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SOCIAL PREFERENCES AND LABOUR MARKET INSTITUTIONS

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Abstract

In the last three years or so, a large body of work has analysed the main factors motivating the demand for income redistribution. In this paper I posit that labour market policies can be and have been used to mitigate the regressive effects of market failures in education and in the provision of employment insurance and offer empirical evidence on OECD countries supporting this view. It is shown that people's perception of the fairness of market and non-market institutions affect both the demand for redistribution and the choice of the instruments to achieve it. The analysis is retrospective but may help to assess the future impact on inequality of labour market reforms. The main policy stance envisaged in the paper is that social transfers and unemployment protection are substitutes in the generation of social insurance and redistribution. Hence, to offset the regressive impact of deregulation, unemployment benefit schemes or universal systems of social protection should be improved or instituted. Finally, any forward-looking reform of the welfare systems aiming to increase labour market flexibility should channel more money to public education.

Key words: labour market institutions, employment protection, social preferences, redistribution
JEL classification: D6, D7, D31, E62, H5, J58, P16

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1. Introduction

The flood of studies on redistribution in the recent years offers a wealth of insights intointo the interactions between institutions and economic outcomes (e.g. Perotti, 1994; Persson and Tabellini, 1994; Piketty, 1995; Bourguignon e Verdier, 2000; Milanovic 2000; Bènamou 2000a, 2000b, 2001; Aghion et al. 2002; Alesina and Angeletos, 2003) and provide a benchmark for the analysis of preferences for redistribution embodied in labour market institutions (*LMI*). Building on these studies, in this paper I posit that, in democratic systems, redistributive policies should reflect the social preferences of the median voter. In addition, I suggest that social preferences are constrained by the social contract; that is, the general agreement defining the boundaries of redistributive justice and the basic principles and rules governing an organized community. The position of different countries in the institutions-performance space is an indicator of the complex interactions between market forces and regulatory institutions, acting via people's preferences and constrained by the available technology and the political constitutions.

Until recently, analyses of redistributive preferences and policies at national and international levels have focused on the size of the government and, specifically, the amount of social transfers, as an indicator of the demand for redistribution, while except for Blau and Kahn (1996) and Freeman (2000), the role played by labour market policies and institutions (*LMPs*) has been largely neglected. Note Blau and Kahn's general conclusion that institutions play a far more important role than market forces in explaining observed earnings and hence inequality across countries[1]. The authors also offer an insight intointo the redistributive impact of *LMI* by suggesting that centralised wage setting systems explain the more compressed wage distribution "at the bottom" of the European *vis-à- vis* the U.S. labour market.

The main purpose of this paper is to discuss the information that the data on income distribution within the OECD countries may disclose concerning different approaches to social accounting and redistribution. The central idea is that, in the 70s and the 80s, *LMI* and, particularly, employment protection legislation (*EPL*), were used, in conjunction with social transfers and taxation, to achieve a more progressive income redistribution.

[1] In particular, the structure of wages across countries with different institutions does not appear to be correlated with skills.

The conjecture that *EPL* can generate social insurance as well as strongly progressive redistributive effects is consistent with the idea that labour market rigidity is a social phenomenon (Solow, 1990) "going beyond the legal constraints emphasized in the political debate" (Agell, 1999, p. F143) and carries with it significant implications for labour market deregulation.

The standard view on the redistributive effects of *EPL* is that it strengthens the bargaining position of *all* workers in wage setting. In addition, I posit that *EPL* also redistributes income among workers by redistributing employment probabilities. The basic intuition is that appropriate measures of protection against unfair dismissal[2] result in a more than proportional improvement in the position of less educated and more severely wealth-constrained workers facing a higher probability of being fired and a lower probability of being hired as involuntary unemployed. So, whereas social transfers provide *ex post* redistribution of market-generated income, *EPL* provides *ex ante* redistribution of employment probabilities and market-generated earnings.

Building on Bertola (2002), Agell (1999) and Agell and Lommerud (1993), I assume that in the absence of complete insurance and financial markets, the demand for labour market regulation and social protection is originally motivated by a society's aversion to risk and to inequality of opportunity. Although this paper is primarily empirical in nature, it also provides some insights into the mechanisms through which *EPL* affects people's perception of security and inequality. In particular, it is argued that *EPL* performs three important redistributive functions, namely (a) it reduces the frequency of involuntary unemployment over one's working life; (b) it redistributes unemployment risk between workers with different skills; (c) it relaxes liquidity constraints.

The literature on the welfare-enhancing effects of social security provision, when insurance and loan markets are incomplete, has a long tradition (e.g. Varian, 1980; Atkinson 1980; Persson, 1983; Bènabou 2000b). Analysis has been focused on progressive taxation and social public expenditure as redistributive tools. On practical grounds, progressive taxation and social transfers have shown to be less cost-effective[3] than expected owing to various political and institutional failures. Social transfers are difficult to allocate according to principles of progressivity, i.e. according to people's

[2] By "appropriate" protection I mean measures aiming to protect those in need, not to create rents for an elite of workers.

[3] In terms of efficiency cost of distortions.

real needs. In addition, due also to their partially discretionary nature, they can be easily appropriated by rent seekers, free riders and special interest groups. On the other hand, tax and social contribution evasion can significantly affect the ability to raise revenues and the degree of progressivity of the fiscal system.

Building on the redistributive effects of social transfers and progressive taxation, I contend that for any given redistributive target the choice of the redistributive tool i.e. *EPL*, social transfers plus progressive taxation, can reveal information on actual or perceived political and institutional failures. In this interpretative framework, reliance on progressive taxation and social transfers should be expected to increase with their perceived political and institutional efficiency in raising and redistributing money. Moreover, high levels of protection and social transfers combined with low levels of redistribution at the bottom are prima facie evidence of successful rent-seeking and inappropriate allocation of social protection. Hence, a convincing theory of the political demand for redistribution should also explain the latter choices and outcomes. In this paper, I argue that the analysis of the social insurance packages, i.e. the social protection mix combining *LMI* and social transfers, explains part of the underlying puzzle and casts doubt on the reliability of studies of redistribution that fail to take *LMI* into account.

In the empirical part of the paper, building on robust evidence (Alesina and Angeletos 2003), I posit that OECD countries differ in their preferences for security/inequality and in people's trust in the efficiency and fairness of market and non-market institutions. Then I assume that to the extent that these preferences have been properly channelled through the political systems, social insurance packages provided by OECD governments in the 80s explain international differences in observed levels of disposable income inequality at the bottom of the distribution.

My computations indicate that, at least in some European countries, *EPL* has been an effective means of supplying protection and equality at the bottom. Moreover, the same picture suggests that the high levels of employment protection found in some European countries, when compared with the level of redistribution achieved, is the combined effect of (a) actual or perceived institutional and organizational failures in the provision of social benefits and (b) a biased political equilibrium that favoured, in the allocation of protection, some insider groups in the labour market.

The picture deriving from the data suggests also that although most European countries show some scepticism of free markets, they may differ in their faith in non-market institutions as mechanisms to redistribute market-generated income. North Europeans appear to rely on the idea that income can and should be redistributed after it has been generated whereas South Europeans seem to be less confident of their political institutions' ability to do so and accordingly rely more heavily on *LMI*.

At the other end of the politico-institutional spectrum, my empirical evidence offers support for the conclusions of other studies in this field (Lipset, 1992, Alesina et al. 2001a, 2001b, 2001c). In particular, it is argued that the *abnormally* low levels of redistribution at the bottom in the U.S. stem from three factors: people's strong aversion to government intervention, which reflects the original liberal design of the U.S. constitution and its interpretation by the courts; the belief of the vast majority of U.S. citizens that poverty and unemployment are the result of lack of effort rather than lack of opportunities; and third, ethnic and social fragmentation, which inclucates powerful resistance among the wealthier and more educated white social groups against redistribution at the bottom, i.e. in favour of minority groups.

More generally, the inquiry helps to elicit information about social welfare accounting implicit in the pattern of redistribution. In particular, it confirms the view that, in the past most European countries were closer to a Rawlsian type of approach whereas countries with Anglo-Saxon roots favoured a more utilitarian approach.

In the 90s, the increasing international competition due to globalisation seems to have altered social preferences on redistribution and brought about convergence in *LMI* among the OECD countries. Reforms have shrunk social protection systems around Europe. Data on social expenditure, net of pensions, and *EPL* show that for the most part deregulation of the labour market has been preferred to drastic welfare reform. Whereas this choice should not have a strong impact on the pattern of redistribution in North Europe, in countries such as Spain and Italy - still characterized by comparatively low levels of education and inadequate social transfer schemes - it will likely generate persistent regressive distributive effects in the years to come. Hence, one may wonder whether further labour market deregulation is socially and politically feasible in these countries in the absence of compensating action in the provision of social insurance.

At the opposite extreme of the institutional spectrum, notwithstanding the high costs of poverty, insecurity and social exclusion, in the last twenty years or so political preferences in the U.S. do not seem to have changed. One wonders whether the great and increasing inequality at the bottom in the U.S. maynot spur demand for European-style welfare reform, which may well be in the interest of the forward-looking median voter.

The paper is organized as follows. Section 2 discusses how social preferences determine the content of the social contract and shape *LMI*. Building on the available literature, Section 3 analyses employment protection legislation (*EPL*) as a way to respond to social aversion to risk and inequality and provides evidence that international differences in employment protection legislation are largely due to differences in social preferences. Section 4 discusses reform issues and Section 5 draws the conclusions.

