Wage Inequalities and Low Pay: The Role of Labour Market Institutions

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Abstract

In this study, we investigate the role that some institutional features play in shaping the distribution of wages across a number of OECD countries. While considerable attention has been devoted in recent years to the *evolution* of earnings inequality and to the analysis of the competing explanations for the observed phenomena, also the existence (and persistence) of considerable structural differences - across countries - in the *level* of wage inequality and the *incidence* of low pay can shed some light on a different dimension of inequality patterns. In particular, we focus on three specific features: the effects of trade unions, the structure of collective bargaining and the existence of regulations on wages. By looking at the different moments of the distribution of earnings various dimensions of low pay have been analysed, namely the effects of the institutional setting on the mean, the dispersion and the (time) covariance of earnings. Consistent with previous work, our results suggest that institutions are a relevant factor in shaping the distribution of earnings and the incidence of low pay. We show that institutional settings differ substantially across countries and that institutional variety in the labour market is able to explain a great deal of the observed patterns in low pay across countries.

Keywords: Wage Inequality, Low Wage Employment, Labour Market Institutions

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1. Introduction

In recent decades a number of industrialised countries have experienced significant changes in the distribution of earnings. Various factors of economic as well as institutional nature have contributed to re-shape the structure of wage differentials across different groups of workers[1]. Major changes in the distribution of employment and unemployment also occurred in the labour force, with declining employment rates and growing joblessness, particularly in European countries.

In this context, some have argued for the existence of a (negative) trade-off between the extent of joblessness and the overall wage dispersion, advocating for greater labour market flexibility, especially in wage setting, to reduce unemployment. However, face to the increase in earnings inequality some concern has emerged for those individuals located at the bottom end of the earnings distribution who appear to have been most strongly affected, in terms of social exclusion and poverty, by the changing economic conditions. In particular, the low-paid, the low-skilled and in general less protected groups - such as prime-age workers and women - appear to have borne most of the burden both in term of lower earnings and incidence of unemployment (OECD, 1996).
The level of wage inequality and the proportion of the working age population who is in employment are important indicators of the performance of an economy. On the one hand, inequality in the labour market often translates into significant disparities in living standards and increasing poverty among individuals. On the other hand, labour market inequality also affects the structure of economic incentives that individuals face and influences social cohesion and workers solidarity. The overall pattern that emerged over the 1990s shows substantial differences across countries in the extent of earnings inequality and, more generally, in labour market outcomes; which in turns underlines the diversity of forces, incentives and constraints operating in the global economy.

Among the leading explanations offered in the literature for the above trends, some have put the emphasis on demographic changes, adverse shifts in supply (and demand), skill-biased technological change, increased globalisation of trade and, also, on new forms of work organisation (OECD, 1996; Gottschalk and Smeeding, 1997). Others, conversely, have insisted on the institutional side arguing that trade union activity, practices of collective bargaining and labour market regulations may have played a more relevant role (Blau and Kahn, 1996; Fortin and Lemieux, 1997). Institutional pay setting may alter wage dispersion and the incidence of low pay in

[1] For an extensive overview of the literature, see the "Wage Inequality" Symposium published in the *Journal of Economic Performance* (1997).

different ways. First, the legislation on wages may reduce dispersion both by gender and by skill. Second, pay standardisation policies, by reducing management discretion, could compress pay differences within firms. Third, industry-wide bargaining and mandatory extension of collective agreements have the effect to decrease wage differentials across establishments and reduce the union-nonunion mark-up. Fourth, when the structure of bargaining is more centralised and negotiations better co-ordinated also industry wage differentials may be reduced.

Indeed, countries which experienced the largest increases in inequalities were also those with the most deregulated and decentralised labour markets, which seems to suggest that centralised wage-setting, institutional constraints and widespread welfare safety nets might have had a significant role in shaping the distribution of earnings across countries. Heavily regulated labour markets and highly centralised wage setting mechanisms are characterised by more rigid wage structures and greater inertia of wages face to economic shocks and business cycle fluctuations. In highly unionised labour markets, trade unions traditionally pursued egalitarian wage policies to enhance workers solidarity to protect workers in the lower end of the earnings distribution, particularly so in those countries without a statutory minimum wage (Bjorklund and Freeman, 1996; Blanchflower and Freeman, 1992).

While considerable attention has been devoted in recent years to the ‘evolution’ of earnings inequality and to the analysis of the competing explanations for the observed phenomena, also the existence (and persistence) of considerable structural differences - across countries - in the ‘level’ of wage inequality and the ‘incidence’ of low pay can shed some light on a different dimension of inequality patterns. To the extent that differences in the level of inequality reflect returns to labour market activity and the working of institutional constraints, the existence of differences in inequality across countries might imply a different set of economic incentives and social structure. This is particularly important for the lower part of the earnings distribution where the relevance for labour market activities and social cohesion is strongly dependent on the availability of jobs and the associated wage rate.

In this study, we investigate the role that some institutional features play in shaping the distribution of wages across a number of OECD countries. Whilst, in general there is some scepticism among economists about the actual role that institutions play in the functioning of labour markets - on the ground that the institutional setting is merely a superstructure through which market forces continue to operate – nevertheless, in the absence of full employment and perfect

competition, on both labour and product market, the existence of economic rents and discretion in pay policies makes more relevant for labour market outcomes the impact of institutional arrangements. Furthermore, in order to avoid both excessive arbitrariness in defining what we consider the relevant "institutions" for pay setting as well as interpreting their impact simply as a residual for those features that usually cannot be otherwise explained, in this study explicit quantifiable measures of institutional forces will be considered and their impact analysed. In particular, we shall focus on three specific features: the effects of trade unions, the structure of collective bargaining and the existence of regulations on wages. These are by no means the only labour market institutions relevant for wage determination but certainly they do play a central role in explaining differences in the dynamics and structure of wages across countries (Freeman, 1996). Obviously this way of proceeding still leaves aside the important role of social norms and cultural factors which may also be important in explaining cross-country differences, though are more difficult to measure.

The paper is organised as follows. First, in section 2, we review some of the institutional features that characterise the functioning of the labour market and are considered relevant for wage inequality and the incidence of low pay employment. These fall under two main categories: regulations on wages, and unionism and collective bargaining practices. Second, we provide an overview of the stylised facts for low wage labour markets in several OECD countries (section 3). Finally, in section 4, we investigate the economic effects that labour market institutions may have on both the incidence of low wage employment and the distribution of earnings. The last section contains some concluding remarks and discusses the relevance of policy implications.

2. Labour Market Institutions and Wage Regulation: an Overview of International Differences

The existence of significant differences in labour market institutions and wage regulations in industrialised countries has been extensively documented in a number of studies seeking to explain the different performance, across countries, in terms of (un)employment rates and earnings inequality (OECD, 1994; 1997). Institutional wage-setting may concern direct government legislation over a number of pay issues (such as, minimum wage, anti-discriminatory legislation or mandatory extension of collective agreements) or operate via the effect of trade unions and collective bargaining. While it is largely undisputed that the presence of wage regulation and

collective bargaining tend to alter wage formation, the magnitude and the direction of the impact that institutions may have on the functioning of labour markets and the distribution of wages largely depend on whether institutional constraints are effectively binding or not. Since many institutional arrangements are typically directed towards specific portion of the wage distribution or selected groups of individuals, it is likely that the main effects will directly affect only those covered by the scheme[2]. Hence, to the extent which the constraint is binding the wage outcome will differ from that resulting from the operation of market forces. In general, but not exclusively, it may be argued that institutional wage setting being targeted to the "average" worker or firm in the economy has the effect of reducing differences across groups; while, market forces by operating at the "margin" (i.e. through the "marginal" worker or firm) tend to give rise to a wider dispersion in wage levels[3]. In this context, we might expect market forces and institutional arrangements to interact in different ways over the distribution of earnings, thus altering more the top or the bottom of the earnings hierarchy depending on the type of institutions that are at work.

[figure 1 around here]

In figure 1 are reported different indicators of earnings inequality across OECD countries[4]. In particular, we have ranked countries according to overall inequality (i.e. D9/D1 ratio) and we have reported a relative measure of inequality in the bottom and top half of the distribution (i.e. D9/D5 and D5/D1 ratio). First, significant differences in earnings inequality emerge across countries: in the US the D9/D1 ratio is close to 4.5 while in Norway is less than 2. Second, in countries where overall inequality is rather low (i.e. those located in the right end, in figure 1), it appears that earnings dispersion is particularly compressed at the bottom end of the distribution – i.e. relatively to the top. Conversely, those countries where earnings inequality is higher have generally a wider dispersion at both ends, with the top end of the distribution often being relatively more important.

An obvious implication of the observed differences in earnings inequality across countries is related to the existence of similar disparities in the incidence of low pay: countries characterised by a wider dispersion in the bottom of the earnings distribution also have a larger share of low paid

[2] Obviously also the possibility that spill-over effects on non-covered workers might exist should be taken into account.
[3] Since "institutions" arise to represent and insure selected groups of individuals or firms their focus is on the "average" (median) and they may resist changes which affect the welfare of the "average" worker even if these might be perfectly consistent with an optimising behaviour based on the "marginal" worker such as that arising from the operation of the market mechanism (Freeman, 1996).

individuals. The rest of the paper is devoted to the analysis of those factors that might influence the pattern of inequality across countries and, in particular, their effects on lower part of the distribution and on the incidence of low pay employment. In practice the definition of low wage employment and its measurement, in this paper, accords with the conventional criteria generally adopted in the literature, which consider as low paid those workers falling below two-thirds of median earnings[5].

