CENTRE for ECONOMIC PERFORMANCE

CEP Discussion Paper No 844

January 2008

Labor Market Institutions Around the World

Richard B. Freeman

LSE THE LONDON SCHOOL OF ECONOMICS AND POLITICAL SCIENCE

E·S·R·C ECONOMIC & SOCIAL RESEARCH COUNCIL

Abstract
This paper documents the large cross-country differences in labor institutions that make them a candidate explanatory factor for the divergent economic performance of countries and reviews what economists have learned about the effects of these institutions on economic outcomes. It identifies three ways in which institutions affect economic performance: by altering incentives, by facilitating efficient bargaining, and by increasing information, communication, and trust. The evidence shows that labor institutions reduce the dispersion of earnings and income inequality, which alters incentives, but finds equivocal effects on other aggregate outcomes, such as employment and unemployment. Given weaknesses in the cross-country data on which most studies focus, the paper argues for increased use of micro-data, simulations, and experiments to illuminate how labor institutions operate and affect outcomes.

Keywords: labour market, unemployment
JEL Classification: J01

This paper was produced as part of the Centre's Labour Markets Programme. The Centre for Economic Performance is financed by the Economic and Social Research Council.

Acknowledgements
The views expressed herein are those of the author(s) and do not necessarily reflect the views of the Centre for Economic Performance.

Richard Freeman is a Senior Research Fellow with the Labour Markets Programme and the Wellbeing Programme at the Centre for Economic Performance, London School of Economics. He also holds the Herbert Ascherman Chair in Economics at Harvard University and Director of the Labour Studies Programme at NBER.

Published by
Centre for Economic Performance
London School of Economics and Political Science
Houghton Street
London WC2A 2AE

ISBN 978-0-85328-219-8

It was six men of Hindustan
To learning much inclined,
Who went to see the Elephant
(Though all of them were blind)
That each by observation
Might satisfy the mind. (Saxe)

Mandated works councils. Employment protection laws. Minimum wages. Extension of collective bargaining coverage. Lifetime employment. Peak level collective bargaining. Wage flexibility. Teams. Job rotation. Temporary employment contracts. Social dialogue.

At the turn of the 21st century, questions regarding labor market institutions replaced macro-economic policy at the center of much policy debate in advanced economies. By ascribing the high unemployment in European Union countries to labor institutions that reduced wage and employment flexibility, the OECD's 1994 Jobs Study (OECD 1994a, 1994b) directed the attention of policy-makers and economists to institutions that mainstream economics had previously viewed as peripheral to aggregate economic performance. The Jobs Study recommended that countries deregulate labor markets to increase flexibility in working time; make wages and labor costs more responsive to market pressures; weaken employment security provisions and unemployment benefit systems; and introduce active labor market policies – training programs, job-finding assistance to workers, subsidies to employers to hire the long-term unemployed, and special programs for youths leaving school.

This perspective marked a giant shift in the attitude of mainstream economics toward labor institutions. From the 1970s through the mid 1980s or so, most economists favored macro-economic explanations and cures for economic problems (recall the battles between monetarist and Keynesian policies). They viewed labor institutions as peripheral to economic performance. In the 1990s, however, the higher employment rate and more rapid productivity growth of the US than of major European countries despite similar "responsible" macro-economic policies directed attention to the possible role of labor market institutions in explaining differences in aggregate economic performance.

How much of the varying economic performance of capitalist economies can reasonably be

attributed to labor institutions? Which outcomes do those institutions influence – the distribution of income, allocation of labor across sectors, productivity, inflation, economic growth? Through what channels do institutions affect outcomes?

This essay reviews what economists know about these questions. Section I documents the large cross-country differences in labor institutions that make them a candidate explanatory factor for the divergent economic performance of countries. Section II examines the ways institutions can affect behavior and outcomes by altering incentives, enabling groups to engage in efficient bargaining per the Coase Theorem[1], and by improving information, communication, and trust. Turning from what labor institutions *might* do to evidence on what they actually *do*, Section III shows that labor institutions reduce income inequality but has equivocal effects on other aggregate outcomes, such as employment and unemployment in the advanced countries on which most research has focused. Section IV considers three possible interpretations of the empirical findings and ways to improve our knowledge of how the institutional "Elephant" affects economic performance.

I. Variation in labor institutions and economic performance among countries

The starting fact for analyzing labor market institutions across countries is that countries evince widely varying institutional arrangements. The list at the outset of the paper can be easily extended: apprenticeship programs, occupational health and safety rules, defined benefit and defined contribution pension plans; mandated works councils; equal employment legislation; and so on. While economists do not have a single tight definition of an institution, per Justice Potter's famous statement about pornography, they know institutions when they see them, and they see them everywhere.[2]

Exhibit 1 documents the variety of labor institutions among OECD countries and in the Asian "Tiger" economies. It records quantitative rankings of country labor markets by their market vs

[1] The Coase Theorem holds that absent transaction costs, decision-makers will bargain to efficient outcomes regardless of the initial distribution of property rights. See http://en.wikipedia.org/wiki/Coase_Theorem

[2] The Justice wrote, "I shall not today attempt further to define the kinds of material I understand to be embraced within that shorthand description; and perhaps I could never succeed in intelligibly doing so. But I know it when I see it,." http://caselaw.lp.findlaw.com/scripts/getcase.pl?court=US&vol=378&invol=184

institutional orientation, measures of specific institutional arrangements, and the share of social expenditures in GDP. Column 1 gives the ranking of countries by the market orientation of their labor market from the Fraser Institute's "economic freedom" index. Since the 1980s the Institute has produced an index of economic freedom based on metrics for "personal choice, voluntary exchange, freedom to compete, and protection of person and property" (Fraser Institute, 2003, p 5). Beginning in 2001 the Institute included six indicators of labor institutions in its economic freedom index for 58 countries. The Fraser rankings give high rank (low numbers) to countries that rely more on markets, so that the rank1 implies that a country is the leading country in using market forces to set employment, wages, working conditions while a country with rank of, say 57, implies that that country relies greatly on institutions.

The conservative orientation of the Fraser Institute leads it to define economic freedom in a way that privileges the rights of capital compared to the rights of labor. The Institute regards protection of property as contributing to economic freedom but protection of labor as reducing that freedom (on the grounds that protective institutions limit the ability of businesses to make purely market-based decisions). As a result in 2003 countries with little or no labor protection, such as Uganda, the United Arab Emirates, Zambia, and Haiti, ranked at the top of its index of labor market freedom while countries with well developed legal systems to protect workers, such as Germany and Sweden, ranked near the bottom.[3] But, nomenclature aside, the Institute's index measures the market vs institutional orientation of economies in a way that fits with general observation for advanced countries, in that its index places the US higher in reliance on markets than European economies.

Column 2 gives the rankings of countries in the market orientation of their labor market from a very different survey -- the Harvard Labor and Work Life Program's Global Labor Survey (GLS). This Internet-based survey asked union leaders, labor law professors, and other experts around the world to report on the *actual situation* of labor in their country. Because respondents were generally favorable to

---

[3]This scoring creates a negative relation between "economic freedom" in the labor market and GDP per capita for all countries, while the overall freedom index is positively correlated with GDP per capita (Freeman, 2002).

labor institutions (Chor and Freeman, 2005), it provides a useful counterpart to the Fraser index. The rankings in column 2 correspond closely to those in column 1, demonstrating that persons with differing ideological persuasions see the institution/market orientation of economies in analogous ways.