2. *LMI* and the social contract

The social constitutions of most OECD countries are inspired by the same democratic principles, but there are substantial differences in the underlying social contracts that ultimately identify the scope for government action and the need for regulatory institutions. Indeed, the main difference among *democratic* social contracts lies in the relative importance assigned to redistributive justice and solidarity compared to the expansion of freedom of enterprise (Cooter, 2000).

Income redistribution targets call for non-market allocation mechanisms that may ultimately compress liberty and produce allocative distortions. This implies the existence of a potential trade-off between the two sets of objectives[4]. It should be noted that empirical evidence does not offer clear support for the trade-off, in the long run, between social protection and macroeconomic performance, i.e. employment and unemployment rates or per capita GDP growth.

A reasonable hypothesis is that the shape of both the social indifference and transformation curves, showing as arguments liberty and equality/security, depends on the society's stock of human capital and its distribution. In fact, human capital determines both the ability of people to cope with uncertainty and the resource base of the economy. Simplifying, unequal human capital distribution is the main factor behind

[4] This point is illustrated in figure 1 where, given a common transformation curve, countries differ in extent of risk aversion and thus in the optimal liberty/security combination.

unequal market-generated income distribution. Hence, human capital should strongly affect the liberty-security trade-off and, therefore, the redistributive targets of any social contract. With respect to the choice of *LMI*[5], support for this conclusion is provided by figure 2 showing the relationship between the stringency of employment protection in 17 OECD countries and the level of education (Ferrante, 2002). A simple regression based on 51 observations (20 countries over three different periods) suggests that the coefficient is statistically significant at 1%. At a more general level, the role of education in characterizing labour market behaviours and outcomes finds comparatively very strong empirical support.

A large body of empirical studies in different fields[6] now provides robust support for the conclusion that apart from the role of human capital OECD countries differ greatly, due to historical circumstances and political and cultural factors, in the faith in the virtues of the market, both in the political and economic spheres and, hence, in the relative values assigned to liberty and social security. Significantly, these different attitudes stem more from different beliefs (Lipset, 1992) about how markets work rather than from actual differences in the performance of markets. The main difference in beliefs concerns the perception of social mobility (Bènabou, 2001, Alesina and Angeletos, 2003) and the extent to which poverty is thought to be caused by circumstances beyond the individual's control[7]. The key, in short, is belief in equal opportunities for all (Fong, 2001). It is interesting to note that, although such perceptions appear to play an important part in shaping political attitudes toward redistribution, they are frequently inconsistent with the actual data. For instance, this is the case of the false belief that in in the last twenty years or so, social mobility has been significantly greater in the U.S. than in most European countries[8] or that the actual extent of protection provided to workers is monotonically increasing in the stringency of *EPL*.

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[5] Boeri, Conde-Ruiz and Galasso, (2003) develop a model where the political demand for *LMI* i.e. unemployment benefits and *EPL* - is affected by workers' education.

[6] The World Values Surveys provide the most striking evidence.

[7] For instance, according to the World Values Survey, nearly three-fourths of U.S. citizens believe that people are poor because they did not try hard enough; in Europe, only two-fifths subscribe to this notion.

[8] This perception is probably a legacy of the past and reflects inertia in revising expectations. On the impact of beliefsbeliefs on social mobility on redistribution, e.g. Piketty, 1995.

International evidence on preferences also suggests that societies differ in strength of demand for progressivity in redistribution as well as in the choice of tools for achieving it. In the latter respect, the choice of redistributive institutions reveals information about perceived efficacy of non-market mechanisms in delivering redistribution.

In this context, beliefs about the actual impact of capital market failures are essential in that such failures potentially have two severely adverse effects: they can substantially reduce workers' access to education and to insurance against employment risk. Due to the combined action of these effects, capital market failures are the main channel through which unequal market opportunities are produced and persist over time and across generations, in that poor education results in greater unemployment and income risks over one's entire working life. Indirect empirical support is provided by data on earnings and employment risk. For instance, Guiso, Jappelli and Pistaferri (2001) find that, in Italy, one additional year of education reduces unemployment probabilities by 1.2 percentage points and that for more educated people the probability decreases sharply with age while remaining substantially constant for the less educated. Similar evidence is available for other countries (Manski and Straub, 2000).

Hence, the choice of *LMI* is a key area of political action for effective redistribution of market-generated income and a main theme of investigation.

3. Insecurity, inequality and the social insurance package

After the Second World War, the concern for the social impact of market failures shared by most European societies translated into the idea that there is some scope for trade union action, more coordinated wage-setting mechanisms, minimum-wage legislation, active labour market policies and, finally, the provision of basic welfare services and social insurance. At the same time, job protection laws have been seen as a legitimate and effective means of protecting employees - in particular, the less skilled - against unfair dismissal. At the other extreme of the institutional spectrum, countries sharing similar origins and cultural traditions such as Australia, Canada, New Zealand, the U.K. and the U.S[9]. appear to have been less concerned about the social outcomes

[9] Three important factors that have shaped redistributive policy action in the U.S. are respectively, the constraints imposed by the constitutional design to protect property, the role and autonomy of courts in interpreting the constitution and, finally, the marginal role of the socialist movement in the various countries and the presence of a Protestant tradition.

produced by a free market economy and consequently have very limited labour market regulation.

Nickell and Nunziata (2002) provide a rather detailed and up-to-date view of *LMI* in OECD countries and over time that confirms this thesis. In particular, this and other empirical analyses (e.g., Nicoletti, Scarpetta, Boylaud, 2000) suggests dividing the sample of OECD countries investigated in this paper into two main groups in terms of stringency of employment protection regulation. Australia, Canada, Ireland, New Zealand, Switzerland, Britain and the United States display relatively low levels of regulation, while Austria, Belgium, Denmark, Finland, France, Germany, Italy, the Netherlands, Norway, Sweden, and Spain are characterized by relatively high levels of employment protection. Another important feature of the data is that, within the group of highly regulated European countries, a major distinction has to be drawn between those characterized by comparatively high levels of coordination in collective bargaining (Austria, Finland, Denmark, Germany, Norway, Spain, Sweden) and those with intermediate levels of coordination (Italy, France, Portugal, the Netherlands). The relevance of this distinction will become clearer further on.

The theoretical contributions aiming to rationalise *LMI* and possibly to interpret international differences have identified three main arguments for these institutions: (i) an insurance argument: with risk and inequality aversion and incomplete insurance and loan markets, *LMI*s are designed to reduce income variability and to compress earnings inequalities (Agell, 1992, 1993, 1995); (ii) an efficiency argument: reduced job turnover generated by employment protection and wage compression may increase work effort and the incentive to invest in human capital (Agell, 1995); moreover, in the presence of technical change, a more compressed wage structure may increase the speed of inter-industrial adjustment (Agell, 1999); (iii) a rent-seeking argument: *LMI*s are implemented due to successful lobbying by insider workers in the political arena (Saint-Paul, 1996).

In the past, attention has concentrated on the role of wage-setting mechanisms, among LMIs, in achieving wage compression and, hence, in redistributing income (Blau and Kahn, 1996). Much less interest has been shown in *EPL* as an effective instrument of insurance and redistribution.

The demand for security is a fundamental motivation for workers and unions' behaviour in the labour markets and therefore in political action. For the typical worker, the cost of lack of protection and of being flexible in the face of changing environments is determined by such factors as (a) the probability of being laid off; (b) the probability of finding a new job; (c) the resulting income losses conditional on status and (d) the expected quality of the re-entry job (Nickel, Jones and Quintini, 2002; Manski and Straub, 2000). Other monetary components are the cost of searching for the new job and the cost of geographical mobility (housing etc.). In addition, there are non-monetary costs related to changes in habits and life-styles (change in status, occupation and place of work. It is important to note that the need for security and the demand for protection depend on the structure of the labour force as well as country-specific cultural factors affecting participation rates[10].

The main microeconomic ingredients of the median voter/worker's political demand for social insurance and redistribution should be expected to be the following: a) aversion to risk; b) aversion to inequality and to unequal opportunities; c) aversion to loss.

Indeed, it goes without saying that the demand for social insurance is increasing in risk aversion when there are major market failures in the provision of private insurance. More important is to stress that the impact of these market failures is not distributed evenly but varies substantially with individual characteristics. In particular, financial and insurance market failures have a stronger effect on those individuals with low levels of human capital and wealth.

It has been argued that risk aversion is not a sufficient condition to motivate the political demand for redistribution just because the median voter/worker might gain from it, as he or she might expect that through social mobility, he/she will have to pay for it in the future (Piketty, 1995). Bènabou and Ok (2001) analysed the conditions under which the median voter, who may gain in the short run from redistribution, will not support it because of expectations of personal social mobility. They showed that these conditions are stringent indeed[11]. On the other hand, building on theoretical expectations and

[10] For instance, the need for protection and insurance is potentially greater in countries where female participation rates are relatively low and household income is strongly dependent on the earnings of just one member. The opposite holds in countries where more than one member works and the unemployment risks are only weakly correlated.

[11] The crucial conditions are that (a) workers are only moderately risk-averse (b) the redistributive tax scheme has sufficiently long duration; (c) voters are sufficiently farsighted (Bènabou, 2001)

empirical measurements of risk aversion and social mobility, it seems that the impact of mobility expectations on the demand for redistribution is rather a matter of people's abstract beliefs than of real-life data.

The role of aversion to inequality and to unequal opportunities in motivating the demand for redistribution has now produced a large body of theoretical and empirical contributions based on the idea that in addition to individual preferences people seem also have social preferences (Feher and Fischbacher, 2002; Fong, 1999). In this literature altruistic redistribution is generally linked to the concept of reciprocity. That is, people are thought to favour redistribution when they believe that the recipients of social transfers are not free riders, as if the positions were reversed they would replicate this altruistic behaviour. Of course, this implies that the attitude toward redistribution also depends on the beliefs about the fairness of market outcomes: if people think that opportunities are equally distributed within the population, individuals receiving social transfers such as unemployment benefits are more apt to be seen as free riders.