2.1. Collective bargaining and unionisation

The extent of unionisation and the practice of collective bargaining are important institutional features of wage determination. As shown in table 1 (columns 1 to 3) different patterns of union presence and activity characterise OECD economies[6]. Moreover, during the 1980s and 1990s, a number of changes in wage setting institutions, such as declining unionisation and progressive decentralisation of bargaining occurred in several industrialised countries. The interaction of wage regulations and union power may have different implications for institutional wage setting across countries.

[table 1 around here]

It has been argued that in decentralised systems with weak unions – such as the US, UK and New Zealand - the effect of a decline in density produces widespread effects on institutional wage setting, on wage dispersion and hence on the incidence of low pay. By contrast, in more regulated systems with industry-wide bargaining and high union coverage – such as most European countries – the effect of declining unionisation barely has an impact on wage setting, inequality and low wage

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[4] Inequality indices are calculated for full-time, full-year earnings. For further details concerning the data used, see: OECD, Employment Outlook, 1998; Bardone *et al.*, 1998.

[5] Several different definitions have been suggested for the earnings cut-off to determine low pay depending on whether an absolute or a relative measure is chosen. Usually, "absolute" measures are usually defined with reference to a given level of income (in real terms) - i.e. the official poverty line -; conversely, "relative" measures are taken either as a fraction of mean or median wages, or with respect to some specific quantiles of the earnings distribution. A number of problems arise with any of the above definitions, however for the purposes of the present study a "relative" measure - closer to the idea of social distance – was chosen. Despite its apparent arbitrariness, the measure chosen is in line with the Council of Europe's suggested "decency threshold" (i.e. defined as 68% of full-time average weekly earnings), as well as with most of the legal minimum wage levels enforced in several European countries. Other organisations have proposed different pay thresholds: i.e. Trade Union Congress (TUC) and British Low Pay Unit (BLPU). See OECD (1996) for a thorough discussion of the properties and limitation of the different measures for the low-pay cut-offs. Keese *et al.* (1998); also deal with the issue).

[6] Information on labour market institutions – for the years 1990s - is drawn from various sources: OECD, Employment Outlook, 1998; Bardone *et al.*, 1998; Nickell, 1998.

employment. The main explanation for these different outcomes reside in the institutional channels through which unions can influence wage formation: essentially mandatory extension provisions and centralisation of bargaining (Freeman, 1993; Card, 1998; DiNardo *et al.*, 1996).

Much of the empirical evidence concerned with the impact of unions on relative wages suggests that trade unionism can significantly alter the distribution of wages. One route through which labour unions can influence the wage distribution is by raising pay levels of those workers covered by collective agreements relative to non-covered workers (Lewis, 1986)[7]. A second way in which unions may affect the overall distribution of earnings is through "standard rate" policies aimed at reducing inequality among individual workers. In particular, collective agreements seek to fix both the number of job categories (i.e. in which workers are placed) and the rate of pay for each job, thus limiting the ability of the firm to remunerate differently workers according to their individual productivity (i.e. ability, merit, etc.)[8]. Although the economic reasons and the strength of union policies aimed at a reduction of wage differences, among similar plants and within the organised sector, will necessarily depend on market conditions and on the institutional setting, some basic factors can be put forward to explain union preference for a less dispersed wage structure. First, worker solidarity requires a rather uniform wage distribution, as the perception of marked differences in pay may reduce consensus among workers and the strength of the union's "collective voice" (Freeman, 1980a,b). Hence in general unions tend to resist any relative decline in low pay with respect to the average. Second, given that objective criteria to measure individual productivity can be rather arbitrary (i.e. subject to supervisor evaluation), risk-averse workers will - in general - prefer narrower wage distributions. Finally, considering the union as a political organisation whose consensus depends on median preference, when the median wage is less then the mean wage a large majority of workers will support a wage policy directed towards redistribution to the lower paid, thus further reducing dispersion and the incidence of low pay (Freeman and Medoff, 1984; Hirsch and Addison, 1986). In this respect, the effects that union presence is likely to produce on the distribution of wages, though indeterminate *a priori*, in practice result in a marked compression wage differentials and a lower incidence of low pay employment[9] (Blau and Kahn, 1996). In the following section the above proposition is analysed in greater detail.

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[7] Typically, depending on the positioning of workers affected by the union mark-up with respect to the overall wage distribution, the effects on wage dispersion will go in the direction of reducing inequality if workers have below-average pay levels, conversely inequality is likely to increase if workers have above-average pay levels.

[8] In general unions have been very successful in removing performance evaluations as a factor in determining individual workers' wage. Also, the introduction of seniority-based pay progression - requiring similar pay conditions to be applied to workers of comparable seniority - tends to reduce wage dispersion (Freeman, 1980b).

[9] Some care should be used in interpreting the impact of institutional wage setting (i.e. statutory minimum wages or bargained wages) on earnings dispersion, since it could also be ascribed to a truncation of the earnings distribution

2.2. Wage Regulations

Among those labour market regulations that have an influence on the distribution of wages the most relevant probably are statutory minimum wages, anti-discrimination legislation and mandatory extension of collective agreements (see table 1). These features are not necessarily mutually exclusive, since some time wage minima are set by statute after consultation with the unions, while in other cases different industrial relations aspects can interact with the legislation in a rather complex way. In general, the minimum wage legislation by setting an explicit threshold for the lowest wage level paid (i.e. hourly, daily or monthly) impacts on the bottom end of the earnings distribution and tends to reduce dispersion (see column (6) in table 1). The actual effect on the distribution depends both on its level relative to the median (average) wage and on the number of workers covered. These may differ significantly across countries, partly because some systems do not have any legislation setting a minimum wage and partly because over time the minimum may lose its "bite" decreasing both relative to average wages and in terms of low pay coverage (see column (7) in table 1). In a number of studies the abolition or the reduction of statutory minimum wages has been indicated as the main determinant of the widening of earnings inequality – particularly in the lower part of the distribution - as well as being responsible for the increase in low pay employment (DiNardo *et al.,* 1996; Fortin and Lemieux, 1997; Teulings, 1998; Bardone *et al.*, 1998). Obvious examples are the decline (in relative terms) of the Federal minimum wage in the United States and the abolition of Wages Councils in the United Kingdom (Machin and Manning, 1994). Conversely, in France where the minimum wage has remained relatively constant no big changes in low pay employment have been observed.

Alternatively, the impact of anti-discriminatory legislation and fair employment practices - by setting common standards of pay across (otherwise) different group of workers - have the effect of reducing overall pay dispersion[10]. The actual impact on low pay, however, may largely depend on the groups of workers who are affected: if the concerned groups are located in the bottom part of the wage distribution, the legislation will operate moving workers up in the distribution. With specific reference to female employment, it can be noted that despite the fact that women are usually over-represented in low wage jobs and show a higher propensity to experience long spells of low pay

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resulting from negative employment effects on low-paid work. In general, however, the latter appear to be relatively small (Bardone *et al.*, 1998).

[10] Note that since institutions can affect men and women so differently, particular care should be used in interpreting their joint effects. For instance, while unionisation and collective bargaining mostly affect the male wage distribution, females wages are more sensitive to minimum wage legislation.

employment, still women's pay in the last 20 years - in most OECD economies - has risen relative to that of men. Moreover, the effects of anti-discriminatory legislation have to be evaluated against the contemporaneous massive increase in the participation of women to the labour market that, without any institutional constraint, could have pushed wage levels further downwards in the bottom of the earnings distribution further concentrating low pay among women (Freeman, 1996; Joshi, 1998).

Finally, mandatory extension provisions can have pervasive effects in reducing wage differentials among covered workers, irrespective of their union affiliation. In countries where such provisions exist, the effect of negotiated (minimum) wages are automatically (or *de facto*) extended to all workers, granting a high coverage to union bargaining activity (see columns (4) and (5) in table 1). Both the United States and the United Kingdom provide an interesting case to be considered, namely: the absence of any form of mandatory extension has often been associated to wider wage differentials across groups of workers and firms, as well as to larger differences in low pay incidence. Conversely, in continental Europe, the effects of different kind of extension provisions together with a higher union coverage (see below) had strong equalising effects compressing the earnings distribution at the bottom and maintaining a low incidence of low paid jobs (Dell'Aringa, *et al.*, 1994; OECD, 1997) .

3. Low Pay Employment and Institutional Setting: Some Stylised Facts

There are a number of ways through which labour market institutions – such as those previously discussed - may influence the incidence of low pay employment. In general, both the "level" and "change" in labour market institutions may influence wage formation and the structure of earnings by altering the effects of market forces. On the one hand different institutional settings, across countries, provide different constraints and incentives for workers and firms involved in wage formation and can limit the changes in the wage distribution face to economic forces. On the other hand, changes in the institutional framework – such as looser constraints and greater incentives - may provide additional degrees of freedom to economic agents and favour changes in the structure of earnings. Whilst both the level and the change in institutions are certainly relevant to explain trends in inequality, here we shall take the view that institutional changes only occur in the long run and that a given institutional setting may be considered as characterising (within a short

period of time) one country's system of constraints and incentives. In this context we concentrate our analysis on the structural differences that exist in labour market institutions across countries considering the effects that they have on low wage employment and earnings inequality.

