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Labor Market Institutions and Simple Supply and Demand Stories**

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Trends in Earnings Inequality and Unemployment Across the OECD: Labor Market Institutions and Simple Supply and Demand Stories

David R. Howell and Friedrich Huebler¹

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Grounded in the standard supply and demand model, the conventional wisdom assumes a tradeoff between earnings inequality and unemployment, blames low skills for high earnings inequality in the U.S. and U.K., and attributes high European unemployment to institutional constraints. This paper finds little evidence of a tradeoff between earnings inequality and unemployment across OECD countries, and while welfare state institutions aimed at employment, unemployment, and wage protection matter a great deal for differences and changes in earnings inequality, they do not appear to be the main source of OECD employment problems. This evidence suggests a need to move beyond the policy implications of the simple textbook model. Specifically, returning to a more compressed wage distribution is not likely to create “European” levels of unemployment in the U.S., and greater earnings inequality is not likely to fix employment problems in Europe. Policy makers should give more credence to the view that the right kind of labor market institutions can further both egalitarian and efficiency goals.

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“A country that institutionally prohibits flexible wages at the lower end can be expected to have a low percentage of employment in low-paid jobs. This is exactly what can be observed.”
Horst Siebert (1997)

“Most of the gross features of unemployment and wage distributions across the OECD in recent years seem explicable by supply and demand shifts and the role required of special institutional features such as unions and minimum wages is correspondingly minimal.”
Stephen Nickell and Richard Layard (1997)

The most widely accepted explanation for high earnings inequality in the United States and high unemployment in Europe is solidly grounded in the simple competitive model of the labor market. This mainstream account begins with the view that new information technologies and global competitive pressures have substantially shifted labor demand from the least towards the most skilled members of the workforce (Berman, Bound and Griliches, 1994; Johnson, 1997). In the U.S., with its flexible labor markets, the problem has been skill mismatch: less skilled workers have failed to adequately adjust to the demand shifts and the predictable consequence has been rising earnings inequality.² In this view, the problem for Europe has been that in the face of these demand shifts, labor market institutions - particularly high minimum wages, high levels and duration of unemployment benefits, and the high coverage and effectiveness of collective bargaining - have kept wages from adjusting, producing “too much” wage compression and, consequently, slow employment growth and high unemployment rates.³

This account, termed the “Unified Theory” by Blank (1997) and the “Transatlantic Consensus” by Anthony Atkinson (1999), presumes a fundamental tradeoff between high earnings inequality with relatively good employment performance in unsheltered, competitive

² As Rebecca Blank has put it, “Fundamentally, the demand for less-skilled workers appears to be declining faster than the number of less-skilled workers, and their wages are therefore drawn downward” (Blank, 1994: 173).

³ According to the highly influential OECD Jobs Study (1994: 30), the root cause of the decline in economic well-being of the least skilled is “the failure to adapt satisfactorily to change. In the U.S., workers have not upgraded their skills fast enough. In Europe ..., by contrast, such low-wage jobs were, by and large, disallowed by society, whether through state-imposed or union-negotiated wage floors and employment protection.”

labor markets, on one side, and greater earnings equality but slower employment growth and higher unemployment in sheltered markets on the other. Policy makers must choose. A direct application of the simple textbook supply and demand model, the necessity of this presumed choice has dominated the popular media and policy making throughout the OECD since the 1980s.⁴

Although it remains the received wisdom, in recent years a number of papers have questioned the consistency of this “Labor Market Rigidity” story with the data.⁵ Among these critics, some have challenged the adequacy of the simple supply-demand vision of the labor market that underpins the Rigidity story (Howell, Duncan, and Harrison, 1998; Galbraith, 1999; Snower, 1999; Howell, 2000), while others have made their critique from within the textbook framework (Nickell and Layard, 1997), contending that labor market institutions are not likely to be the main culprit for employment problems since wage inequality across the OECD reflects (as in the textbook model) differences in skill dispersion. Relatively high wages for the least skilled in many European countries do not have negative employment effects because these low skilled workers are far more skilled than their Anglo-Saxon (U.K. and U.S.) counterparts. For example, Nickell and Layard (1997: 64) argue for “the very simple hypothesis that variations in earnings distributions across countries correspond rather closely to variations in true skill distributions. Thus, Sweden has a very compressed earnings distribution relative to the United States, because it has a very compressed skill distribution. There is no need to wheel on the all-purpose ‘European institutions’ to explain the differences - supply and demand does fine.”

This “Skill Dispersion” account has the important implication that we should not observe

⁴ As Larry Katz has recently put it, “One can say the Europeans have made a political decision that they are unwilling to tolerate as much income inequality as in the United States. But equity comes at the cost of job creation” (quoted by Nasar, 1999). A leading German economist, Horst Siebert (1997) has been quite outspoken that the problem in Europe is “inadequate earnings dispersion.” Nobel Prize winner Gary Becker has used his Business Week column (1996, 1997, 1998) repeatedly to take European policymakers to task for making the choice to “drown in joblessness” rather than accept U.S. style wage inequality.

⁵ A partial list includes Nickell and Bell, 1996; Howell, Duncan, and Harrison, 1998; Snower, 1998; Solow, 1997; Galbraith, 1999; Atkinson, 1999; Howell, 2000; Glyn, 2000.

strong unemployment - earnings inequality tradeoffs since labor markets ensure that low skill workers receive appropriately low wages. Although both the Rigidity and the Skill Dispersion views presume pervasive skill-biased demand shifts within a simple competitive model of the labor market (and so will be termed “neoclassical”), their predictions on the tradeoff question and the role of institutions are diametrically opposed: institutions are either entirely to blame for poor employment outcomes (the Rigidity view) or play a minimal role, at least directly, in the determination of relative wages (the Skill Dispersion view).

In this paper, we begin by outlining these two neoclassical stories as well as a neoinstitutionalist alternative. In the latter, wage-setting is conceived as taking place *not* at a single point but within a “range of indeterminacy” (Lester, 1952) within which bargaining power, via social norms and labor market institutions, plays a central role. In the remainder of the paper we consider the fit between these three perspectives and the available data on trends in earnings inequality and unemployment across OECD member nations. We address three central predictions of the conventional wisdom.

First, if skill-biased demand shifts are really as decisive as many have argued, we should observe at least some growth in (pre-tax) earnings inequality across all developed countries. After all, while European-style welfare states can mitigate declines at the bottom, they have less power over increases at the top. Do we see the predicted pervasive rise in earnings inequality? We find that the empirical evidence indicates that only the U.S. and the U.K. experienced nontrivial and steady increases in earnings inequality over the last two decades - without these two cases, there would be little reason to focus attention on this dimension of labor market outcomes over the recent period. Some countries clearly show declines in earnings inequality (e.g., Belgium, Italy, Germany, Finland, France, and Norway) while others are stable or exhibit modest increases.

Second, if the Rigidity account is right and the unemployment problem can be traced to welfare state imposed wage compression, we should observe tradeoffs between earnings inequality and unemployment rates, unemployment inequality (high skill vs. low skill), and employment rate inequality. If the problem is wage compression, lower earnings inequality levels (and changes) should be associated with higher unemployment levels (and changes) and higher

unemployment gaps between the skilled and less skilled. We find no evidence in support of any such tradeoffs.

Finally, if the Skill Dispersion view is right, the pattern of growth in earnings inequality should be accounted for almost entirely by differences in the skill mix across countries *independently of institutional differences*. We make use of recent data on worker literacy to explore links between earnings inequality, skill dispersion, and labor market institutions across the OECD. We show that there is a positive association between skill differentials and changes in earnings inequality, but find that it is driven largely by the (outlier) positions of the U.S. and the U.K. We also find an equally strong association between labor market institutions and the change in earnings inequality. On the basis of the data alone, one could just as easily argue that skill mix is irrelevant as the reverse. In other words, there is no reason to wheel on the skills story - institutional differences do fine.⁶

The upshot is that while welfare state institutions aimed at employment, unemployment, and wage protection appear to matter a great deal for differences and changes in earnings inequality across the OECD, there is little evidence of a tradeoff between earnings inequality and unemployment: the same institutions that matter for wage dispersion do not appear to be the main source of OECD employment problems. Our interpretation of the evidence is consistent with a neoinstitutionalist view of the labor market and suggests that more credence should be given to the optimistic view that the right kind of labor market institutions (coordinated bargaining, for example) can be both egalitarian and efficient. A more compressed wage distribution does not necessarily create employment problems and, on the other side of the coin, greater earnings inequality is unlikely to do much towards reducing unemployment. Policy makers do not have to choose: there is room for both efficiency and equity.

1. Neoclassical and Neoinstitutionalist Perspectives

The demand-shift explanation for the massive growth in male earnings inequality is one that depends upon an overwhelming *dominance* of demand over supply shifts in labor markets

⁶ The centrality of institutions has been lent support by recent work by Freeman and Schettkat (2000), and Devroye and Freeman (2000).

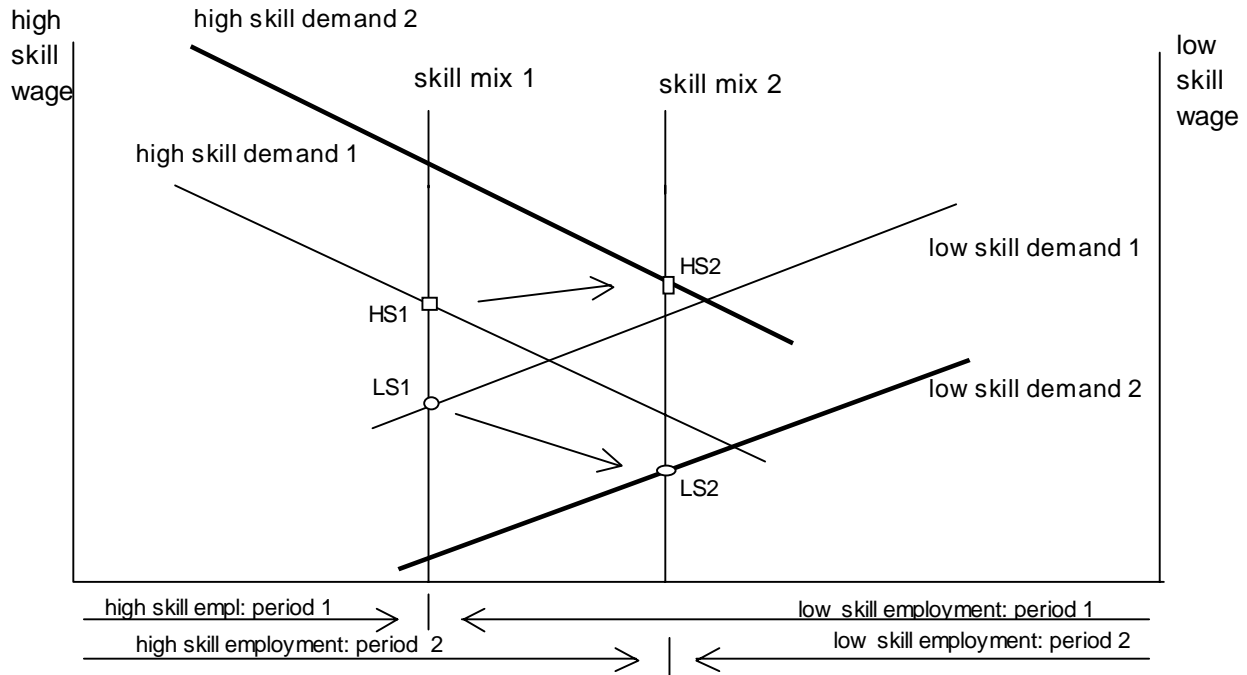
that are presumed to look much like the competitive textbook model. Indeed, the belief that demand shifts have in fact overwhelmed supply shifts in the U.S. labor market is explicitly recognized in the mainstream literature *as a logical deduction from the simple competitive model*: since we know that the relative wage of skilled workers increased concurrently with their relative supply (at least as measured by educational attainment), there must have been an even larger increase in the relative demand for their services (see, e.g., Johnson, 1997). The European side of the story - high unemployment - can then be demonstrated by placing a floor on downward movements in wages.

This conventional demand-shift story rests on two crucial assumptions. The first is that wage-setting is viewed to occur along demand and supply schedules which are characterized by sets of unique wage and employment points. There is no range of indeterminacy in which bargaining power determines outcomes (more on this below). If low skill workers experience declining wages and employment relative to high-skill workers, it *must* be caused by a declining relative demand for their services. The second assumption is that we have, in fact, measured the supply shifts correctly. That is, we must believe that secular increases in the educational attainment of the workforce capture increases in the effective supply of skill in the workplace. If, for example, the growth in inequality is due to sharply declining (real) wages among the least skilled - which is the case (see Gottschalk, 1997) - then a growing relative supply of very low skilled workers (e.g., new immigrants) could, within the simple textbook model, be the main source of the inequality growth. This would be a supply-shift story.

A convenient way to demonstrate the conventional demand-shift explanation appears in Diagrams 1 and 2 (after Snower, 1998). There are two categories of workers, those with high skills (the left side) and low skills (the right side, read from right to left). The horizontal axis shows employment shares for these two groups. The shift of the vertical line from “skill mix 1” to “skill mix 2” shows a movement towards greater “skill intensity.”

