substitute them for more expensive union labor.

In the most extensive study of what unions do to other outcomes, Kleiner and Yee used a 1991 survey of establishments to estimate the impact of unions and of works councils deemed ‘effective’ by management and labor leaders on worker and firm outcomes. They found a sizeable union impact in reducing turnover, little impact on productivity or profits, and a negative effect on job satisfaction – consistent with US findings (Freeman 1978). By contrast, works councils are positively associated with productivity and satisfaction. Both unions and works councils appear to affect decisions about terminations and downsizing.

But the 1997 Asian financial crisis weakened union strength. Real wages fell by 9.3% in 1998, as unions agreed to low nominal wage changes despite high inflation. Jeong’s (2007, chapter 4) analysis of collective bargaining contracts shows that the unions shifted from seeking wage gains to protecting jobs. Lee and Na’s (2004) 1999 survey of 300 firms found only a weak union impact on firm responses to the crisis: unionized firms were more likely to downsize through retirements than layoffs.

In sum, in the developing countries for which we have quantitative estimates, unions are associated with higher wages (save for the African studies noted), higher non-wage compensation, lower dispersion of earnings (save for the Brazilian study noted), reduced the unions in Zimbabwe have long opposed the Mobutu dictatorship
quits and greater training. But the studies show varying relations between unions and productivity or profitability across studies and countries. While this variation is consistent with the notion that what unions do differs across countries, per the rose/union comment, I suspect that it also reflects differences between the surveys and groups covered, and study designs.

6 Cross country evidence

Many economists are dubious about cross-country growth regressions. The data sets are small, the variables are aggregate and often poorly measured, and our knowledge of economics too limited to identify the “right” model for analyzing a whole set of differing economies in one fell swoop. Since analysts have trouble pinning down the effects of education or trade on growth in cross-country regressions (Krueger and Lindahl; Rodrik and Rodriguez), what hope is there of uncovering the more subtle effects of labor institutions? These are legitimate concerns but if the bottom line in economic development is economic growth, there is no substitute for cross-country regressions with labor institutions as independent variables, albeit with due consideration for problems with measures and models.

Analysts have used data on cross-country labor institutions from three sources to conduct such analyses. The first is the World Bank’s Data Base of Labor Market Indicators Across Countries (Rama and Artecona 2002), which includes such measures of institutions as the number of ILO conventions a country has ratified, the level of minimum wages, mandated days of maternity leave, union and government shares of the work force. Because the data in the Labor Market Indicators are sparse, Forteza and Rama average four measures to form an aggregate indicator of rigidity for 1970-1999 and warn analysts that “time-variant indicators of labor market rigidity cannot be used in the empirical analysis”. The ten most flexible labor markets by their measure are: five African countries: South Africa, Uganda, Zimbabwe, Kenya, Tanzania; and China, Hong Kong, Jordan, Indonesia, and Chile. The ten most rigid labor markets include eight countries in Europe: France, Sweden, Belgium, Denmark, and four former Soviet bloc countries, Hungary, Belarus, Krygyz Republic, Bulgaria, along with Algeria and Uruguay. I list the countries to highlight the problems with categorizations of this type. In the flexible group, South Africa has strong trade unions and an extensive labor code based on those in Europe, whereas unions could barely operate in Idi Amin’s Uganda or Robert Mugabe’s Zimbabwe; China did not have a working labor market until the 1990s while Hong Kong had free market under British law. In the inflexible group, Belarus is a residual Soviet-style dictatorship, Hungary is part of the EU, Denmark is famed for high labor mobility and “flexicurity” while France relies extensively on its SMIC minimum wage. Changes in labor regulations in Uruguay, the ex-Soviet countries, the African countries, and China suggest that no single index can capture their labor institutions over the entire period. Given these measurement issues, institutions would have to be incredibly powerful to show up as determinants of growth in cross country regressions.

Forteza and Rama test whether their measures of rigidity were associated with the success of World Bank economic adjustment programs. They do this by interacting the indices with dummy variables for the timing of World Bank credits and loans and entering the interaction terms into regressions of the growth of GDP per capita. The idea is that

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11 See, for example, T.N. Srinivasan (National Academy of Sciences, 2006), who worries about “data of varying quality from disparate economies … (subject to) … measurement errors and biases … (and) a two-way relationship between growth and some of the explanatory variables” (p 14)
countries that obtain Bank loans/credits should increase growth more if they have less rigid labor markets. Growth regressions with fixed country effects yield, however, similar coefficients on the labor rigidity index before and after receipt of Bank aid. Decomposing the index into its separate parts, Forteza and Rama find that different indicators have different relations with growth: “relatively high minimum wages are associated with better economic performance before adjustment” (p 24) while union and government shares of the work force were associated with slower growth before and after the receipt of loans.