Conceptually, the well being of those individuals located at the bottom of the earnings distribution is related (in absolute terms) to the general level of real wages, to the level and changes in overall inequality and to the degree of earnings mobility that characterises the wage distribution. Whilst labour market institutions can influence each of these aspects, the implications for the low paid can be rather different and the effects should not be confused. The mean wage, on the one side, the dispersion of wage levels and mobility patterns, on the other side, describe different ways through which institutions may influence the distribution of earnings and the incidence of low pay, while differing significantly across countries and, within each country, over time.

At this point, while looking at some stylised facts, we shall review some of the economic implications for low wage employment and labour market institutional setting across countries in terms of mean wages, wage inequality and mobility patterns within the wage distribution.

Mean wage

In general, differences in the level of the mean wage across countries are relevant when low pay is measured with respect to some absolute benchmark and the notion of subsistence or poverty is to be assessed. A higher (or growing) mean wage will be associated to a lower proportion of people falling below a fixed threshold. In other words, in countries characterised by higher living standards (defined with respect to a given basket of goods and services) and higher mean wage – *ceteris paribus* – the relevance of low wage employment may be significantly different as compared with substantially poorer countries. The latter statement is implicit in the proposition that extensive welfare and economic growth can benefit anyone. However, if both the mean and the variance of the distribution differ there is no guarantee that all will be better off (it depends on the relative magnitude, as some could be worse off both in relative as well as absolute terms). In international comparisons a number of difficulties arise due to differences in productivity levels, definitions of subsistence levels and purchasing power in terms of each country's national currency. To avoid these kind of problems comparisons are most often made in relative terms. As an example of differing low wage levels across countries, in figure 2 we have reported – for a number of OECD countries - the real hourly earnings of workers located at the first decile of the earnings distribution and the ratio of the latter to the mean wage. As shown in the figure low wages tend to be rather low

in the US as compared to Europe and in particularly with Germany, suggesting that the lowest part of the distribution as well as the distribution itself (see the D1/D5 ratio) varies greatly across countries[11] (Keese, 1998; Freeman, 1994; Gottschalk and Smeeding, 1997).

[figure 2 around here]

Several studies have tried to investigate the relationship that might exists between a country's institutional setting and its performance and growth. Although there is no general agreement among economists on the role that labour market institutions may have on economic performance, a number of hypothesis have been subject to extensive scrutiny (Calmfors and Driffil, 1988; Brunetta and Dell'Aringa, 1990). Labour market institutions characterised by high levels of unionisation and centralised bargaining through their encompassing role appear to be engaged in more growth-oriented economic policies rather than concentrate on pure redistributive strategies. In these settings there are favourable conditions for limiting negative externalities of self-interested groups and low wage employment may benefit from a more favourable trade-off between real wage and employment growth. Conversely, when unionisation is more fragmented and different groups pursue their own interests the lack of co-operative growth oriented objectives may prove harmful for the country's performance. Redistributive strategies which favour the more powerful groups to the expense of the weaker ones may push in the direction of a rent-seeking behaviour with the possibility of externalising the negative side effects of redistributive policies. In these setting, low wage employment might be affected - depending on its relative power in group action - by a worsened real wage and employment trade-off. Finally, under decentralised bargaining and weak union power, the functioning of a quasi-market mechanism may adversely affect the relative position of low wage workers even in the context of sustained real wage and employment growth. In this context, institutional constraints have a negligible effect and the operation of supply and demand forces can severely affect the earnings of marginal (low paid) workers. (Pekkarinen *et.al.* 1992; Caroli and Aghion, 1998).

Hence, it can be argued that the interactions between institutions and market forces not only can have a significant impact on economic performance and on the real wage employment trade-off,

[11] Also considering the changes occurred over time, in various countries, can be useful to assess the relationship between the evolution of mean wages and low pay. In particular, when measured in absolute terms, the increase in real wages in Japan and the United Kingdom has driven a relative fall in the incidence of low pay. In contrast, in the United States the fall in real wages at the bottom of the earnings distribution, has determined a rise in the proportion of workers with low real earnings.

but also that their combined effects are likely to work in different ways across specific parts of the earnings distribution. This is what we consider next.

Wage inequality

Differences in wage inequality across countries are another dimension of the low wage employment problem. Countries with wider wage differentials are often characterised by a larger proportion of low paid individuals. In figure 3, we have reported for several OECD countries both the proportion of low paid workers - i.e. those whose earnings fall below two-thirds of the median wage – as well as the ratio of the median to the first decile. The pattern that emerges, as documented in several studies, shows that countries characterised by a higher dispersion in the lower part of the earnings distribution also have the largest share of low paid individuals (OECD, 1997; Blau and Kahn, 1996).

[figure 3 around here]

International differences in earnings inequality can reflect a wide variety of factors ranging from differences in measured and unmeasured characteristics, up to the different structure of returns for those skills. In this context institutional differences in wage formation underline a different set of incentives and constraints that individuals take into account in making their optimal choices. As a first approximation, when comparing levels of inequality and low wage incidence across countries it customary to decompose overall inequality in "between" group and "within" group components[12]. Labour market institutions – as previously discussed – can have a pervasive effect both on the distribution of observed characteristics as well as on the structure of returns to these characteristics. Therefore it is important to assess their relative importance in shaping the cross-country pattern of inequality. In other words, differences in the overall inequality and the incidence of low pay may not only reflect the fact that there are differences in unionisation rates, in the distribution by skill, gender and other observable traits across countries, but also that the mode of determination of

[12] Inequality differs not only among these different groups but also within groups of workers with the same average characteristics. In terms of the methodology often used the within group component can be approximated by the dispersion of the residual of the regression, with a wider dispersion of the residuals showing greater inequality within groups.

economic returns might be different[13]. Institutional pay setting, such as union pay policies, the structure of bargaining, the existence mandatory extension of collective agreements and, more generally, the legislation on wages may significantly influence wage dispersion and the incidence of low pay.

An alternative hypothesis, often neglected, is that different types of institutions may induce greater (in)stability in the earnings of people with similar characteristics and belonging to the same group. At any moment in time people may experience different earnings (and employment) patterns with short-term transitory increases or decreases in their earnings. If these fluctuations are larger in one country with respect to another, then both inequality and low wage employment measured at a given point in time will differ (Gottschalk and Moffit, 1994; Gottschalk, 1998).

Wage mobility

With respect to the previous discussion, one further dimension of the functioning of the low wage labour market and its interactions with the institutional setting to be considered is related to the mobility patterns that characterise the earnings distribution. Whilst measures of inequality and low wage incidence can provide a rough measure of the diffusion of low pay at a given point in time, they do not offer any perspective on the transitions that occur between the pool of low wage workers and the rest of the earnings distribution. In particular, when analysing low wage employment, it is important to stress that are not always the same people who are low paid: a person in the lowest percentiles in a given year will no be necessarily in the same percentile few years later[14]. Differences in mobility patterns both across countries and time may reflect differences in the covariance structure of earnings for any given distribution. In general more dispersed distributions are expected to be characterised by higher (short-term) fluctuations in earnings and hence by larger transition flows across the different part of the distribution. In terms of low wage employment the latter may imply, on the one side, more frequent low pay spells, but at the same time the duration of each spell can be shorter as individuals are also more likely to exit from low pay. To get a rough picture of the relationship that links the extent of low pay to the mobility patterns of individuals located in the lowest deciles of the distribution, in figure 4 we compare across countries an indicator

[13] Blau and Kahn (1996), find that differences across countries in the skill distribution (measured by years of schooling and other relevant worker characteristics) account for only a small part of the differences in the overall dispersion of male wages. Hence institutional factors could be relevant in explaining the residual (unexplained) variation.

[14] If a large proportion of low wage earners in one year earn high wages in other years, then the cross-sectional earnings distribution might not be very informative. To get a clear picture of the covariance structure for low wage workers it is necessary to have repeated information on the same individual over time (i.e. longitudinal data).

of low wage incidence with a measure of transitions out of low pay – i.e. the proportion of people moving from a low wage job to a high pay job.

The evidence does not seem to support the hypothesis that countries characterised by a larger pool of people earning a low wage are also more likely to have larger flows out of low pay. In particular, contrary to our expectations, in countries where there is a larger share of low paid people, only a small proportion seem to transitate to higher paid jobs. At the aggregate level, it emerges some degree of persistence in low pay: that is the same individuals are still found in low pay several years after (OECD, 1997). Conversely, exiting low pay appears more likely in those country where incidence is smaller[15].

[figure 4 around here]

In general, the empirical literature shows that earnings mobility is rather modest and not sufficient to override the effects of steady state inequality (Burkhauser, *et al.*, 1995; Bigard, *et al.*, 1998; OECD, 1996). In terms of labour market institutions, the fact that the US has a less regulated labour market and a more decentralised system of collective bargaining as compared to European countries does not translate in greater earnings mobility nor in a higher probability of leaving low pay. Likewise the more centralised wage setting institutions which are present in Germany and in the Nordic countries do not imply a significantly lower mobility among the low paid[16]. This evidence, even if only sketched, seems to imply that institutions produce their main effects on the permanent components of pay dynamics, whilst differences in the transitory components only appear to have marginal effects (Dickens, 1997; Cappellari, 1998; Gottschalk, 1998).

4. Measuring the Effects of Institutions on Low Pay Employment

[15] Particular care in interpreting these results is necessary for three main reasons. First, given the definition of low pay (relative to the median wage) when earnings are more dispersed – particularly at the extremes of the distribution – the wage gain required to exit low pay might be larger thus mechanically reducing transition flows. Second, persistence in the aggregate might be due to some specific characteristics of the low wage pool that are correlated to earnings levels quite independently from pure state dependence (i.e. skill as well as unobserved heterogeneity). Third, year-to-year mobility into and out of low pay might also be affected by significant selection effects. Workers flows out of low pay are often accounted not only by move into higher paid job but also by moves into non employment (unemployment or out of the labour force), as well as flows into low pay may be associated to earlier spell of unemployment (Bardone, *et al.*, 1998)

[16] It is obvious that, when a longer accounting period is used, all countries have less inequality and mobility is in general higher. However, since countries do not differ much in terms of mobility patterns the ranking of countries in terms of inequality is not significantly altered anyway.