At the same time, we know that in the U.S. during the 1980s, high-skill workers (with a college education or more) experienced a real wage increase of about 5 percent, while low-skill workers were faced with a much larger 20 percent wage decline (Gottschalk, 1997). Within this framework, these wage outcomes require sizable demand shifts: upwards for high-skill workers

Diagram 1
The Conventional Model: Skill-Biased Demand Shifts
and Rising Earnings Inequality in the U.S.



and downwards for the least skilled. With the high-skill wage on the left axis and the low-skill wage on the right, wage change for each group is depicted as an upward movement from point HS1 to HS2 for high-skill workers, and a downward movement from LS1 to LS2 for low-skill workers. The growth in wage inequality is shown by comparing the gap between LS1 and HS1 at “skill mix 1” to that between LS2 and HS2 at “skill mix 2.” What could cause such a massive shift in the demand for skill? There is a broad consensus that the main culprit can be found in computer-based production technology.⁷

⁷ According to Freeman and Katz (1994: 46), “In the 1980s, the increased use of microcomputers and computer-based technologies shifted demand toward more educated workers... Whether because of computerization or other causes, the pace of relative demand shifts favoring more skilled workers accelerated within sectors.” Similarly, Bound and Johnson (1995: 13) write that “Our suspicion is that a secular shift in production functions in favor of workers with relatively high intellectual as opposed to manual ability - a process that accelerated during the 1980s because of computers - is responsible, in concert with the slowdown of the growth in the relative supply of skilled labor, for most of the wage phenomena that have been

Diagram 2 is similar, but here social policy and social norms prevent real wages from falling. Without downward wage flexibility, wages stay at LS1 and employers move up their demand curve (in this graph, to the right), reducing the number of jobs available to the least skilled. Thus, with a large skill-biased demand shift in an inflexible labor market, skilled workers remain fully employed but a large share of the least skilled become redundant. This is, according to many economists, precisely what explains the rise of European unemployment in the 1980s.

The conventional vision of the European employment problem is clearly expressed by Horst Siebert (1997: 45): “A lower degree of wage differentiation indicates that the wage rates do not completely fulfill their function of bringing about the necessary adjustments to a new equilibrium with more employment; then, as the alternative to adjusting the price of labor, adjustments take place via changes in the quantity of employment. A more differentiated wage structure has become more important in recent years.” In this view, wages adjust to ensure full employment. A failure to adjust (due to, say, labor market institutions like the minimum wage) results in a wage structure that is “too compressed.” This textbook model requires an inequality-unemployment tradeoff.

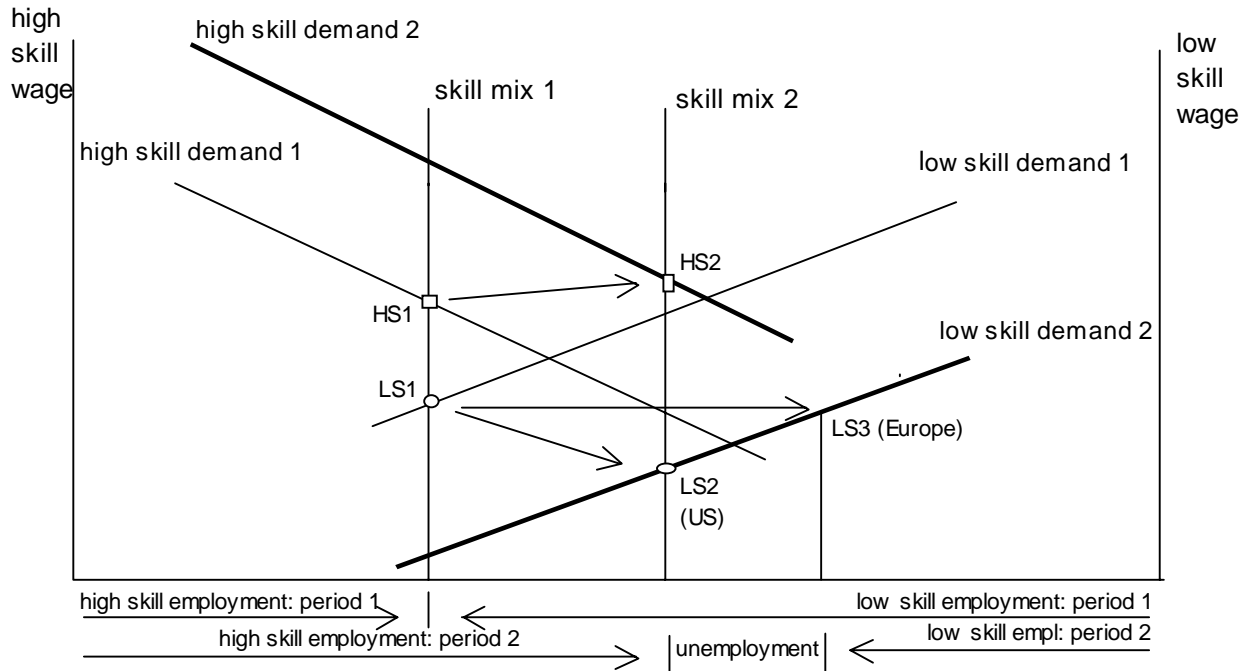
In imperfect real-world labor markets, however, it seems rather clear that there is a substantial “range of indeterminacy” in wage-setting, a reality recognized by such leading labor relations scholars as Paul H. Douglas, Richard Lester, Lloyd G. Reynolds, John Dunlop, Clark Kerr, and Albert Rees and George Schultz (see Kaufman, 1994; Kerr, 1994). At least since Slichter (1950), most studies of the inter-industry wage structure have found that industry differentials “reflect in large part rent sharing between firms and workers” (Krueger and Summers, 1987: 18).⁸

Others have emphasized the importance of fairness and morale (Akerlof, 1982; Solow, 1990). With compelling survey evidence from the New Haven labor market in the early 1990s, Truman Bewley (1999) builds on the Institutionalist tradition to develop a “morale theory of

observed.” For a critical assessment of this skill-biased technological change explanation of earnings inequality, see Howell (1999).

⁸ There is a huge literature on rent sharing and wage differentials. Two additional references are Howell (1989) and Blanchflower and Oswald (1996).

Diagram 2
The Conventional Model: Skill-Biased Demand Shifts and
High Unemployment in Europe



wage rigidity.” Firms hardly ever take advantage of labor slack to reduce wages because doing so would undermine morale and “good morale is valued not only because it brings high productivity and low turnover, but because it gives companies a good reputation that makes them more attractive to good quality job applicants” (Bewley, 1999: 432). Since it is often not possible to effectively monitor workers in a hostile work environment, it may be more advantageous to adopt a “carrot” rather than a “stick” approach to wage setting and labor relations (Gordon, 1996).

These considerations suggest the need, particularly when addressing real-world trends in unemployment and earnings inequality, to move beyond the simple determinism of the textbook model. As Clark Kerr (1988: 27) puts it, “economists, or at least labor economists, should be less concerned with studying solutions exactly determined (and thus subject to being known in advance) and more concerned with ranges of possible solutions ... : with the outer limits of such ranges, with the forces that set such limits, with the tendencies within these ranges, and with the

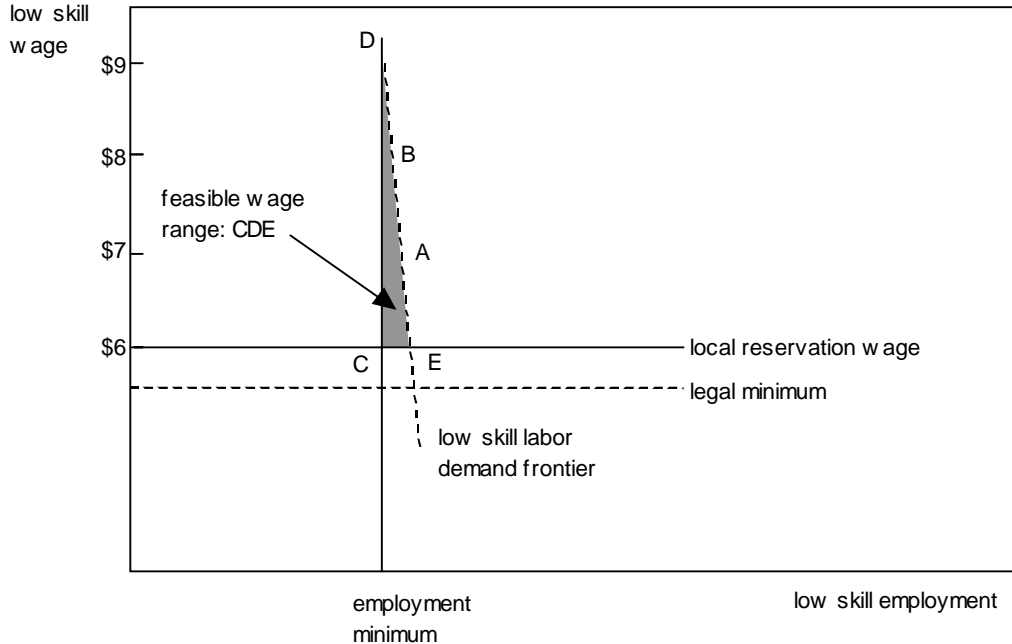
strength of these tendencies.”

This less determinate (neoinstitutionalist) approach to wage-setting can be illustrated graphically with some simple but critical modifications of the conventional model. In Diagram 3, the wage range is defined by three constraints, forming the shaded triangle CDE. First, we assume a profit maximizing firm with a highly inelastic demand “frontier” for a particular grade of labor skill (in this case, the lowest skilled). Since the firm is assumed to have no way to determine the marginal productivity of individual or groups of workers, this frontier is fuzzy, identifying wage levels that may be too high given the existing degree of competition in the product market, the internal wage structure, the effects of wages on work effort, reliability, turnover costs, and so on. Since the frontier is not a determinate set of points, it is represented on the Diagram with a dashed line. Second, at a given point in time, the firm can hire all the (low-skill) workers it needs at a given reservation wage, which reflects social norms and the availability of labor in the locality. There is no “supply curve” facing the individual firm. This second constraint is shown by a horizontal line. Third, given current levels of production and the range of appropriate production technologies, there is a minimum necessary number of employees (or hours), shown in Diagram 3 by a vertical line.

But why would our profit-maximizing firm pay more than the reservation wage? Employers in this neoinstitutionalist model recognize that paying the reservation wage is not likely to be optimal in a dynamic environment - one in which poor worker morale raises monitoring and turnover costs, reduces overall productivity, and undermines the firm from effectively competing in the product market over the long run. Rather, competitive success is achieved by being forward-looking, by encouraging positive labor relations, and by aggressive, distinctive product market strategies that allow for price markups (Galbraith, 1999: chapter 3). A high wage strategy that reduces turnover and supervisory costs while at the same time increasing productivity can be profit maximizing, which helps explain the wide range of wages paid in similar firms in narrowly defined product markets.⁹ At the same time, if the tradeoff between

⁹ One example is provided by Luria’s (1996: 13) analysis of proprietary data for 3000 small manufacturing plants in the U.S.: “Lest one be tempted to believe that there is one, best way to make a proverbial widget, consider the sheer range of performance within smaller shops

Diagram 3:
Wage Indeterminacy for a Firm: A Neoinstitutionalist Perspective



employment and wages is as inelastic as portrayed in Diagram 3 (and suggested by the literature), wage increases from E to A (\$6 to \$7) or from A to B (\$7 to \$8) have negligible employment impacts in the short run. In a dynamic context, these wage hikes may even promote employment growth in the longer run as the firm achieves greater competitive success.

Wage differentials *across firms for identical skills* can also be illustrated with this figure. Assume that the wage range facing three firms in the same narrowly defined industry look like that in Diagram 3. Take, for example, three restaurants in the same neighborhood requiring identical quality and similar quantities of unskilled kitchen labor: the fast food drive-in pays \$6 (E); the sit-down chain restaurant pays \$7 (A); and the fancy French restaurant pays \$8 (B). These substantial differences in pay can be accommodated with only minor differences in

and within industries. Metal-formers making the same products for the same customers have value added per employee anywhere between \$40,000 and \$140,000. Indeed, in every industry the productivity level achieved by the most productive 10 percent of shops is at least 160 percent of the industry median.”

employment because of differences in the *ability to pay*, stemming from both the lower labor costs that follow from the higher wages (more work effort with lower supervisory requirements and lower employee turnover) and the higher ability to absorb or pass along higher wage costs (due to differences in the labor share of total costs and the price sensitivity of the customers). Institutional factors matter as well. With lower turnover in a firm with higher ability to pay, *collective organization* of workers is likely to be easiest in the last case (the fancy restaurant), which may lead to an even greater wage advantage (e.g., to D). At the other end of the spectrum, the *minimum wage* and surplus labor conditions (immigration policy and social policy) are most relevant for the fast food restaurant workers (point E).