Risk and inequality aversion can be related[12]. In other words, inequality aversion (*IA*) can be seen not merely as an altruistic personality trait connected to a sense of fairness but as a standard characteristic of individuals associated - behind a *Rawlsian veil of ignorance*[13] - with risk aversion. In fact, a risk-averse person who does not know in advance what abilities will be required in the job market and the position he or she will occupy in a society - over his or her entire life[14] - will prefer a more compressed earnings distribution and favour redistribution. This is exactly what happens with a risk-averse individual who, in the face of uncertainty, opts for smoothing consumption by a transfer of wealth across states.

Building on Atkinson (1980), the choice of the appropriate insurance level and the determination of the corresponding political demand for social protection can be analysed assuming that each citizen '*i*' is endowed with a CRA utility function

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[12] On the difference between the two concepts and issues of measurement, Kroll and Davidovitz, 2003.

[13] Behind a *veil of ignorance* about one's abilities, psychological propensities and the social and economic status/states so that "[..]no one is advantaged or disadvantaged in the choice of principles by the outcome of natural chance or the contingency of social circumstances" (Rawls, 1971, p. 12).

[14] Flinn (2002) suggests a different conclusion relying on the idea that inequality indexes based on cross section analyses are not appropriate and that the latter indexes should be replaced by inequality measures looking on the entire life-cycle of individuals.

characterised by a risk aversion index $e_i(e_i^*, HC_i)$, where e^* is innate risk aversion, *HC* stands for human capital and $e_i(e_i^*, HC_i)/ HC_i < 0$.

In the presence of risk aversion, individuals would like to transfer resources across states of nature, in particular, from employment (*e*) to unemployment (*u*), but because of incomplete markets and liquidity constraints, they partially lack these opportunities (Varian, 1980; Bènabou, 2000b; Bertola, 2002). However, they know the same redistributive result can be obtained by appropriate *LMI* as well as social policies. Nevertheless, they are aware that by so doing, owing to distortions of policy intervention, they incur a cost such that one unit of welfare transferred from state *e* provides $1-t$ units of welfare in state *u* where, by assumption[15], $0 \leq t < 1$.

It is reasonable to suppose that, given the properties of a democratic politico-institutional equilibrium, the extent of redistribution and the corresponding distortion t that will be selected under fair political processes will reflect the characteristics of the *median voter/worker m* defined over the coefficient of risk aversion $e_m(e_m^*, HC_m)$

In addition to the standard risk-aversion argument, other interesting explanations of the incentive to demand labour market regulation and to implement *EPL* are the *framing effect* and *loss aversion* (Kahneman and Tversky (1979); Kahneman, Knetsch and Thaler, 1990). The underlying idea is that, due to *loss aversion*, the psychological cost of becoming unemployed and losing a given standard of living, i.e. the *framing effect*, is large relative to the cost of having to wait longer before finding a new job. In particular, a large fraction of the expected cost of becoming unemployed is fixed with respect to time and is proportional to the frequency of involuntary unemployment. Presumably the perception of risk and of the associated loss is affected by the fear that one's re-entry job will be worse. That is, both the ability to adapt to changing conditions and the quality of the re-entry job are negatively related to skills and that, therefore, the

[15] Indeed, according to some authors (e.g., Agell, 1999, Bènabou, 2000a) redistribution may generate, under appropriate conditions, efficiency gains.

expected cost of unemployment due to loss aversion is, on the whole[16] negatively related to a worker's human capital[17].

The idea that unemployment costs are significantly affected by loss aversion is consistent with psychological studies suggesting that (a) happiness/satisfaction depends rather on the distance between the actual standard of living and what is perceived as the norm than on the absolute standard; (b) people adjust their standards slowly over time with respect to contingent conditions.

Loss aversion also explains why social mobility may be less important than claimed in determining political aversion to redistribution. With loss aversion, positive expectations due to the gains of upward social mobility may well be offset by the negative expectations attached to even very tiny probabilities of downward social mobility[18].

Hence, individuals that have these beliefs may rationally decide to bargain in the labour and political markets to implement stringent *EPL* that reduces the overall frequency of unemployment episodes, although they know that this increases the time required to find a new job when unemployed[19].

As a matter of exemplification, let us suppose that the probability of unemployment *u* faced by worker *i* during his working life is negatively affected by education (EDU_i) through its impact on both expected frequency *f* and duration *d*. Building on available empirical evidence[20] suppose that, in the long run, the negative impact of *EPL* on *f* is exactly offset by its positive impact on *d* so that *u* is fixed and depends only on education: $u_i = u_i\big((d(EPL, EDU_i), f(EPL, EDU_i)\big)$. Suppose now that workers' welfare is a decreasing concave function of both *f* and *d* and that loss aversion affects the trade-

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[16] Of course, the welfare loss due to involuntary unemployment should be larger for more skilled workers earning higher wages. I assume that the net effect of all these factors (probability of unemployment, probability of finding a new job, quality of the new job) is such that the sign of the relationship is negative.

[17] Guiso, Jappelli and Pistafirri (2001) estimate that 72% of Italian college graduates face a 0 probability of unemployment whereas the percentage of poorly educated workers is 57%.

[18] In the presence of sufficiently high loss aversion, downward social mobility could motivate demand for redistribution and social insurance.

[19] Indirect support for this conclusion comes from an Italian survey (1000 interviews) suggesting that the majority of both employed and unemployed workers preferred a stringent *EPL* even though it means a lower probability to find a job (Fondazione Rodolfo De Benedetti, 2002).

[20] In the long run, the unemployment rate does not seem to be affected by the stringency of *EPL* (OECD, 1999. p 50)

off between them as depicted above. Depending on the extent of aversion to loss, workers will choose a different optimal position in the *f-d* plane along the iso-probability curve.

Loss aversion is a cultural trait of individuals and countries, rooted in people's beliefs about social mobility and *fatalism* (Bowles, Gintis and Osborne, 2001). Old civilizations are generally more *fatalistic* because they attach greater importance to the past than to future prospects. Building on the idea that countries and individuals differ in their aversion to loss, one can derive a standard political-economic equilibrium where redistribution depends on the loss aversion of the median voter (see e.g. Bènabou 2000a).

An indirect benefit of *EPL* that is generally overlooked in theoretical analysis is the positive effect of income stability (thanks to job security) on the stringency of liquidity constraints on workers in the credit markets[21]. The reason is that access to loans is favoured by lasting employment relationships in that creditors would be more prone, in the absence of collateral, to sign contracts[22]. Indeed, the benefits of this mechanism should be expected to accrue proportionally more to less skilled workers, who face more stringent liquidity and wealth constraints.

Summing up, there are many sound arguments for redistributive *LMI* when there are market failures in the private provision of education and insurance. Different rationalisations of why individuals, and hence societies, demand protection against employment and earning risk, and how much of it they need, rely on a central explanatory element, the endowment of human capital of the median voter.

3.1.The supply of social protection and redistribution

For a given political target of redistribution, the actual supply of social protection should be such as to minimise the adverse impact of redistribution. The social insurance package should provide an appropriate mix of different forms of protection that complement one another and affect both market-generated and total disposable income. They include direct provision of job security through *EPL*, minimum wages, active

[21] For example, according to recent surveys, the percentage of workers in the U.S. reporting a zero probability of unemployment is 30% against 60% of Italian workers (Manski and Straub, 2000; Guiso, Jappelli and Pistafirri 2001).

[22] For instance, in the absence of collateral, in Italy banks provide loans and mortgages only to employees with open-ended employment contracts.

labour market policy (ALMP) and unemployment benefits. In addition, publicly financed social services such as transport, health and education, can be crucial tools of redistribution.

Political market distortions and x-inefficiencies may lead either to an overprovision or to an inefficient distribution of protection, thus affecting the feasible level of equality at the bottom. In the context of redistribution of market-generated income, overprovision comes when workers and unions do not care enough about the adverse impact of labour market regulation on the unemployed and on society as a whole. Inefficient distribution means a distribution of protection that does not match workers' differential ability to cope with uncertainty, so that benefits from social protection are not maximized for a given level of distortion. To the extent that this occurs, the effectiveness of the social insurance package in achieving equality and security is reduced. Hence, the rational median voter will support an insurance package given his or her expectations on the extent of political and institutional failures.

Building on a substantial theoretical and empirical literature, a measure that should reflect the extent to which *LMI*s are targeted to achieve progressive rather than group-specific social security objectives is the extent of coordination in wage bargaining[23] (*COORD*). Indeed, the extent of coordination in wage setting and, more generally, in bargaining for regulatory institutions has been shown to be an important feature of labour markets and a determinant of international earnings inequality (Blau and Kahn, 1997).

The main questions addressed in this paper are how the demand for redistribution has been served in OECD countries by combining *LMI*s, i.e. *EPL* and *COORD*, with social transfers (*SPE*) and how this choice of the insurance package has affected redistribution. The decision to include only *EPL* and *COORD* in the analysis is warranted by preliminary investigations that have shown[24] that other *LMI*s did not appear to play a very significant part in redistribution at the bottom.

Figure 3 and 3a display a normalized measure of *EPL* in the 80s plotted against a normalized measure of the average social expenditure budget as a percentage of GDP (*SPE*) in the same period. For a given redistributive target, countries above 45degrees

[23] The rationale for this is discussed by Calmfors and Driffill (1988) to explain the hump-shaped relation between degree of centralization and the unemployment rate.