The fact that over the 1990s several OECD countries experienced a general tendency towards increasing inequality and are still showing considerable differences in the extent of inequality and low wage employment, may be interpreted as evidence that institutional structures under common shocks can produce substantially different outcomes. In this section we shall investigate the extent to which selected institutional features can influence the distribution of wages and the incidence of low pay employment across a number of OECD countries[17]. In particular, since the impact of institutional features typically concentrate in specific parts of the distribution, we shall concentrate our attention to those institutions which most likely – though not exclusively – produce their main effects on the bottom part of the wage distribution, namely: the role of trade unions, the structure of collective bargaining and the existence of regulations on wages. Their main effects, as well as those of selected control variables, are reported in table 2 and discussed thereafter.

[table 2 around here]

Unions and Collective Bargaining

There are several *routes* through which trade unions can alter the overall distribution of wages and in particular the incidence of low pay. Although, union pay policies tend to reduce wage dispersion by raising wage floors almost in all countries, the extent to which unions are able to reduce the gap between low pay and average pay levels appears to be correlated to the degree of unionisation (or union density) observed in each country. In figure 5, we plot low pay incidence against union density. The empirical evidence, drawn form simple bivariate correlations, shows that where unionisation is generally low a larger pool of low wage workers is observed[18]. In the US where only 14 per cent of workers are members of a trade union the proportion of low paid workers is over 25 per cent, whilst in Sweden where union density is over 80 per cent less than 6 per cent of workers fall below the low pay threshold (see table 1). Similarly in Italy, Germany and Belgium where nearly one worker out of two is member of the union (i.e. IT, 40; GER, 33; BEL, 51) the proportion of low paid people ranges between 8 and 13 per cent. Hence, at a purely descriptive level, the rate of unionisation appear to be negatively correlated (rho=-0.62) to the extent of low wage employment (see table 2).

[17] Earnings inequality indices only refer to private sector full-time full-year workers.

[18] Standard bivariate correlation coefficients are reported in table 2, the only exception being the use of the Spearman rank correlation for the index of centralisation.

[figure 5 around here]

However, unionisation has been traditionally low in some countries, such as France, which have also experienced a fairly low incidence in low wage employment. In this context given the existence of mandatory extension provisions for collective bargaining, as previously described, a more appropriate indicator for the effective "strength" of unions in protecting low wages can be the degree of union coverage. When the latter is taken into account – as we do in figure 6 - the evidence of a negative correlation between union power and low wage employment is reinforced (rho=-0.64).

[figure 6 around here]

In other words, the power of the unions to create a wage floor and reduce wage dispersion at the bottom of the distribution seems to be the result of a combination of different factors: on the one side, some "pure" union power given by actual membership and, on the other side, some form of wage regulation that can extend the bargaining power in collective negotiations far above that provided by union presence. In order to see this, in figure 7, we have computed an indicator of coverage extension (measured as the excess of bargaining power over and above union membership) and related it to low wage incidence.

[figure 7 around here]

The pattern that emerges, with the exception of some outliers, shows two cluster of points: on the top left (i.e. high low wage employment and low coverage extension), we find countries belonging to the Anglo-Saxon model of industrial relations characterised by limited mandatory extension provisions; conversely, on the bottom right, it is the European model of industrial relations - with high coverage and frequent mandatory extensions- (see table 1) that predominate[19].

Finally, the structure of collective bargaining might be related to the extent of low pay. In particular, centralisation of collective bargaining through the encompassing role played by the unions is shown to reduce significantly wage dispersion in the bottom part of the wage distribution and limit the incidence of low pay. Both table 2 and figure 8, show a negative (statistically

[19] Note that most of the outliers are represented by Scandinavian countries for which unionisation and coverage are both high. In some cases, coverage extension turns out to be negative, that is union density is higher than coverage.

significant) correlation between an index of centralisation and the proportion of low wage workers (rho=-0.77).

[figure 8 around here]

Wage Regulation

There are a variety of other labour market institutions which may affect the distribution of earnings and the incidence of low pay. As already discussed at some length, both the existence of a statutory minimum wage and the generosity of unemployment benefits may have an impact on the bottom end of the wage distribution as well as on the propensity of individuals to take up low-paid jobs. In general, a high (low) minimum wages relative to average wages (i.e. "Kaitz index) tend to be associated with lower (higher) levels of low wage employment. The latter is confirmed by the strong negative correlation that emerges from figure 9 between the Kaitz index and the proportion of low wage workers across countries (rho=-0.73).

[figure 9 around here]

The generosity of unemployment benefits - measured by the replacement ratio in figure 10 - also appears to be negatively related to the extent of low wage employment (rho=-0.55).

[figure 10 around here]

In general the evidence presented thus far seem to confirm the significant role played by labour market institutions in shaping the distribution of earnings and the incidence of low wage employment. Different institutions concerned with wage setting practices – taken one by one – have shown that various forms of wage floors, by reducing dispersion at the bottom end of the distribution or more directly by truncating the distribution from below, can play a relevant role in alleviating the problem of low pay. However, some care should be used in interpreting the results due to a number of *caveats* that apply to the above evidence and some further discussion is required before any policy implication can be drawn.

First, bivariate correlations across countries between different measures of labour market institutions and the incidence of low pay only provide a description of the "stylised facts" but do not

involve any investigation of the nature of the causation which may generate the observed patterns. Furthermore, the partial approach adopted here, which concentrate the attention on labour market institutions neglecting both the role that market forces or other factors may have played, cannot rule out other competing explanations for the existence of a different incidence in low wage employment across countries. Second, when using evidence from aggregate data, compositional effects – originating from a different distribution of (observed as well unobserved) characteristics across countries – may distort the observed pattern in an unpredictable way. The obvious factor to be considered is the different distribution of skill levels, either measured in years of schooling or – more appropriately – using average test scores. In figure 11, we plot literacy tests score ratios against low wage employment[20]. The picture shows a clear positive correlation between skill dispersion and low wage incidence, that is: the more heterogeneous are workers in terms of skills – in the bottom part of the skill distribution -, the higher are earnings inequality as well as the proportion of people falling below the low wage threshold.

[figure 11 around here]

A third and more fundamental criticism, which applies to all studies that investigate the role of institutions as a potential explanation for different economic outcomes, has to do with the fact that institutional variety of labour market features might be the result rather than the cause of a different low wage incidence. For example, countries with a low wage dispersion for reasons other than those attributable to the institutional setting, may set a relatively high minimum wage to protect workers from adverse shocks but knowing that very few would be affected. In the remainder of the section, we shall take up these points in order.

Institutions and Low Pay: Is the Evidence Robust?

As far as the first criticism is concerned, in table 3 we report some evidence drawn from a simple multivariate analysis[21]. The proportion of low wage workers is regressed against a set of institutional features that, as previously described, are expected to reduce dispersion in earnings in the lower part of the distribution. When we look at the joint effects of unionisation, union coverage

[20] The index is based on the OECD "Literacy Skills Test Scores" and it is the ratio of the 5th percentile divided by the mean (available for 11 countries only). I am particularly grateful to A. Glyn for making the data available to me.

[21] Given the limited degrees of freedom the results reported here should be interpreted with some care. A similar approach – though with less observations and less control variables – can be found in Freeman (1996). The results obtained here are very close to those reported in that study.

and centralisation in collective bargaining across countries, we find that they contribute to reduce the incidence of low wage employment. Coefficient estimates are negatively signed and are in general statistically significant (though centralisation on its own is not)[22]. However, since institutional wage setting is also strongly influenced by generous unemployment benefits as well as by a high minimum wage with respect to the average wage, we include both as additional controls. In line with previous results, our findings suggest that also wage regulations have a significant impact on low wage employment (DiNardo *et al.,* 1996; Fortin and Lemieux*,* 1997; Teulings, 1998). Finally as a further test for the significance of the above results we experimented additional control variables such as, the proportion of self-employed workers, the share of women employed part-time and a test score ratio[23]. None of the above controls, however, seemed to play any role in explaining the distribution of low pay employment in different countries: as shown in table 3 (column 3) the test score variable, while leaving largely unaltered previous estimates, never resulted statistically significant also showing the wrong sign when union coverage and centralisation index were dropped.

[table 3 around here]

Regression estimates can also provide a rough indicator of the potential effects that differences in labour market institutions can have on differences in the incidence of low wages. For example, if we consider the difference in low wage employment incidence between the US and Germany (ΔLW=12%), the results suggest that 64% of that difference ($\Delta LW_{(est)}$=7.7%) can be explained by differences in labour market institutions. Alternatively, repeating the exercise for the US against Sweden (ΔLW=19%) the proportion accounted for by differing institutional settings is close to 61% ($\Delta LW_{(est)}$=11.7%).