Columns 3-4 turn to measures of union density and collective bargaining coverage. Historically unions have been the major organization representing workers, and collective bargaining has been the main mechanism by which they raise wages. The density data show wide and increasing variation in the percentage of workers in unions among advanced countries. In 1980 the five countries with the highest union density averaged 67.8% while the five countries with the lowest density averaged 18.9%, for a ratio of 3.6 to 1.0. In 2000, the five most unionized countries had an average density of 66.2% while the five least unionized countries had a density of 12.5%, giving a ratio of 5.3 to 1.0 (data from Visser, 2006). The percentage of workers covered by collective bargaining in column 4 shows greater variation. In the US, UK, Canada, New Zealand and Japan, the rate of collective bargaining coverage approximates the rate of unionization, so that declining union density produces commensurate declines in collective bargaining coverage. By contrast, many EU countries extend collective bargaining contracts to all workers and firms in a sector, so that the majority of workers are covered by collective bargaining regardless of union density. This pattern is most striking for France, whose collective bargaining coverage is among the highest in the world despite France having a rate of unionization below that in the US! In 1980 the five countries with the highest level of collective bargaining coverage had 2.8 times the coverage of the five countries with the lowest level of collective bargaining coverage. In 2000, the ratio of coverage in the five most highly covered countries to coverage in the five least covered countries had risen to 4.6.[4]

Column 5 records OECD measures of employment protection legislation (EPL) – legal rules protect workers against layoffs by requiring sizeable severance pay if the firm lays them off and in many cases require that the firm negotiate with a works council on a social plan for retraining. The exhibit

[4]The coverage for the top five was 87% in 1980 and 91% in 2000. The coverage for the bottom five was 31% in 1980 and 20% in 2000. *OECD Employment Outlook 2004*, table 3.3. I have excluded the transition economy new entrants to the OECD from this analysis.

shows that the US and the other Anglo-American countries (UK, Canada, Ireland, Australia, New Zealand) have weak employment protection legislation compared to other advanced economies. (Freeman, Boxall, and Haynes, 2007). The Anglo-American economy with the strongest EPL regulations, Australia, had weaker regulations than the European countries with the weakest protection, Denmark, and Switzerland. The US, which operates in large part by employment-at-will has the lowest EPL score. In the US firms own jobs and can replace workers for any business or other (non-discriminatory) reason.

The last column of Exhibit 1 gives the ratio of government social expenditures to net national income. High shares of national income going to social expenditures imply more extensive welfare states. The US and Japan have low ratios. The Anglo-American country with the highest social expenditure ratio is the UK, whose spending falls below all of the other countries save Japan and Spain. At the other end of the spectrum the Scandinavian countries have relatively high social expenditure shares of national income.

As a crude statistical test of the difference in labor institutions between the Anglo-American economies and other advanced economies, Freeman, Boxall, and Haynes (2007) calculated t-statistics of differences in the mean values of several measures of labor institutions between the Anglo-American and other advanced countries. Exhibit 2 shows that most of the differences are large and statistically significant. Executives in the Anglo-American countries, for example, report greater control over wages, ability to link pay to productivity; and power over hiring and firing than do executives in the other advanced countries. Similarly, labor practitioners in the Anglo-American countries report a greater tilt toward business in labor market conditions and regulations, in government's attitude in labor disputes provision of employee benefits, and in forming unions than practitioners in the other advanced countries.

Classifying Wage-setting institutions

From the 1970s through the mid 1980s, analyses of labor institutions viewed the aggregate economic outcomes of countries with "neo-corporatist" labor arrangements -- centralized wage-setting between peak level national union organizations and employer associations – as superior to outcomes in countries where market forces or decentralized collective bargaining set wages and conditions of work.

The studies explained the success of centralized bargaining in terms of the ability of national bargainers to adjust readily to aggregate economic shocks, notably the 1970s oil price increases. By contrast, from the late 1980s through the mid 2000s, most studies focused on the superior employment and productivity growth of the US compared to the EU, with due allowance for high employment in Scandinavia.

To measure country wage-setting institutions researchers developed indices of centralization and/or coordination in wage setting. Although these indices relied on limited descriptive data on wage practices and varied among analysts, they gave a roughly similar picture of the role of institutions in wage setting (see *OECD Employment Outlook 1997,* table 3.4) -- one that resembles the pattern in Exhibit 1. All the indices rate the US as having one of the most decentralized systems of wage-setting and the Scandinavian countries as among the most institution-driven. Analysts have, however, disagreed about the placement of some countries along the institutional/market scale (Kenworthy, 2001). For instance, some view Japan as "corporatist" on the basis of its Shunto offensive and strong business-government relations; while others view Japan as decentralized on the basis of its enterprise level unionism, bonus pay system, and lack of a centralized bargaining structure or strong government wage-setting regulations. Given Japan's success in overcoming wage and price inflation in the 1970s, whether analysts place Japan as corporatist or liberal colors how one assesses the relation between institutions and outcomes in that period.[5] Another country that has created problems is Switzerland, which has also had good aggregate economic performance.

In ensuing years, the OECD has developed new and improved measures of wage setting and other institutions in OECD countries over time. In 2004 it placed countries' wage setting into five categories reflecting the centralization of bargaining; and into five categories reflecting co-ordination of bargaining. Both categorizations resemble those in Exhibit 1, albeit with changes over time. Looking at the Anglo-American economies, the OECD places the US, UK, Canada, and New Zealand in the most market determined wage group; Australia in the second most market determined group; and puts Ireland, which

[5] The range for Japan is from the 3rd or 4th most centralized or coordinated to among the most highly decentralized.

sets pay through a national wage pact, into the second most centralized wage-setting group (OECD, 2004, table 3.5).[6] Still, there are problems with some classifications. The OECD categorized Italy in the 1980s as have company-based wage setting although during that period Italy set wages through the centralized *Scala Mobile*, which reduced dispersion of pay to Scandinavian levels (Erickson and Ichino, 1995). Taking a different approach, Botero, et al, (2004) coded laws regulating employment contracts, industrial relations, and the social security regulations of 85 countries to form indices of *de jure* regulation of labor procedures. This analysis extends the measures of institutions to many developing countries and links the institutions to the legal traditions of the country. But because countries differ in the way they implement legal statutes, the indices provide only a crude measure of the de facto institutions that can affect economic outcomes. Indices based on legal regulations are particularly suspect for developing countries, many of whom do not have strong rules of law. Consistent with this, the legal indices are more weakly correlated with other measures of the institutional orientation of countries than are the measures of actual practices correlated among themselves (Chor and Freeman, 2005). The legal indices show that the advanced Anglo-American countries rely less on labor regulation and have weaker protections for workers than other (non-Asian Tiger) advanced countries in industrial relations and employment laws but their measures of social security regulations miss the huge difference in social spending shown in Exhibit 1.

Outside the advanced OECD countries, quantitative information on de facto differences in labor market practices is sparse. The *Global Competitiveness Report*, the *Global Labor Survey*, and the Fraser Institute include developing countries in their data sets. The ILO measured unionization and collective bargaining coverage for some developing countries in its World Labour Report 1997-98, (ILO, 1997) and records the ILO conventions that countries have signed (http://www.ilo.org/ilolex/english/convdisp1.htm). But counts of union membership or coverage and conventions signed have different meanings in different countries. In 2007 the national union federation with the largest reported membership in the world is the

---

Soskice 1990 finds that the categorization of countries changes some generalizations.

[6] The six Anglo-American economies averaged 1.8 on the wage-setting centralization scale while the other advanced OECD countries averaged 2.8, where the scaling places lower value on more market-reliant systems.

All Chinese Federation of Trade Unions, which is a branch of the government/party rather than an independent union organization, though it may be moving more toward protecting workers in China's new labor market. Neither the ILO, World Bank, nor other organization concerned with economic development has studied labor institutions in developing countries with the depth that the OECD has done for advanced countries.[7] The biggest lacuna is in data for workers in the informal sector, where most developing country employees work, and where the government regulations and traditional unions that underlie most taxonomies are largely irrelevant.

Variation in economic performance among countries

The dependent variables in cross-country analyses of labor market institutions are measures of aggregate economic performance, such as rates of growth of GDP per capita, income inequality, employment and unemployment, productivity growth, inflation, and growth of real earnings. These outcomes have varied greatly among advanced and developing countries over time. Among advanced countries, much attention has been on employment differences between the US and Western Europe and on productivity growth differences between the US and Japan. But, the US aside, there is wide variation in outcomes among other OECD countries. For instance, Ireland more than doubled its GDP per capita from 1979 to 2005 while France increased its GDP per capita more slowly. Spain had 20 plus percent unemployment for two decades while unemployment was low in Japan. In the 1990s through mid-2000s small European Union countries had lower unemployment rates than Germany, France, and Italy, while in the 1990s through the mid-2000s Australia had lower unemployment and more rapid economic growth than New Zealand.