[24] They can be provided by the author upon request.

rely relatively more on *EPL* as a redistributive tool while below the line the opposite holds. The pattern suggests that North European countries have pursued their high redistributive targets relying relatively more on redistribution of market-generated income through public transfers, South European countries more on stringent *EPL*, and central Europe somewhere in the middle. Apart from Japan, all the rest of the countries pursuing intermediate-to-low redistributive targets counted more on redistribution of market-generated income through social transfers.

To the extent that major political and organizational failures are absent, one should find a statistically significant relation across OECD countries between the type of insurance package and observed income inequalities. Our *a priori* expectations are that (a) up to a certain value (which depends on the political market distortions and the efficiency costs of redistribution) inequality is monotonically decreasing in *SPE* and *EPL*; (b) the effectiveness of *EPL* in achieving equality at the bottom increases with the level of coordination in bargaining; (c) *EPL* is more effective than *SPE* in generating equality at the bottom.

3.2. Empirical evidence 1: the insurance package and (in)equality

The second group of questions concerns the impact of the insurance packages of OECD countries on the pattern of redistribution, i.e. the position and the shape of the Lorenz curve.

The reasons to expect *SPE* to compress income inequality are evident, but there is no strong *a priori* reason to expect that such compression will be achieved by reallocating income relatively more at the bottom of the distribution. The ultimate impact of income differentials on the shape of the Lorenz curve depends on how progressive taxation is and on the actual recipients of public transfers.

As far as *LMI*s are concerned, I argue that *EPL* generates less inequality than an unregulated market - by compressing earnings and income at the bottom relatively more severely - for three basic reasons: (1) *EPL* provides relatively greater protection to the less skilled workers, who face a higher probability of being fired and a lower probability of being rehired; (2) *EPL* makes income smoother and thus relaxes liquidity constraints that affect the poorest and least educated part of the labour force more severely; (3) *EPL* improves the bargaining position of workers in wage setting. It is worth noting here that, whereas the first two effects are consistent with the insurance motivation of *EPL*,

the third is not, and reveals mainly an attempt to distort institutions to achieve rents[25]. It is reasonable to assume that the extent to which *EPL* is targeted to achieve redistributive results and not to create rents depends on coordination of bargaining process.

A complete set of data on *LMI*s and, in particular, on the rigidity of *EPL*[26] and *COORD*, covering forty years or so, is provided by Nickell and Nunziata (2002). Data on *SPE* as a percentage of GDP for the years 1980-1999 are available on the OECD web site (see Table 1).

International data on inequality measures are not very robust with respect to different specifications of income and earnings. In the statistical analysis, I draw on the estimates of income and earnings inequalities across OECD countries - covering various years in the interval 1980-1991 - provided by Gottshalk and Smeeding (1997) and by the LIS study. Of course, this puts a constraint on the choice of period covered by the empirical investigation and therefore also on the opportunities for international comparisons across time. I considered two measures of inequality: the Gini index based on gross household income ($Gini_g$), i.e. market income inequality, and the Gini index based on household disposable income ($Gini_d$). The first is needed to assess the effect of *LMI*s, without social transfers, and should provide a measure of the effectiveness of *EPL* in redistributing income through a redistribution of labour market opportunities[27].

Finally, as a measure of equality at the bottom I used data on disposable household income[28] of the tenth decile as percentage of the disposable income of the national median (*EQBOT*) provided by Gottshalk and Smeeding. Due to lack of a reliable and complete set of data, the analysis of redistribution at the bottom has been limited to the 80s.

The first set of preliminary evidence concerns the effect of *EPL* and *COORD* on market-generated inequality. In figures 4 and 5 $Gini_g$ has been plotted, respectively,

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[25] Wage compression may present some advantages that are the focus of Agell's analysis (Agell, 1999).

[26] The index of rigidity of *EPL* takes account of a large group of factors regarding labour contract regulations (Nicoletti, Scarpetta and Boylaud 2000).

[27] The second is needed to measure the combined redistributive impact of *SPE* and *LMI*. It should be stressed that, due to the impact of fiscal policies on labour supply, *SPE* should also play a role in the determination of market generated income inequality. For a methodological discussion on the limits of various measures of inequality and their comparability across countries see, Gottshalck and Smeeding (1997) and Milanovic (2000).

[28] Due to lack of comparable data on gross income at the bottom, attention has been restricted to disposable income.

against the average index of rigidity of *EPL* and *COORD* for the period 1973-1987 ($EPL_{(1973\text{-}1987)}$ and $COORD_{(80s)}$). The second set of preliminary evidence concerns how *SPE* affected gross disposable income. In figure 6 $Gini_d$ has been plotted against the average of *SPE* as a percentage of GDP in the '80s ($SPE_{(80s)}$). Visual inspection and the results of the regressions suggest that *EPL* is significantly and more strongly correlated with $Gini_g$ than *SPE* is with $Gini_d$. Moreover (figure 7), *COORD* does not appear to play any direct part in the determination of inequality as measured by the $Gini_g$ and $Gini_d$ coefficients. So on the grounds of this result it appears that *EPL* has been used, more or less explicitly, as an effective means of redistribution.

Finally, the evidence indicates that although most European median voters share some scepticism about the efficiency and fairness of markets, they may differ in their trust in political institutions as mechanisms to redistribute market generated income. North Europeans appear to believe that income can and should be redistributed after it has been generated, whereas South Europeans seem to be less confident in the effectiveness and fairness of political institutions for that task.

3.2. Empirical evidence 2: the insurance package and the shape of the Lorenz curve

Let us now move to the second question raised in the paper, the impact of the insurance package on the shape of the Lorenz curve, i.e. income at the bottom of the distribution.

Building on the preliminary empirical findings shown in figures 5-7, six different models have been estimated on a sample of 17 countries[29] to explain inequality using as explanatory variables *COORD, SPE* and *EPL*. The results are shown in appendix I.

The signs of the coefficients are as expected[30], and the latter are significant at 1% for *EPL* in all six models. Moreover, adjusted R^2 are quite high. Hence, *EPL* and *SPE* appear to play a central part in explaining (in)equality across OECD countries; among the two instruments, *EPL seems to have a relatively stronger role in promoting income equality at the bottom*. In order to check whether *LMI*s explain overall inequality better or, as one should expect, only inequality at the bottom, I estimated models 5 and 6 using

[29] Those of the original group of twenty for which the index of inequality is available: Australia, Austria, Belgium, Canada, Denmark, Finland, France, Germany, Ireland, Italy, Netherlands, Norway, Sweden, Spain, Switzerland, UK, USA.

[30] In model 4, the intercept is not significant so the restriction of zero intercept has been imposed. The t-statistics of the other coefficients are significant in both the models at 1%.

the $Gini_d$ as a measure of inequality for the full sample of 20 countries for which it is available[31].

Putting all the statistical evidence together, it appears that *SPE* explains overall inequality (models 5 and 6) better than inequality at the bottom and that the inclusion, in the model 4, of the interaction between *EPL* and *COORD* provides the best fit. *EPL appears to have a weaker explanatory power of overall income inequality* measured through the Gini coefficient. So according to these data, *SPE* has been a more effective means to achieve overall equality then *EPL*, whereas in the case of equality at the botto, the opposite holds. On the other hand, *COORD* interacts with *EPL* in determining the actual redistributive impact of protection. When one substitutes *EPL* for *EPL*COORD* in model 5, the fit improves slightly, as does the significance of the coefficients. These results are robust with respect to different definitions of equality at the bottom and specifications of the period considered for the variable *EPL*[32].

Revealed preferences for redistribution are consistent with the view that in social accounting and in the design of redistributive policies most European countries (with the exception of Spain) adopted a more *Rawlsian* approach than the Anglo-Saxon countries which, conversely, relied on a *utilitarian-type* approach. Switzerland is placed somewhere in the middle within this space, in that the limited redistributive targets that have been pursued have privileged redistribution at the bottom.

From a methodological standpoint, the empirical evidence shown here sheds light on the reliability of studies on inequality and redistribution that do not take account of *LMI*s as a redistributive tool. Moreover, it offers insights into the median voter hypothesis as a good approximation to reality. The evidence on redistribution at the bottom in some countries is not consistent with the thesis of the *utilitarian-type* median voter; rather, voters either adopt a *Rawlsian-type* of approach to social accounting or care for others' people welfare, i.e. have social preferences (Milanovic, 2002; Fong, 2001; Fehr and Fischbacher, 2002). On the other hand, the very low levels of redistribution in favour of the middle classes registered in countries like the U.S. are not consistent with the idea that, in democratic systems, it is the median voter that determines redistribution. Rather, it seems that in those countries the people who stand

[31] In addition to those listed in note 29, this group also includes Japan, New Zealand and Portugal.

[32] In particular, I distinguished two sub-periods: 1973-1979 and 1980-1987.

to lose from redistribution have a disproportionate political influence, leading to disproportionate representation of their interests in the political arena.

3. Reforming the insurance package in the era of globalisation

Empirical studies show that during the last twenty years or so, however measured, inequality has increased in most OECD countries (Gottshalck and Smeeding, 1997, 670-672). The causes of this trend in market-generated income are claimed to be increased competitive pressure due to globalisation and an increasingly skill-based structure of earnings. Not surprisingly, rising inequality appears to have been accompanied by increasing insecurity for workers (e.g. Nickell, Jones and Quintini, 2002; Manski and Straub, 2000).