As previously discussed, since many institutional arrangements are typically targeted towards specific portion of the wage distribution, we may expect that their effects will differ between the bottom and the top end of the distribution. In table 4, we evaluate the effects of labour market institutions – for the same set of OECD countries - on various measures of wage inequality. In particular, it might be interesting to investigate whether the same institutional arrangements

[22] The centralisation index did not result statistically significant and hence was excluded from subsequent specifications.
[23] Note that, since earnings data refer to full-time private sector employees, the inclusion of both part-time and self-employment controls is essentially trying to capture a potential under reporting in low pay employment (since low pay is

considered in the previous exercise can have a different impact on inequality at the top and the bottom of the wage distribution[24]. In order to do this we regress different institutional features on decile ratios (i.e. D9/D1; D9/D5; D5/D1). When overall inequality (measured by the ratio of the top to the bottom decile) is considered, a higher union density appears to be associated to a lower wage dispersion while no (statistically significant) effect is detected for the coverage variable and the centralisation of collective bargaining. Also, both a higher minimum wage – with respect to the average wage – and a more generous benefit replacement ratio result in a lower dispersion. The effect of the minimum wage on the distribution, in particular, seem particularly strong. When the same set of institutional variables are experimented, respectively, on the top and the bottom of the distribution some interesting differences result. First, as one might expect, union density has a negative impact on wage dispersion at the bottom of the distribution (i.e. D5/D1) whilst it shows no effect at the top (i.e. D9/D5); the reverse is true when centralisation of collective bargaining is taken into account. Quite interestingly, the minimum wage has a (statistically significant) negative effect on wage dispersion in the top half of the distribution, while no (statistically) significant effects are detected in the bottom part. The generosity of the benefit system shows a positive impact on the top half of the wage distribution and a negative impact on the bottom end, however none of the two is statistically significant. Finally, the inclusion of a test score indicator as a proxy for low-skill heterogeneity and as a potential determinant of wage dispersion in the bottom part of the distribution, never showed up statistically significant (see column 7, table 4).

[table 4 around here]

In other words, results seem to suggest that the main effect of a 'strong' union is that of protecting low pay, while a centralised bargaining system is more effective in containing wage differences at the top of the distribution. The evidence concerning the minimum wage might be consistent with the fact that spill-over effects are transmitted also to the upper parts of the wage distribution; conversely, generous welfare systems while effective in reducing overall dispersion do not affect in a independent way the top and bottom half of the wage distribution.

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known to be higher among female part-timers and the self-employed). Results for the other control variables have not been reported in the tables.

[24] It should be stressed that the estimation of the effects of labour market institutions on different portion of the wage distribution is particularly demanding with respect to the data used, which is a cross-section of 20 OECD countries. While parameter estimates, both in terms of sign and magnitude, are fairly robust to changes in the specification, the statistical significance on the individual coefficients sometime weakens when sufficient non-linear terms and interactions are introduced.

Although, it should be stressed that the above results have to be taken with particular care, since they are based on aggregate cross sectional data and on a limited number of observations, nevertheless they appear to be consistent with the view that labour market institutions do play a relevant part in determining wage inequality and the extent of low pay employment across countries.

Next we turn to the role of different characteristics. The issue of compositional effects to assess the role of institutions on labour market outcomes has been addressed in a number of studies. Blau and Kahn (1996), after correcting for a wide range of worker characteristics, still find that institutional features represent one of the main factors which can account for the observed differences, across countries, in wage inequality and low wage employment[25]. Freeman (1996) and Bjorklund and Freeman (1996), using US and Swedish data, runs a pseudo-experiment comparing earnings inequality between a 'treatment' and 'control' group of people. The two consist, on the one side, of a sample of men of Swedish descent living in the US and, on the other side, of a sample of native Americans and a sample of non-Nordic men and a sample of persons with Swedish ancestry both living in Sweden. The results show insignificant differences in earnings inequality between the two groups, in each experiment; thus suggesting that institutions more than observed and unobserved characteristics contribute to shape the earnings distribution. In other words, Swedish institutional wage setting appear to be more committed to egalitarianism – showing less dispersion in earnings and a lower incidence in low wage employment – while in the US there is more inequality because the wage setting system produces higher dispersion in earnings.

As a final point, we take up the point concerning the nature of institutions *vis à vis* market forces. In general, a number of features which have characterised the process of structural change across most industrialised countries appear hard to reconcile with the view that institutions are purely endogenous and therefore should not be considered as one of the key factors capable to explain the observed differences. One feature that should be considered is that pervasive labour market institutions show a strong persistence and resist changes face to economic forces. Moreover, common shocks to most countries produced very different responses in the distribution of both wages and employment depending on the underlining institutional settings. Countries characterised by similar institutional features shared common patterns, as described above, irrespective of the magnitude of the economic changes occurred. If institutional settings were endogenous responses to more fundamental shocks resulting from globalisation, technological shock and organisational change the pattern of economic effects should have been stronger where institutions proved more

[25] See also Leuven and Oosterbeek (1997) for an alternative explanation.

sensitive to adjust. The available evidence suggests that this is not the case, differences in labour laws and collective bargaining practices, as opposed to demand and supply factors, appear to be the relevant features of the diverging patterns. Also when employment effects are taken into account, countries endowed with institutional wage setting practices targeted to protect low wage workers - which also reduce wage dispersion – should exhibit larger losses in relative employment rates of lower wage or low skilled workers as compared to countries where wages are set in a more market oriented fashion. However, the relative employment rates of the low wage/low skilled workers evolved in a similar fashion in most countries, which appears in contrast with the view that institutions are endogenous responses to market shocks (Card, *et al.*, 1996; Fortin and Lemieux, 1997; Nickell and Bell, 1995).

5. Concluding Remarks

In this paper, the issue of labour market institutions and low wage employment has been investigated and empirically tested on a number of OECD countries. Since institutional arrangements are typically directed towards specific portion of the wage distribution or given groups of individuals, we have focused the attention on selected institutions that are particularly relevant for low wage employment. In particular the effects of trade unions, the structure of collective bargaining and the existence of regulations on wages have been considered.

In general, both the “level” and “change” in labour market institutions can influence wage formation and the structure of earnings by altering the effects of market forces and providing a different set of constraints and incentives for workers and firms involved in wage formation. Here, however, the focus has been restricted to the analysis of the structural differences that exist in labour market institutions across countries and considering the effects that the latter have on low wage employment and earnings inequality. By looking at the different moments of the distribution of earnings various dimensions of low pay have been analysed, namely the effects of the institutional setting on the mean, the dispersion and the (time) covariance of earnings. Consistent with previous work, our results suggest that institutions are a relevant factor in shaping the distribution of earnings and the incidence of low pay. We have shown that institutional settings differ substantially across countries and that institutional variety in the labour market is able to explain a great deal of the observed patterns in low pay across countries.

At a purely descriptive level, results from bivariate correlations indicate that union density, collective bargaining coverage and centralisation of negotiations jointly contribute to reduce the incidence of low pay across countries. However, the power of the unions to create a wage floor and reduce wage dispersion at the bottom of the distribution appears to be the outcome of a combination of both union power as well as wage regulations such as mandatory extension of contract, statutory minimum wages and the generosity of unemployment benefits. When all the above factors are considered together to explain the pattern of low wage incidence across countries, results show that over 60 per cent of the cross-country differences in low pay can be accounted for by the different institutional settings. Looking at the effects of institutional arrangements on wage inequality, we show that a high union density lowers dispersion in the bottom end of the distribution, while a more centralised bargaining system is effective in containing wage differences at the top. In general, both minimum wages and generous welfare systems appear less effective in reducing wage dispersion when the bottom half of the wage distribution is considered. Also, the hypothesis that a greater dispersion in skills could be the main determinant of differences in earnings inequality did not receive strong support in our findings. The test score variable, introduced as a proxy for heterogeneity in the bottom part of the earning distribution, never showed any (statistically) significant impact on the incidence of low pay or on wage dispersion in different countries.

Whilst the above evidence is far from providing any conclusive assessment of the complex interactions that exist between labour market institutions and the problem of low wage employment, it still provide additional evidence consistent with other studies that institutions do matter for the functioning of low wage labour markets. From a more policy oriented perspective, the above findings seem to suggest that Governments can have a role either supporting or promoting those institutions which have proved effective in dealing with the problem of growing earnings inequalities and low pay employment.

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Table 1 Union presence ad wage regulations in OECD countries

	unionisation indicators			wage regulations			
country	**union density** (%)	**Coverage** (%)	**corporatism**	**extension of collective agreements***		**minimum wage systems** *(MW)*	
			index	*descrption*	*index*	*descrption*	*Kaitz Index*
	(1)	**(2)**	**(3)**	**(4)**	**(5)**	**(6)**	**(7)**
Austria	46.2	98	19	*almost all agreements*	*16*	*nationally negot. MW* (*)	0.62
Belgium	51.2	90	14	*almost all agreements*	*15*	*negotiated monthly MW*	0.60
Denmark	71.4	69	12	*by centralisation*	*17*	*nationally negot. MW* (*)	0.64
Finland	72	95	16	*frequent (minister ext.)*	*12*	*nationally negot. MW* (*)	0.52
France	9.8	95	7	*very frequent*	*14*	*statutory hourly MW*	0.50
Germany	32.9	92	17	*frequent (small firm)*	*12*	*negotiated MW (by industries)*	0.55
Ireland	49.7	60	7	*limited to min-wages*	*7*	*statutory MW (only selected industries)*	0.55
Italy	38.8	85	15	*almost all agreements (by ind.)*	*16*	*negotiated monthly MW (by industries)*	0.71
Netherlands	25.5	81	7	*frequent (minister ext.)*	*10*	*statutory weekly MW*	0.55
Norway	56	74	18	*by centralisation*	*17*	*nationally negot. MW* (*)	0.64
Portugal	31.8	71	7	*frequent (minister ext.)*	*16*	*statutory monthly MW*	0.45
Spain	11	78	7	*frequent by industry*	*15*	*statutory monthly MW*	0.32
Sweden	82.5	89	7	*by centralisation*	*17*	*nationally negot. MW* (*)	0.52
Switzerland	26.6	50	12	*frequent (minister ext.)*	*11*	------	0.50
United Kingdom	39.1	47	4	*no automatic ext.*	*3*	*statutory MW (before 1993, selected industries)*	0.40
Japan	25.4	21	6	*rare (company agreements*	*4*	*statutory daily MW*	0.53
Australia	40.4	80	5	*limited to min-wages*	*8*	*negotiated MW*	0.45
New Zealand	44.8	31	1	*limited cases (minister ext.)*	*10*	*statutory weekly MW*	0.46
Canada	35.8	36	1	*limited cases*	*5*	*statutory hourly MW*	0.35
United States	15.6	18	1	*no automatic ext.*	*1*	*statutory hourly MW*	0.39