Economic performance has varied even more widely among developing countries (Easterly, et al 1993). In the 1960s and 1970s Africa had better growth experience than much of Asia, and higher GDP per capita than India or China. In the 1980s through the mid 2000s, China and then India had rapid growth, albeit with different labor institutions and economic and political structures. In the Maoist era,

[7] Rama and Artetcona (2002) developed a World Bank labor database for all countries by gathering labor indicators

China had essentially no labor market (Walder, 1986). Labor bureaus assigned jobs to workers in state- 11 owned enterprises. Managers of firms had little right to hire and fire or determine pay. A national grid determined wages. Mobility of labor was restricted to local areas as the need to have *hukou* residence permits kept potential migrants from moving to the large cities. This situation changed when China began its market reforms so that by the early 2000s, the labor market determined wages and employment. Over the same period, many Latin American economies stagnated, and the share of the work force in informal sector employment grew. Within Latin America, however, some countries did well and others poorly. In Africa, many economies stagnated or deteriorated, though again with considerable cross-country variation.

Research on labor institutions in developing economies has largely focused on the danger that institutional interventions distort market outcomes and reduce growth. The Harris-Todaro model of unemployment and migration attributed high unemployment in African cities to high urban wages resulting from government policies and trade unions (http://en.wikipedia.org/wiki/Harris-Todaro_Model). In this analysis, institutions created excessively high wages in urban areas; which in turn drew rural migrants to cities where they would wait unemployed for jobs. In 1990, the World Bank warned countries that institutions designed to improve worker well being in fact harmed those workers:

> *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).

In ensuing years, the accumulation of evidence on these policies led the World Bank to modify its views (World Bank, 1995) but its 1990 statement still represents a widely held perspective.

II. Should Labor Institutions Matter?

The hypothesis that labor institutions are a prime determinant of aggregate economic outcomes is a

---

from various sources into a single place, but the Bank did not pursue an on-going effort to improve the measures.

flattering one to specialists in comparative labor analysis. But, flattery aside, is it reasonable to expect labor practices to have large effects on aggregate economies? There is an alternative perspective that institutions are largely veneer in a world dominated by fundamental economic forces. When I was in graduate school, John Dunlop – an institutionalist par excellence – used the fable of Cantillon's cock (which I believe he learned from John Hicks) to express this view. Every morning the cock awakens moments before sunrise and does what nature has programmed it to do: let out a mighty "cock-a-doodle-do". Observing the time sequence of cause and effect, the cock concludes that crowing induces the sun to rise. So too, warned Dunlop, might union leaders, business, and government officials believe that what they say or do, the way institutions operate, determines economic success. When you hear a union leader attribute trend growth of real wages to unionism, a politician credit prosperity to their stewardship, or a business leader attribute lucrative stock options in a rising share market to their productivity, you know there is truth to the fable.

Economic theory does not provide clear guidance to the effect of labor institutions on economic performance. Comparative static analyses based on optimizing behavior in competitive markets predict that institutions affect outcomes, usually in ways that reduce economic efficiency compared to what a perfect market would do. But analyses that posit efficient bargaining among economic decision-makers predict that institutions may affect distribution but not efficiency. When competition gives firms little discretion to set prices or quantities, institutions have little scope to affect allocation or distribution. By contrast, analyses that stress the role of information, communication, and trust in economic behavior, and that regard resolving prisoner's dilemma problems as critical in economic success, suggest that institutions can improve efficiency. I consider each of these perspectives in turn.

Institutions affect outcomes

Standard models in which decision-makers respond to price/wage incentives in market settings show that responses to institutionally determined incentives can substantially impact distribution and efficiency. Consider the traditional analysis of union wage effects. The union bargains for wages above

the market level, but does not bargain over employment. Faced with higher costs of labor, firms in unionized sectors reduce employment, which reallocates labor to lower paid less productive activities in the nonunion sector. The result is lower economic efficiency and higher inequality since otherwise similar workers now receive different pay depending on union status. Or consider labor supply analyses of unemployment insurance (UI) which predict that job losers raise their reservation wages and reduce job search, increasing unemployment. The extent to which collective bargaining and UI "distort" outcomes from what would exist in an ideal competitive market rests on the degree of responsiveness of decision-makers to the institutionally determined incentives. If firms have high elasticity of demand for labor, the change in the allocation of labor can be considerable. If the unemployed have a high elasticity of response to unemployment benefits, they may remain jobless for long periods, which will depreciate their skills and reduce supply-side pressures on wages to clear the labor market.

Institutions also affect market outcomes by changing the maximand of decision-makers. Since optimizing conditions equate marginal benefits from an action to the marginal costs of the action, an institution that changes the marginal benefit function will alter outcomes just as does an institution that changes the marginal costs. Institutions that alter marginal benefits can affect behavior in subtle ways. Compare for instance the predicted effects of employee ownership on labor demand relative to the predicted effects of profit sharing on demand behavior. Since both of these institutions are designed to increase the rewards to workers from capitalism, one might expect that they have similar effects on labor demand and employment, but analysis shows the opposite. In a price theoretic model of employee ownership, where the employee owned firm seeks to maximize net revenues per worker, comparative statics predicts that the firm will admit fewer members to the enterprise than a competitive firm would hire. Even more striking, the employee-owned firm will reduce employment when the price of output rises. This is because lower employment raises net revenues per worker when prices rise. But this is not the end of the story. The employee-owned firm can make more for its members by hiring additional workers without giving them ownership in the firm. By doing this, the employee owned firm will employ

the same number of workers and respond similarly to prices as a competitive firm while creating a dual class of workers, employee-owners and standard wage-employees.

By contrast, consider labor demand by a profit-maximizing firm that shares profits with workers by paying them a fixed proportion of profits rather than fixed wages. Weitzman (1984) has shown that when a firm pays workers a fixed share of profits per worker, the firm seeks to hire more workers than would a competitive firm. In fact, the firm always tries to hire more workers, giving it an infinite demand for labor. Each additional worker adds to sales and profits, just as an additional commissioned salesperson adds to the profits of a marketing firm even if it cannibalizes some sales from existing salespersons. The firm's employment is limited by workers' alternative opportunities rather than by the cost of labor to the firm. As a result profit sharing can maintain full employment in the face of adverse economic shocks. To the extent that Japan's bonus compensation system – which pays of 4-6 months of earnings via winter and summer bonuses -- operates as profit-sharing (Freeman and Weitzman, 1986), this can help explain Japan's more rapid recovery from economic shocks than countries that pay fixed wages.

Employee ownership and profit sharing also affect supply behavior. Most proponents of these institutions favor them because they give greater incentives to workers to work hard than do fixed wages. But to succeed, these modes of compensation must overcome the "free rider" problem – the incentive that each worker has to shirk and live off the effort of other employees when all workers share the fruits of any individual's extra effort. In an N employee workplace this is often called the 1/N problem since the worker gets only 1/Nth of the reward for their effort. Overcoming the free rider problem may require institutions – work groups of different types, weekly team meetings and discussion of work problems –and a "participative" corporate culture that complements the incentive system.

The bottom line is that by influencing both demand and supply, institutions have the potential for impacting the aggregate economy.

Institutions do not matter

Models of efficient bargaining predict that when firms/workers engage in bargaining, they "leave

no money on the table" and thus make the same decisions as a profit-maximizing firm. This is the Coase Theorem at work in the world of labor institutions (Freeman, 1993b). As long as transactions costs are negligible and someone has clear property rights to decisions, the bargaining parties produce efficiently and agree over some division of the rewards from their joint effort. The analysis suggests that institutionally determined rules, such as employment protection legislation, which some blame for European high unemployment by making firms leery of hiring workers they cannot readily lay off in the future in fact have no effect on employment. In the efficient bargaining model, the firm makes the efficient layoff regardless of whether the worker or the firm "owns" the job. What EPL does is alter the division of the profits from the efficient choice. With EPL the firm pays some of the profit from a layoff to the worker to induce the worker to leave. Absent EPL the firm gets all of the profit from the decision. In this model, institutions alter the distribution of income but not the efficiency of production.

When market forces are so constraining that firms must choose profit-maximizing outcomes or go out of business, institutional arrangements affect neither distribution nor efficiency. If a firm has a U-shaped average cost curve and operates in a competitive market with free entry and exit, it either produces at the bottom of the U-shaped curve or loses money and goes out of business. The need to make nonzero or positive profits dictates decisions. Models of "zero intelligent agents"(Gode and Sunder, 1993) – computer code that randomly selects the amount produced or price charged subject to the profits constraint -- show the power of the profits constraint to produce competitive equilibrium rapidly absent any optimizing behavior. This argument has been applied to the adverse impact of employee ownership on employment. If an employee-owned firm makes large profits and limit entry, the workers whom the firm does not admit have an incentive to form a new firm and enter the market. As a result a market with worker-owned firms ends up in the same long run equilibrium as a market with profit-seeking firms. The logic also dictates that union wage effects do not persist over time, since the firm that pays a higher wage cannot survive competition from lower cost competitors. When firms do not have "rents" to share with workers, institutions cannot affect distribution.