Ignoring the warning that the Labor Market indicators data should not be used as time-variant measures, Calderon and Chong (2006) create rigidity indices over time to conduct a panel analysis of growth rates. For developing countries their panel regressions with country fixed effects show that the number of ILO conventions has a large negative effect on growth, while the average of indicators has little effect. Models estimated with generalized method of moments with instrumental variables show stronger negative effects on growth. Regressions that relate growth over the entire period (thus eschewing the time-variant measures of rigidity for average measures) find that one of the four measures is positively related to growth while the others have no significant relation. Any conclusion about how institutions affect growth thus hinges on the time-variant model, method of estimation, and quality of the time-variant indicators.

Botera, et al (2004) use their data on the labor laws introduced in exhibit 1 to analyse aggregate outcomes as well. Across all countries in the data set (advanced countries as well as developing countries) the employment law and collective action indices are associated with lower utilization of labor overall and with higher unemployment for young workers. Calderon and Chong (table 6) regress growth rates on the Botero measures of labor codes and obtain an insignificant coefficient on the index of employment laws but a positive coefficient on the index for social security laws (not given in my exhibit 1).

Finally, I have used the labor subindex of the Fraser Institute, which the Institute reports at five-year intervals from 1970 to 2000, and yearly thereafter, to see whether the labor subindex is associated with economic growth. I estimated the following equation:

$$\Delta \ln GDP = a + b \ INDEX + c \ LABOR + d \ ln GDP (-1) + Dc + Dt + uij$$

where $\Delta \ln GDP$ is the annual growth rate in ln GDP per capita over each period, 1970-75, 1975-1980, and so on through 2000 to 2004; INDEX is the Fraser index of economic freedom excluding the labor subindex; LABOR is the subindex of measures of minimum wages, hiring and firing practices, collective bargaining, unemployment benefits, and use of the draft; Dd are country dummy variables; and Dt are time dummy variables. If market-

12 Someone skeptical of the value of Bank assistance and advice might argue the opposite but the regressions show that growth rates tend to improve after receipt of Bank assistance.
13 For instance, the estimated coefficient in table 5 on the interaction terms for the aggregate rigidity indicator on the years right before a program is -.094 while the coefficient on the years right after the program is -.097 -- a negligible difference of .003.
14 They do not interpret their results as supporting this because these measures are negatively associated with growth rates only when industrial countries are included in the data set. (Forteza and Rama, p 23)
15 By contrast, for advanced countries, the indices have negative impacts on growth regardless of the statistical methodology, which reflects the less rapid growth of institution-driven EU countries than of the more market driven US and other English-speaking countries.
driven economies improve growth, the b coefficient in this regression should be positive. Similarly, if labor institutions harm growth the c coefficient will be positive. The regression yields a significant positive coefficient on the INDEX variable for developing and advanced countries, which supports the notion that market-oriented economies enjoy higher growth. But for both sets of countries the coefficient on the LABOR measure is negative and insignificant, which rejects the hypothesis that labor institutions reduce the rate of growth.

In sum, there is no clear message from cross country growth regressions. Different indices and procedures yield different results. The lack of any strong findings may reflect measurement problems that could be reduced with additional effort in gathering better data at the country level, as Rama suggested (2006).

7 Country Cases

Case studies of particular country experiences are the methodological polar opposite of cross country regressions. Country studies allow analysts to use country-specific data rather than generic cross-country indicators and to situate their interpretations of the data in hopefully deep knowledge of country institutions and practices. But country cases are not a random sample from the countries in the world, and they invite attention to country specifics – great leaders, particular events – that do not readily generalize. For better or worse, moreover, political scientists, industrial relations experts, and area specialists are more likely to undertake country studies than economists. Still, there is much to be learned from them.

Institutions and Adjustments

In 1988 the World Bank initiated studies of labor market adjustments in twelve developing countries (Chile, Argentina, Bolivia, Costa Rica, Brazil; Ghana, Kenya, Egypt, Cote D'Ivoire; and Korea, Malaysia, Thailand). The analysis (Horton, Kanbur, Mazumdar, 1994) reached three conclusions: 1) “real wages were more flexible than generally supposed, which would support adjustment”; 2) “labor reallocation across sectors has been more or less in the desired direction” (i.e., toward tradable goods); and 3) “labor market institutions such as unions and minimum wages, often argued to be an impediment to adjustment, have more subtle effects on the workings of the labor market” (Preface, p. x). These conclusions fit with the econometric findings on wage curves, minimum wages, employment regulations, and unions reviewed earlier and with the more measured view of labor institutions and economic outcomes that has emerged in recent years.