Source: OECD, 1996; Nickell, 1997

(*) Collective agreements covering most of the labour force

Table 2 - Institutions and Low Wage Incidence
(cross-country correlations, 20 countries)

Variables	**Low Wage incidence** (2/3 of median wage)
Labour market institutions	
Union Density	-0.61**
Union Coverage	-0.64**
Centralisation	-0.77**
Kaitz Index	-0.73**
Benefit Replacement Ratio	-0.55*
Other characteristics	
Women Employed Part-time	-0.29
Proportion of Self-Employed	-0.32
Test-score Ratio	0.57 (#)

* 5% significance level; ** 1% significance level;
(#) based on 11 countries only.
Source: OECD, 1996

Table 3 - Estimates of the Effects of Labour Market Institutions on Low Wage Incidence
(20 countries)

Variables	**Low Wage incidence** (2/3 of median wage)			
	(1)	(2)	(3)	(4)
Labour market institutions				
Union Density	-0.100*	-0.068*	-0.077*	-0.074*
Union Coverage	-0.086*	-0.066*	-0.068	—
Centralisation	-0.358	—	-0.059	—
Kaitz Index	—	-0.272**	-0.290**	-0.323**
Benefit Replacement Ratio	—	-0.116**	-0.130**	-0.124**
Other characteristics				
Test-score Ratio	—	—	0.037	-0.094
"noscore" dummy	—	—	0.030	-0.055
Constant	27.79**	42.71**	42.02**	47.05**
R^2	0.63	0.82	0.82	0.76
N. observations	20	20	20	20

* 5% significance level; ** 1% significance level;
Source: OECD, 1996; Nickell, 1997

Table 4 - Estimates of the Effects of Labour Market Institutions on the Distribution of Wages

(Decile ratios - 20 countries)

Variables	**Decile ratio** (D9/D1)		**Decile ratio** (D9/D5)		**Decile ratio** (D5/D1)		
	(1)	(2)	(3)	(4)	(5)	(6)	(7)
Labour market institutions							
Union density	-0.013*	-0.0086*	-0.00361	-0.0031	-0.0125*	-0.0116*	-0.014*
Coverage	-0.0057	__	0.0011	__	-0.0037	__	__
Centralisation	-0.051	-0.0015	-0.0255*	-0.0183*	0.056	0.0465	0.0674
Kaitz index	__	-0.044**	__	-0.0069*	__	-0.0002	-0.0005
Benefit replacement ratio	__	-0.011*	__	0.0017	__	-0.0028	0.0012
Other characteristics							
Test-score Ratio	__	__	__	__	__	__	0.0248
“noscore” dummy (*)	__	__	__	__	__	__	0.0156
Constant	4.45**	6.43**	2.089**	2.28**	1.83**	1.79**	2.98**
R^2	0.49	0.70	0.43	0.50	0.20	0.18	0.26
N. observations	20	20	20	20	20	20	20

* 5% significance level; ** 1% significance level;

Source: OECD, 1996; Nickell, 1997

(*) dummy variable that takes value 1 when the test-score variable is missing (i.e. set equal to zero in 9 cases).

Figure 1 - Earnings Inequality: Decile Ratios

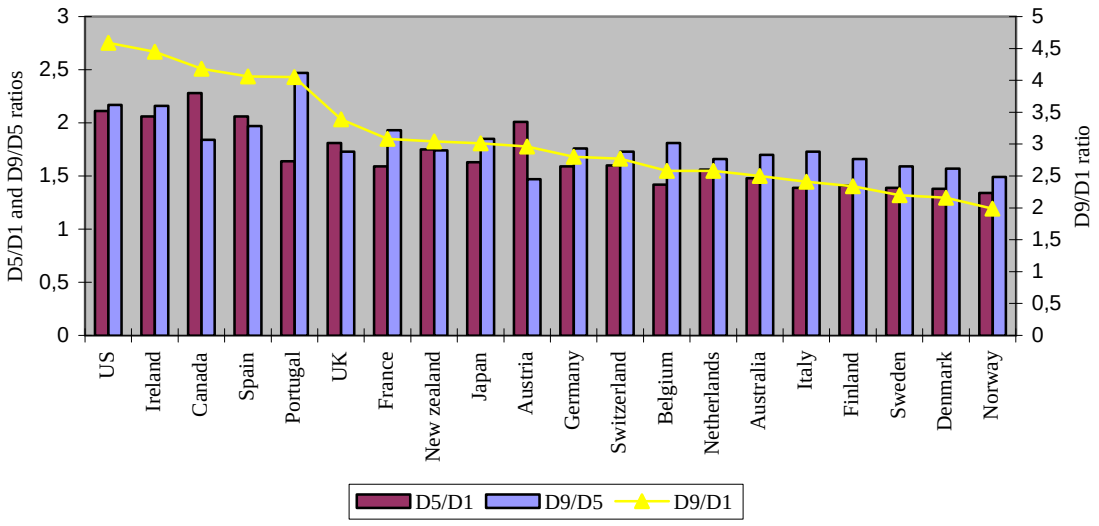


Figure 2 - Real hourly earnings index (D1) and D1/D5 ratio (men)