Institutions can increase information and communication flows inside firms, which can in turn improve decisions by management and labor (Freeman and Lazear, 1995). Unions or works councils, for instance, can facilitate the flow of information from workers to management because they give workers some control over how the firm uses the information that workers provide. These institutions can also increase the flow of information from management to workers by bargaining for open books, which raises the likelihood that workers will give wage concessions when the firm is truly in crisis and avoid being fooled into doing so when the firm cries "wolf" while continuing to earn profits. In addition, workers with grievances will use firm-level institutions of voice to resolve problems rather than quit their employer, which should reduce turnover costs and lead to greater investments in firm-specific skills. In the Freeman-Lazear model, increasing the power of works councils raises output up to a point, after which increasing output falls. The reason is that in this analysis worker groups and management maximize their own income rather than their joint output, so that the worker dominated firm would shortchange capital, just as the management-dominated firm would shortchange labor.

Institutions can also improve market outcomes if they enable real markets to come closer to the competitive ideal than those markets otherwise would have done. The belief that labor markets fall short of the competitive ideal is associated with evidence that the wages of workers in the same local labor market and occupation vary widely rather than cluster tightly around a single market wage. This result, found in diverse US data sets over the years greatly impressed US institutional economists (Slichter, 1950; Dunlop, 1956). To the extent that the large dispersion in pay reflects a failure of the competitive labor market to establish a single price of labor, institutionally determined reductions in dispersion could bring the market closer to the competitive ideal. Institutions can also make the dynamics of wage-setting closer to the competitive model. Looking at changes over time in pay across industries, analysts have noted that changes in countries with centralized bargaining more closely resemble the predictions of the competitive model than changes in the market-driven US. The competitive model predicts that exogenous changes in

industrial productivity change the price of output but do not affect wages in an industry; while exogenous changes in output prices raise output and employment but also do not affect wages (Council of Economic Advisors, 1962; Salter 1960). These predictions hold in the Nordic countries where centralized or coordinated bargaining link wages to national economic conditions rather than to sectoral conditions but do not hold in the US, where changes in wages depend substantively on changes in sectoral prices and productivity (Holmlund and Zetterberg, 1991; Teulings and Hartog, 1998).

At the macro-level, the case for institutions is that they deal better with macro-economic problems, such as inflation and balance of payments difficulties, than decentralized labor markets. The Nordic Model of the open macro-economy posits that peak level unions and employers' associations negotiate changes in wages equal to productivity growth in traded sectors and changes in world prices for those goods, which maintains fixed exchange rates (Aukrust, 1977; Milner and Wadensjö, 2001). By contrast, wage-setting in local labor markets risks inflationary spirals, with wage increases in non-traded sectors inducing wage increases in the traded goods sector that exceed productivity growth and increases in global prices for the traded goods. Mancur Olson (1990) argued that centralized collective bargaining in small open economies works because all-encompassing union organizations internalize the negative externalities from wage bargaining at the firm or industry level. The International Labor Organization goes further to claim that economic systems based on labor-management dialogue improves aggregate efficiency: "Successful social dialogue structures and processes have the potential to resolve important economic and social issues, encourage good governance, advance social and industrial peace and stability and boost economic progress."(ILO, *Social Dialogue, 2007*) Finally, even if institutions reduce efficiency, they can still improve societal well being if they redistribute income in ways consistent with the country's social welfare function.

In sum, there are arguments that institutions raise efficiency, reduce efficiency, and have no effect on outcomes beyond distribution. To determine which arguments are valid for which institutions under which economic conditions requires evidence on the actual link between institutions and outcomes, to

III. Institutions and Outcomes in Practice

'*Give your evidence,'* said the King; *'and don't be nervous, or I'll have you executed on the spot.'* (*Alice's Adventures in Wonderland*, Chapter 11, 'Who Stole the Tarts?')

Since cross-country differences in performance motivate many studies of labor institutions, it is natural that the first wave of empirical analysis examined the cross section relation between institutional arrangements and economic outcomes. These studies reported that countries with neo-corporatist arrangements did better in adjusting to the economic problems of the 1980s than countries with more market oriented labor markets (Bruno and Sachs, 1985; Crouch, 1985; Tarantelli, 1986). But it is difficult to make strong statements about the effects of wage-setting institutions from cross-country data. Countries differ in many other dimensions and policies. Maybe income tax policy, or employment protection legislation, or product market regulations, or unemployment benefits rather than wage-setting mechanisms underlie differences in aggregate outcomes. Since the number of advanced countries is small relative to the number of institutions or policies, it hard to estimate effects for particular institutions. This is one reason why many analyses link the *configurations* of institutions/policies captured in the taxonomies of the institutional/market orientation of countries to outcomes. But this still leaves open the possibility that an omitted cross-country factor outside the labor market underlies the pattern.

The second type of study looks at changes in institutions. A generic model would be:

(1) $Y_{ct} = a + b\ X_{ct} + T + I + u_{ct}$, where c refers to country and t refers to time; Y is the outcome variable of interest (or a vector of such variables); X are measures of institutions, T is a vector of year dummies; and I is a vector of country dummies.

By holding fixed country and year, this analysis infers the effects of policy by comparing the change in outcomes in the country that changed policy (the treatment) with the change in outcomes in countries that maintained policies (the controls). But developments in other countries are not necessarily a good measure of what might have happened for the country that changed policies. Abadie, Diamond,

Hainmueller (2007) have developed a more sophisticated counterfactual in which the analyst uses a composite of countries that give the best predictor of outcomes for the country prior to its change in policy. Evidence that the proposed counterfactual predicts what might have happened in the country before it changed policy increases the likelihood that the counterfactual is valid. Even if a given institutional change produced a particular outcome in one country, moreover, it is uncertain that it will produce the same outcome elsewhere. Institutions that work one way in one country may work differently in another country where it interacts with other institutions. Enact a law on temporary contracts in Spain and new entrants are hired under those contracts. Enact a similar law in Germany, and firms continue to hire apprentices for permanent jobs. To the extent that labor institutions form a unified consistent system, one cannot simply extrapolate the effects of changing a single institution in one labor system to another.

A third type of study compares outcomes between workers covered by different labor institutions within countries in which such intra-country differences exist. The virtue of this approach is that it holds fixed the factors that affect an economy in its entirety. Making within-country comparisons of union and non-union workers is how economists study the effects of unions in countries where union and non-union arrangements coexist—such as in the Anglo–American countries (Freeman and Medoff, 1984; Lewis, 1963). Such comparisons measure differences between institutionally determined and market determined outcomes but do not necessarily identify the structural impact of the institutions. They miss the potential spillover of institutionally determined outcomes on other workers, who can be helped or harmed depending on the nature of the interaction between the sectors.

In sum, determining how institutions affect outcomes across countries is difficult. Findings must be put through several sieves – cross section analysis, before/after analyses, within country analyses, and over different time periods – before one can hazard a generalization.

One strong finding and some problematic results

For all of the difficulties in pinning down the impact of institutions on aggregate economic performance across countries, analyses have found that institutions have a major impact on one important

outcome: the distribution of income. As Exhibit 3 shows, countries that rely on institutions to set wages and working conditions have lower rates of inequality or dispersion of earnings – here measured by the ratio of the pay of persons in the 90th percentile of wages and salaries relative to the pay of persons in the 10th percentile – and lower levels of overall income inequality – here measured by the Gini coefficient for total income. The US, which ranks as the most market-driven labor market, has the highest dispersion of wages and the highest Gini. Other economies with relatively market-driven labor markets also have high levels of inequality. By contrast, Norway, where institutions set wages, has the lowest dispersion.