In real-world labor markets, the extent of labor surplus in an area can help determine the wage that is paid for a given grade of labor for two reasons: by affecting the level of the reservation wage, which helps determine the feasible wage range; and by influencing worker bargaining power, which helps determine where in the feasible range wages are actually set.¹⁰ There is, in fact, strong empirical evidence in support of a negative effect of labor surplus on wage levels. Blanchflower and Oswald (1995) have established the existence of a “wage curve,” in which wages tend to be lower in labor markets with higher unemployment. But unlike the conventional view, their work suggests that it is *unemployment that drives wage levels*, not the reverse.¹¹ This is a crucial distinction, for if the causality runs from unemployment to wage levels, and the wages of lower skill (or lower wage) workers are the most sensitive to local unemployment conditions, *higher unemployment for the least skilled should lead to greater*

¹⁰ It seems reasonable to assume that low skill labor markets tend to be characterized by persistent labor surplus. For instance, shifts in product mix (agriculture to manufacturing to services), technological change, and firm failures ensure some regular worker displacement. At the same time, there is generally imperfect information about opportunities, work conditions, and pay levels. Closely related, there is limited mobility among those already established (jobless workers stay when they “should” leave). On the other hand, given large inequalities in earnings opportunities across regions, there is also substantial migration to richer regions that already have a labor surplus. And if wages rise sufficiently over the reservation wage, labor market participation in the region will rise.

¹¹ As David Card notes in his review (1995: 785), “causality is to be thought of as running from the amount of joblessness to the level of wages.”

inequality. The empirical prediction that follows from this view is that there will be a positive correlation between earnings inequality and unemployment, not the tradeoff required in the determinate textbook model (the Wage Rigidity view).¹²

Extending this model beyond the lowest skill group, we can imagine comparable wage ranges at higher levels depending on the grade of skill. But now the location within the range will be determined in part by other factors, including the firm-specific skills normally required, the return to which will be shared in some proportion between employers and workers. This, in turn, allows us to hypothesize about the links between trends in earnings inequality, the skill distribution, and labor market institutions. Estevez-Abe, Iversen and Soskice (2000) contend that higher levels of social protection - particular employment protection, unemployment protection, and wage protection - provide workers with the insurance they need to invest in firm and industry specific skills. This “production regime” perspective on earnings and skill distributions represents a radical departure from the simple supply and demand stories of the Transatlantic Consensus. As Estevez-Abe et al. (2000: 7-8) put it, “Contrary to conventional neo-classical theory, which sees efforts to increase protection against job loss as an interference with the efficient operation of labor markets, measures to reduce future uncertainty over employment status - hence uncertainty over future wage premiums - can significantly improve firms’ cost effectiveness” (see also Schettkat, 1993). This approach suggests that welfare state social protections can be efficient for production regimes specializing in *firm and industry specific skills* (“a high quality product niche market strategy”).

If this is right, we would expect *lower dispersion* of earnings and skill in countries with stronger traditions of employment, unemployment and wage protection. In contrast to the neoclassical vision, in this view both the earnings and skill distributions reflect the effects of a

¹² This alternative view is consistent with recent work by Galbraith, Conceição, and Ferreira (1999), who find that “wage-rate inequality, in manufacturing at least, has risen and fallen *in step with* changes in unemployment in America ... over virtually the entire century ... [and] the same appears to be true for Europe in recent years” (29-30).

wide range of institutions, which, for at least some production regimes, can be highly efficient.¹³ The authors argue that, with more to gain from access to good jobs or training slots, students in specific-skill production regimes have a greater incentive to perform well in school, raising general skill levels at the bottom of the distribution. We would add that countries with more solidaristic traditions are also likely to invest more, and do so more effectively, in education (and in health and housing) for those in lower income communities. For both these reasons, we would expect relatively high literacy levels for those at the bottom of the skill distribution and a more compressed overall skill distribution in welfare states with more developed social protection programs. As a result, *social protection, the general or specific mix of skills, and earnings inequality can be expected to be positively correlated across countries.*

However, even independently of this specific-skills account, our wage-range approach suggests that an association between skill dispersion and earnings inequality across countries may not reflect mainly supply and demand in the labor market. The strength of social protection institutions in welfare states (employment, unemployment, and wage) - reflecting different ideological traditions and norms of fairness - directly influences the pattern of earnings inequality across countries independently of the particular production regime by influencing both the *boundaries* (the reservation wage and the productivity frontier) of the feasible wage range and the *location* of an occupation or set of jobs within it (through effects on worker bargaining power). At the same time, closely related institutions raise general skill levels and reduce skill dispersion. In short, welfare state institutions may jointly reduce skill and earnings dispersion independently of competitive market pressures.

Not surprisingly, this alternative framework suggests a view of recent trends in earnings inequality and unemployment in the OECD that challenges key predictions of the simple supply and demand model, which in turn underpins the conventional wisdom (the Transatlantic Consensus).

¹³ Estevez-Abe et al. (2000: 10) conclude that “institutionally we would expect to find coordinated wage bargaining systems in economies in which specific skills are important, and non-coordinated systems where they are not. And in terms of outcomes we would expect to find stable distributions of earnings across occupations in the first, but not necessarily the second case.”

* *Skill-biased demand shifts.* Since there is a nontrivial range of indeterminacy in wage-setting, and institutions and social norms matter a great deal in this process, we cannot rely on observed wage and supply trends to conclude that growth in wage inequality must be explained by (unobserved) skill-biased demand shifts.

* *Earnings inequality growth.* Even if substantial skill-biased demand shifts across the OECD were independently verified and these clearly dominated any supply shifts, since the institutional context within which wages are set varies considerably across countries (e.g., the centralization and coordination of bargaining), we would expect substantial and pervasive increases in earnings inequality only in countries with the least sheltered labor markets.

* *Unemployment and earnings inequality.* Labor demand tends to be highly inelastic; bargaining power is important in determining where within the feasible range wages are set; and a larger labor surplus (unemployment) tends to put downward pressure on low skill wages (thereby *increasing* inequality). As a result, we would not expect strong evidence of tradeoffs between earnings inequality and unemployment.

* *Skill dispersion, institutions and earnings inequality.* A variety of welfare state institutions, particularly those concerned with education, training, and social protection (in employment, unemployment and wages) play central roles in the determination of both earnings and the nature and dispersion of skills. Consequently, any association between skill and earnings dispersion across countries should not be assumed to simply reflect market outcomes.

* *The upshot.* While labor market institutions of the sort that characterize the major OECD nations are not likely to be the main source of high and rising unemployment, they can (and do) have substantial impacts on the distribution of earnings. This contrasts with the lessons of the two variants of the simple competitive model: that unemployment is caused by wage compression resulting from welfare state interventions, or that the unemployment problem is principally located elsewhere because it is the differences in skill dispersion, not institutions, that mainly determine national differences in earnings inequality.

The next section considers the empirical evidence for the conventional prediction that, as a result of pervasive skill-biased demand shifts, earnings inequality has increased across the developed world. We then turn to the empirical relationship between earnings inequality and unemployment.

Section 2: A Trend Towards Higher Earnings Inequality?

Have almost all industrialized economies experienced at least some rise in earnings inequality? If skill-biased demand shifts are so important, higher skill workers should see their earnings rise relative to the less skilled, even in countries with the most protective institutional arrangements for the least skilled. Figures 1a and 1b show trends in the male earnings inequality (D9/D1 earnings ratio) for twelve OECD nations for available years between 1979 and 1998. Figure 1a shows trends for the seven countries with at least some increase in inequality. But strong and persistent growth over both decades was limited to the U.S. and the U.K. The remaining five - Australia, Italy, the Netherlands, New Zealand, and Sweden - show modest growth concentrated in the 1990s. Figure 1b shows trends for five nations with stable or declining inequality: Canada, Finland, France, Germany, and Japan.

Like the case for men, Figures 1c and 1d report that female inequality rose substantially over the entire period for both the U.S. and U.K. In addition, the figure shows moderate increases for women in Austria and New Zealand. As Figure 1d indicates, nine of the thirteen nations for which we had time series for female workers show stable or - in the case of Germany (1984-95) and Italy (1979-96) - declining earnings inequality. On balance, outside the U.S., U.K., and New Zealand, trends in earnings inequality appear fairly stable.

We get another perspective on trends in earnings inequality by reading off the vertical axes of Figures 2a and 2b, which plot the change in the D9/D1 ratio against the change in unemployment in percentage point (Figure 2a) and percent (Figure 2b) terms for roughly the 1980-95 period, for both male and female workers.¹⁴ The two figures show that whether measured in absolute or relative terms, the results are similar:

- Earnings inequality growth was by far the highest in the U.S. and the U.K.
- Belgium and Italy show the largest declines in earnings inequality.
- While Japan and Denmark show no change, six nations experienced moderate increases and

¹⁴ We chose 1980-95 as the basis for our analysis because for this period inequality data were available for most countries. In some cases - notably Belgium (1986-93), Norway (1989-93), and Switzerland (1991-95) - our calculations are based on shorter time spans but we included these countries to increase the sample size. Details on the data can be found in the appendix.

four moderate declines (Germany, France, Norway, and Finland).

These figures do not appear to suggest a *pervasive substantial* rise in earnings inequality. Our interpretation of the data appears in a review by OECD staff (OECD, 1996: 63), which concludes that “the United Kingdom and the United States stand out as the only countries where there has been a continuation of a pronounced rise in earnings inequality.” Atkinson (1998: 4) takes the same position: “It is misleading therefore to talk of a general ‘trend’ towards increased dispersion, and even in countries where dispersion has increased the historical record is better described as consisting of ‘episodes’ of widening income differences rather than as following an inexorable trend.”

If the past two decades have been characterized by massive demand shifts against the least skilled, why do so many advanced countries show flat or declining earnings inequality profiles? The conventional wisdom, which we have termed the “Labor Market Rigidity” view, contends that welfare state policies and highly protective labor market institutions have kept the earnings distribution compressed in the face of these demand shifts, leading to sharp rises in unemployment. We consider the evidence for this hypothesis in the next section.

Section 3: The European Employment Problem: “Compressed” Earnings Distributions And Low-Skill Employment Opportunities

Unemployment Rates and Earnings Inequality

According to the conventional view, the main source of the European unemployment problem is wage compression. We should therefore observe a strong negative relationship between the growth in unemployment and both the level of earnings inequality and its change over time across countries. The first row of Table 1 shows that, for seventeen OECD nations, the change in the unemployment rate (1980-95) was negatively associated with both the level (1995) and change (1980-95) in earnings inequality, as the conventional account predicts. But there is essentially no statistical association (the coefficients are insignificant by any standard).

With few observations, graphs are useful to see what lies behind the regression results. Whether measured in absolute or relative terms, Figures 2a and 2b show no obvious tradeoff

between unemployment and earnings inequality trends for this set of OECD nations over the 1980-95 period.¹⁵

Another way to examine the tradeoff hypothesis is to compare levels (and changes) in inequality with those of *relative* unemployment rates (the ratio of unskilled to skilled unemployment). These relative unemployment rates may be a better way to gauge the employment consequences of rigid labor markets: since labor market institutions (e.g., wage floors, unemployment benefits, employment protections, and employment taxes) should affect mainly the employment prospects of the least skilled, the gap between low and high skill unemployment rates should provide a good measure of the effects of this rigidity. At the same time, comparing *relative* unemployment rates by education level helps control for the effects of differences across nations in macroeconomic policy, the business cycle, and particular national institutional and cultural characteristics.

The conventional hypothesis is that countries with flexible labor markets show higher earnings inequality but lower unemployment inequality: the ratio of low to high skill unemployment will be lower in flexible labor markets since adjustment to adverse demand shifts against the least skilled is presumed to take place mainly through declining wages. In contrast, with extensive shelters from wage competition, adjustment in European markets occurs on the quantity side: employment declines, unemployment rises. So across skill groups we should observe a tradeoff between relative wage inequality and relative unemployment inequality.

What do we find? If anything, the data show the reverse. Figure 3a shows earnings inequality (D9/D1) and unemployment inequality (the difference between low and high skill unemployment rates) for male workers over the 1979-93 period. The U.S. appears in the upper right corner with the highest earnings inequality *and* the highest unemployment inequality - compared to skilled workers, low skill workers fare worst in the U.S. in terms of both relative

¹⁵ It should be noted that these results are in some cases extremely sensitive to the years chosen as endpoints, although we tried to compensate by using three-year averages for the unemployment rate. Sweden, for example, has cut its unemployment rate in half (from over 10% to 5.3%) since the mid 1990s, which would put it far to the left of its position in these figures. Interestingly, far from a tradeoff, both earnings inequality and unemployment increased from 1990 through 1997. We thank John Schmitt for this point.

earnings and the probability of being unemployed. Indeed, the trend for the U.S. shows rapidly growing earnings inequality with no improvement in unemployment inequality. Canada experienced comparable levels of unemployment inequality, but somewhat lower earnings inequality. The U.K. does somewhat worse on unemployment inequality but much better on earnings dispersion. On the other hand, France, Germany, Sweden, Japan, Australia, and Italy were all superior on both dimensions of inequality.