That labor institutions have modest impacts on economic performance on average does not mean that in particular situations they cannot substantially affect growth or other aggregate outcomes, or help or hinder economic adjustments. Some countries in the Bank study underwent major changes after the researchers completed their empirical investigations – the Chilean economy improved greatly; Argentina went from boom to bust; Cote D'Ivoire suffered civil war; East Asia suffered financial crisis. Consideration of how labor institutions performed under these circumstances would enrich and possibly alter the conclusions of the Bank studies. Much might also be learned by analyses of cases where institutions appear particularly harmful or beneficial to the economy or of institutions in countries with great growth failures or successes. From this perspective I examine next institutions in China’s move to a market economy and in Argentina’s recovery from economic meltdown.

China

China’s transformation from communist planned economy to a market economy and entry to the global trading system is arguably the most important development in recent economic history. As part of this shift, the country radically changed its labor market institutions. From the 1960s through the late 1980s, China did not have a working labor
market. The state/party controlled the demand and supply of labor (Walder, 1985). The state was the primary employer. It set pay through a national pay grid and mandated benefits such as health care, retirement, and housing. It controlled hiring and firing and assigned workers to jobs. It limited migration through Hukou residency restrictions. Fearing that unemployed urban youth might create a social problem in the 1980s, the state encouraged older workers to retire by promising to assign their jobs to their offspring.

Shifting from communist planning to markets in the mid 1980s through the 1990s, China freed firms and workers to make demand and supply decisions. It gave management of state-owned enterprises authority to hire and fire and introduce performance linked wages. It allowed greater private employment. In the 1990s it privatized many small and medium state-owned enterprises and laid off several million workers from state enterprises. It weakened the Hukou system (though cities responded in different ways to the policy). With opportunity to find work, buy food, and obtain housing in the market, upwards of 100-150 million workers moved from rural to urban areas -- the largest internal migration in history. Workers and firms matched themselves in the job market rather than relying on state assignment.

Could China have successfully transitioned to a market economy with its pre-labor market institutions? Studies of wages, employment, and productivity during China’s growth spurt suggest that the labor market reforms were an essential part of China’s success (Meng 2000; Knight and Song 2005). Wages for skilled work increased, raising the return to education. Tens of millions found work in the private sector. Productivity rose in state owned enterprises. It is hard to imagine these changes occurring with the state setting pay and assigning workers to jobs, though it is hard to imagine a counterfactual test for this assertion.

The new Chinese labor market produced a huge income gap between rich and poor, evinced in a Gini coefficient that reached US levels by 2005, disturbing Party leaders, who worried about “mounting public anger over inequality and corruption” (Eckholm, 2001). To deal with these concerns, China enacted a new labor code in 2007 that required employers give written contracts to workers, restricted use of temporary laborers, made lay offs more difficult, and strengthened the power of the All China Federation of Trade Unions to organize and bargain for wages and benefits. With World Bank (2006) advice, the government sought to establish a national pension system. China’s effort to develop labor institutions to reduce income inequality and insure against social disorder reflects a very different perspective on the role institutions in development than the fear that institutions are inimical to growth that motivates many economic studies.

Argentina

In the 1990s Argentina was the poster child of globalization and Washington Consensus policies. With the advice and assistance of the IMF, the country had pegged the peso to the dollar, privatized many public enterprises, loosened controls on banking and foreign currency, and greatly increased the market orientation of its economy. Between 1990 and 2000, Argentina rose in the Fraser Institute economic freedom index from 84 in the world to 27. Seemingly reflecting these changes, the Argentine economy grew rapidly in the 1990s, although with double digit unemployment and increased inequality. At its fall 1999 meeting, the IMF lionized Argentine President Carlos Menem for his economic stewardship, and he responded by thanking the IMF for its guidance. Washington Consensus? Think Argentina.

Two years later, the Argentine economy collapsed. The value of the Peso dropped to 1/3rd of the dollar, interest rates zoomed, real GDP fell by 18% and unemployment rose to
21.5%. Poverty increased greatly. The government froze bank accounts. In winter 2001 Argentina went through five Presidents or acting Presidents in less than two months. Angry protestors filled downtown Buenos Aires. The government that finally formed gave up dollarization. It refused to meet the demands by the IMF and creditors to repay loans quickly. It funded an emergency unemployment benefits program, Jefes y Jefas de Hogares and worked with Peronist unions to lessen social disorder. To the surprise of many, Argentina maintained its democracy and managed a strong recovery based on an export-led boom. Unemployment fell to 10.0% in 2006. As with China’s development of a labor market, there is no good counterfactual to assess how Argentina might have fared if it had weaker labor institutions or chosen to suppress protestors and unions to repay its international debts. But during the crisis labor institutions helped maintain political and economic order.