Studies that look at dispersion of pay when institutions change, ranging from declines in collective bargaining coverage as in the US or UK to the breakdown of centralized negotiations between the major union federation and major employer association in Sweden or the end of the Scala Mobile mode of centralized wage setting in Italy (Manacorda, 2005), show a comparable pattern. Movement toward market-determined pay widens earnings distributions. Movement toward more institutional wage determination narrows earnings inequality. Within country data on the level of dispersion in union and nonunion workplaces, also shows that inequalities are smaller in union settings and decline among workers who shift from nonunion jobs to union jobs; and increase among workers who move in the other direction (Card, Lemieux, Riddell, 2004; Freeman, 1984). What is true of collective bargaining also holds for government-mandated wage payments and taxation. Minimum-wage laws raise pay at the bottom of the distribution and are generally associated with lower dispersion of earnings.

By contrast, despite considerable effort, researchers have not pinned down the effects, if any, of institutions on other aggregate economic outcomes, such as unemployment and employment. This statement may seem surprising in light of the numerous policy pronouncements in the 1990s and 2000s that particular market-oriented changes would raise employment. The OECD Jobs Study was accompanied by two volumes of supporting research and followed by studies and reviews of studies, many given in the OECD's annual *Employment Outlook* (Layard, Nickell, and Jackman, 1994). Nickell (1997) with various co-authors and diverse other economists estimated the effect of institutions on

outcomes and asserted that they had nailed it down: In the January 2005 *Economic Journal* Nickell, Nunziata, and Ochel (2005) summarized this work with the claim that "the broad movements in unemployment in the OECD can be explained by shifts in labor market institutions" (p 1).

But as economists have examined the evidence more critically, they have rejected these strong claims in favor of a more cautious stance about what the evidence shows about the impact of institutions on aggregate economic outcomes. Baker et al. (2005) documented that the time series models on which the OECD and independent researchers have relied to support their diagnosis that institutions adversely affect aggregate outcomes are not robust. The estimated coefficients on labor institutions become statistically insignificant with modest changes in the measures of institutions, countries covered, and time period. Models that cover more years, countries, and measures than the early studies did "provide little support for those who advocate comprehensive deregulation of OECD labor markets" (p 106). Baker et al conclude that there is a "yawning gap between the confidence with which the case for labor market deregulation has been asserted and the evidence that the regulating institutions are the culprits" (p 198). Earlier Blanchflower (2001) told a similar story, noting "only a weak positive relation in the OECD between unemployment and benefits (p 390) and "*no* support (from a 1999 OECD report) ... for the belief that unions, benefits, the tax wedge, ALMP (Active labor market programs) spending or earnings dispersion influence unemployment ... contrary to the claims made in Layard et al. (1994), which appear to be based on mis-specified cross-country unemployment regressions (p 392)". Assessing results in the mid 2000s, Howell et al. (2006) and Baccaro and Rei (2005) come to a similar conclusion.

Given these studies and its own work, the OECD has backed away from the strong claims of the early 1990s. The 2004 OECD *Employment Outlook* argued for "the *plausibility* (my italics) of the Jobs Strategy diagnosis that excessively high aggregate wages and/or wage compression have been impediments" to jobs, while admitting that "this evidence is somewhat fragile", and that the effect of collective bargaining "appears to be contingent upon other institutional and policy factors that need to be clarified to provide robust policy advice" (p. 165). The 2006 *Outlook* stressed that the institutions of low

unemployment European countries differ greatly from those in the US and UK (table 6.3). This implies that there is no single way to attain full employment and thus no single "peak" form of capitalism to which each country should strive (Freeman, 2000). But the debate continues. In a study that takes account of many of the criticisms of earlier cross-country time series data, Bassanini and Duval (2006) estimated that changes in tax and labor policies explain about half of 1982-2003 changes in unemployment among countries, with tax policies playing a particularly important role.

The potential effect of employment protection legislation on employment and unemployment has attracted particular attention. Countries pass these laws to reduce layoffs and raise job security for existing workers. But by making layoffs more expensive to the firm, the laws also makes it more expensive to hire workers since the firm must factor in the greater expense of layoffs if it has to reduce output. The net effect of employment protection laws on aggregate employment thus depends on the degree to which they reduce layoffs compared to the degree to which they reduce hires. After over two decades of analysis, the consensus from studies of aggregate country data is that the regulations have little effect on the overall rate of unemployment. Rather, EPL shifts unemployment from older workers to younger jobseekers (OECD *Employment Outlook*, 2004). Micro-economic studies of the effect of EPL for Chile show little evidence of a negative impact on labor demand but find that EPL increases the within-firm gap between the marginal revenue product of labor and the wage, which it should since it creates a wedge between marginal product and the wage cost of employment (Petrin et al., 2006).

The disappearing inverse U

In the 1980s the pattern of unemployment among OECD countries changed. Whereas in the 1960s and 1970s, unemployment was lower in countries with highly centralized bargaining systems than in countries with decentralized wage-setting systems, in the 1980s unemployment was lower in both of those groups than in countries with collective bargaining institutions between the extremes, at least according to some measures of wage-setting institutions (Calmfors and Driffill, 1988). There is, moreover, logic to this pattern. Market wage setting presumably attains low unemployment through competitive pressures on

firms and workers while centralized wage setting attains low unemployment by forcing bargainers to consider the impacts of wages on national unemployment, among other aggregate outcomes. The "villain" in the story is industry or other intermediate level collective bargaining, which allow unions and firms to ignore the effects of their decisions on the aggregate economy (someone else pays the bulk of the unemployment compensation for workers whose jobs are lost due to high wages) and thus can produce high wages and unemployment.

But in ensuing years the inverse U relation disappeared. In the early 1990s Sweden's economic crisis reduced employment considerably. Two market-oriented economies, Canada and New Zealand, also experienced high unemployment. By contrast, the Netherlands, the archetype of a country with intermediate institutions, had modest wage settlements and altered some of its benefits to increase employment (Teulings and Hartog, 1998). Some other European countries, including those with industry bargaining, improved their economic performance. In its 2004 review, the OECD reported no indication of an inverse U in cross-country comparisons of wage institutions and unemployment in the 1990s. Rather, the data showed wide variation in aggregate outcomes among countries classified as highly centralized, decentralized, and intermediate that belies any simple generalization even in the earlier periods (OECD, 2004, table 3.6). Soskice (1990) pointed out that analyses that adjust measures of wage setting for coordination of bargaining in countries with industry wide bargaining produced no inverse-U even in the 1980s. The inverse-U appears to be more of a historical description of patterns at one period of time, rather than any general rule about the link between institutions and outcomes.

In short, the evidence is that institutions reduce inequality but have uncertain or time varying impacts on other aggregate outcomes, including those likely to be affected by wages.

IV. Interpretation

There are three possible interpretations of this evidence. First, it could be that labor institutions impact other outcomes substantially which extant measures of institutions and aggregate cross section time series data are too weak to identify. From this perspective, the OECD's continual improvement of

measures of institutions and the passage of time will eventually pin down the true relations. Doing more of the same with better and longer time series will surely add to our knowledge, but I am dubious that it will definitively uncover institutional effects beyond those on the dispersion of pay. Analyses of micro data sets that focus on measuring labor practices – such as the UK's Workplace Employment Relations Survey (WERS) – offer a better chance for illuminating how institutions operate on the ground and their impact on outcomes. Adding measures of labor policies and practices to matched employee-employer panel data sets would create even greater potential for increasing knowledge. It would allow researchers to compare the behavior of the same worker under different practices, the effect of practices on selectivity of workers, and the effects of practices on productivity. Studies of firms that change labor practices (ideally under experimental conditions) or operate differently across countries due to country-specific rules and norms could also illuminate how institutions or policies work at workplaces.

The second possible interpretation of empirical results is that the effects of institutions on outcomes changes over time due to changes in the economic environment or to changes in institutional responses to particular economic stimuli. The rough stability between US and advanced European institutions from the 1950s through the early 2000s when unemployment rose in the EU relative to the US rules out any simple causal link between institutions and outcomes. If essentially unchanged institutions caused this change in unemployment and other outcomes, the impact of institutions *must* have changed over time (Blanchard and Wolfers, 2004; Lundquist and Sargent, 1998, 2004; OECD, 2006). In the case of unemployment, perhaps EU institutions were well suited to produce low unemployment in the 1960s-1980s while US institutions were better suited for low unemployment for the globalized digital economy of the 1990s and 2000s. Alternatively, perhaps the behavior of institutions changed over time as decision-makers learnt from experience what does or does not work. This would produce different responses to the same circumstances over time, shades of the Lucas critique of macro-economic models. While appealing, the "changing economy/behavior interpretation" of the link between institutions and outcomes is difficult to test. It makes great demands on data and risks creating the social science equivalence of epicycles to

account for observed patterns. A model that says EU style institutions helped attain full employment in 25
the 1960s-1980s and reduced employment in the 1990s-2000s, or that posits that institutional decision-makers behaved differently in the latter period than in the former because they learned from their mistakes, can fit the observed experiences, but leaves little data to test the proposed explanations[8]. With enough interactions, one can readily over-fit any model.

