
Labour market inequalities and the role of institutions

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Abstract

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The importance of these topics has been addressed by the workshop on ‘Comparing Inequalities’ organised by the Italian Association for Comparative Economic Studies (AISSEC), and held in Assisi in June 2010. One session of the workshop was devoted to “Labour Market Institutions and Wage Inequalities: a Comparative Perspective”. This special issue, which includes a selection of papers that were originally presented at the workshop, offers contributions which can be helpful to obtain an enriched view of ongoing changes and a broader spectrum of plausible explanations.

In this paper a short appraisal of the large economic literature on wage inequality and institutions is offered with the main aim to clarify how the papers collected in this symposium contribute to related literature and in which directions they move.

JEL classifications: J31; J08.

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1. Introduction

A large body of studies has documented the changing wage structure and increasing inequalities that in the last decades have characterised many OECD countries (Katz and Autor, 1999, Atkinson, 2007, Machin, 2008). A short summary of the main facts gives the following picture: in the US a previous period of a monotonic surge of inequality, started in the mid 80s, was followed by a steep growth in the upper tail of wage distribution. Furthermore, recent studies have addressed new evidence signalling the ‘changing nature of wage inequality’ (Lemieux, 2008), such as a marked polarisation, no fully explainable by a supply-demand model (Autor, Katz and Kearney, 2008). European countries present a more heterogeneous scenario which calls for more attention on possible interplay of institutional settings and demand-supply forces. In addition, limited previous evidence on earning mobility seems to suggest considerable stability everywhere.

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In this section, we offer a short appraisal of the large economic literature on wage inequality and institutions, with the main aim of clarifying how the papers collected in this symposium contribute to the related literature and in which directions they move.

The basic facts at the origin of the debate have been changes in wage distribution which have revealed increasing inequalities from the mid '80s. Take the case of the US, the country which has been studied in much more detail and where the growth of inequality, at least in a first period starting from the 80s, was almost linear across all deciles: "Between 1979 and 1994, the ratio of the earnings of a male worker at the ninth decile compared with one at the median rose from 1.73 to 2.04. At the same time the earnings of that median male worker rose from 1.84 to 2.13 times the earnings of a worker at the first decile", as clearly synthesised by Blanchflower and Slaughter (1999, p.69).

This empirical evidence has motivated a vast body of studies aimed at exploring these changes. In the 1990s, an early literature, based on an efficiency-driven perspective, has seen these inequalities as results from the interplay of supply and demand in the labour market for individual skills (Katz and Murphy, 1992). Indeed, one explanation obtaining a vast consensus assigned a central role to the skill based technological change (SBTC) which increased the relative demand for educated employees (Acemoglu, 1998). One broad conclusion reached by this literature was that the increased wage dispersion was simply the outcome of a "race between technological development and education" (the forces behind shifts in demand and supply of skilled employees) with technology winning⁴. More precisely, "the surge of inequality evident in the 1980s reflected an ongoing, secular rise in the demand for skill that commenced decades earlier and perhaps accelerated during the 1980s with the onset of the computer revolution. When this secular demand shift met with an abrupt slowdown in the growth of the relative supply of college-equivalent workers during the 1980s... wage differentials expanded rapidly" (Autor, Katz and Kearney, 2008, p. 300).

The consensus reached by the SBTC hypothesis has remained central also in following years, even if some challenges have been advanced by a 'revisionist literature' which has signalled that explanations based on the SBTC view are difficult to reconcile with at least three related facts.