8. The Informal Sector

The majority of workers in developing countries work in the informal sector. This is true for workers in urban areas as well as for those economy wide. The traditional view has been that economic growth shrinks the informal sector and that as it does, more workers will gain the higher pay and economic security of the formal sector. This view underlies the unease that many economists feel toward labor institutions in developing countries: if only unions and governments leave well enough alone, the natural process will move workers out of the low productivity informal sector into good formal sector jobs.

The pattern of employment in developing countries in the 1990s-2000s contravenes the picture of a naturally declining informal sector. Exhibit 5 shows that in the 1990s-2000s the informal sector expanded its share of global employment, even in developing countries with rapid economic growth. Line 1 indicates that the proportion of workers in self employment increased in every region in the 1980s and 1990s. Line 2 shows that the share of non paid employment (the self-employed, employers, members of cooperatives, contributing family members and non-classified workers) in total employment increased. Line 3 gives estimates of informal sector employment in eight of the ten most populous developing countries from a diverse set of sources. They should be viewed as indicators of directions of change within countries and not as measures of the differential size of the informal sector across countries. In seven of the countries the informal sector share of employment rose while it held stable in Indonesia. Data for other countries confirm the trend in informal sector work. ILO (2001) estimates that the informal share of employment rose in the 12 Latin American countries for which it obtained data. In Africa, scattered estimates show informal employment up in Ghana, Ethiopia, Kenya, and Nigeria. Finally, line 4 shows that even in Korea, arguably the world’s greatest growth success, the informal sector remains a large and growing share of the work force.

The surprise in exhibit 5, at least to me, is that informal sector employment rose in rapidly growing countries such as China, India, and the Philippines, and Korea as well as in countries with anemic growth records. Why did not rapid growth shrink the informal sector? One likely reason is that productivity growth in the modern sector has been so great that even massive expansion of output does not increase employment. China is instructive. Despite becoming the world’s manufacturing center in the 2000s, China had fewer workers in

16 The ILO defines informal sector employment as self-employed; wage workers in insecure and unprotected jobs (unregistered, casual, temporary); household workers.
17 For Nigeria http://www.globalurban.org/Issue1PIMag05/NWAKA%20article.htm
manufacturing in 2002 than in 1987 (Bannister, 2005, table 1). Presumably this is because it had adopted modern labor-saving technology, though it could also reflect outsourcing manufacturing jobs to the informal sector.18

Is the informal sector good or bad for workers?

Traditional models of developing country labor markets treat the informal sector as a last choice safety net where individuals seek employment when nothing else is available. But this is not the full story. Workers and firms may choose the informal sector to avoid taxes and regulations and may make relatively good livings in those sectors. In Mexico (Maloney, 1999), Brazil (Bosch and Maloney, 2007), and Chile (Packard, 2007), workers shift back and forth between the sectors as economic conditions change, making formal/informal boundaries porous. Still, many workers do better in the formal sector and seem to prefer formal jobs to informal jobs. Analyzing Brazilian labor transitions, Ulyssea and Szerman (2007) find that more educated and older workers had longer job duration in the formal sector and shorter duration in the informal sector. They also show a rapid decline in the hazard rate for exiting the informal sector that implies long spells if workers do not leave within 6 months. Hoek (2007) finds that in the Brazilian formal sector, reductions in employment take the form of a reduced job finding rate while in the informal sector, reductions in employment take the form of higher separation rates. In Mexico and Brazil, workers shift into formal sector jobs in booms.

Comparisons of wages across sectors and activities shows that employees in the informal sector earn less than employees in the formal sector in Mexico and Brazil but that the self-employed earn as much or more than formal sector workers (Maloney, 2000, Bosch and Maloney, 2007). In El Salvador and Peru, however, Marcouiller et al (1997) find that informal sector workers earned significantly less than formal sector workers. Brazilian workers laid off from formal sector manufacturing suffered an earnings decline of nearly 50% one year later and about 33% two years later, with middle aged workers hit hardest by a layoff (Hoek (2006)). Barrientos (2007) reports that poverty among older persons in Argentina is positively associated with the proportion of their working lives spent in the informal sector.