A third reading of the evidence is that in fact labor institutions have a well-defined impact on income distribution but only modest effects on other outcomes. One reason their effects may be modest is that the political economy of institutional interventions rules out collective bargaining settlements and regulations that are truly expensive to an economy. No country would impose a minimum wage that disemployed a large fraction of the work force; and no union or employer would sign a collective bargaining agreement that forced the firm to close. If countries adopt only interventions with the most favorable benefit-cost ratios, one would observe reductions in dispersion only if they raise efficiency or produce minimal losses. In the same vein, it is possible that institutions have both the negative and positive effects hypothesized earlier, but that the two factors balance out, producing inconclusive results beyond those on distribution, again for political economy reasons via some form of bargaining among parties. Taking this line of thinking to its logical conclusion the economies that rely on institutions may have reduced the transactions costs of bargaining and developed long run relations among parties such that they produce efficient outcomes per the Coase Theorem more often than not.

To help assess these interpretations and increase our knowledge of institutions requires inputs from areas of research that have played little role in the debate over the link between labor institutions on aggregate outcomes. One such area is experimental economics. Evidence from laboratory experiments that people care about fair processes and outcomes and cooperate more than rational optimizing models of human behaviour opens the door for studies of the conditions when institutions can improve market

[8] To illustrate, consider a model in which economies determine wages by collective bargaining or market forces and experience a price shock or competition from low wage countries or both. An experimental design to assess the link between shocks and institutions would require 16 (= 2^3) treatments If institutions

outcomes. Experiments that reflected real world institutions, such as group decisions, would at the minimum provide researchers with realistic priors about what to expect from those institutions outside the laboratory. Another area is game theory and the related field of implementation theory (Jackson, 2001). Theories of behavior under different bargaining rules could help illuminate the conditions under which European social dialogue institution can yield efficient bargains and direct attention at institutional reforms that would increase the potential for Coase-theorem bargains (Freeman, 2006). Finally, because labor institutions interact in ways that go beyond theory and experiments, artificial agent simulations could illuminate hypothesized interactions among institutions and between institutions and economic shocks and behavior, building on matching models of firms and workers (Neugart, 2004; Pingle and Tesfatsion, 2003). Roth and co-workers (1999, 2000) have shown the value of combining such modelling in analyzing the market for medical residents, which seemingly works better through a centralized allocative matching algorithm than through standard competitive behavior. In the spirit of artificial agent modelling, analysts would ideally "grow" artificial economies with specified institutional arrangements (Epstein, 2005) and then simulate the effects of institutional changes on economic outcomes.

In short, because the problem of determining whether labor institutions do more than reduce income inequality; and if so, whether they improve or worsen economic outcomes is such a hard one – on par with the six blind men trying to understand the elephant -- we need all of the tools at our disposal. It is only by combining insights and observations from different perspectives that we will be able to capture the institutional reality and not

> Rail on in utter ignorance
> Of what each other mean,
> And prate about an Elephant
> Not one of them has seen!
> (Saxe)

---

reacted depending on which shock they faced first, the number of treatments would increase.

Exhibit 1: Measures of the Variation of Labor Institutions Across Advanced Countries

Country group **Anglo-American**	Fraser, 2003 Labor index	GLS, 2005	Percent Union 2003	Percent Coll Bargaining 2000	Employment Protection Legislation	Govt Social Spending/ NNI, 2003
US	10	6	12	14	0.7	18.7
UK	19	13	29	30	1.1	23.3
NZ	38	16	22	25	1.3	22
Ireland	47	17	35	--	1.3	22.2
Australia	32	17	25	80	1.5	25.4
Canada	25	15	26	32	1.1	20.9
Other Advanced						
Switzerland	34	19	18	40	1.6	31.6
Netherlands	52	29	23	80	2.3	25.5
Finland	90	26	74	90	2.1	31.8
Denmark	71	26	70	90	1.8	34.3
Austria	83	25	35	95	2.2	32.3
Belgium	63	29	55	90	2.5	31.4
Germany	101	23	23	68	2.5	34.6
Portugal	77	--	24*	80	3.5	29
Sweden	96	29	78	90	2.6	36.3
Japan	28	17	20	15	1.8	22.9
Norway	89	27	53	70	2.6	31.3
Spain	54	--	16	80	3.1	24.3
Italy	95	24	34	80	2.4	30.8
France	58	26	6	90	2.9	33.7
Greece	94	--	27*	--	2.9	23.2
Four Asian Tigers						
Hong Kong	5	--				--
Singapore	42	9				--
Taiwan	61	7				--
Korea	81	10	11	11		9.2

Source: Column 1, Fraser Institute (2005) Economic Freedom of the World: 2005Annual Report. http://www.freetheworld.com/download.html; Column 2, Global Labor Survey (2005), Freeman and Chor (2005); Column 3 from Visser, J., ''Union membership statistics in 24 countries'', in *Monthly Labor Review*, Vol. 129, No. 1, January 2006, with * for 2000 from OECD 2004;table 3.3; Column 4, OECD, 2004, table 3.3 Column 5, OECD, 2004, table 2. A2.4, version 2; Column 6, Society at a Glance: OECD Social Indicators 2006 Edition 2007 - Data GE1.2 Share of non-health and total social spending in national income, 2003. Note: the numbers in the ranking in columns 1 and 2 exceed the number of countries in the exhibit because the rankings include developing economies that I do not report in the table.

Exhibit 2 **Mean Values of Ranks of Anglo-American and other Advanced Economies Labor Institutions (low value=market oriented) and t-tests of their statistical significance**

Panel A: Reports by Executives on World Economic Forum 2003

Mean, t-test	Wage Flexibility	Pay link to productivity	Hiring and firing	Delegation of authority	Cooperative labor-mgt relations
Mean, Anglo-American	26	11	27	11	25
Mean, Other Advanced	60	39	53	18	25
t-test	2.6	5.09	2.72	1.4	0.08
Implications	Anglo-American have more control over wages	Anglo-American firms link pay to productivity more than others	Anglo-American firms have greater power to hire and fire	Anglo-American delegate slightly more authority	No difference perceived in labor-mgt cooperation

Panel B: Reports by Labor Practitioners, Global Labor Survey 2004

Mean, t-test	Labor market conditions	Freedom of association/ collective bargaining	Labor disputes	Regulations and working conditions	Employee benefits
Mean, ANGLO-AMERICAN	16	15	12	13	13
Mean, Other	26	26	22	25	26
t-test	4.13	5.03	3.34	3.29	5.67
Implications	Labor market is more business-friendly in Anglo-American	Freedom of association and collective bargaining more difficult in Anglo-American	Anglo-American have more pro-business stance in disputes	Labor regulations are more pro-business in Anglo-American	Fewer benefits in Anglo-American

Source: Freeman, Boxall, Haynes, 2007, chapter 1

Exhibit 3: 90/10 Wage Differentials and Gini Coefficients for Advanced Countries, circa 2000

	Dispersion	Gini
US	4.59	40.8
UK	3.45	36.0
NZ	3.28	36.2
Ireland	3.97	35.9
Australia	2.94	35.2
Canada	3.65	33.1
Switzerland	2.69	33.1
Netherlands	2.85	30.9
Finland	2.36	26.9
Denmark	2.16	24.7
Austria	3.56	30.0
Belgium	2.28	25.0
Germany	2.87	28.3
Portugal	3.76	38.5
Sweden	2.23	25.0
Japan	2.99	24.9
Norway	1.96	25.8
Spain	3.94*	32.5
Italy	2.40	36.0
France	3.07	32.7
Greece	3.62*	35.4

Source: Ratio of Wages, from OECD, 2004, table 3.2, where the data are from 1995-99 with figures from Austria, Belgium, Denmark, Portugal are for 1990-94; Data for Spain and Greece from Pereira and Martins (2004), table 1. Gini coefficients from United Nations 2005, table 15

References

Aukrust, Odd (1977). 'Inflation in the Open Economy: A Norwegian Model', in L.B. Krause and W.S. Salant (eds.), *Worldwide Inflation; Theory and Recent Experience*. Washington DC: Brookings Institution.