First, international comparisons reveal that the growth in wage inequality is not an 'ubiquitous' phenomenon, even if technical changes have been pervasive. During the 1980s, many other industrialised countries have failed to record significant increase in wage inequality. Among OECD countries, in only five of them the bottom decile has fallen more than 10 per cent over the period 1980-2005 (Atkinson, 2007). Conversely, countries such as Germany, France, Japan, although affected by the same technological shocks represented by the computer revolution and ICT, have not experienced the same steep growth of wage inequality recorded in Anglo-Saxon economies. Germany, for instance, according to a recent study based on accurate micro-data, shows reverse

⁴ This expression was originally used by Tinbergen (1975).

patterns for the bottom tail of the distribution with respect to the US, even if shows similar changes with respect the US for the top coding (Dustmann et al. 2009). In addition, for Nordic countries, Gottschalk and Smeeding (1997) show that the phenomenon of widening wage distribution has been less evident, as found in Finland and Sweden.

Evidence on OECD countries suggests that the magnitude and timing of the changes in the wage structure is far from homogenous. These different patterns of changes, like those observed in Continental Europe itself, call for a critical view of the SBTC hypothesis (Atkinson, 2007). A case in point, mentioned already above, is Germany, which for decades has been characterized by a stable structure of wages, but in recent years has shown noticeable changes and similar trends as those recorded in the US for the top part of the wage distribution.

Second, the role of institutions is a significant determinant of the wage structure and contributes to explaining international differences. For example, in Anglo-Saxon countries, where union density is low and the wage-setting is decentralised, fall in demand lowers the earnings of less-skilled workers. By contrast, in Continental Europe where unions are strong and the wage-setting is more centralised, the same fall in demand increases unemployment but not wage inequality (Lemieux, 2008, p.23). Indeed, Koeninger, Leonardi and Nunziata (2004) find that a large set of labour institutions are associated with more compressed wage differentials. In addition, estimates of the impact of labour market institutions on inequality show that in the 1990s rising wage dispersion for workers in most OECD countries has been offset by reduction in unemployment, with ambiguous final effects on disposable income inequality (Burneaux, Padrini and Brandt, 2006). This would support the view that “European unemployment and US inequality are opposite sides of the same coin” (Machin, 2008, p.17).

This macroeconomic framework, which represents a ‘relatively new line of research’ has been adopted by Checchi and García-Peñalosa (2008) and presented by Checchi in his invited lecture at the AISSEC workshop. The authors offer a unified framework in order to detect determinants not only of the wage dispersion, but also of the wage share, and of the personal distribution of income.

Institutions play a significant role in explaining the growth of wage inequality also in a low regulated country such as the US. For this economy, Card and DiNardo (2002) challenge the hypothesis that a single cause like SBTC was the only driver of changes in wage inequalities which occurred during the 1980s. On the contrary, they argue that the decline of unionisation and the reduction in the real minimum wage concurred to alter the wage distribution⁵. The authors find that the decline in unionisation explains about 20% of the increase in the variance of log wages for U.S. males in the 1980s. In addition, the reduction in the real value of the minimum wage had a very large impact on wage inequality, especially among women.

⁵ Indeed, they argue that computer technologies kept advancing rapidly in the 1990s and SBTC should have resulted in an increase of wage inequalities - as result of the higher demand for skills- in both the 1980s and 1990s. “The simple fact that the return to unobserved skill grew only in the 1980s is a major challenge for the SBTC explanation.”(Card and DiNardo, 2002)

To sum up, different institutional environments and the erosion of labour market institutions may contribute to explain cross-country disparities *and* patterns of secular or occasional changes observed in each single country.

Third, the SBTC model cannot explain the complex changes in inequality observed over the last 15 years. The recent overall changes hide divergent trends in the upper part of the distribution (90-50 deciles), which has kept on rising, and lower tail (50-10 deciles) which has remained stable. This evidence has stimulated a 'nuanced' version of the recent impact of computerisation technology, as summarised by its proponents (Autor, Levy and Murnane, 2003) as follows: computerisation has influenced non monotonically the demand for skills, raising demand for *abstract* tasks (used by managers and highly qualified employees), while reducing demand for *routine* tasks (belonging to white collars, as secretariats, or blue-collars such as manual manufacturing workers), and, paradoxically, leaving unaffected demand for *non routine* manual jobs, carried out by low skilled employees (health aides, cleaners and servants, just to name some cases in point) (Autor, Levy and Murnane, 2003).