Given the size and persistence of the informal sector in developing economies, we need more studies of how workers fare in this sector and of the links between formal and informal job markets. We also need studies on how institutions and policies affect informal sector workers and of possible innovative social insurance schemes to improve their working lives, be it through social security pensions (Auerbach, et al 2007), occupational health and safety laws, increased enforcement of regulations (Almeida and Carneiro, 2007) or perhaps through associations of the self-employed like SEWA (http://www.sewa.org/) and so on.

Conclusion

This review has found that regulations and unions are not the bugbear to development that many believed them to be years ago. Micro-economic studies show that some labor policies have adverse effects on employment in some countries, but the magnitudes are generally modest. Evidence on the wage curve, the spillover of minimum wages to the informal sector, and the mobility of workers between the informal and formal sectors has

18 Loayza, Oviedo, and Surven (2004) show that labor and product market regulations raise the informal sector share of GDP whereas rapid growth reduces the informal sector share of output. Since they analyze shares of GDP rather than employment and do not examine changes in shares, there is no inconsistency between their regressions and those in the text.
convinced me, and hopefully, readers that the two-sector model that has guided much thinking about labor markets in developing countries does not capture the way those markets operate and that we have to look elsewhere for explanations for the huge dispersion of pay in developing countries and much else. The evidence further suggests that labor markets adjust to economic conditions in developing countries much as they do in advanced countries and do not impede macro-economic adjustments. The Chinese example suggests that a functioning labor market is critical to development while the Argentine example suggests that labor institutions can help preserve social stability during turbulent times.

The 800 pound gorilla in this review is the increased share of the informal sector in successful developing countries. Because research has focused largely on formal sector labor markets, we know far too little about the informal market setting in which most workers make their living. We need policies and institutions that to help raise productivity in the informal sector, to improve occupational health and safety, and to deliver social services and protections to workers. The informal sector is going to be the locus of work for the majority of workers for the foreseeable future.
Exhibit 1: Average values (standard deviations in brackets), of Measures of Labor Institutions in Developing Countries, level of income compared to Developed Countries, circa 2005

<table>
<thead>
<tr>
<th>Income Group</th>
<th>Fraser Institute</th>
<th>Employment law</th>
<th>Collective relations law</th>
<th>Wage setting</th>
<th>Hiring and firing</th>
<th>Union density</th>
</tr>
</thead>
<tbody>
<tr>
<td>Low income</td>
<td>5.410 (1.796)</td>
<td>6.08 (1.831)</td>
<td>6.260 (1.233)</td>
<td>5.224 (1.219)</td>
<td>3.906 (0.755)</td>
<td>13.208 (7.207)</td>
</tr>
<tr>
<td>Lower middle income</td>
<td>5.400 (1.202)</td>
<td>5.011 (1.802)</td>
<td>5.428 (1.255)</td>
<td>4.997 (0.664)</td>
<td>3.793 (0.716)</td>
<td>12.705 (8.481)</td>
</tr>
<tr>
<td>Upper middle income</td>
<td>5.723 (1.017)</td>
<td>4.937 (1.705)</td>
<td>5.174 (1.049)</td>
<td>4.945 (0.833)</td>
<td>3.532 (0.748)</td>
<td>26.389 (14.354)</td>
</tr>
<tr>
<td>All developing</td>
<td>5.501 (1.335)</td>
<td>5.292 (1.813)</td>
<td>5.575 (1.240)</td>
<td>5.036 (0.874)</td>
<td>3.738 (0.740)</td>
<td>17.855 (12.452)</td>
</tr>
<tr>
<td>Traditional developed</td>
<td>5.696 (1.374)</td>
<td>4.795 (2.224)</td>
<td>5.433 (1.562)</td>
<td>4.248 (1.174)</td>
<td>3.561 (1.034)</td>
<td>33.552 (19.723)</td>
</tr>
<tr>
<td>Recently developed</td>
<td>6.364 (1.696)</td>
<td>5.814 (1.852)</td>
<td>6.000 (0.940)</td>
<td>5.600 (0.711)</td>
<td>4.179 (0.965)</td>
<td>29.589 (16.914)</td>
</tr>
</tbody>
</table>

Source: Tabulated from country data in Fraser (2007), Botera et al, World Economic Forum as given in appendix table, with countries classified by World Bank income levels. Recently developed countries include high income countries outside the major Western countries.