Figure 3b also compares these two measures of inequality, but does so for all workers (male and female) for a more recent period (1989-98) using a different measure of unemployment inequality.¹⁶ The pattern is similar. Again, the U.S. and Canada have the highest levels of both earnings and unemployment inequality. Germany, France, and the U.K. share similarly high unemployment inequality but show much lower earnings inequality. Austria, Switzerland, the Netherlands, and Italy are superior on both measures. *This evidence directly challenges a fundamental tenet of the Transatlantic Consensus: countries with lower earnings inequality also tend to have lower unemployment inequality.*

Employment Rates and Earnings Inequality

If wage rigidity is a major source of the unemployment problem, the underlying reason is that the absence of downwardly flexible wage rates has undermined *employment* growth. Inadequate job opportunities may raise unemployment by increasing the numbers of workers without jobs looking for work; but they may also lead to rising numbers of workers dropping out of the labor market altogether. For this reason, employment rates are a broader measure of the employment consequences of a country's wage-setting system. But the conventional prediction is the same: if demand shifts have been strongly biased against low skill workers throughout the developed world, these workers should have paid the price in lower relative wages (producing higher inequality) in nations with greater wage flexibility; in contrast, in the more rigid European

¹⁶ Figure 3a uses unemployment data by skill for males from Nickell and Bell (1995), who define skill categories differently for different countries (e.g., across educational attainment categories in some cases, across high and low skill occupations in others). In contrast, for all workers, Figure 3b uses data from the OECD in which skill categories are defined consistently across countries according to educational attainment.

labor markets, lower skill workers should have experienced lower employment rates. So again there is a tradeoff, this time between (1) earnings inequality and employment rates (as low employment rates for the least skilled in rigid labor markets bring the overall employment rate down), and (2) earnings inequality and employment rate inequality.

Comparing employment rates by skill across different OECD countries using different methodologies, both Nickell and Bell (1995) and Card, Kramarz, and Lemieux (1995) found no support for the tradeoff prediction. In their study of the U.S., Canada, and France, Card et al. leave no doubt about the lack of support for the conventional view:

Consistent with the view that French labor market institutions restrict relative wage flexibility, we find that wage differentials between skill groups held constant or narrowed slightly over the 1980s. As in Canada, however, we find little evidence that this apparent rigidity in relative wages translated into greater employment losses for less-skilled workers. Indeed, the pattern of employment-population growth rates across age-education cells in France is almost identical to the pattern in the United States. Taking the evidence for the United States, Canada, and France as a whole, we conclude that it is very difficult to maintain the hypothesis that the ‘wage inflexibility’ in Canada and France translated into greater relative employment losses for less-skilled workers in these countries (1995: 3).

Similar results were found for Sweden (Edin, Harkman, and Holmlund, 1996) and Germany (Krueger and Pischke, 1997).¹⁷

The most common approach to measuring the dispersion of employment rates by skill is to use educational attainment data. To our knowledge, the best available data has been compiled by Glyn and Salverda (2000). For 25-64 year old males, they calculate employment rates for the top and bottom quartile of the educational distribution for fifteen OECD nations. Figure 4 presents a plot of the difference between the top and the bottom education quartiles (Q4-Q1) against the standard D9/D1 measure of earnings inequality for 1994 (the only single year available).¹⁸ The predicted tradeoff should show a downward sloping relationship, with the U.S.

¹⁷ “If demand fell for less skilled workers, we would expect to find employment declining most among the lowest wage groups; instead, there appears to be little relationship” (Krueger and Pischke, 1997: 13).

¹⁸ The ratio of the top to bottom quartile produces broadly similar results. Andrew Glyn has convinced us that the difference is the better measure.

and other Anglo-Saxon countries in the upper left and the northern European welfare states in the bottom right. Clearly, there is no support for such a relationship. If anything, there is an upward sloping relationship. Apart from Ireland, the U.S. has the highest level of earnings inequality, but its employment rate inequality (which should be very low) is greater than that of West Germany, Austria, Australia, Sweden, Japan, and Switzerland.

We should also observe a tradeoff between the *change* in earnings inequality and the *change* in employment rate dispersion by skill: as demand shifts work against the least skilled, countries that respond with wage flexibility (rising earnings inequality) can avoid paying the price of declining demand in the form of declining employment (falling relative employment rates for the less skilled). Again, with change in earnings inequality on the vertical axis and change in employment rate dispersion on the horizontal, nations should be arrayed from upper left to bottom right, from those with the most flexible wage setting institutions to those with the least flexible.

With data from Glyn (2000), Figure 5 shows average annual percent changes for both earnings and employment rate inequality for sixteen OECD nations. For most, we plot two points, one for the 1980s, another for the 1990s. Data limitations resulted in just one (decade) point for five nations (Japan, Switzerland, Norway, Ireland, and Denmark). As in Figure 4, there is no evidence of a tradeoff between the change in earnings inequality and the change in employment rate inequality: *declining relative wages did not appear to have produced relatively higher employment rates for lower skill men across these sixteen developed countries over these two decades.*

Indeed, what is most striking is the concentration of points in the upper right quadrant. In most countries over these two decades, lower skill workers experienced both declining relative earnings *and* declining relative employment rates. Among the twenty-seven country-decade points shown in Figure 5, only Canada in the 1990s achieved declines in both earnings and employment rate inequality. Countries with the highest growth in earnings inequality ranged from the Netherlands in the 1990s, with sharply falling employment rate inequality, to New Zealand and the U.K. in the 1980s, which had, with France, the highest growth in employment rate inequality. Whether or not skill-biased demand shifts were the culprit, these data indicate

that the relative position of the least skilled has tended to decline in these two decades.

Finally, regression tests offer another angle to view the association between wage dispersion and employment rate inequality for the highest and lowest educated workers. According to Glyn and Salverda (2000: 11), their tests show that “greater wage dispersion is not associated with higher employment at the bottom end of the labour market, given both the overall employment level and the educational level of the bottom end of the labour force.”

In sum, the cross-national data provide no support for the conventional wisdom that the employment problems of central and northern Europe are systematically linked to their relatively egalitarian wage-setting mechanisms. There is simply no empirical basis for the tradeoff view.

Section 4: Explaining Earnings Inequality: Is Skill Dispersion Enough?

In a textbook world, institutional constraints on wage flexibility will have downward effects on employment, so if dramatically different earnings distributions show no systematic association with employment and unemployment performance, it must mean that these differences in earnings inequality reflect differences in productivity related skills and not institutional constraints. According to this version of the competitive model, as demand shifts away from the least skilled, those with higher levels of the “right” skills will do better than those with lower levels. It follows that countries with workforces exhibiting great inequality in skill preparation will experience great inequality in employment and earnings outcomes.

Nickell and Layard (1997) make their case for this competitive hypothesis on the basis of evidence for six countries: Germany, the Netherlands, Sweden, Switzerland, Canada, and the U.S. Using literacy scores from the OECD’s 1994 International Adult Literacy Survey, they show graphically that relative earnings appear to correspond to relative test scores for workers with high and low levels of educational attainment for these six countries. The implication is that earnings inequality is highest in the U.S. because skill dispersion is highest and vice versa for Sweden. It can be noted, however, that in a detailed analysis of skills (literacy scores) and earnings for Germany, Holland, Sweden, and the U.S., Devroye and Freeman (2000) conclude that “differences in skill dispersion across countries explain only a modest proportion of differences in the dispersion of earnings across countries.” We would add that if the main

concern is with the sources of *rising* inequality, the significant relationship to be examined ought to be that between skill dispersion and the *change* in earnings dispersion.

We begin by extending the analysis of Nickell and Layard (1997) by including additional countries, using the OECD's original 1994 literacy survey and two more recent surveys (1996 and 1998), also by the OECD. We use the quantitative literacy test scores (reported in OECD 2000b) to calculate a measure of skill inequality by educational attainment group (those with completed tertiary education relative to those with less than upper secondary education). These test score ratios are combined in Figure 6a with the OECD's (2000a) measure of earnings inequality for 1996-98, based on the same educational attainment groups as those used to measure skill inequality (tertiary education, less than upper secondary education). The figure suggests a positive correlation ($r = 0.60$), but it is far from perfect: four of the sixteen countries have identical earnings inequality scores (Czech Republic, U.K., Hungary, U.S.), but range from the bottom to the top of the skill dispersion scale - from 1.2 for the Czech Republic to 1.5 for the United States. The same can be said for Germany, Finland, New Zealand, and Canada: they have similar levels of earnings inequality but widely varying literacy ratios. A lack of correspondence can also be read along the vertical axis: Sweden, Norway, and Canada have about the same literacy ratios as the Czech Republic, the U.K., and Portugal, respectively, but the former countries have far lower earnings inequality.

Given the difficulty of comparing education levels across countries, in our view a better way to compare earnings and skill dispersion is to use "direct" measures: ratios of the top to the bottom of the distributions. The final report of the International Adult Literacy Survey (OECD, 2000b) contains prose, document, and quantitative literacy scores for countries at the 5th and 95th percentiles. We first calculate mean values across the three literacy variables and then a ratio of the mean score at the 95th percentile over the mean score at the 5th percentile. For earnings inequality, we use the standard D9/D1 measure for all workers, circa 1995. Figure 6b presents the results for fourteen nations. The graph appears to highlight two sets of nations. Among the more "laissez-faire" and largely Anglo-Saxon countries - New Zealand, Ireland, Australia, the U.K., Canada, and the U.S. - there is a strong positive relationship between earnings inequality and skill dispersion. On the other hand, among the central and northern

European nations - Denmark, Germany, Netherlands, Finland, Sweden, Norway, Belgium and Switzerland - there is no apparent relationship.

Table 1 presents regression results for the level and change in earnings inequality on skill dispersion in row 2. Column 1 shows the univariate results (only the variable on the left side of the table is included). Since the association between earnings and skill dispersion may reflect in part changes in the tightness of the labor market, column 2 presents the results of tests that include the change in unemployment (1980-95) as a control variable. Because the results are similar we focus on the univariate results. In addition to the literacy ratio, we use a second measure of skill dispersion, the low literacy share.

The association between the levels of earnings inequality and our two skill measures is reasonably strong: the literacy ratio accounts for 61 percent of the variation in the 1995 levels of inequality across the fourteen nations for which we had data; the coefficient is highly significant. The low literacy share is also strongly associated with the level of earnings inequality, accounting for 55 percent of the variation across these countries. But Figure 6b shows how important it is to get behind the simple regression results: the strong results reflect an averaging of the Anglo-Saxon countries (a close association) and the European countries (no association).

A stronger test of the Skill Dispersion prediction is to relate skill dispersion to the *change* in earnings dispersion. If skill-biased demand shifts are a decisive feature of the recent period, the *growth* in earnings inequality should vary with the *level* of skill dispersion (or the *share* of workers with extremely low literacy levels): faced with similar skill-biased demand shifts, countries with larger gaps between the most and least skilled should experience the greatest growth in earnings inequality since highly skilled workers have a relative advantage under these market conditions.

Figures 7 and 8 are based on the same sources of data as Figure 6b and cover earnings inequality changes over the period 1980-95. Figure 7 shows little evidence of a positive relationship between the skill mix and earnings inequality growth. Again, if there is a positive relationship, it appears to be limited to the Anglo-Saxon countries. Indeed, Figure 7 suggests that any positive association between skill dispersion and the change in earnings inequality is driven by the U.S., and perhaps the U.K., both of which appear as outliers.

Table 1: Simple OLS Results for Earnings Inequality

	Earnings Inequality (D9/D1) 1995				Chg. in Earnings Inequality 1980-1995			
	Coefficient (significance)		Adj. R ² (n)		Coefficient (significance)		Adj. R ² (n)	
	(1)	(2)	(1)	(2)	(1)	(2)	(1)	(2)
Change in Unemployment Rate, 1980-95	-1.31 (.100)		.11 (17)		-.018 (.436)		-.02 (17)	
Literacy Ratio (95 th /5 th test scores), 1994-98	1.76 (.001)	1.53 (.002)	.61 (14)	.65 (13)	.031 (.030)	.031 (.046)	.30 (13)	.23 (13)
Low Literacy Share (% Level 1), 1994-98	.106 (.001)	.092 (.013)	.55 (14)	.50 (13)	.002 (.053)	.002 (.077)	.24 (13)	.16 (13)
Employment Protection Index (0-1), 1990s	-1.72 (.014)	-1.35 (.050)	.28 (18)	.29 (17)	-.042 (.028)	-.041 (.044)	.24 (17)	.19 (17)
Unemployment Protection Index (0-1), 1990s	-1.26 (.043)	-.984 (.100)	.18 (18)	.22 (17)	-.018 (.289)	-.016 (.376)	.01 (17)	-.03 (17)
Unemployment Benefits (summary measure), 1995	-.029 (.019)	-.024 (.039)	.26 (18)	.31 (17)	-.0004 (.222)	-.0004 (.296)	.04 (17)	-.01 (17)
Bargaining Coverage (%), 1994	-.014 (.021)	-.012 (.055)	.26 (17)	.28 (17)	-.0004 (.014)	-.0004 (.024)	.30 (17)	.25 (17)
Bargaining Coordination (1-3), 1994	-.461 (.085)	-.403 (.115)	.14 (16)	.22 (16)	-.016 (.018)	-.016 (.027)	.29 (16)	.24 (16)

Bold: significant at the .05 level. n = number of observations.