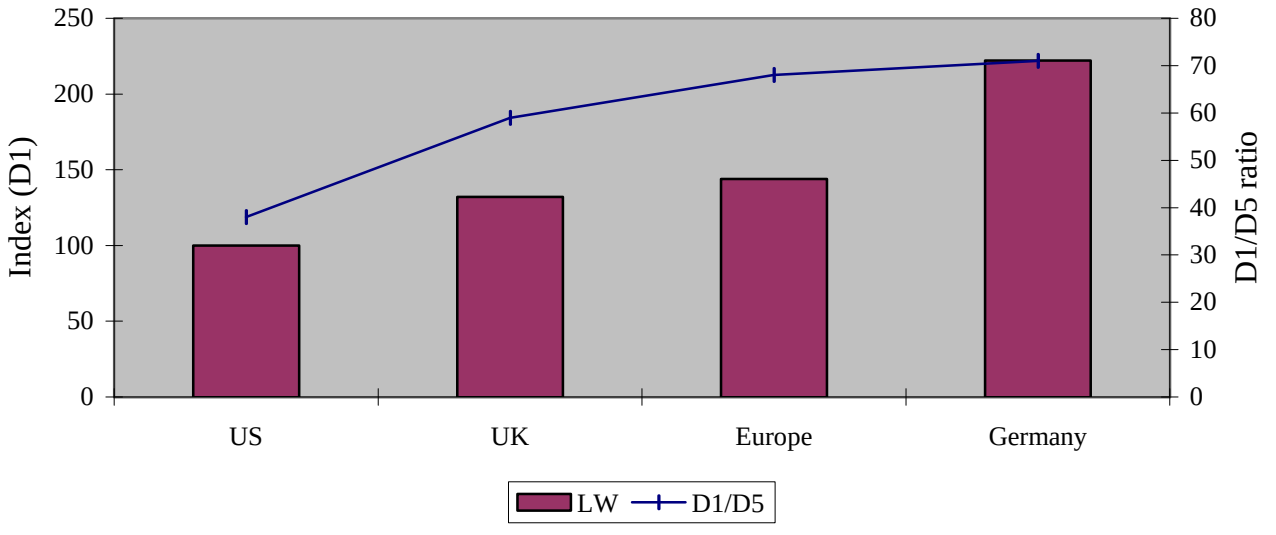


Figure 3 - Incidence of Low Wage Employment and D5/D1 Ratio

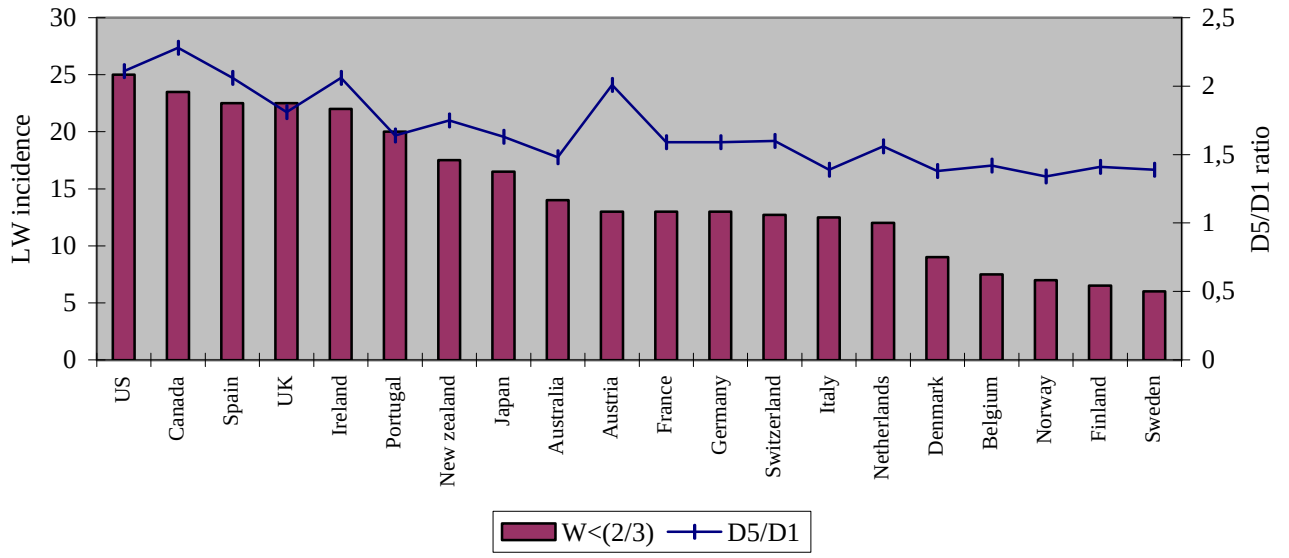


Figure 4 - Low wage employment and mobility patterns

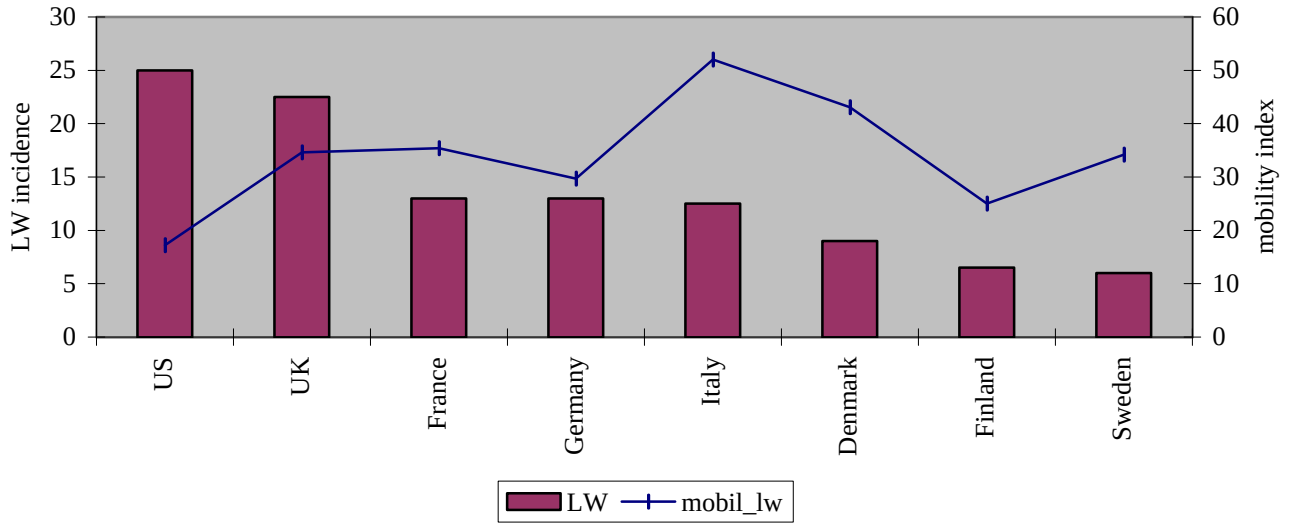


Figure 5 - Union Density and Low Pay

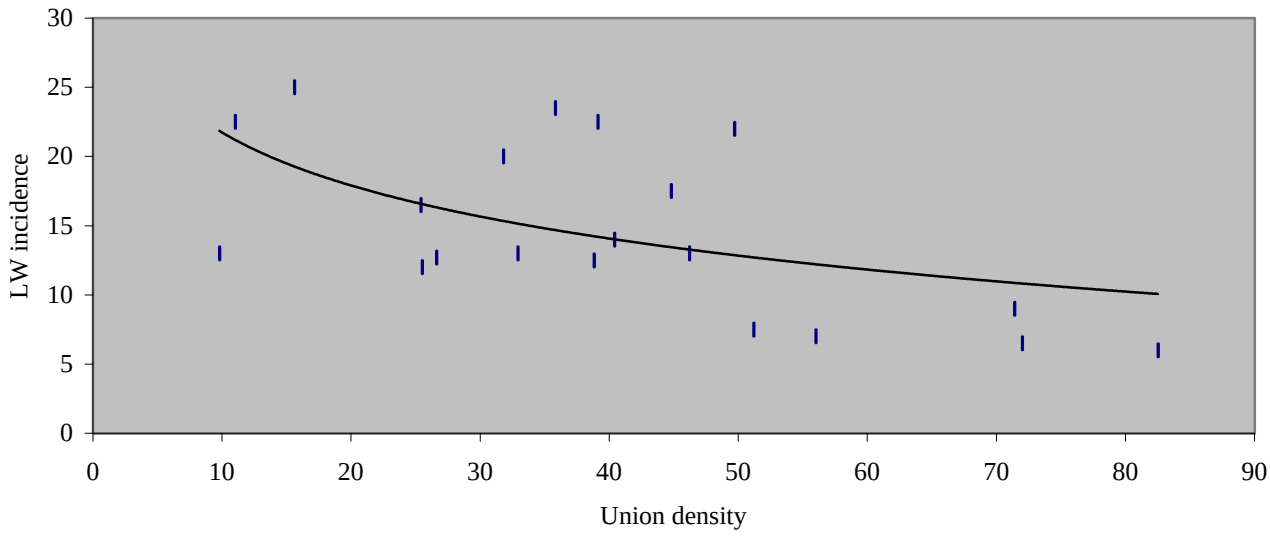


Figure 6 - Union Coverage and Low Pay

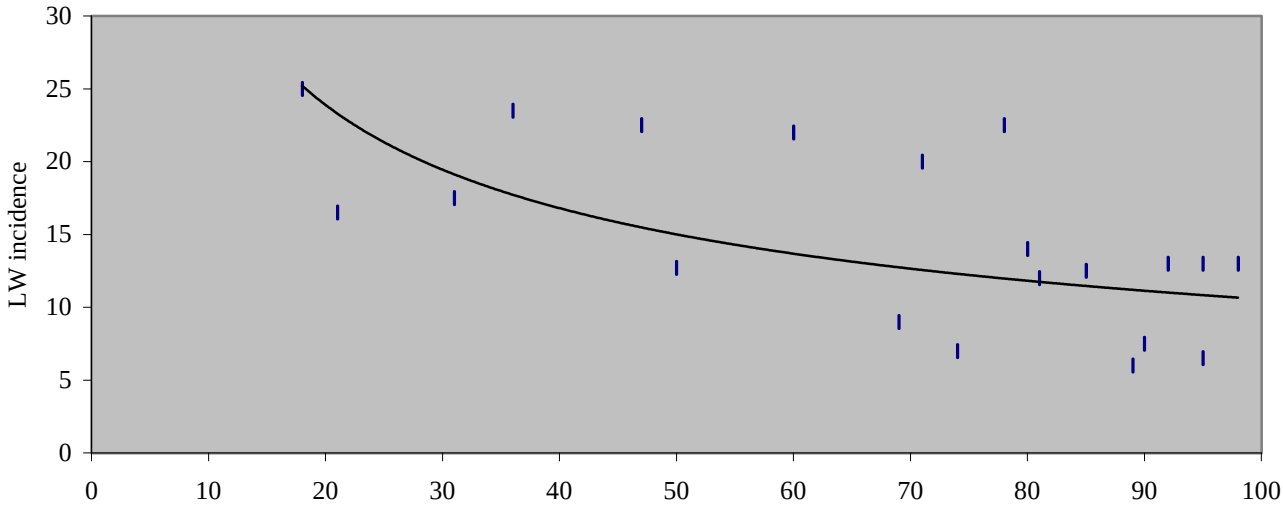


Figure 7 - Coverage Extension and Low Pay