Globalisation has been favoured and accompanied by a wave of deregulation and privatisation in all OECD countries. Data show that most of the European countries implemented reforms of the labour market, while social welfare systems have been only marginally affected and social public expenditure as a percentage of GDP, net of pensions, has remained broadly stable. Average *EPL* for the sample of countries under investigation dropped from 1.16 to 0.94 (-19%) between the 80s and the late 90s. Among the highly regulated European countries, Belgium, Denmark and Sweden deregulated more. France is the only country where there has been an increase in regulation (see figures 8-8a). Hence, instead of dampening the effects of market forces, the recent evolution of *LMI*s has likely reinforced its impact on market-generated income inequalities.

This evolution of redistributive policies would suggest that either social preferences have changed or that the protection/efficiency trade-off has worsened. European countries now appear to be less *Rawlsian* and more *utilitarian*. As a result, the *LMI*s in OECD countries are more similar than in the past[33]. One should ask whether such institutional convergence is a natural and desirable product of globalisation. Building on the analytical framework developed here, reforming actions in social security provision are desirable as long as their scope is (i) to improve the cost-effectiveness of social security provision; (ii) to adjust redistributive targets and institutions with respect to changing preferences of the median voter; (iii) to adjust redistributive targets and institutions with respect to variations of the cost of redistribution. Of course, one cannot

[33] For instance, the variance of *EPL* decreases by about 35% between the 80s and the late 90s.

discuss the actual part played by all these factors in depth. Moreover, lacking a "smoking gun", one can only provide insights into the likely individual contribution of these factors to the demand for protection.

4.1. The cost-effectiveness of the social insurance package.

At the end of the 80s there was considerable scope for improvement in the provision of social security in most European countries. A lot has been done since then in most countries. North European countries have substantially reduced the social protection provided by *EPL* and improved the cost-effectiveness of social transfers. In South European countries, labour markets have been reformed but there is still room for improving *LMI*s and welfare systems, without renouncing security and redistributive targets. There is quite broad agreement that reform strategies in these countries should aim (a) to improve the mix of social transfers and labour market regulation, e.g. by reducing job security, increasing unemployment benefits or implementing universal insurance schemes[34]; (b) to design "incentives-compatible" social transfer schemes; (c) to redistribute social protection among groups of workers according to their ability to face social risks and (d) to compress the cost of uncertainty by increasing the stock of human capital in the economy[35]. The last of these, to be sure is a long run strategy but a very rewarding one. The provision of education financing reduces the demand for *EPL* and for social transfer schemes and thuys the costs of redistribution[36].

4.2. Changing social preferences for redistribution

Changes in preferences for redistribution could have been caused by the following factors: a) the increase in educational attainment; b) changes in the political system; c) rising expectations about social mobility and the fairness of markets; d) structural reductions in aversion to risk/loss/inequality due to cultural changes; e) reductions in actual or perceived microeconomic instability.

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[34] Table 3 provides an overview of the social public expenditure programs and of the corresponding budgets across the OECD countries.

[35] The contribution of education to the formation of human capital is essential. Education determines the ability to process information about uncertain scenarios, the cost of adjustment to unexpected events and the perceived fairness of market outcomes. Through these channels, education improves people's self-confidence in facing the future and reduces the psychological costs of life-style adjustments in the presence of involuntary unemployment (Ferrante, 2002).

[36] According to some estimates, *ceteris paribus*, a 10% increase in average years of schooling could bring about a drop of *feasible EPL* of 10% (Ferrante, 2002).

(a): Changes in education levels are only part of the story, in that they did not increase in North European countries, which have deregulated comparatively more. Moreover, in those countries that showed comparatively low levels of education in the 70s and 80s, the recorded average rate of increase in schooling years is not sufficient to explain drastic changes in *EPL* (figure 9). On the other hand, since changes in education affect only the new generations of workers, they can explain and justify asymmetric deregulation and the creation of dual labour markets leading to disparities among young and old workers in such countries as Italy and Spain. (b): Changes that occurred in the political systems of the OECD countries in the last 15 years or so can be characterized as a move away from proportional electoral systems that brought about new politico-institutional equilibria. Indeed, this evolution can explain both a reduction in the demand for redistribution and the tendency of social protection policies to become less *Rawlsian* and more *utilitarian*. (c) and (d): The legacy of Thatcherism and Reaganism, the role of international organizations - such as the *IMF* and the *OECD* - in promoting privatisation and deregulation and, last but not least important, the collapse of the communist economies might have drastically changed people's political attitude and beliefs. Changing perceptions about the fairness of markets and the cost-effectiveness of non-market institutions could have lowered the demand for redistribution as well as favoured a more *utilitarian* view of social accounting. (d) and (e): As far as the perception of insecurity is concerned, economic stability does not seem to have been improved in the 90s, mostly because of increasing financial instability and economic openness (Agell, 1999). Hence, perceived microeconomic instability should have increased and not reduced the social demand for protection (Nickell, Jones and Quintini, 2002).

4.3. The protection/efficiency trade-off

The competitive pressure due to globalisation and the increasing cost of social security systems, mostly due to demographic factors, may have affected the median voter's perception of the trade-off between protection and efficiency and reduced the demand for protection. Globalisation has been favoured and accompanied by a wave of incremental innovations stemming from the IT revolution that increased the demand for labour market flexibility and, hence, the cost of institutional rigidities. Technological and organizational innovations have shrunk product-life cycles and increased the need

for fast and continuous employment adjustment by industries and firms. Hence, international competition has brought about institutional competition and might be responsible for a reduction of demand for labour market regulation (Saint-Paul, 1997; 2002).

4.4. Institutional competition, social preferences and inequality

The inability to fully rationalise changing redistributive targets and institutions should not prevent us from analysing their expected impact on social protection and inequality. Indeed, the data show that inequality does not shrink when one moves from a more to a less regulated economy. So competition between redistributive institutions will inevitably bring about increasing levels of inequality within and across OECD countries.

Data on social expenditure and *EPL* show that as a result of institutional competition labour market deregulation has been privileged over the reform of social welfare systems. While this choice should not have a strong impact on inequality in those countries still endowed with generous welfare systems, i.e. North European countries, in the South European countries, characterized by comparatively low levels of workers' education and inadequate social benefits, such an option will likely generate strong and persistent regressive distributive effects in the years to come. There is quite strong empirical evidence on the presence of a vicious circle linking low incomes, credit rationing and education. Lower levels of redistribution are not to be blamed only for greater inequality in the present but also for their contribution to the upward trend in inequality that will likely be experienced in the years to come.

At the other end of the institutional spectrum, one might ask why the U.S., instead of implementing less redistributive policies – as it has done in the last 20 years or so[37] – did not adopt European-style reforms of the social protection systems.

The lack of redistributive policies in the U.S. has been attributed to the combined action of three main elements. The first is a strong popular aversion to government intervention that reflects the original liberal design of the U.S. constitution and its interpretation by the U.S. courts. The second is the belief held by the vast majority of U.S. citizens that poverty and unemployment have to do with inadequate effort rather

[37] As we know, U.S. governments adopted regressive fiscal reforms by reducing the progressivity of taxation and cutting transfers from federal to local governments.

than lack of opportunities. The third is related to the effects of social and ethnic fragmentation (Alesina et al, 2001a, 2001b) combined with the disproportionate political influence of some social groups. One should ask why, given the high costs[38] stemming from persistent social exclusion of low-income groups, reforms of the U.S. protection system that might well be in the interest of the forward-looking median voter have not been adopted. A reasonable answer is that the social group with the most to gain from labour market flexibility and to lose from redistribution appear to have a disproportionate political influence (Roseston and Hanson[39], 1993; on the endogenous nature of the political equilibrium, see e.g. Bènabou, 2000b, Aghion et al. 2001). On the other hand, social and ethnic fragmentation may adversely affect the formation and updating of beliefs about the fairness of markets and social mobility[40] and help explain the persistent diversity in redistributive targets and institutions with respect to the other OECD countries.

Conversely, lack of fragmentation can explain why Europeans have not been sluggish in updating expectations and beliefs about markets. As a result of institutional competition, the more regulated and equal OECD countries are moving quickly in the direction of the less regulated and more unequal ones. Hence, the convergent trend in redistributive targets and *LMI*s is developing in a quite asymmetric way. One wonders whether and to what extent institutional competition, asymmetric institutional convergence and rising inequality are desirable and natural outcomes in democratic political systems.

5. Conclusions

Building on the notion that the labour market is a social institution (Solow, 1990), this paper assesses whether in the OECD countries labour market institutions contributed to generate social insurance and *Rawlsian* redistribution, i.e. redistribution in favour of the

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[38] Evidence on the costs of social exclusion, in terms of crime rates, is provided by Freeman, 1994. Indeed, international data on crime suggest that the violent crime rate (murders and robberies) in the U.S. is much higher than in Europe; on this point, Fajnzylber, Lederman and Loyaza, (2002).

[39] The authors provide data on participation rates in various political activities (*vote, try to influence others, contribute money, attend meetings, work on campaign*) as a function of income and education that show a monotonic increasing relationship for all the activities considered and with respect to the two state variables. For example, given a *fair* representation ratio of 1, the poorest 16% of the population has a ratio of 0.49 for "working in campaign" whereas the wealthier 14% has a ratio of 2.42; in the case of "contribute money" the poorest 16% has a ratio of 0.25 and the wealthier 14% a ratio of 3.25 (Rosenston and Hansen, 1993, table 8-2).

[40] Data on social mobility suggest that the U.S. is no longer the land of opportunity for immigrants that it unquestionably was in the past.

less educated and low income households. I found evidence that income inequality at the bottom of the distribution is negatively correlated with the stringency of employment protection legislation, with social public expenditure as a percentage of GDP, and with the extent of coordination in wage setting. The evidence is consistent with the view that *LMI*s may serve to compress social risk and inequality and reflect redistributive / solidaristic social preferences of the non-utilitarian-type median voter.