Column 1 presents univariate results. Column 2 shows results with the change in the unemployment rate 1980-95 (row 1) as a control variable; unemployment rate change is never significant at the .05 level and always less significant than the other explanatory variable. Summary statistics and sources of the variables appear in the appendix.

Figure 8 employs our alternative measure of skill dispersion, the low literacy share of the workforce, and relates this to the same measure of change in earnings inequality. Again, the U.S. and the U.K. are clear outliers. There is no obvious relationship between the skill and earnings measures. With a low literacy share of about 7 percent, Sweden shows the same modest inequality growth as New Zealand, which had a 20 percent low literacy share. With about the same low literacy shares, the Netherlands had moderately increasing inequality while Germany

shows a considerable decline; the same can be said of Canada and Belgium.

Again, the regression results that correspond to these graphs appear in Table 1. Skill dispersion (the literacy ratio) accounts for 30 percent of the variation in this change in inequality across twelve countries, while the low literacy share explains 24 percent. But as Figures 7 and 8 suggest, this result rests entirely on two outliers, the U.S. and the U.K. Dropping the U.S. lowers the adjusted R^2 from .30 to .08 (for the literacy ratio), and from .24 to .08 (for the low literacy share). Dropping both the U.S. and the U.K. produces a negative adjusted R^2 for both skill variables.

Equally important, the real test is whether this association between earnings inequality and skill dispersion, as tenuous as it appears to be, holds *independently* of institutional characteristics. We do not attempt to control for these institutional features since they are highly correlated with the two skill measures: the coefficients range from .62 to .88 and are all easily significant at the .01 level (most at the .001 level). But as the discussion in Section 1 indicated, there is good reason to believe that many of these labor market institutions help determine the degree of skill dispersion. The question is whether the correspondence between skill dispersion and earnings inequality is causal, reflecting the operation of highly competitive labor markets in which pay differentials accurately reflect productivity differences, or whether countries that choose to support institutions that produce relatively egalitarian *earnings* outcomes also support institutions that produce relatively egalitarian *skill* (literacy) outcomes.

The remaining rows of Table 1 present results for five measures of the strength of labor market institutions that shelter workers from market forces (definitions and sources of these variables appear in the following paragraphs and in the appendix). Nearly all are strongly *negatively* associated with both the levels and change in earnings inequality. Three institutional variables - employment protection, bargaining coverage, and bargaining coordination - account for 24 to 30 percent of the variation in earnings inequality growth (across sixteen or seventeen nations), the same as our two skill measures (across thirteen nations).

Figures 9 to 11 help clarify which countries appear to be driving these results. Figure 9 uses an indicator of overall employment protection developed by Estevez-Abe et al. (2000). The employment protection index captures hiring and firing rules contained in legislation and

collective bargaining agreements, as well as individual employment protection arrangements at the firm level. The index is standardized to vary between 0 and 1, where 1 signifies the most restrictive regime. Figure 9 mirrors the familiar pattern from the literacy charts. The U.S. and the U.K. - the two outliers - have the weakest employment protection and the highest increases in earnings inequality. The other Anglo-Saxon countries - New Zealand, Canada, and Australia - also have low levels of protection but earnings inequality increased at a level comparable to that of Sweden, where employment protection is strongest.

The next two graphs focus on the link between the wage-setting process and earnings inequality across OECD countries. Figure 10 plots the level of bargaining coverage - the share of workers who are covered by collective bargaining agreements - against the change in income inequality. The U.S., Japan, New Zealand, and Canada have the lowest levels of coverage. The highest levels (between 90 and 100 percent) appear in Austria, France, Finland, Germany, Sweden, and Belgium, all countries where the change in inequality from the early 1980s to the mid-1990s has been slightly above or below zero.

Figure 11 plots the change in earnings inequality against the extent of bargaining coordination. Each country is assigned a value between 1 and 3, measuring the degree of consensus between the collective bargaining partners (employers' associations on one side and unions on the other). The U.S. and the U.K. - the two countries with the highest increase in earnings inequality - are characterized by relatively uncoordinated bargaining systems. New Zealand and Canada, which are as uncoordinated as the U.S. and U.K., on the other hand, showed increases in inequality comparable to Austria, a country that (together with Japan and Germany) had the most coordinated bargaining system.

A common element across the figures charting the association between the change in earnings inequality and labor market institutions is the location of the U.S. and the U.K. in the upper left corner of the graph. These two countries consistently provide the least shelter from labor market forces and show the highest increases in earnings inequality. Much like the relationship between skill dispersion and earnings inequality, the statistical link between labor market institutions and earnings inequality growth appears to be driven by these two nations. The similarity between the patterns displayed on the earnings inequality plots is remarkable: the skill

dispersion and institutional plots are nearly perfect mirrors of one another.

As we noted in Section 1, there is good reason to expect a strong link between labor market institutions and the skill composition of the workforce. Skill formation is closely linked to social protection. Workers face risks when they invest in specific skills and thus need insurance in the form of employment or unemployment protection. In countries where firm-specific and industry-specific skills are important (such as Japan and Germany), the transition from education to work is therefore relatively institutionalized, for example in the form of vocational training systems. Estevez-Abe et al. (2000: 31) find that “earnings dispersion ... is closely related to particular skill systems as well as the wage bargaining institutions that tend to go with these systems.”

As a result, labor market institutions and skill dispersion should be closely correlated across the developed countries. Indeed, this is what we find. Table 2 shows that there is a very close link between the strength of institutions that protect workers against the threat of unemployment and low wages, and the levels and dispersion of cognitive skill: countries that provide greater labor market shelters for their workers also tend to pursue policies that produce low shares of poorly educated workers (and consequently, have lower levels of skill inequality).

Figures 12 and 13 underscore the close fit between these institutional and skill measures. Figure 12 shows the close relationship between the employment protection index constructed by Estevez-Abe et al. (2000) and the literacy ratio (95th/5th percentile) from the International Adult Literacy Survey (OECD, 2000b). Figure 13 substitutes the extent of bargaining coverage, as measured in the 1997 OECD Employment Outlook. These data are consistent with the view that institutions concerned with social protection not only have a direct downward effect on earnings dispersion, but on skill dispersion as well.

Based on the evidence in this section, we conclude that it makes little sense to view earnings inequality and its change over time exclusively, or even mainly, as a function of demand and supply shifts, independently of a nation’s labor market institutions. These institutions must play a central role in any satisfactory story about patterns of earnings inequality growth across the OECD over the last two decades.

Table 2: Simple Univariate OLS Results - Skills and Institutional Characteristics

	Literacy Ratio, 1994-98		Low Lit. Share, 1994-98	
	Coefficient (significance)	Adj. R ² (n)	Coefficient (significance)	Adj. R ² (n)
Employment Protection Index (0-1), 1990s	-1.315 (.000)	.75 (14)	-19.95 (.000)	.68 (14)
Unemployment Protection Index (0- 1), 1990s	-.931 (.002)	.52 (14)	-13.6 (.007)	.42 (14)
Unemployment Benefits, 1995	-.018 (.006)	.44 (14)	-.256 (.019)	.33 (14)
Bargaining Coverage (%), 1994	-.011 (.003)	.52 (13)	-.154 (.005)	.48 (13)
Bargaining Coordination (1-3), 1994	-.492 (.001)	.63 (13)	-6.86 (.001)	.58 (13)

n = number of observations.

Section 5: Conclusions

“The institutional organization of the labour market has identifiable large effects on distribution, but modest hard-to-uncover effects on efficiency.”

Richard Freeman (2000)

In this paper we evaluate the extent to which alternative supply and demand explanations of recent trends in earnings and employment outcomes across OECD countries fit the facts. On one side, the conventional wisdom (the Labor Market Rigidity view) blames a variety of welfare state institutions for low employment growth and high unemployment on the grounds that their effects are too egalitarian (they compress earnings too much). On the other side, an important textbook critique of this Consensus is that, although welfare states try to compress the earnings distribution, in the end markets ensure that it mainly reflects the skill distribution and this explains the failure of earnings inequality - unemployment rate tradeoffs to appear in the data. In this Skill Dispersion view, labor market institutions ultimately have little impact on the earnings distribution. In sum, supply and demand stories produce contradictory accounts of the role of

institutions: on the one side, institutions are the culprits in the battle against unemployment because they cause “too much” wage compression; on the other, they are not the main source of the unemployment problem, but get no credit for reducing inequality.

These supply and demand accounts assume that the labor market produces a determinate set of wage-employment equilibria. We suggest an alternative neoinstitutionalist vision of the labor market, one in which wage-setting is characterized by a range of indeterminacy. Within this feasible range, social norms and labor market institutions play key roles in determining where the wage is actually set. Beyond the demand for and supply of skill, the importance of worker effort (morale), labor turnover costs, the labor share of costs, the degree of price competition in the product market, and labor market institutions (e.g., minimum wages, collective organization (unions and occupational licensing), and industry regulation), all matter for wage-setting. Under these circumstances, institutions may strongly influence the pattern of wages across countries but not be much of a factor in determining differences in unemployment (or employment) rates.

We addressed three empirical hypotheses that follow directly from the conventional supply and demand model and reflect the conventional wisdom. First, if increasing earnings inequality in the U.S. is mainly caused by technology-driven skill-biased demand shifts, we should observe a tendency for rising inequality across all developed countries. In fact, we conclude that only the U.K. and U.S. have experienced strong and persistent rises in earnings inequality over the last two decades. It seems clear that other OECD countries have adopted similar technologies without experiencing comparable earnings outcomes.¹⁹ If technological change and globalization have sharply shifted demand away from the least skilled, evidence for it does not appear in standard measures of earnings and unemployment rate inequality. This suggests that the conventional wisdom about the primacy of skill-biased demand shifts may be overstated and, parenthetically, that labor market institutions may matter a great deal for earnings inequality trends.

Second, if wages adjust to equilibrate supply and demand in the labor market, labor

¹⁹ Nor do relative unemployment rates by education level show the predicted pattern: rather than rising, the ratio of low skill to high skill unemployment rates tended to be stable or fall since the early 1980s (Howell, 2000).

market institutions that produce wage rigidity should produce high and rising unemployment. This textbook approach assumes reasonably competitive markets and predicts earnings inequality - unemployment rate tradeoffs. The alternative view is that higher levels of unemployment produce lower wages, all else equal, and as a result predicts a *positive* association between earnings inequality and unemployment. In the strongest test, these negative and positive correlations should apply to the *changes* in these two measures. We found no evidence of a strong negative relationship between earnings inequality and either employment or unemployment rates (or between changes in them) across OECD countries. In contrast to the Transatlantic Consensus, these results indicate that wage compression does not appear to be a main source of European employment problems. In turn, this suggests that labor market institutions can be designed to shelter workers from wage and employment threats in substantial ways without producing negative employment effects.

But this latter conclusion can be questioned if the pattern of earnings inequality and its change over time across countries is reflective only of market-driven demand and supply shifts in the context of large differences in skill dispersion across countries. In this view, “wheeling on” institutions is both unnecessary and mistaken, and strengthening them would, in a textbook world, surely only cause more problems.

While there is considerable evidence in support of a positive link between skill dispersion and earnings inequality, our results suggest a more complicated view. First, for whatever reason, the correspondence appears to exist only across the Anglo-Saxon countries (the U.S., U.K., New Zealand, Australia, and Canada). Indeed, without the U.S. and the U.K. there is no association between our two measures of skill dispersion and the change in earnings inequality. Second, a number of measures of labor market institutions (employment and unemployment protection, bargaining coverage, and bargaining coordination) are also closely associated with earnings inequality trends.

And third, the high correlation between skill dispersion and institutional variables lends support to the view that labor market institutions and social policies may help determine both the skill mix of the workforce *and* earnings inequality. Underlying a country’s skill mix and labor market institutions are policies and programs that in turn reflect ideologies and social norms -

and it is these that ultimately determine the patterns of earnings inequality that we observe. Countries that protect low skill workers from low wages also provide more and better education and training for them. But this does not mean that the market is setting wages as in the textbook model. Wage-setting in countries with relatively literate “low-skill” workers (Sweden, Denmark, Germany) set wages collectively through highly centralized and coordinated systems.

A convincing explanation of differences in earnings and employment trends across developed countries requires moving beyond simple supply and demand stories. Since real-world wage-setting is best characterized by indeterminacy within some feasible range, bargaining power and labor market institutions can be expected to play important and complicated roles, with outcomes not always consistent with the determinate textbook model. Our conclusions regarding earnings inequality and unemployment trends across the OECD are illustrative: while labor market institutions and related government policies are central to both skill formation and wage-setting (and therefore earnings inequality), they do not appear to be the main source of the recent European unemployment problem.