19 The correlations among the six indicators.
Exhibit 2: Dispersion of Earnings by Occupation and Industry, by income level of countries

A) Standard Deviation of ln Earnings by Occupation (Freeman and Oostendorp, 2000)

B) Standard Deviation of ln Earnings by Industry (ILO data, 19--)
C) Standard Deviation of Ln Earnings by Industry (UNIDO data, 19--

Source: A, Freeman and Oostendorp,
B, Penn World Table (v6.2); ILO (2006)
C, Penn World Table (v6.2); UNIDO Industrial Statistics (2006)
<table>
<thead>
<tr>
<th>Area, study, year</th>
<th>Nature of data</th>
<th>Findings</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>BRAZIL</strong> Lemos (2006, 2004)</td>
<td>Individual data</td>
<td>Compresses distribution in informal and covered, 2006 no effect on employment; 2004 some</td>
</tr>
<tr>
<td><strong>Chile, Mongengro and Pages (2004)</strong></td>
<td>Changes in minimum, 1960-1998, individual data</td>
<td>Minimum shifts employment from young and unskilled workers to older and female workers</td>
</tr>
<tr>
<td><strong>Honduras</strong>, Gindling &amp; Terrell (2007)</td>
<td>Individual data to establish spikes, sectors and size of firm over time, 1990-2004</td>
<td>1% increase in the minimum wage increases wage in medium and large firms by 0.29% in the average wage; reduces employment by -0.46%; does not affect small firms where employment grows</td>
</tr>
<tr>
<td><strong>Columbia, Arango and Pachon 2003</strong></td>
<td>Panel data for cities, 1984-2001</td>
<td>Improves earnings of families high in income distribution, reduces it in bottom quintile; reduces employment, especially for women, young, less educated</td>
</tr>
<tr>
<td><strong>Columbia, Mexico</strong> Bell (1997)</td>
<td>Firm level data</td>
<td>No effect in Mexico; effect in Columbia;</td>
</tr>
<tr>
<td><strong>Mexico</strong> (Bosch and Manacorda 2007)</td>
<td>Individual</td>
<td>Minimum shifts distribution for uncovered as well as covered; small employment effect</td>
</tr>
<tr>
<td><strong>Mexico</strong> (Feliciano, 1998)</td>
<td>Cross state panel data, 1970-1990</td>
<td>Decline in real value of Mexican minimum wage increased employment of women with elasticity between -0.58 and -1.25.</td>
</tr>
<tr>
<td><strong>Trinidad &amp; Tobago</strong> Strobl &amp; Walsh (2003),</td>
<td>Individual with longitudinal job loss</td>
<td>Spikes shows that min affects wages, lowers employment of affected group</td>
</tr>
<tr>
<td><strong>Puerto Rico</strong> Castillo-Freeman &amp; Freeman (1992),</td>
<td>Spike, Uses imposition of US min wage</td>
<td>W, modest E ε ~0.10; large fall in employment in very small industries</td>
</tr>
<tr>
<td><strong>LA + Caribbean</strong>, Kristensen &amp; Cunningham (2006),</td>
<td>Individual data, focus on spikes</td>
<td>In 10 countries minimum affects informal and covered; 4 it affects only informal</td>
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<tr>
<td><strong>LA Maloney and Nunez (2004), LA</strong></td>
<td>Individual wage to establish spikes in formal and informal sectors Longitudinal job loss</td>
<td>Affects distribution in 6 of 8 LA countries Stronger effect on informal in Brazil, Mexico, Argentina, Uruguay; employment losses in Columbia; job loss greater for low wage</td>
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<td><strong>LA Maloney et al (2002)</strong></td>
<td>Spikes in wage data</td>
<td>Four yes, three no</td>
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<td><strong>LA, Lustig &amp; McCleod, 1997, x-country</strong></td>
<td>Aggregate poverty 1990s vs 1980s</td>
<td>Reduces poverty</td>
</tr>
<tr>
<td>Area, study, year</td>
<td>Nature of data</td>
<td>Findings</td>
</tr>
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<td>-------------------------------------------------------------------------------</td>
<td>---------------------------------------------------------------------------------------------------</td>
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<td>Alatas &amp; Cameron (2003)</td>
<td>Individual W spike, firm E geographic time series</td>
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<td>Harrison and Scorse, 2003</td>
<td>Plant level data over time</td>
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<td>Rama (2001),</td>
<td>Time series,</td>
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<td>SMERU (2001)</td>
<td>Individual data from National Labor Force Surveys; Firm-based survey; province level panel for employment 1988-1999</td>
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<td>Jones (1997),</td>
<td>Individual wage data; time series 21 years</td>
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<td>Squire &amp; Suthiwart-Narueput (1997)</td>
<td>Changes in minimum among countries, 1970-90</td>
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## Exhibit 4: Studies of Union Effects in Developing Countries