From a methodological standpoint, the empirical evidence sheds light on the reliability of studies on inequality and redistribution that do not take account of *LMI*s as a redistributive tool. Moreover, it offers insights into the median voter hypothesis as a good approximation to reality. The evidence on redistribution at the bottom in some countries is not consistent with the view that the median voter is of *utilitarian-type*; rather, it suggest that median voters either adopt a *Rawlsian-type* approach to social accounting or care for other people's welfare, i.e. that they have social preferences (Milanovic, 2002; Fong, 2001; Fehr and Fischbacher, 2002). On the other hand, the very low levels of redistribution in favour of the middle classes registered in countries like the U.S. are not consistent with the idea that, in democratic systems, it is the median voter who determines redistribution choices. Rather, it seems that in those countries the people who would lose from redistribution have a disproportionate influence in the political arena.

The main policy indication deriving from the paper is that the impact of labour market deregulation on inequality could be substantial in countries with weak social benefit systems and relatively poorly educated workers. In order to offset the regressive impact of deregulation, appropriate unemployment benefits or universal systems of social protection should be introduced. Actually, given the powerful contribution made by human capital in compressing the cost to workers of insecurity and increasing opportunity, a cost-effective but, unfortunately, time-intensive solution for achieving labour market flexibility together with social inclusion would be to increase workers' endowment of human capital. Therefore, any progressive reform of the welfare system to increase labour market flexibility should channel more money into public education.

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Figure 1 – Social preferences and the of demand of redistributive institutions.

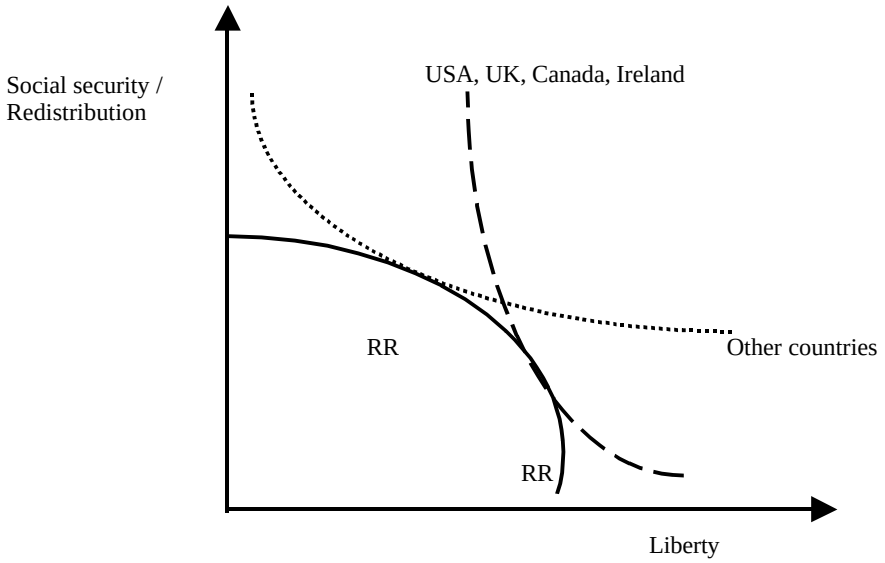

Table 1 – *LMI* and the social insurance package

	COUNTRY	Employment protection legislation, 1973-1987	Employment protection legislation, late 90s	Coordination index 1980-87	SPE (1980-1989) gross of old cash benefits	SPE (1990-1999) gross of old cash benefits
1	Australia	0.50	0.45	2.25	15.84	16.68
2	Austria	1.06	1.1	3.00	25.78	26.78
3	Belgium	1.55	1.05	2.00	24.77	25.24
4	Canada	0.30	0.3	1.00	17.91	19.24
5	Denmark	1.10	0.6	2.40	29.99	31.13
6	Finland	1.20	1	2.25	27.98	30.33
7	France	1.26	1.5	1.84	26.55	28.47
8	Germany	1.65	1.25	3.00	24.40	25.82
9	Ireland	0.48	0.45	2.00	19.70	18.92
10	Italy	2.00	1.65	1.50	21.34	24.78
11	Japan	1.40	1.2	3.00	11.51	12.70
12	Netherlands	1.35	1.05	2.00	26.62	26.69
13	New Zealand	0.80	0.5	1.32	21.86	20.91
14	Norway	1.55	1.3	2.50	26.44	27.21
15	Portugal	1.77	1.85	1.84	14.72	16.65
16	Spain	1.95	1.55	2.00	18.08	20.57
17	Sweden	1.63	1.1	2.41	32.55	33.52
18	Switzerland	0.55	0.5	2.25	20.41	25.07
19	United Kingdom	0.34	0.25	1.41	20.72	25.00

20	United States	0.10	0.1	1	14.67	14.81

Table 2 - Descriptive statistics

Variable	Valid N	Mean	Confid.-95000%	Confid. 95.000	Sum	Min.	Max.	Range	Variance
EQBOTTOM(80s)	17	52.294	49.100	55.488	889.000	36.000	58.000	22.000	38.596
GINI(80s)	20	0.287	0.263	0.311	5.745	0.227	0.404	0.177	0.003
EPL(1973-1987)	20	1.126	0.852	1.400	22.520	0.1	2.000	1.900	0.342
COORD(80s)	20	2.049	1.768	2.329	40.970	1.000	3.000	2.000	0.359
SPE(80s)	20	23.266	20.620	25.912	465.321	12.526	33.189	20.663	31.969

Table 3 - The allocation of the social expenditure budget - as a percentage of GDP - in 20 OECD countries: average shares, 1990-1999. (Source: OECD web site)

	Program													
COUNTRY	1 OLD AGE CASH BENEFITS	2. DISABILITY CASH BENEFITS	3. OCCUPATIONAL INJURY AND DISEASE	4. SICKNESS BENEFITS	5. SERVICES FOR THE ELDERLY AND DISABLED PEOPLE	6. SURVIVORS	7. FAMILY CASH BENEFITS	8. FAMILY SERVICES	9. ACTIVE LABOUR MARKET PROGRAMMES	10. UNEMPLOYMENT	11. HEALTH	12. HOUSING BENEFITS	13. OTHER CONTINGENCIES	Total
Australia	3.58	1.17	0.73	0.07	0.64	0.28	1.90	0.34	0.56	1.42	5.56	0.21	0.20	16.68
Austria	9.92	1.30	1.66	0.44	0.37	0.22	0.20	0.80	0.88	3.29	3.03	2.54	2.12	26.78
Belgium	7.06	2.15	1.41	0.69	0.44	0.66	0.44	0.12	0.06	3.06	2.58	2.61	2.15	25.24
Canada	5.01	0.43	0.54	0.44	0.47	0.05	0.06	N/A	N/A	0.32	0.48	0.60	0.71	19.24
Denmark	6.87	1.63	1.79	0.23	0.20	1.38	0.66	2.65	3.05	0.07	0.02	1.07	1.60	31.13
Finland	7.61	2.71	3.48	0.23	0.27	0.53	0.55	1.00	1.49	0.96	1.14	1.40	2.34	30.33
France	10.11	1.06	0.98	0.67	0.34	0.57	0.54	0.65	0.68	1.99	1.72	2.34	1.85	28.47
Germany	9.75	0.82	0.96	0.36	0.34	0.36	0.41	0.32	0.60	0.66	0.50	1.30	1.47	25.82
Ireland	3.31	0.66	0.83	0.12	0.10	1.68	0.90	0.52	0.44	1.36	1.12	1.34	1.68	18.92
Italy	12.26	1.16	1.41	0.51	N/A	0.32	0.47	0.20	0.21	2.15	2.62	0.87	0.54	24.78
Japan	4.73	0.27	0.30	0.21	0.19	0.08	0.06	0.04	0.14	1.03	1.00	0.22	0.19	12.70
The Netherlands	6.74	4.28	3.90	0.00	0.00	2.18	1.55	0.57	0.71	1.04	1.08	1.66	1.03	26.69
New Zealand	6.33	0.48	0.76	0.66	1.09	0.52	1.11	0.04	0.04	0.25	0.14	2.28	2.27	20.91
Norway	5.84	2.26	2.74	0.03	0.01	1.53	1.35	2.25	3.39	0.49	0.41	1.50	2.21	27.21
Portugal	5.46	2.69	1.92	0.00	0.00	0.52	0.54	0.07	0.23	0.86	1.24	0.72	0.68	16.65
Spain	7.94	1.24	1.33	0.41	N/A	0.82	1.10	0.08	0.26	1.79	0.90	0.27	0.25	20.57
Sweden	7.83	2.00	2.26	0.34	0.55	2.19	1.39	1.76	3.11	0.66	0.75	1.77	2.15	33.52
Switzerland	10.00	0.90	1.73	1.02	0.70	0.26	0.52	0.20	0.61	0.43	1.24	1.01	1.13	25.07
United Kingdom	9.61	1.15	2.40	0.21	0.07	0.15	0.19	0.53	0.70	1.60	1.00	1.81	1.79	25.00
United States	5.23	0.69	0.82	0.10	0.09	0.25	0.24	0.08	0.05	1.01	0.95	0.33	0.28	14.81
Average	7.26	1.45	1.60	0.34	0.33	0.73	0.71	0.64	0.91	1.22	1.37	1.29	1.33	23.53

Appendix I

Model 1 : $EQBOT_{(80s)i} = a + bEPL_{(1973\text{-}1987)i} + gSPE_{(80s)i} + e_i$