Appendix A: Data Used In Regressions

Country	Period Start	Period End	Start D9/D1	End D9/D1	D9/D1 Change	Start Unemp. Rate	End Unemp. Rate	Unemp. Rate Change
Australia	1980	1995	2.83	2.91	0.0055	5.98	8.87	0.1925
Austria	1980	1994	3.44	3.65	0.0148	1.79	6.03	0.3026
Belgium	1986	1993	2.40	2.24	-0.0234	11.76	11.72	-0.0055
Canada	1981	1994	4.02	4.18	0.0119	8.71	10.37	0.1277
Denmark	1980	1990	2.15	2.15	0.0008	7.35	9.62	0.2275
Finland	1980	1995	2.47	2.34	-0.0089	5.17	15.51	0.6892
France	1980	1995	3.25	3.08	-0.0116	6.49	12.04	0.3702
Germany	1984	1995	3.00	2.86	-0.0131	7.95	8.41	0.0415
Ireland	.	1994	.	4.06	.	.	14.20	.
Italy	1979	1995	2.85	2.41	-0.0276	5.52	11.54	0.3766
Japan	1980	1995	3.01	3.00	-0.0007	2.10	3.13	0.0684
Netherlands	1980	1995	2.54	2.82	0.0185	4.49	7.10	0.1739
New Zealand	1984	1995	2.89	3.03	0.0133	4.42	6.84	0.2198
Norway	1989	1993	2.02	1.99	-0.0079	4.45	5.77	0.3293
Sweden	1980	1995	2.03	2.20	0.0113	2.17	7.90	0.3819
Switzerland	1991	1995	2.71	2.77	0.0085	1.38	4.54	0.7899
United Kingdom	1980	1995	2.98	3.46	0.0318	6.54	8.65	0.1413
United States	1980	1995	3.83	4.60	0.0513	6.88	5.69	-0.0788
Country	Literacy Ratio 95th/5th	Low Literacy Share	Emp. Protectn. Index	Unemp. Protectn. Index	Unemp. Benefits	Bargaing. Coverage	Coordi-nation	Central-ization
Australia	2.46	16.93	0.27	0.22	27.3	80	1.5	1.5
Austria	.	.	0.84	0.81	25.8	98	3	2
Belgium	2.20	16.80	0.56	0.82	41.6	90	2	2
Canada	2.58	17.23	0.30	0.30	27.3	36	1	1
Denmark	1.66	7.87	0.53	0.91	70.3	69	2	2
Finland	1.86	11.33	0.64	0.43	43.2	95	2	2
France	.	.	0.61	0.54	37.5	95	.	2
Germany	1.73	10.03	0.86	0.77	26.4	92	3	2
Ireland	2.34	24.23	0.36	0.37	26.1	.	.	.
Italy	.	.	0.81	0.18	19.7	82	2.5	2
Japan	.	.	0.76	0.33	9.9	21	3	1
Netherlands	1.76	10.30	0.80	0.89	45.9	81	2	2
New Zealand	2.29	20.07	0.29	0.27	29.8	31	1	1
Norway	1.75	8.27	0.66	0.64	38.8	74	2.5	2
Sweden	1.79	6.77	0.94	0.63	27.3	89	2	2
Switzerland	2.32	16.93	0.49	0.86	29.5	50	2	2
United Kingdom	2.47	22.77	0.25	0.11	18.1	47	1	1.5
United States	2.78	21.80	0.14	0.10	11.8	18	1	1

Appendix B: Variable Means and Standard Deviations

Variable	Figure	Mean	Standard Deviation
Earnings inequality (D9/D1), male workers, 1979-98	1a, 1b	2.98	0.6605
Earnings inequality (D9/D1), female workers, 1979-98	1c, 1d	2.70	0.6227
Unemployment rate (three-year average), average annual change (absolute), all workers, 1980-95	2a	0.22	0.1870
Earnings inequality (D9/D1), average annual change (absolute), all workers, 1980-95	2a	0.004	0.0203
Unemployment rate (three-year average), average annual change (relative to start of period), all workers, 1980-95	2b	5.57	5.7047
Earnings inequality (D9/D1), average annual change (relative to start of period), all workers, 1980-95	2b	0.10	0.6641
Relative unemployment rate by education level (low education unemployment rate - high education unemployment rate), male workers, 1979-93	3a	6.18	4.0643
Earnings inequality (D9/D1), male workers, 1979-93	3a	2.99	0.6483
Relative unemployment rate by education level (low education unemployment rate - high education unemployment rate), all workers, 1989-98	3b	5.60	3.0048
Earnings inequality (D9/D1), all workers, 1989-98	3b	3.13	0.6948
Employment rate inequality (top education quartile - bottom quartile), male workers, 1994	4	20.14	8.2807
Earnings inequality (D9/D1), male workers, 1994	4	2.97	0.8345
Employment rate inequality (top education quartile - bottom quartile), average annual change, male workers, 1980s and 1990s	5	0.51	0.4964
Earnings inequality (D9/D1), average annual change, male workers, 1980s and 1990s	5	0.71	1.0060
Literacy ratio (top education level/bottom level), all workers, 1994-98	6a	1.27	0.0954

Earnings inequality (top education level/bottom level), all workers, 1996-98	6a	2.12	0.4902
Literacy ratio (mean literacy score at 95th percentile/mean score at 5th percentile), all workers, 1994-98	6b	2.14	0.3735
Earnings inequality (D9/D1), all workers, 1995	6b	2.97	0.8221
Literacy ratio (mean literacy score at 95th percentile/mean score at 5th percentile), all workers, 1994-98	7	2.13	0.3842
Earnings inequality (D9/D1), average annual percent change, all workers, 1980-95	7, 8	0.008	0.0196
Low literacy share (percent at literacy level 1), all workers, 1980-95	8	14.39	5.5328
Employment protection index, all workers, 1990s	9	0.57	0.2489
Earnings inequality (D9/D1), average annual percent change, all workers, 1980-95	9, 10	0.004	0.0196
Bargaining coverage, all workers, 1994	10	67.53	27.6905
Coordination, all workers, 1994	11	1.97	0.7181
Earnings inequality (D9/D1), average annual percent change, all workers, 1980-95	11	0.005	0.0198
Employment protection index, all workers, 1990s	12	0.51	0.2498
Literacy ratio (mean literacy score at 95th percentile/mean score at 5th percentile), all workers, 1994-98	12	2.14	0.3735
Bargaining coverage, all workers, 1994	13	65.54	26.0756
Literacy ratio (mean literacy score at 95th percentile/mean score at 5th percentile), all workers, 1994-98	13	2.13	0.3842
Centralization, all workers, 1994		1.71	0.4351
Unemployment benefits (summary measure), all workers, 1995		31.19	14.4289
Unemployment protection index, all workers, 1990s		0.52	0.2930

Appendix C: Data Sources

Bargaining coverage, 1994 (Fig. 10, 13): OECD, 1997a, Table 3.3, p. 71.

Centralization, 1994: OECD, 1997a, Table 3.3, p. 71.

Coordination, 1994 (Fig. 11): OECD, 1997a, Table 3.3, p. 71.

Earnings inequality (D9/D1), 1979-98 (Fig. 1a, 1b, 1c, 1d, 2a, 2b, 3a, 3b, 6b, 7, 8, 9, 10, 11):

OECD database on earnings dispersion, 1999.

Earnings inequality (D9/D1), 1980s and 1990s (Fig. 5): Glyn, 2000.

Earnings inequality (D9/D1), 1994 (Fig. 4): Glyn and Salverda, 2000.

Earnings inequality (top education level/bottom level), 1996-98 (Fig. 6a): OECD, 2000a, Table E5.1, p. 297.

Employment protection index, 1990s (Fig. 9, 12): Estevez-Abe et al., 2000, Table 1.

Employment rate inequality (top education quartile - bottom quartile), 1994 (Fig. 4): Glyn and Salverda, 2000.

Employment rate inequality (top education quartile - bottom quartile), 1980s and 1990s (Fig. 5): Glyn, 2000.

Literacy ratio (mean literacy score at 95th percentile/mean score at 5th percentile), 1994-98 (Fig. 6b, 7, 12, 13): OECD, 2000b, Table 2.1, pp. 135-136.

Literacy ratio (top education level/bottom level), 1994-98 (Fig. 6a): OECD, 2000b, Table 2.4, pp. 138-139.

Low literacy share (percent at literacy level 1), 1994-98 (Fig. 8): OECD, 2000b, Table 2.2, pp. 136-137.

Relative unemployment rate by education level (low education unemployment rate - high education unemployment rate), 1979-93 (Fig. 3a): Nickell and Bell, 1995, Table 2a, pp. 47-48.

Relative unemployment rate by education level (low education unemployment rate - high education unemployment rate), 1989-98 (Fig. 3b): Education at a glance: OECD Indicators, 1993, 1995, 1996, 1997, 1998, 2000.

Unemployment benefits (summary measure), 1995: OECD, 1997b, Table 5, p. 54.

Unemployment protection index, 1990s: Estevez-Abe et al., 2000, Table 2.

Unemployment rate (three-year average), 1980-95 (Fig. 2a, 2b): OECD, 1999.

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Figure 1a: Trends in Earnings Inequality, Male Workers, 1979-98
Countries with Increasing Inequality

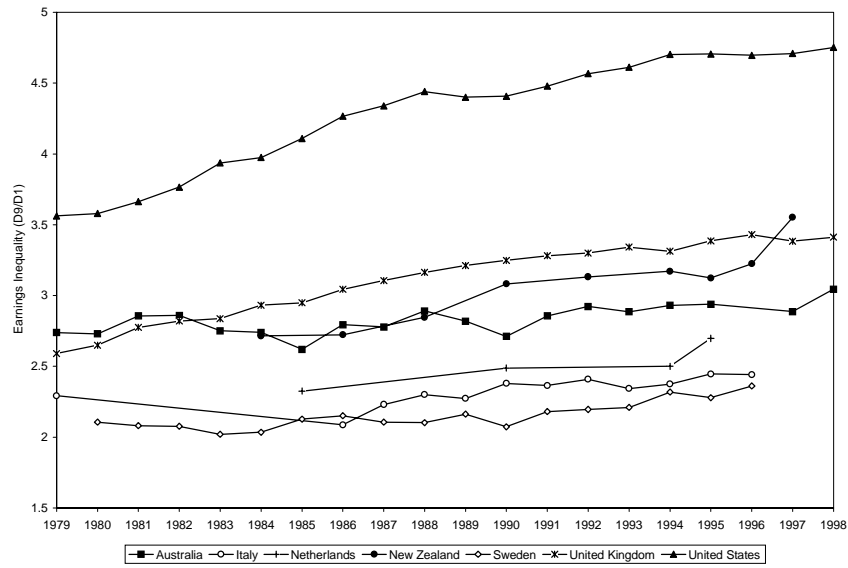


Figure 1b: Trends in Earnings Inequality, Male Workers, 1979-98
Countries with Stable or Declining Inequality

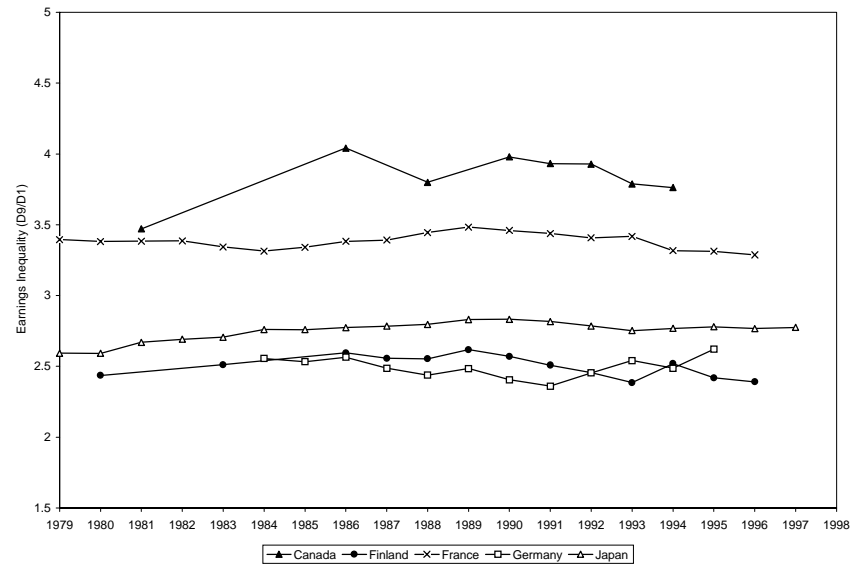


Figure 1c: Trends in Earnings Inequality, Female Workers, 1979-98
Countries with Increasing Inequality