If wage inequalities are rising in many industrialised countries, an important issue from the perspective of individual workers and welfare evaluations is the possibility of upward mobility. This topic requires a longer-run view which seeks to verify how workers' wages change over time. The question at issue is whether increasing inequalities have been compensated by more fluid labour markets, in which the position of workers within the wage distribution may improve over-time. Evidence found in a number of studies (OECD, 1996, 1997) shows that mobility had remained constant in many countries at least in previous decades, and 'chronic' low pay is a widespread phenomenon. However, longitudinal analyses which examine life-time inequalities, and complement information offered by cross-sectional studies, have been limited and much more research is needed. A related issue should be to verify how different institutions and labour market policies affect life-time earning inequality, which might offer a richer framework to evaluate institutional settings.

The main message of the majority of researchers which have challenged SBTC consensus, as seen above, is the rejection of the thesis that skill is the only reason which explains earning differentials. An additional dimension is the consideration of wage setting in non competitive labour markets. In these contexts, where the abandoning of the standard neo-classical model leads to discarding a close link between marginal productivity and wages, earnings may depend on firm profitability. Indeed, workers and employers, through wage bargaining, may adopt rent sharing agreements, which leads to focussing, in a micro-economic perspective, on factors which may affect the shares of labour and capital. This theme has stimulated new interest in recent empirical literature, as in the case of two European economies, Germany (Gürtzgen, 2009) and Belgium (Rusinek and Rycx, 2008). In the German case, for instance, Gürtzgen finds that powerful unions and decentralised bargaining at company level positively influence the extent of rent sharing accruing to employees. If so, potentially fruitful lines of research should provide analyses of wage inequalities consistent with findings obtained by microeconomic studies.

Finally, rent sharing may be related to other sources of inequality including gender discrimination, the last topic considered in this issue, with evidence found for the German case.

This symposium gathers together theoretical contributions and empirical evidence with special attention to the comparative experiences of countries characterised by heterogeneous institutional settings. Some of the evidence is macroeconomic, providing information on the extent to which ‘varieties’ of institutional variables influence inequality patterns. The papers presented in section 2 (Earning mobility) and 3 (Education and labour market inequalities) address these aspects. Other evidence is microeconomic and relates to distribution and inequality ‘inside’ the firm, as focussed in two continental European countries, Italy and Germany in the last papers of the symposium (section4).

2. Earnings mobility

The mobility of earnings is widely seen as positive, as it contributes to a more flexible and therefore more efficient economy (see for example Siebert 1997). This is particularly important after the introduction of the single market in the European Union, which included freedom of factor movements, i. e. in the context of this journal issue free movement of labour. Here earnings mobility is an important factor for the explanation of income inequality. The chain of causation runs as follows: higher earnings mobility enhances the chances of low-wage workers and thus improves their relative position in lifetime earnings inequality, which in turn has a positive long-term welfare effect.

The paper by Denisa Maria Solognon and Cahtal O’Donoghue analyses the impact on labour market policies and institutional factors on earnings mobility. The results may come as a surprise and shall not be disclosed in this overview introductory essay in full. Just one hint: the authors find that unionisation increases earnings mobility and that corporatism offsets macro-economic shocks.

The study looks at 14 EU countries over the period of 1994-2001. The variables of the regression analyses concentrate on direct effects of institutions, systemic interaction, direct effects of shocks and interactions between institutions and shocks. One example for the interaction of institutions and shocks is the interaction between macro-economic shocks and active labour market policies. Under the situation of a macro-economics shock relative high unemployment benefits would imply a relative low willingness to accept a lower paid job. Solognon/O’Donoghue however find that generous employment benefits counteract the adverse effects of macro-shocks on wage mobility and therefore have a positive effect on earnings mobility in the long run.