		Standard error	*t(14)*	*p-level*
Intercept	*31.27072*	*4.225191*	*7.401019*	*0.000003*
EPL	*4.260444*	*1.687262*	*2.525063*	*0.024262*

SPE	0.665714	0.203179	3.276492	0.005514

R= .86354701 R²= .74571344 Adjusted R²= .70938679, F(2,14)=20.528 p<.00007 Std.Error of estimate: 3.3491

Model 1a (logarithmic version of model 1) : $LNEQBOT_{(80s)i} = a + bLNEPL_{(1973\text{-}1987)i} + gLNSPE_{(80s)i} + e_i$

		Standard error	t(14)	p-level
Intercept	3.24097	0.28032	11.56176	0.00000
LNEPL	0.09330	0.02372	3.93337	0.00150
LNSPE	0.22697	0.08755	2.59255	0.02128

R= .92057607 R²= .84746031 Adjusted R²= .82566892 F(2,14)=38.890 p<.00000 Std.Error of estimate: .05433

Model 2: $EQBOT_{(80s)i} = a + bEPL_{(1973\text{-}1987)i} + gEPL^2_{(1973\text{-}1987)i} + e_i$

		Standard error	t(14)	p-level
Intercept	35.53471	2.115647	16.79614	0.000000
EPL	31.89204	4.723579	6.751668	0.000009
EPL^2	-11.7381	2.202684	-5.32898	0.000106

R= .91764311 R²= .84206888 Adjusted R²= .81950729 F(2,14)=37.323 p<.00000 Std.Error of estimate: 2.6394

Model 3: $EQBOT_{(80s)i} = a + bSPE_{(80s)i} + e_i$

		Standard error	t(14)	p-level
Intercept	28.652198	4.7738459	6.0019111	0.000000
SPE	0.9675427	0.1914889	5.052736	0.000143

R= .79366559 R²= .62990506 Adjusted R²= .60523207 F(1,15)=25.530 p<.00014 Std.Error of estimate: 3.9034

Model 4 : $EQBOT_{(80s)i} = bSPE_{(80s)i} + gEPL_{(1973\text{-}1987)i} * SPE_{(80s)} + hSPE^2_{(80s)i} + jEPL^2_{(1973\text{-}1987)i} + e_i$

		Standard error	t(13)	p-level
SPE	3.9833661	0.1645502	24.207603	0.000000
EPL*SPE	0.9589657	0.2198079	4.3627441	0.000769
SPE^2	-0.0963078	0.0102468	-9.398789	0.000000
EPL^2	-7.9854098	2.1337095	-3.742501	0.002462

F(4,13)=2838.2 p<.00000 Std.Error of estimate: 2.0358

Model 5: $LNEQBOT_{(80s)i} = a + bLNSPE_{(80s)i} + gLN(EPL_{(1973\text{-}1987)i} * COORD_{(80s)}) + e_i$

		Standard error	t(14)	p-level
Intercept	3.196398	0.261404	12.22781	0.00000001
SPE	0.225097	0.084359	2.668327	0.018359862
EPL*COORD	0.073702	0.017781	4.145051	0.000991079

R= .92514534, R²= .85589390 Adjusted R²= .83530732 F(2,14)=41.575 p<.00000 Std.Error of estimate: .05280

Model 6: $GINI_{d(80s)i} = a + bSPE_{(80s)i} + e_i$

		Standard error	t(14)	p-level
Intercept	0.440861	0.0353126	12.484509	0.000000
SPE	-0.0066024	0.0014769	-4.4703926	0.0002957

R= .72534224 R²= .52612137 Adjusted R²= .49979478 F(1,18)=19.984 p<.00030 Std.Error of estimate: .03640

Model 7: $GINI_{d(80s)i} = a + bEPL_{(80s)i} + e_i$

		Standard error	t(14)	p-level
Intercept	0.3333798	0.0231674	14.390061	0.000000
EPL	-0.0409678	0.0183566	-2.2317712	0.0385803

R= .46555080 R²= .21673754 Adjusted R²= .17322296 F(1,18)=4.9808 p<.03858 Std.Error of estimate: .04680

Fig. 2 - Education and the supply of employment protection - 1970-1990

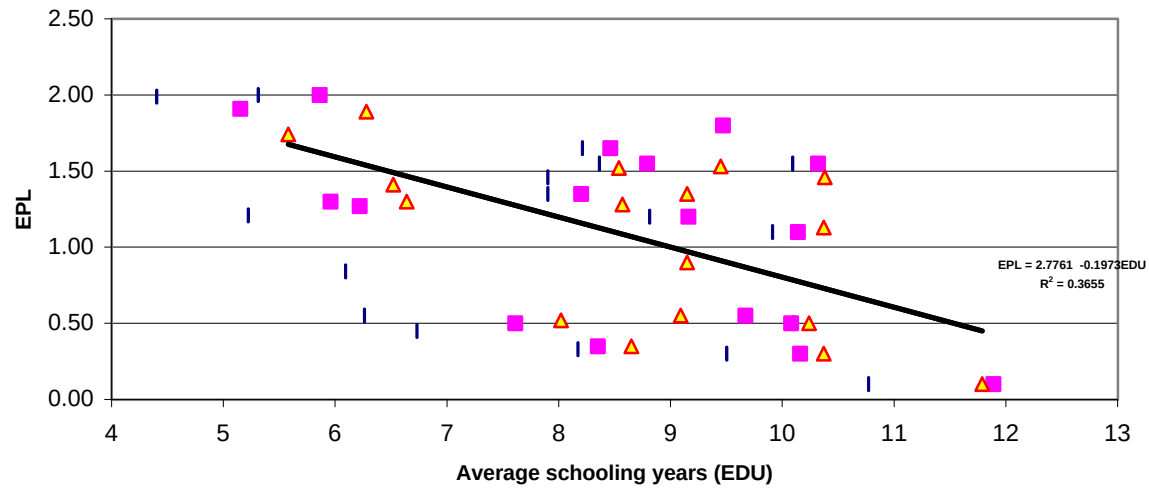

Fig. 3 - The social insurance package, in the 80s (including old cash benefits)

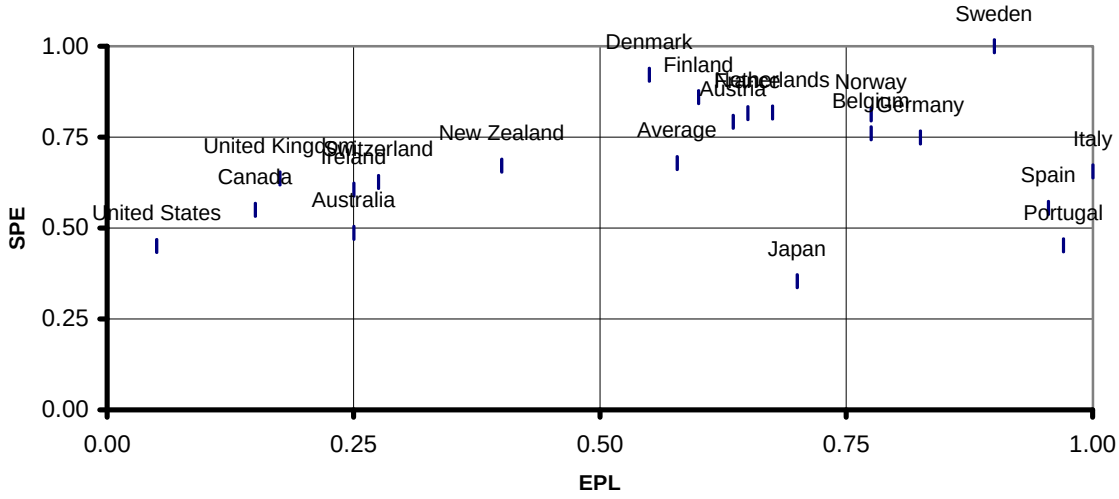

Fig. 3a - The social insurance package, in the 80s (excluding old cash benefits)

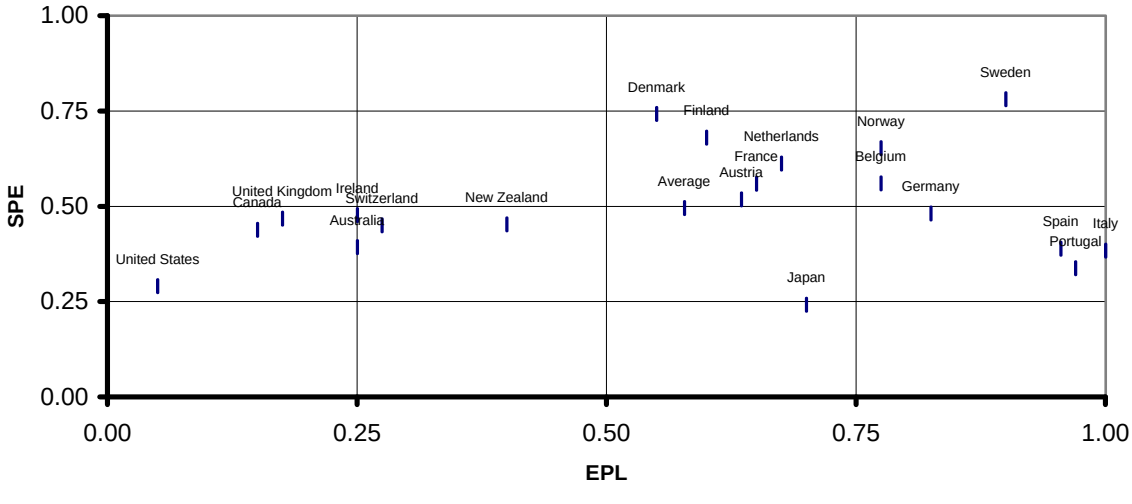

Fig. 4 - The pattern of redistribution
(normalised measures, sample max = 1)