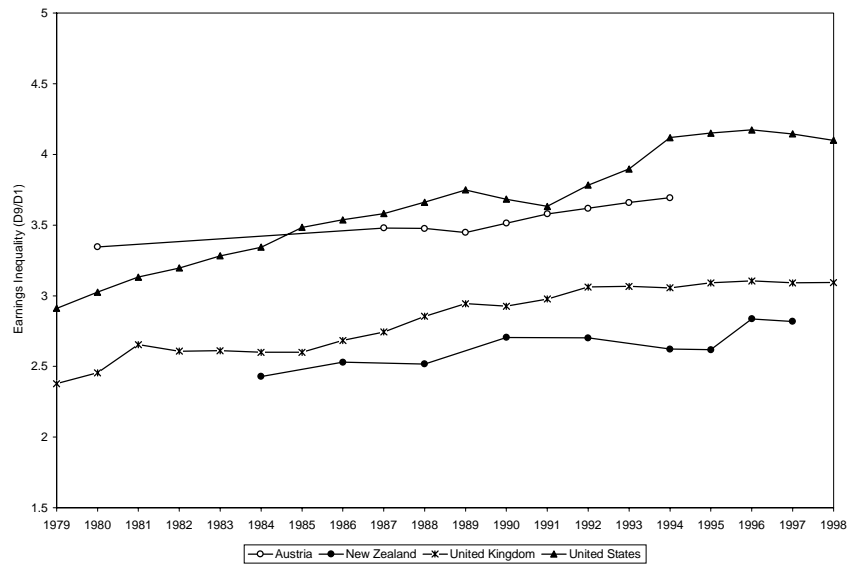
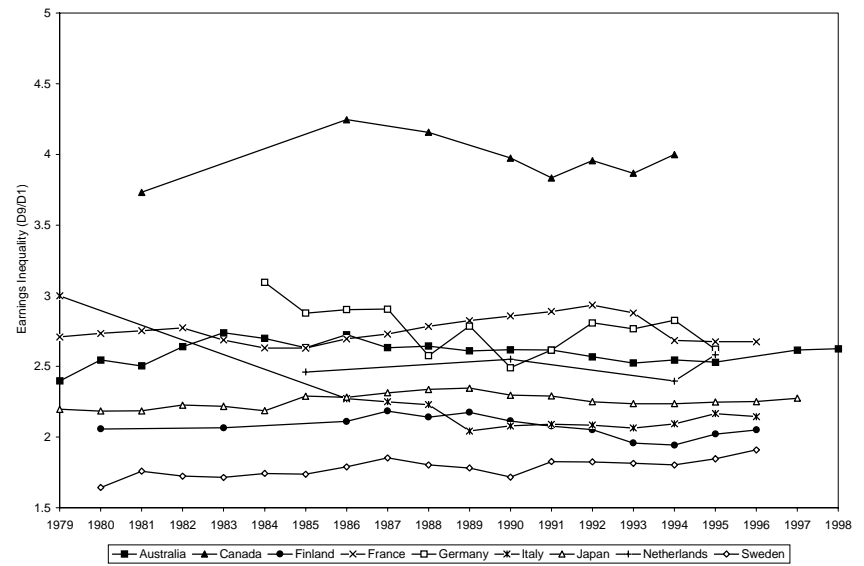


Figure 1d: Trends in Earnings Inequality, Female Workers, 1979-98
Countries with Stable or Declining Inequality



Source: OECD database on earnings dispersion, 1999.

Figure 2a: Unemployment Rate and Earnings Inequality
Average Annual Change (Absolute), All Workers, 1980-1995

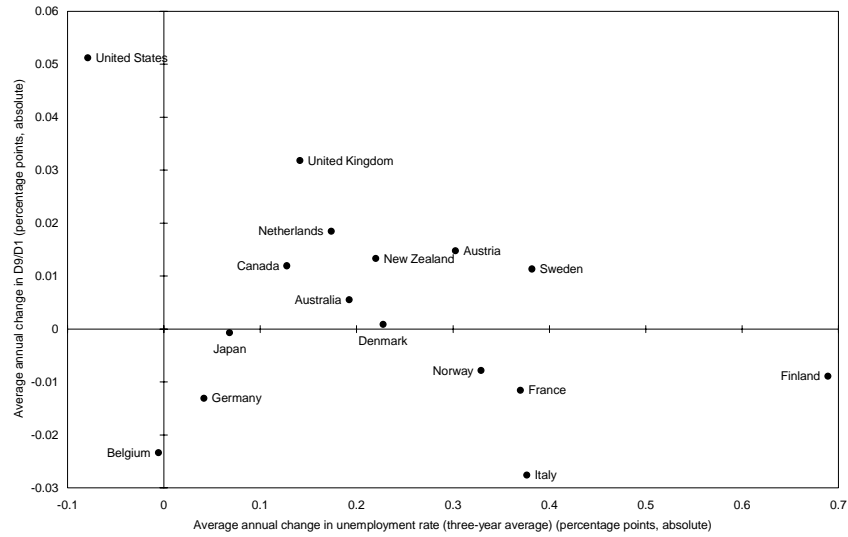


Figure 2b: Unemployment Rate and Earnings Inequality
Average Annual Change (Relative), All Workers, 1980-1995

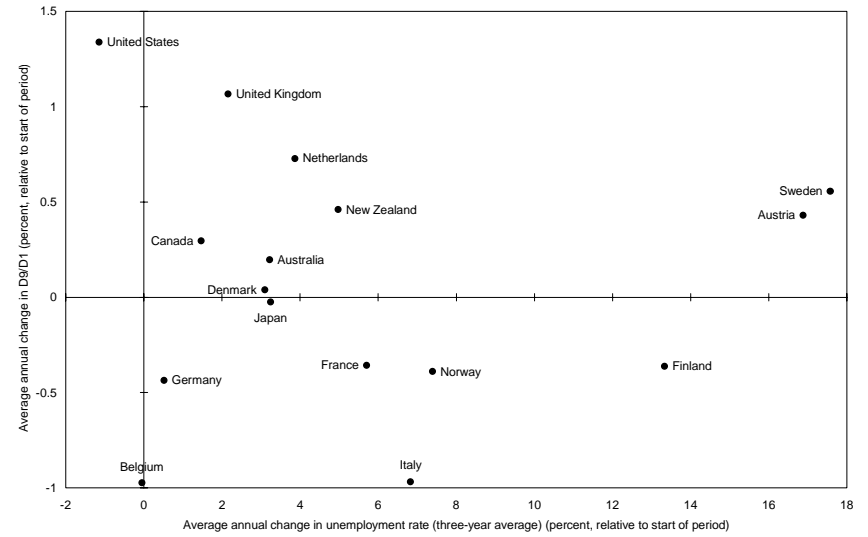


Figure 3a: Earnings Inequality and Relative Unemployment Rates by Education Level, Male Workers, 1979-1993

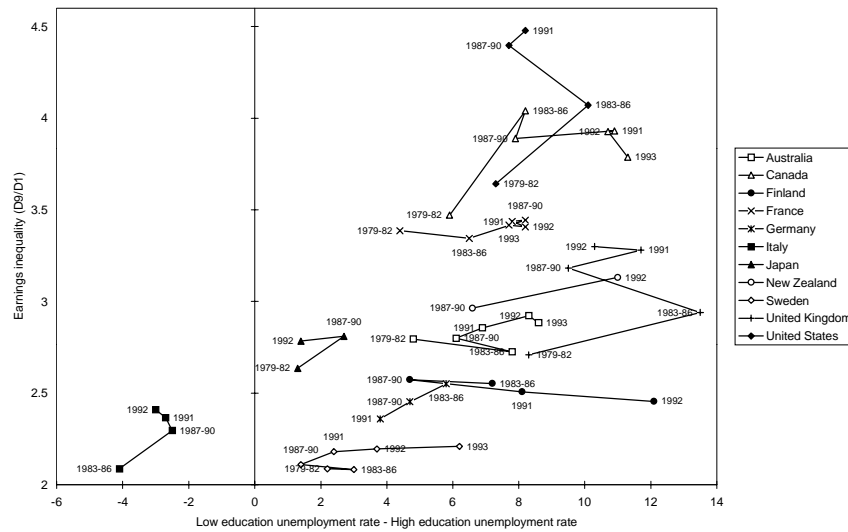


Figure 4: Earnings Inequality and Employment Rate Inequality, Male Workers, 1994

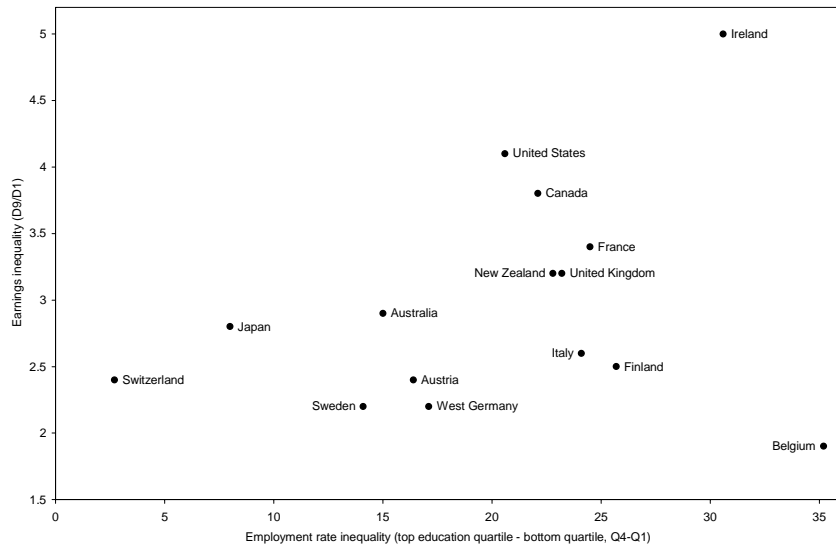


Figure 5: Changes in Earnings Inequality and Employment Rate Inequality, Male Workers, 1980s and 1990s

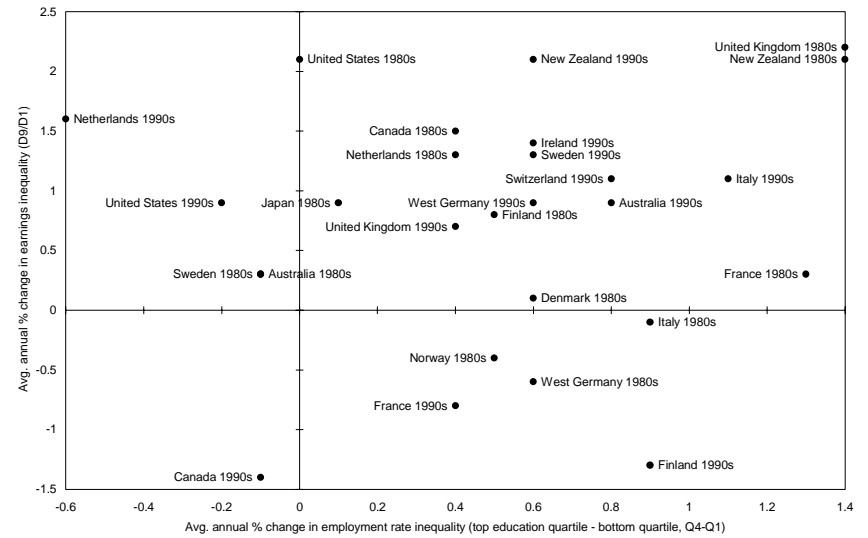


Figure 6a: Skill Dispersion and Earnings Inequality (Education Ratios), All Workers, 1994-1998

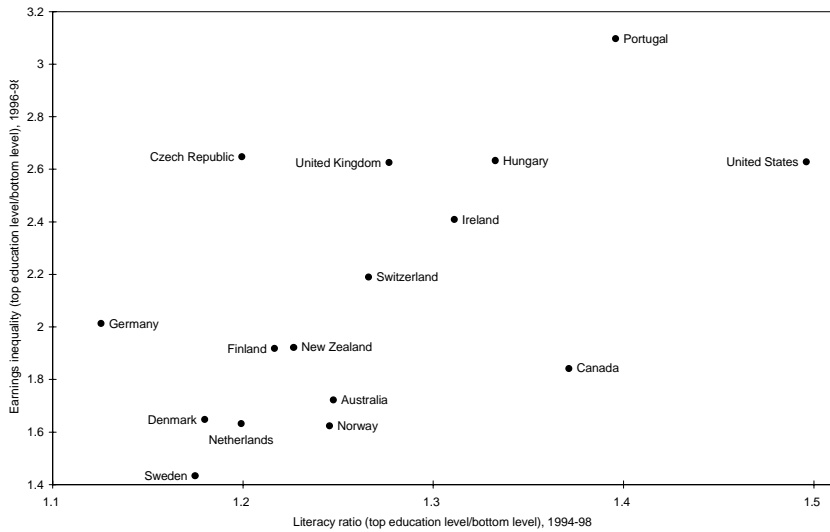
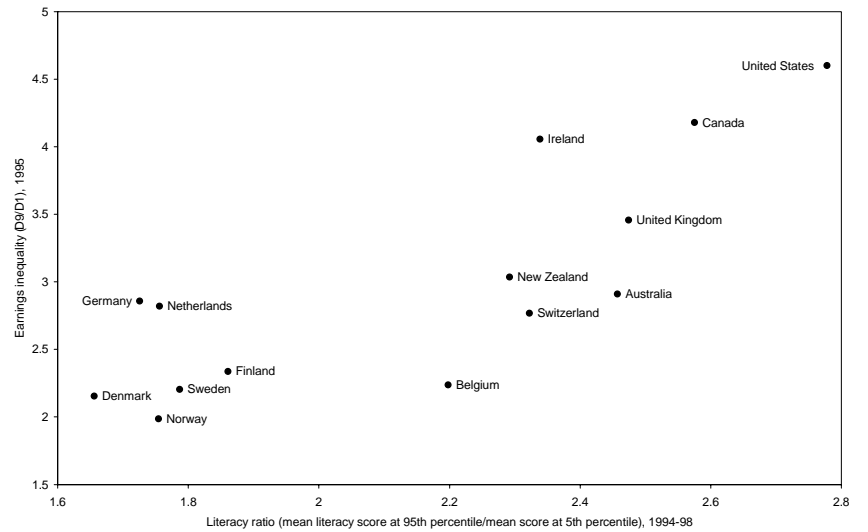


Figure 6b: Skill Dispersion and Earnings Inequality (Percentile Ratios), All Workers, 1994-1998



Sources: A. Glyn and W. Salverda, 2000, Employment Inequalities (Fig. 4). A. Glyn, 2000, Unemployment and Inequality (Fig. 5). Literacy ratio (Fig. 6a and 6b): OECD, 2000, Literacy in the Information Age. Earnings inequality (Fig. 6a): OECD, 2000, Education at a Glance: OECD Indicators. Earnings inequality (Fig. 6b): OECD database on earnings dispersion, 1999.