Baccaro, Lucio and Diego Rei (2005) "Institutional Determinants of Unemployment in OECD Countries: A Time Series Cross-Section Analysis (1960-98)," International Institute for Labor Studies Discussion Paper DP/160/2005, International Institute for Labor Studies, Geneva

Baker, D., Glyn, A., Howell, D., and Schmitt, J. (2005) 'Labor Market Institutions and Unemployment : A Critical Assessment of the Cross-Country Evidence', in David R. Howell (ed.), *Fighting Unemployment: The Limits of Free Market Orthodoxy*. Oxford: Oxford University Press.

Bassanini, Andrea and Duval, Romain (2006) 'Employment Patterns in OECD Countries: Reassessing the Role of Policies and Institutions', OECD Economic Department Working Paper 486, June.

Blanchard, Olivier and Wolfers, Justin (2000) 'Shocks and Institutions and the Rise of European Unemployment: The Aggregate Evidence', *Economic Journal*, 110(1): 1-33.

Blanchflower, David G. (2001) 'Unemployment, Well-Being, and Wage Curves in Eastern and Central Europe', *Journal of the Japanese and International Economies*, 15: 364-402.

Botero, Juan, Djankov, Simeon, La Porta, Rafael, López de Silanes, Florencio, and Shleifer, Andrei (2004) 'The Regulation of Labor', *Quarterly Journal of Economics*, 119: 1339-1382.

Bruno, Michael and Sachs, Jeffrey (1985) *Economics of Worldwide Stagflation*. Cambridge, MA: Harvard University Press.

Calmfors, Lars and Driffill, John (1988) 'Bargaining Structure, Corporatism, and Macroeconomic Performance', *Economic Policy*, 6 (April): 14-61.

Card, David, Lemieux, Thomas, and Riddell, W. Craig (2004) 'Unions and Wage Inequality', *Journal of Labor Research*, 25(4) (October): 519-562.

Carroll, Lewis (2006) *Alice's Adventures in Wonderland*. Harold Bloom (ed.) NY: Chelsea House Publishers.

Chor, Davin and Freeman, Richard (2005) 'The 2004 Global Labor Survey: Workplace Institutions and Practices Around the World', NBER Working Paper 11598.

Council of Economic Advisors (1962) *Economic Report of the President.* Washington, DC: Government Printing Office.

Crouch, Colin (1985) 'Conditions for Trade Union Wage Restraint', in Leon N. Lindberg and Charles S. Maier (eds.) *The Politics of Inflation and Economic Stagflation*. Brookings Institution, Washington D.C. 30.

Easterly, William., Kremer, Michael., Pritchett, Lant and Summers, Lawrence H. (1993) 'Good Policy or Good Luck? Country Growth Performance and Temporary Shocks', *Journal of Monetary Economics*, 32 (3): 459-83.

Epstein, Joshua M. (2005) 'Remarks on the Foundations of Agent-Based Generative Social Science', Brookings, CSED, Working Paper 41 (July).

Erickson, Christopher L. and Ichino, Andrea (1995) 'Wage Differentials in Italy: Market Forces, Institutions and Inflation', in Richard B. Freeman and Lawrence F. Katz (eds.), *Differences and Changes in Wage Structures*. Chicago: University of Chicago Press for NBER.

Fraser Institute (2001) *Economic Freedom of the World: 2001 Annual Report*. Vancouver, BC: The Fraser Institute.

Fraser Institute (2003) *Economic Freedom of the World: 2003 Annual Report*. Vancouver, BC: The Fraser Institute.

Freeman, Richard B. (1984) 'Longitudinal Analyses of the Effects of Trade Unions', *Journal of Labor Economics,* 2(1)(January): 1-26.

--------(1993a) 'Labor Market Institutions and Policies: Help or Hindrance to Economic Development?', *Proceedings of the World Bank Annual Conference on Development Economics 1992*. Washington, DC: The World Bank.

--------(1993b) 'Labor Markets and Institutions in Economic Development', *American Economic Review*, 83 (2) (May): 403-8.

--------(2000) 'Single Peaked vs. Diversified Capitalism: The Relation Between Economic Institutions and Outcomes', in Richard B. Freeman (ed.), *Inequality around the World.* London, UK: Palgrave.

--------(2002) 'Varieties of Labor Market Institutions and Economic Performance', presented at the *IRRA Session on Labor Market Institutions and Economic Outcomes,* January 4.

--------(2005) 'Labour Market Institutions Without Blinders: The Debate Over Flexibility and Labour Market Performance', *International Economic Journal RIEJ*, 19(2)(June): 129-145.

--------(2007) 'Searching for the EU Social Dialogue Model', in Nicola Acocella and Riccardo Leoni (eds,), *Social Pacts, Employment and Growth: A Reappraisal of Ezio Tarantelli's Thought.* Heidelberg: Physica-Verlag.

Freeman, Richard B., Boxall, Peter and Haynes, Peter (eds.) (forthcoming, 2007) *What Workers Say: Employee Voice in the Anglo_American Workplace*. Ithaca, NY: Cornell University Press.

Freeman, Richard B. and Lazear, Edward P. (1995) 'An Economic Analysis of Works Councils", in Joel Rogers and Wolfgang Streeck (eds.), *Works Councils: Consultation, Representation, Cooperation.* Chicago, IL: University of Chicago Press for NBER. pp. 27-50.

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

Gode, Dhananjay K. and Sunder, Shyam (1993) 'Allocative Efficiency of Markets with Zero-Intelligence Traders: Market As a Partial Substitute for Individual Rationality', Journal of Political Economy, 101(1): 119-137.

Holmlund, Bertil and Zetterberg, Johnny (1991) 'Insider Effects in Wage Determination: Evidence from Five Countries', *European Economic Review*, July.

Howell, David., Baker, Dean., Glyn, Andrew and Schmitt, John (2006) 'Are Protective Labor Market Institutions Really at the Root of Unemployment? A Critical Perspective on the Statistical Evidence', CEPR Working Paper, July.

International Labour Office (1997) *World Labour Report 1997-98. Industrial Relations, Democracy and Social Stability.* Geneva.

International Labour Office. *Social Dialogue*. http://www.ilo.org/public/english/dialogue/themes/sd.htm

Jackson, Matthew O. (2001) 'A crash course in implementation theory', *Social Choice and Welfare*, 18(4), pages 655-708.

Kagel, John H. and Roth, Alvin E. (eds.) (1995) *The Handbook of Experimental Economics*. Princeton, NJ: Princeton University Press

Kenworthy, Lane (2001) 'Wage-Setting Measures, a Survey and Assessment', *World Politics* 55 (October):57-98.

Layard, Richard., Nickell, Stephen and Jackman, Richard (1994) *The Unemployment Crisis*. Oxford, UK: Oxford University Press.

Lewis, H. Gregg (1963) *Unionism and Relative Wages in the United States.* Chicago, IL: University of Chicago.

Ljungqvist, Lars and Sargent, Thomas J. (1998) 'The European Unemployment Dilemma', *Journal of Political Economy*, 106(3): 514-50.

Ljungqvist, Lars and Sargent, Thomas J. (2004) 'European Unemployment and Turbulence Revisited in a Matching Model', *Journal of the European Economic Association*, 2(2-3)(April/May): 456-468.

Manacorda, Marco (2004) 'Can the Scala Mobile Explain the Fall and Rise of Earnings Inequality in Italy? A Semiparametric Analysis, 1977-1993', *Journal of Labor Economics*, 22(3): 585-613.

Manning, Alan (2005) *Monopsony in Motion: Imperfect Competition in Labor Markets*. Princeton, NJ: Princeton University Press.

Martin, John Paul (1998) 'What Works Among Active Labour Market Policies: Evidence from OECD

Milner, Henry and Wadensjö, Eskil (eds.) (2001) *Gösta Rehn, the Swedish Model and Labour Market Policies: International and National Perspectives.* Aldershot: Ashgate.

Neugart, Michael (2004) 'Endogenous Matching Functions: An Agent-Based Computational Approach', *Advances in Complex Systems*, 7(2): 187-202.