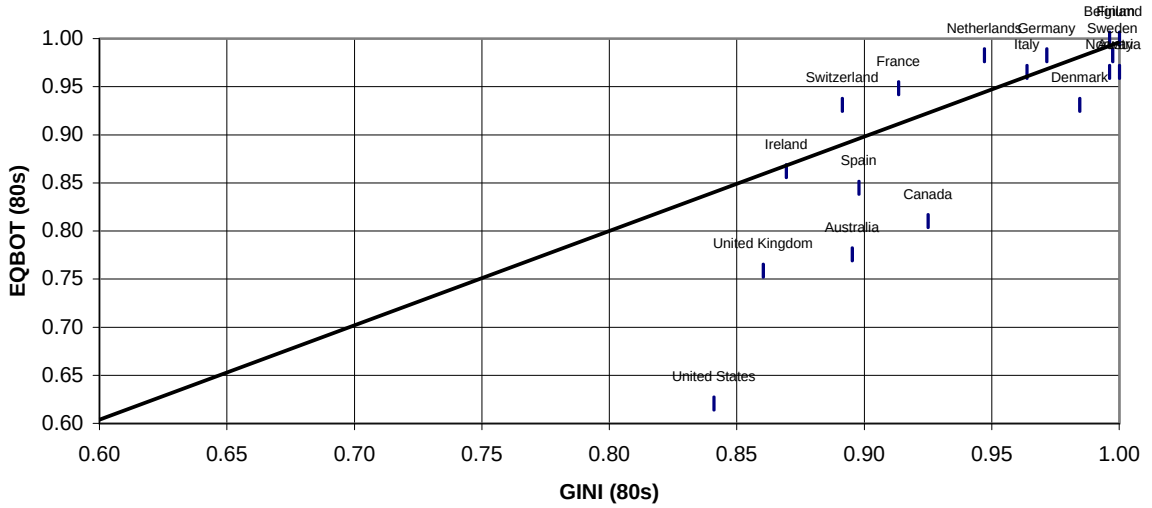

Fig. 5 - SPE and EQBOT

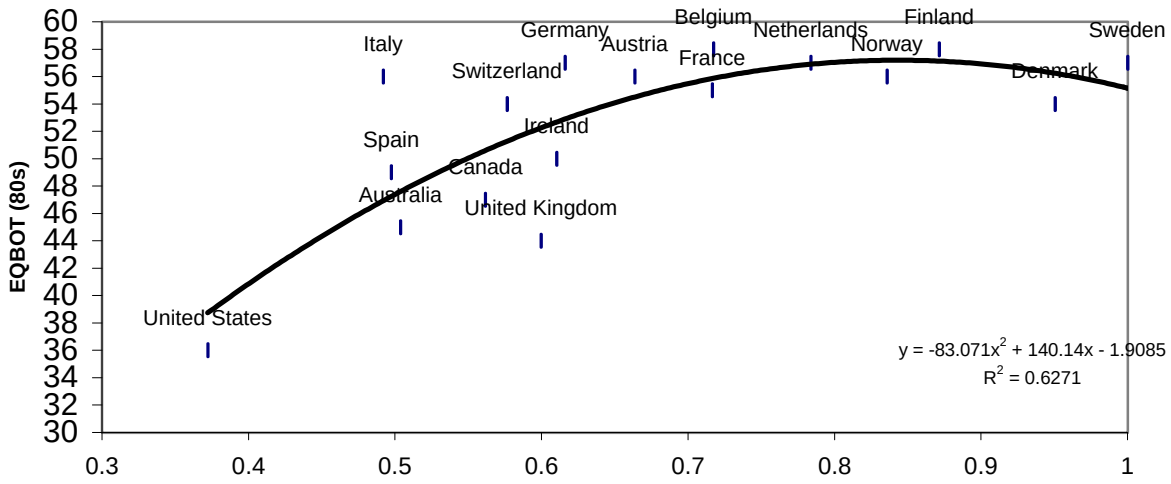

Fig. 6 - EPL and EQBOT

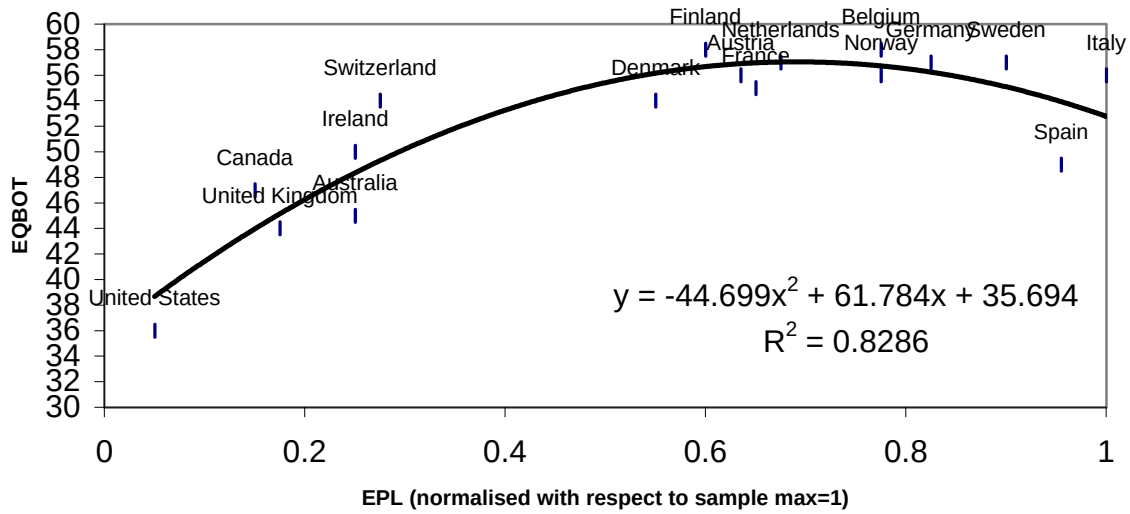

Fig. 7 - COORD and EQBOT

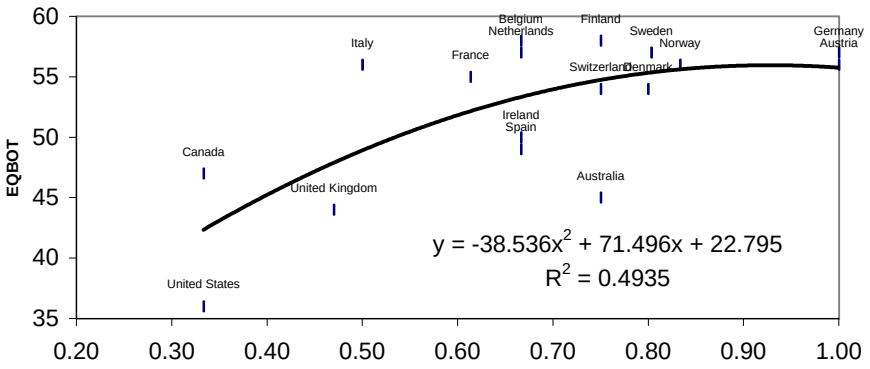

Fig. 8 - The social insurance package, in the 90s (including old cash benefits)

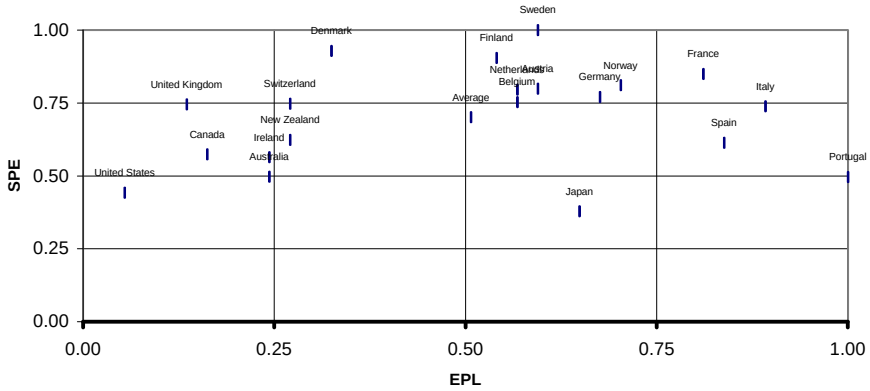

Fig. 8a - The social insurance package, in the 90s (excluding old cash benefits)

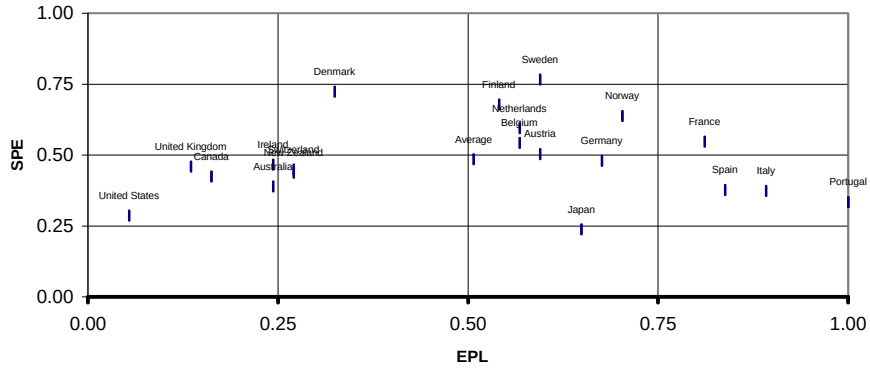

Fig. 9 Population (15-64) by education level, 1998
Source: Education at a glance, OECD (2000).