These findings open avenues for further research, for example the detailed specifications of the aforementioned ‘adverse effects’ of macro-shocks on employment. As the authors concede themselves, there might be multicollinearity between explanatory variables, which they tested for, but with mixed results. On a more general level the paper triggers thought on how the authors findings might be related to other streams of literature, for example on the varieties of capitalism or labour market duality.

3. Education and labour market inequalities

According to the Human Capital Theory (Becker, 1975; Mincer, 1958; 1974) education should be seen as an investment good. Individuals primarily make investments in schooling and other forms of human capital to earn returns and to

increase their income in the future. For this reason, asymmetries in the educational attainment are at the roots of the race between technology and education (Tinbergen, 1975) that in turn shapes the SBTC hypothesis, already discussed in the introduction. There is a large body of literature, both at the theoretical and empirical level, in which the relationships between educational attainments and earnings inequality have been analysed. As noted by Krueger and Lindhal (2001) in their review, on the one hand there is robust micro-econometric evidence related to larger returns to schooling in several within-country analyses, on the other hand the same causal effect seems much less robust in cross-country empirical studies. Besides measurement errors in education, these authors highlighted omitted-variable biases and reverse-causality problems generated by the different functioning of country-level institutions. For example, different “education systems are likely to concurrently change other policies that enhance growth, possibly producing a different source of omitted-variable bias in cross-country analyses.” (Krueger and Lindahl, 2001, p. 1131) In the last ten years, new direct measures of educational outcomes have been considered: Hanushek and Woessmann (2010) found a more stable and robust unidirectional causal effect of cognitive skills, instead of tertiary education, on the long-run growth of OECD countries. Nonetheless, the problem of reverse causality, that is how inequality affects educational outcomes that in turn influence long-run growth, has not been completely solved by these econometric strategies because it also raises important issues at the theoretical level. Indeed, Galor and Moav (2004) show in their macro-growth model, as in later stages of development, the complementarity between physical capital and skills favours a context in which more equality improves the aggregate return to investment in human capital. More precisely, unlike early stages of development, in which a country’s growth is basically fuelled by physical capital accumulation, in mature developed countries the engine of growth is based on human capital accumulation. Human capital is both intrinsically deeply-rooted in individuals and subjected to decreasing marginal returns. Therefore, the “aggregate return to investment in human capital is maximised if human capital is widely spread among individuals in society.” (Galor and Moav, 2004, p.1004) An important corollary of this deduction is that in mature economies equality favours economic growth, also because it alleviates the negative effects of credit constraints on human capital investments. Of course, there are other factors that could foster or hinder the diffusion of human capital among individuals, by removing or creating social segmentation and under-education traps.

The paper by Nathalie Chusseau and Joel Hellier, included in this issue, addresses this question by taking into account the role that different education systems play on asymmetries in educational attainments and social segmentation. These authors develop a theoretical model in which credit markets are competitive and the interest rate is nil, so that the choice for higher education is basically conditioned by intra-family conditions and the educational system. Assumptions concerning an individual’s educational choice are adequately articulated and close to reality, since human capital accumulated at the end of basic compulsory education and maximisation of their lifetime income lead individuals to make one of the following three alternative choices: join labour market directly, take up vocational studies or attend university. An educational system is characterised by total resources divided in different proportions among basic education, vocational studies and university, compulsory time in basic education and conditions to enrol at university. The three educational choices generate permanent segmentation if

the number of skilled groups in which the population is divided and the number of individuals within each group remains unchanged over time.

The steady state equilibrium in which the maximum gap between segments occurs, both in terms of human capital and income, is the one including a permanent under-education trap, namely a persistent percentage of the working population only endowed with basic education and earning the lowest wages.