Figure 7: Literacy Ratio and Change in Earnings Inequality, All Workers, 1980-1995

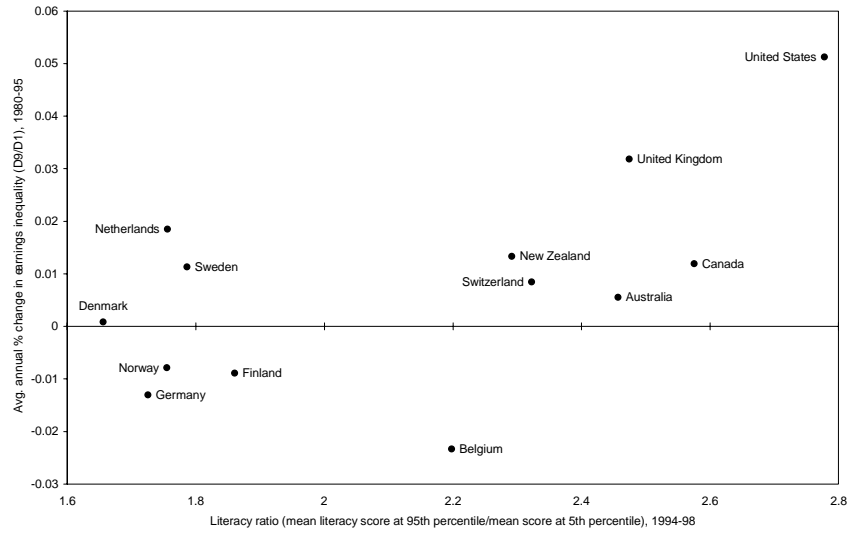


Figure 8: Low Literacy Share and Change in Earnings Inequality, All Workers, 1980-1995

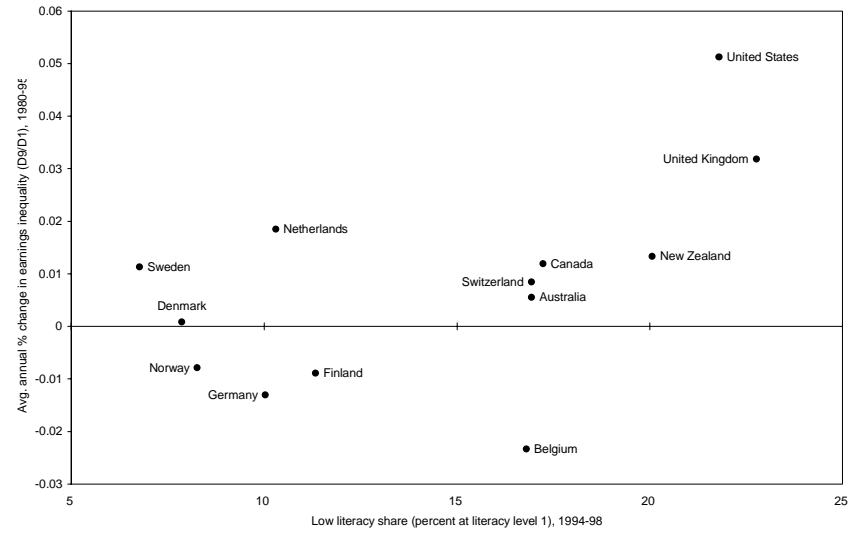


Figure 9: Employment Protection and Change in Earnings Inequality, All Workers, 1980-1995

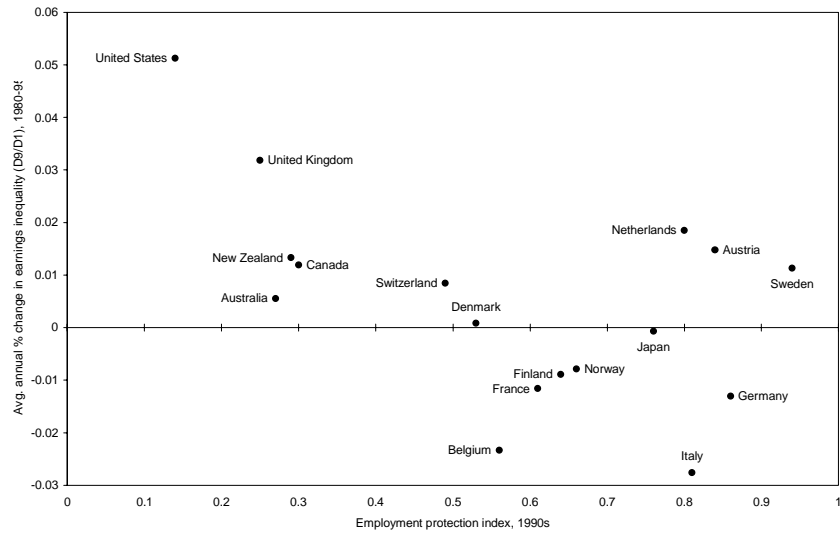
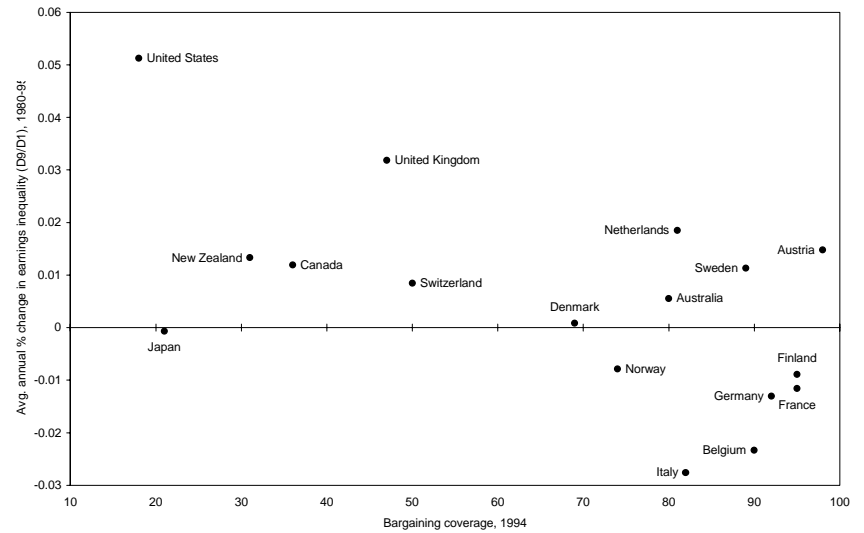


Figure 10: Bargaining Coverage and Change in Earnings Inequality, All Workers, 1980-1995



Sources: Literacy ratio and low literacy share (Fig. 7 and 8): OECD, 2000, Literacy in the Information Age. Employment protection index (Fig. 9): M. Estevez-Abe, T. Iversen, and D. Soskice, 2000, Social Protection and the Formation of Skills. Bargaining coverage (Fig. 10): OECD Employment Outlook 1997. Earnings inequality (Fig. 7, 8, 9, 10): OECD database on earnings dispersion, 1999.

Figure 11: Coordination and Change in Earnings Inequality, All Workers, 1980-1995

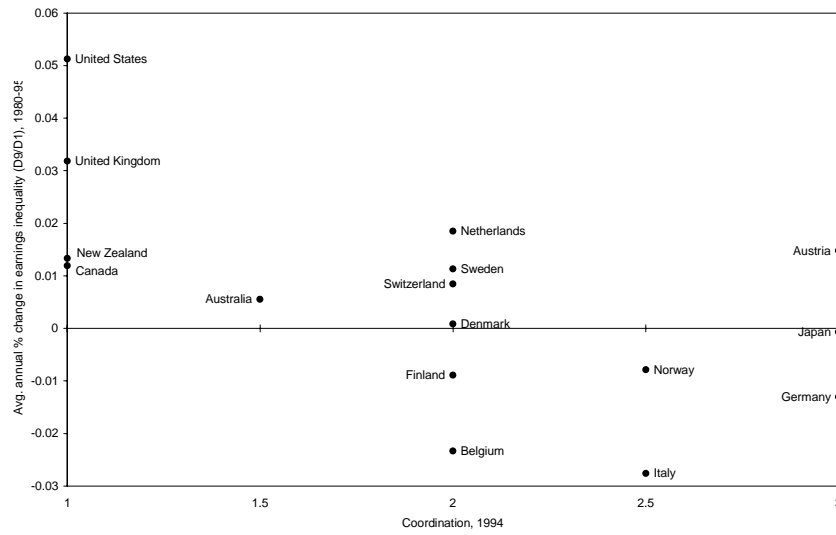


Figure 12: Employment Protection and Literacy Ratio, All Workers, 1990s

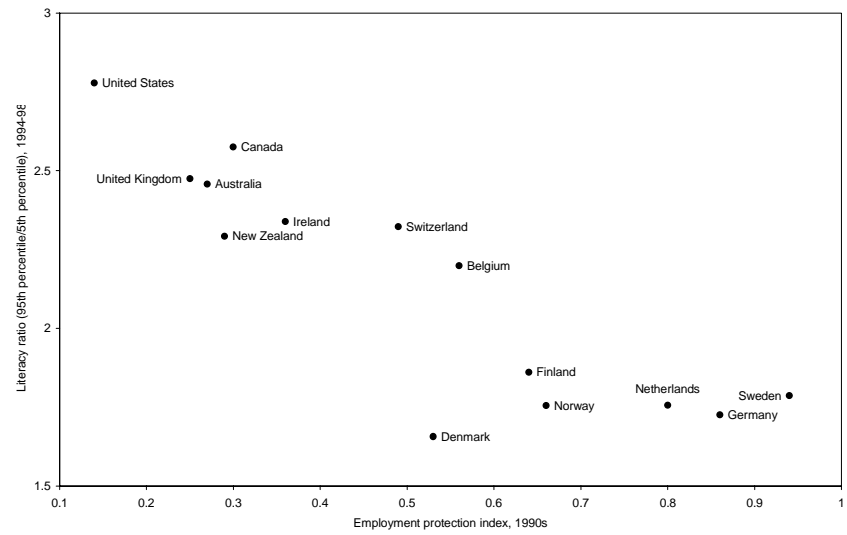
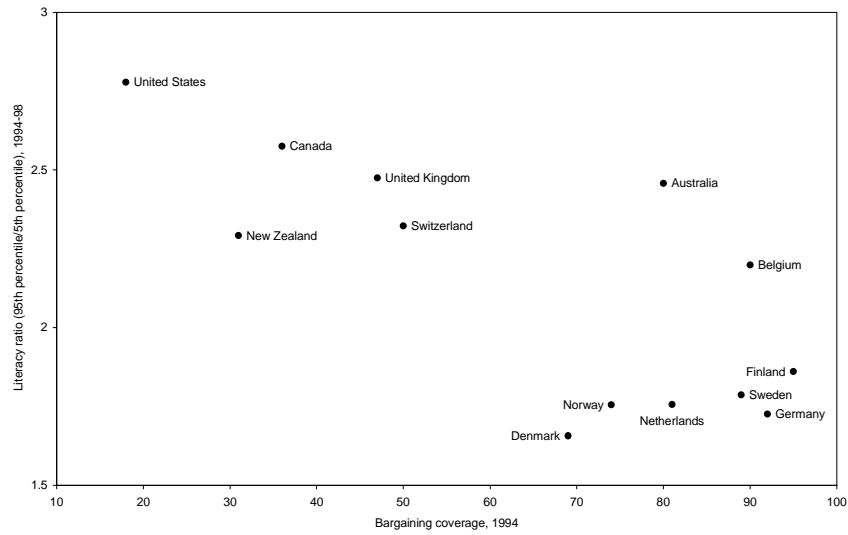


Figure 13: Bargaining Coverage and Literacy Ratio, All Workers, 1994-98



Sources: Coordination (Fig. 11): OECD Employment Outlook 1997. Earnings inequality (Fig. 11): OECD database on earnings dispersion, 1999. Employment protection index (Fig. 12): M. Estevez-Abe, T. Iversen, and D. Soskice, 2000, Social Protection and the Formation of Skills. Bargaining coverage (Fig. 13): OECD Employment Outlook 1997. Literacy ratio (Fig. 12 and 13): OECD, 2000, Literacy in the Information Age.