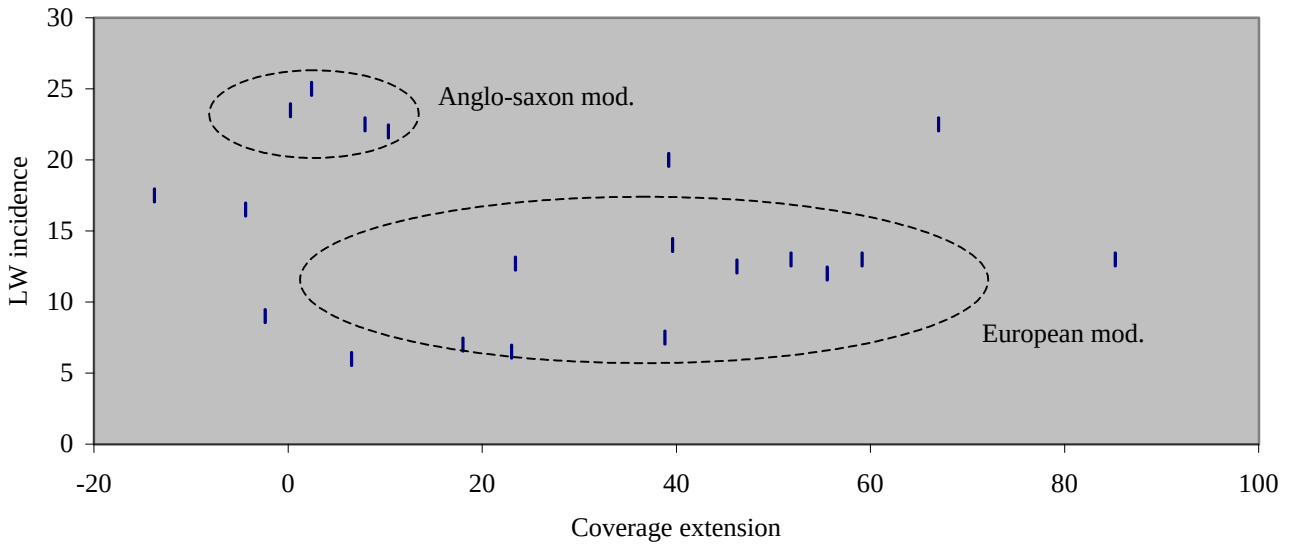


Figure 8 - Centralisation and Low Pay

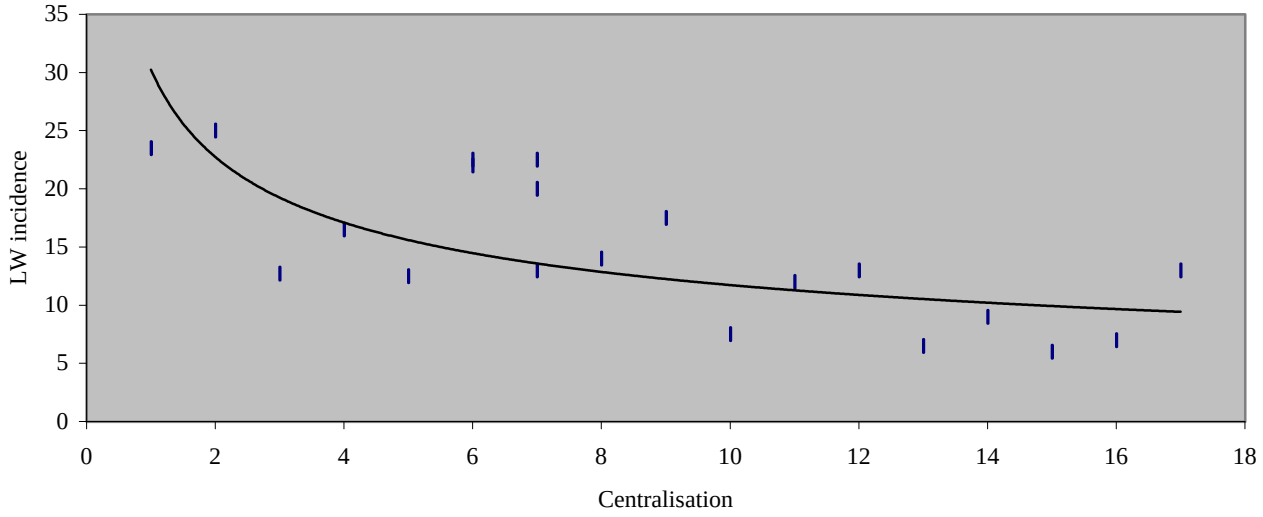


Figure 9 - Kaitz index and Low Pay Incidence

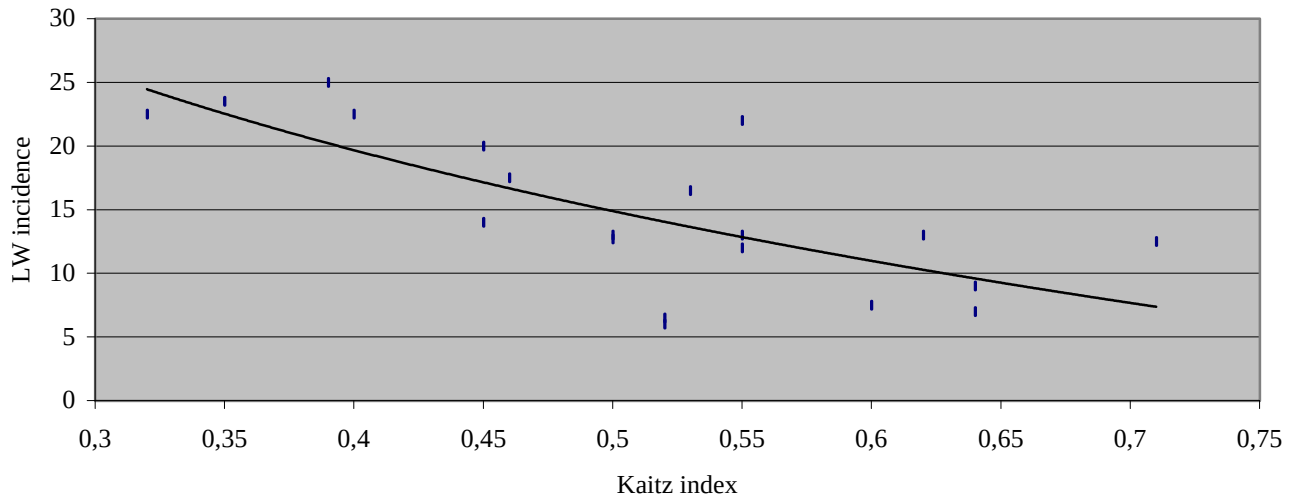


Figure 10 - Replacement ratio and Low Pay Incidence

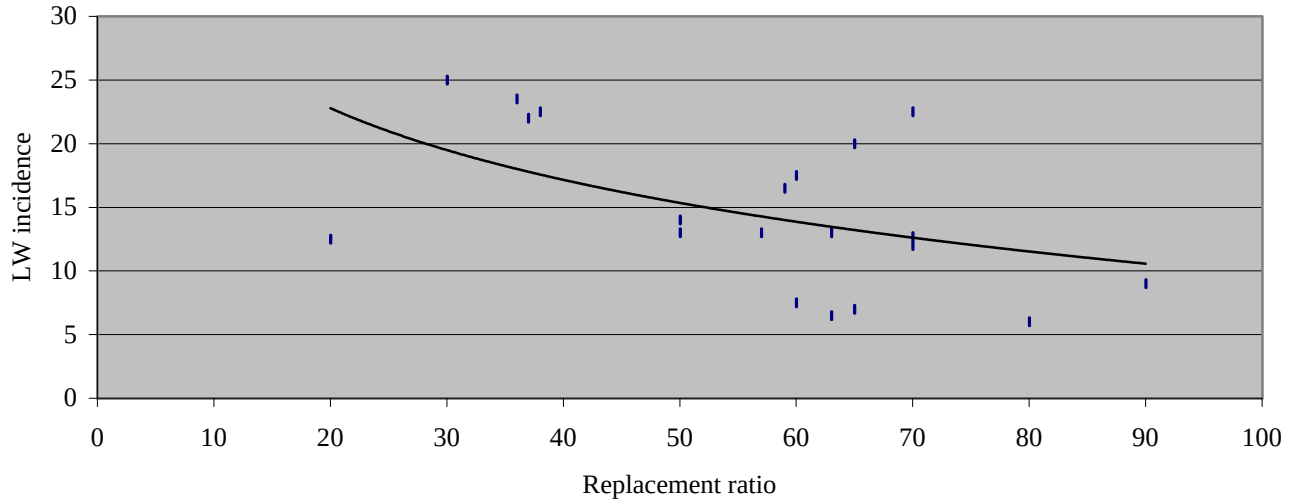
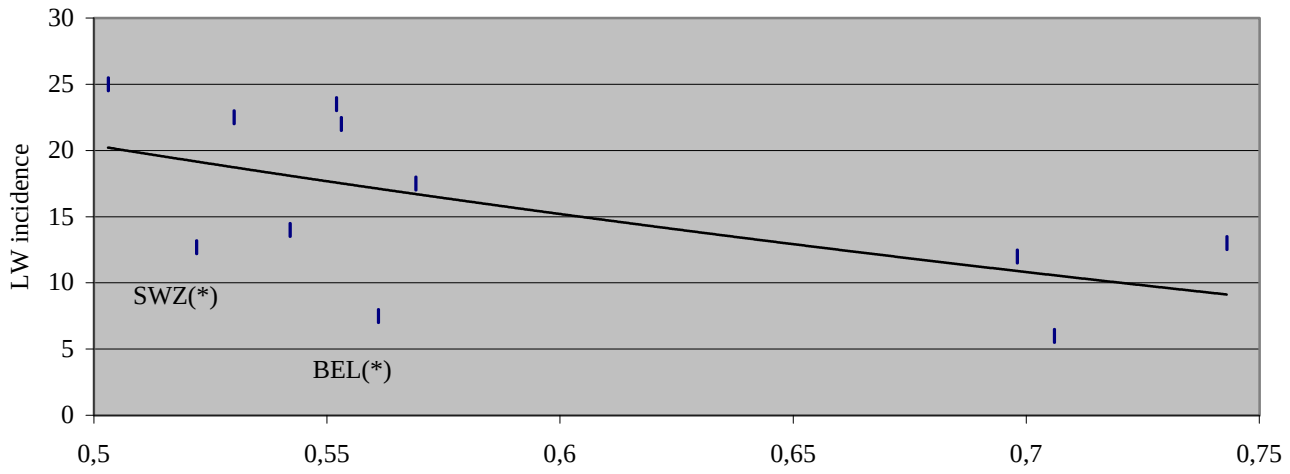


Figure 11 - Low Wage Employment and Test-score



(*) average of different languages