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<th>Country</th>
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<th>benefits</th>
<th>productivity</th>
<th>profits</th>
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<td>higher</td>
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<td>higher</td>
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<td>Lower in</td>
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<td>cross-section, not in fixed effects</td>
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<td></td>
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<td>lower in</td>
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<td>Higher capital labor ratios</td>
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<td></td>
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<td>Lower, but</td>
<td>higher</td>
<td>lower</td>
<td>Works council raises</td>
<td></td>
<td>Unions lower, WC raises job sat; substitute non-standard</td>
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<td></td>
<td>bigger for</td>
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</tr>
<tr>
<td></td>
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Ghana, Blunch and Verner (2004); Verner (1999),
Senegal Terrell and Svejnar (1989)
Zimbabwe (Verner, 1999)
Malaysia Standing (1992)
Korea, Lee and Na (2004); Fields and Yoo,(2000) Park, 2003; Cheon, 2007
Exhibit 5: Indicators of the trend in the informal sector share of employment

1) Self-employment share of non-agricultural Employment (ILO 2002) 1980s to 1990s

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<th>Region</th>
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<td>Africa</td>
<td>44% to 48%</td>
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<tr>
<td>Latin America</td>
<td>29% to 44%</td>
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<td>Asia</td>
<td>26% to 32%</td>
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<table>
<thead>
<tr>
<th>Region</th>
<th>1993-2002</th>
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<td>World</td>
<td>55% to 60%</td>
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3. Selected Country measures, by population of country

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<th>Country</th>
<th>Period</th>
<th>Share</th>
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<td>China</td>
<td>1990 to 2005</td>
<td>51% to 52.8%</td>
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<tr>
<td>India</td>
<td>1999 to 2005</td>
<td>92.7% to 94.1%</td>
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<tr>
<td>Indonesia</td>
<td>1990 to 2003</td>
<td>28.2% to 28.2%</td>
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<tr>
<td>Brazil Urban</td>
<td>1990 to 2003</td>
<td>40.6% to 44.6%</td>
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<tr>
<td>Pakistan, urban</td>
<td>1997/8 to 2001/2</td>
<td>64.6% to 66.5%</td>
</tr>
<tr>
<td>Bangladesh</td>
<td>to 2000s</td>
<td>65%</td>
</tr>
<tr>
<td>Nigeria, urban</td>
<td>1960s to 2005</td>
<td>25% to 45%-60%</td>
</tr>
<tr>
<td>India</td>
<td>1990 to 2005</td>
<td>25% to 45%-60%</td>
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<tr>
<td>Mexico</td>
<td>1991 to 1998</td>
<td>61.2% to 63.6%</td>
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<td>Philippines</td>
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<td>Vietnam</td>
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4. Informal Sector Employment in Korea, by definition

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<th>Type</th>
<th>Period</th>
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<td>Self-employed</td>
<td>1990 to 2004</td>
<td>39.5% to 34.0%</td>
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<td>Non-regular</td>
<td>2001 to 2005</td>
<td>26.8% to 36.6%</td>
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<tr>
<td>Temporary</td>
<td>2001 to 2005</td>
<td>16.6% to 29.4%</td>
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<tr>
<td>Non-standard</td>
<td>1990 -2004</td>
<td>45.8% to 48.8%</td>
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</table>

Source: Line 1, ILO, Women and Men in the Informal Economy: a statistical picture (ILO, 2002), table 2.5
Line 2, Estimated from ILO, Laborstats, 2007
Line 3, China, India, Brazil from OECD, March 2007, table 1.1; Indonesia, ADB, Pakistan, Gennari, 2004; Nigeria a, Nwaka; Nigeria b, , Mexico, Martin 2000, table 4; Philippines, Venida; UN, ILO; http://www.ilo.org/public/english/employment/skills/informal/who.htm for Bangladesh

## Appendix Table 1: Developing Country Labor Laws and Practices

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Appendix Regression:

Coefficients (Std Errors) on Regression of Annual Growth rates of GDP per capita on the labor subindex and the economic freedom index of the Fraser institute (with the labor subindex removed), 1970-2004

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Source:
Indices of economic freedom, Fraser Institute 2006


Labor subindex. Listed as 5B on the data set
Economic freedom index * Simple average of subindices for separate areas, excluding the labor subindex. Analysis using the full economic freedom index gives comparable results, but then has the labor index entered in two places