Nickell, Stephen J. and Brian Bell (1996) 'Changes in the Distribution of Wages and Unemployment in the OECD Countries', *American Economic Review*, Papers and Proceedings, 86(5): 302-308.

Nickell, Stephen., Nunziata, Luca, and Ochel, Wolfgang (2005) 'Unemployment in the OECD since the 1960s: What Do We Know?', *The Economic Journal*, 115 (January): 1-27, Royal Economic Society.

Nickell, Stephen (1997) 'Unemployment and Labor Market Rigidities: Europe versus North America', *Journal of Economic Perspectives*, 11(3) (Summer): 55-74.

Olson, Mancur (1990) *How Bright Are the Northern Lights?: Some Questions about Sweden (Crafoord lectures)*. Lund, Sweden: Institute of Economic Research, Lund University.

Organization for Economic Cooperation and Development (OECD) (1994a) *OECD Jobs Study, Evidence and Explanations, Part I: Labor Market Trends and Underlying Forces of Change.* Paris: OECD.

----------(1994b) OECD Jobs Study, Evidence and Explanations, Part II: The Adjustment Potential of the Labor Market. Paris: OECD.

----------(1995) OECD Jobs Study, Taxation, Employment, and Unemployment. Paris: OECD.

----------(1996) *OECD Employment Outlook.* Paris: OECD.

----------(1997) 'Economic Performance and the Structure of Collective Bargaining', *OECD Employment Outlook.* (July). Paris: OECD.

----------(1997) *Implementing the Jobs Study.* Paris: OECD.

----------(2002) *OECD Employment Outlook.* Paris: OECD.

----------(2004) *OECD Employment Outlook.* Paris: OECD.

----------(2006) *OECD Employment Outlook.* Paris: OECD.

Pereira, Pedro Telhado and Martins, Pedro Silva (2004) 'Returns to Education and Wage Equations', *Applied Economics*, 36(6) (April): 525-31.

Petrin, Amil and Sivadasan, Jagadeesh (2006) 'Job Security Does Affect Economic Efficiency: Theory, a New Statistic, and Evidence', NBER Working Paper 12757 (December).

Pingle, Mark and Tesfatsion, Leigh (2003) 'Evolution of Worker-Employer Networks and Behaviors Under Alternative Non-Employment Benefits: An Agent-Based Computational Study', *Computing in Economics and Finance*, 7, Society for Computational Economics.

Roth, Alvin E. and Peranson, Elliott (1999) 'The Redesign of the Matching Market for American Physicians: Some Engineering Aspects of Economic Design', American Economic Review, 89(4) (September): 748-780.

Roth, Alvin E. (2002) 'The Economist as Engineer: Game Theory, Experimentation, and Computation as Tools for Design Economics', Fisher-Schultz Lecture, *Econometrica*, 70(4) (July): 1341-1378.).

Salter, Wilfred E. G. (1960) *Productivity and Technical Change*. Cambridge, UK: Cambridge University Press.

Saxe, John Godfrey, (1878), 'Blind men and an Elephant', in William James Linton (ed.), *Linton's Poetry of America*, University of Michigan.

Slichter, Sumner H. (1950 'Notes on the Structure of Wages', *The Review of Economics and Statistics*, 32(1) (February): 80-91.

Soskice, David (1990) 'Wage Determination: The Changing Role of Institutions in Advanced Industrialized Countries', *Oxford Review of Economic Policy*, 6(4): 36-61.

Tarentelli, Ezio (1986) 'The Regulation of Inflation and Unemployment', *Industrial Relations*, 25(1): 1-15.

Teulings, Coen and Hartog, Joop (1998) *Corporatism or Competition? Labour Contracts, Institutions and Wage Structures in International Competition.* Cambridge, UK: Cambridge University Press.

Traxler, Franz (2002) 'Bargaining (De)Centralization, Macro-Economic Performance and Control Over the Employment Relationship', *British Journal of Industrial Relations*, 1(March): 1-27.

Traxler, Franz and Kittel , Bernhard (2000) 'The Bargaining System and Performance: A Comparison of 18 OECD Countries', *Comparative Political Studies*, 33: 1154-1190.

United Nations (2005) *United Nations Human Development Report 2005*. NY, NY: UNDP.

Visser, Jelle (2006) 'Union Membership Statistics in 24 Countries', *Monthly Labor Review*,

Walder, Andrew (1986) *Communist Neotraditionalism: Work and Authority in Chinese Industry.* Berkeley, CA: University of California Press.

Weitzman, Martin L. (1984) *The Share Economy: Conquering Stagflation.* Cambridge, MA: Harvard University Press.

World Bank (1995) *World Development Report.* Washington, DC: The World Bank.

World Bank (1990) *World Development Report 1990*. New York: Oxford University Press.

CENTRE FOR ECONOMIC PERFORMANCE
Recent Discussion Papers

843	Emma Hall Carol Propper John Van Reenen	Can Pay Regulation Kill? Panel Data Evidence on the Effect of Labor Markets on Hospital Performance
842	Fabrice Defever Farid Toubal	Productivity and the Sourcing Modes of Multinational Firms: Evidence from French Firm-Level Data
841	Barbara Petrongolo	What are the Long-Term Effects of UI? Evidence from the UK JSA Reform
840	Kevin D. Sheedy	Robustly Optimal Monetary Policy
839	Christopher A. Pissarides	The Unemployment Volatility Puzzle: Is Wage Stickiness the Answer?
838	Kevin D. Sheedy	Inflation Persistence when Price Stickiness Differs between Industries
837	Kevin D. Sheedy	Intrinsic Inflation Persistence
836	Andrew E. Clark Ed Diener Yannis Georgellis Richard E. Lucas	Lags and Leads in Life Satisfaction: A Test of the Baseline Hypothesis
835	Jean-Baptiste Michau	Creative Destruction with On-the-Job Search
834	Nikolaus Wolf	Scylla and Charybodis: the European Economy and Poland's Adherence to Gold, 1928-1936
833	Sharon Belenzon Tomer Berkovitz	Innovation in Business Groups
832	Espen R. Moen Åsa Rosén	Incentives in Competitive Search Equilibrium
831	Eran Yashiv	U.S. Labor Market Dynamics Revisited
830	Laura Alfaro Andrew Charlton	Growth and the Quality of Foreign Direct Investment: Is All FDI Equal?
829	Richard Layard David Clark Martin Knapp Guy Mayraz	Cost-Benefit Analysis of Psychological Therapy

828	Emma Tominey	Maternal Smoking During Pregnancy and Early Child Outcomes
827	Christos Genakos Tommaso Valletti	Testing the "Waterbed" Effect in Mobile Telephony
826	Luis Garicano Paul Heaton	Information Technology, Organization, and Productivity in the Public Sector: Evidence from Police Departments
825	Laura Alfaro Andrew Charlton	Intra-Industry Foreign Direct Investment
824	Miklós Koren Silvana Tenreyro	Technological Diversification
823	Régis Barnichon	The Shimer Puzzle and the Correct Identification of Productivity Shocks
822	Carlos Thomas	Search Frictions, Real Rigidities and Inflation Dynamics
821	Giulia Faggio Kjell G. Salvanes John Van Reenen	The Evolution of Inequality in Productivity and Wages: Panel Data Evidence
820	Luis Araujo Emanuel Ornelas	Trust-Based Trade
819	Régis Barnichon	Productivity, Aggregate Demand and Unemployment Fluctuations
818	Rachel Griffith Sokbae Lee John Van Reenen	Is Distance Dying at Last? Falling Home Bias in Fixed Effects Models of Patent Citations
817	Tsutomu Miyagawa YoungGak Kim	Measuring Organization Capital in Japan: An Empirical Assessment Using Firm-Level Data
816	Andreas Georgiadis Alan Manning	Spend It Like Beckham? Inequality and Redistribution in the UK, 1983-2004
815	Guy Michaels Xiaojia Zhi	Freedom Fries
814	Ralph Ossa	Trade Liberalization, Outsourcing, and Firm Productivity
813	Karsten Kohn Alexander C. Lembcke	Wage Distributions by Bargaining Regime: Linked Employer-Employee Data Evidence from Germany

The Centre for Economic Performance Publications Unit
Tel 020 7955 7673 Fax 020 7955 7595 Email info@cep.lse.ac.uk
Web site http://cep.lse.ac.uk