GDP growth rates – Change in natural log of real GDP/capita in const prices (Laspeyres) from Penn World Tables divided by number of years (5 years except 4 years for 2000-2004)
Lagged GDP – log GDP per capita with 5-year lag (4 year in the case of 2000-2004)
Bibliography


Arango, Carlos, and Angélica Pachón Minimum Wages in Colombia: Holding the Middle With a Bite on the Poor http://ideas.repec.org/p/bdr/borrec/280.html


Auerbach, Paula and Maria Eugenia Genoni, Carmen Pagés, 2007 “Social Security Coverage and the Labor Market in Developing Countries” IZA Discussion Paper No. 2979 August


Bosch, Mariano and Marco Manacorda, Marco “Urban Inequality and minimum wages in Mexico, LSE mimeo, Aug 2, 2007

Bosch, Mariana, 2007 “Job Creation and Job Destruction in the presence of informal labour markets” IZA WP

Bosch, Mariano, Edwin Goni, William Maloney “The Determinants of Rising Informality in Brazil: evidence from gross worker flows” IZA DP no 2970


Cassoni, Adriana, Gastón Labadie, and Gabriela Fachola, “the Economic Effects of Unions in Latin America: their impact on wages and economic performance of firms in Uruguay” in What Difference Do Unions Make? (Kuhn, Peter, and Gustavo Marquez, editors) Inter American Development Bank, Washington 2005


David Fairris, Gurleen Popli, Eduardo Zepeda “Minimum Wages and Wage Structure in Mexico.” *Review of Social Economy*


Freeman, Richard B.


Freeman, Richard, Peter Boxall, Peter Haynes (ed), *What Workers Say* (Cornell, 2007)


Freeman, Richard B and James Medoff, 1984 *What do Unions Do?* (Basic Books, NY)


Gruber, Jonathan and Alan Kreuger 1991 “The incidence of mandated employer-provided


Harrison, Ann and Jason Scorse 2003 “Globalization’s Impact on compliance with labor standards” Brookings Trade Forum 2003, pp 45-95


Horton, Susan, Kanbur Ravi, Mazumdar Dipak Labor Markets in an Era of Adjustment, volumes 1 and 3 Washington DC, World Bank 1994


ILO, Key Indicators of the Labour Market, 2001-2002

Jeong, Jooyeon, 2007 Industrial Relations in Korea, Routledge, London,


Kleiner Morris and Young-Myon Lee, “Wage Councils and Unionization: lessons from South Korea.” Industrial Relations vol 36, no 1, January 1997, pp 1-16


Kugler, Adriana and Maurice Kugler, 2003 “The Labour Market Effects of Payroll Taxes in a Middle-Income country: Evidence from Columbia” Discussion paper 4046, Sept CEPR


Marcouiller, Douglas, Veronica Ruiz de Castilla, Christopher Woodruff 1997 “Formal Measures of the informal-sector wage gap in Mexico, El Salvador and Peru”

Martin, Gary “Employment and Unemployment in Mexico in the 1990s” Monthly Labor Review, November 2000

Menezes-Filho, Naercio, Zylberstajn, Helio Chahd, Jose Paulo and Elaine Pazello 2005 “Unions and the Economic Performance of Brazilian Establishments” in ? (Kuhn, Peter, and Gustavo Marquez, editors) Inter-American Development Bank, Washington 2005

Meng, Xin, Labor Market Reform in China Cambridge University Press, 2000


National Academy of Sciences, Monitoring International Labor Standards, Quality of Information, Summary of a Workshop, 2004


Nwaka, Geoffrey The Urban Informal Sector in Nigeria http://www.globalurban.org/Issue1P1Mag05/NWAKA%20article.htm


OECD, Employment Outlook 2004


Park, Ki Seong, “Non-standard Employment” Korea Labor Institute, Beyond Flexibility, July 12, 2006


Saavedra Jaime and Maximo Torero “Union Density Changes and Union effects on firm Performance in Peru” (Kuhn, Peter, and Gustavo Marquez, editors) Inter-American Development Bank, Washington 2005


Smeru Research Institute, “Wage and Employment Effects of Minimum Wage Policy in the Indonesian Urban Labor Market” The SMERU Research Institute, October 2001 (www.smeru.or.id)


Ulyssea, Gabriel and Dimitri Szerman “Job Duration and the informal sector in Brazil” 2007 2nd IZA/World Bank Conference, Employment and Development, June 8-9


World Bank 2006a “Minimum wages in Latin America and the Carribean: impact on employment, inequality, and poverty. Office of the Chief Economist, January

World Bank, 2006b Pension Reform Project, Report No: 36024, July 10