It is worth noting in the final results of this study that an egalitarian educational system, or at least a pattern situated in the middle between the egalitarian one and the elitist one, allows the under-education trap to disappear in few dynasties. The egalitarian and the mixed educational systems are mainly characterized by a higher portion of the economy's total income being allocated to education, in general, and by more importance, in terms of financial resources, being given to basic education compared to university, in particular. Therefore, this paper indirectly raises new questions related to the line of research opened by Galor and Moav (2004), and it also develops some insights provided by Krueger and Lindahl (2001). Indeed, it may not be enough to take into account how an increase in wages of poorer workers alleviates the negative effect of credit constraints on their propensity to invest in human capital if there are other institutions, such as educational systems, that could potentially produce under-education traps that influence the spread of human capital among the population and negatively affect economic growth.

Apparently a second paper by Gulgun Bayaz-Ozturk, analyses relationships between wage inequality and education, with a very different approach. Indeed she performs an empirical analysis within the framework of the SBTC theory, in which the determinants of educational earning differentials in West Germany and United States (US) are compared. Despite these different features, this article complements the contribution by Chusseau and Hellier in several aspects: *i*) it sheds light on the causal effect that runs from asymmetries in education to earning inequality; *ii*) it studies the impact of other institutions, such as wage-setting policies, on inequality; *iii*) it implicitly challenges the view according to the adoption of an egalitarian educational system is sufficient to impede social segmentation, by stressing the presence of polarization in the skilled labour demand; in other terms, if the labour market requires non-routine jobs demanding both high-skilled workers with cognitive tasks and low-skilled workers with non-routine manual tasks, a market mechanism that fuels social segmentation emerges.

Besides these complementarities, other aspects of the Bayaz-Ozturk's paper are worth noting. First of all, it confirms the factors that explain trends in the wage premium (that is, the ratio between high-skilled workers' wages and those of low-skilled workers) in Germany and the US, following the Nickell and Layard (1999) model. The latter allows to be taken into account contemporaneously market factors, such as the relative demand and supply of skilled workers and institutions like the wage-setting rules. Thanks to this model the author shows the increasing importance of market forces, also in West Germany, to explain the notable increase in the wage premium that took place in this country in the 1990s. In other words, a general weaker role of institutions in wage determination, such as the decline in the coverage of collective bargaining and the possibility to set wages below the threshold established within the sector-level agreement, seems to be the main reason of the increasing wage flexibility in Germany.

Lastly, Bayaz-Otzurk provides indirect evidence of job polarization both in Germany and in the US. This means that an increase or stable trend in employment share of high-skilled workers with non-routine abstract tasks and low-skilled workers with non-routine manual tasks, occurred together with a decline in the employment share of more routine jobs, usually placed in the middle of the earning distributions. This evidence contributes to enriching the picture described above and makes the framework of relationships between education and labour market inequalities much more complex.

4. Distribution and inequality: the microeconomic evidence

More than ten years ago Blanchflower and Slaughter, in their survey on “The causes and consequences of income inequality”, asked what research might improve our knowledge of inequalities and mentioned the contribution of labour economists on rent sharing as one fruitful line of research.

Employees with similar skills may earn different amounts, since their wages may be correlated to the employer’s ability to pay. Hence, wage differentials by industry, which can be found even after controlling for employees’ educational characteristics, may be linked to profitability. This thesis radically challenges the idea of disparities due to gaps in skills and productivity (Blanchflower, Oswald and Sanfey, 1996).

A number of studies have tested the relevance of this hypothesis for European countries, mainly for France, Norway, Germany and Belgium (Margolis and Salvanes, 2001; Martins, 2009; Gørtzen, 2009, Rusinek and Rycx, 2008). However, for Italy, so far evidence is limited to a single region, Veneto (Card, Devicienti and Maida (2010), or restricted to some sectors, such as the basic metal industry (see Pistoiesi and Strozzi, 2001).

Maitano’s and Naticchioni’s contribution is the first to provide estimates for the relationship between wages and profitability for the Italian economy. One important contribution of the paper is the development of a unique database for a nationally representative sample of manufacturing and services companies and obtained by matching social security data with firms’ balance sheets.

Their econometric strategy consists of OLS and Fixed Effects (FE) estimates in order to take into account unobserved individual heterogeneity. Furthermore, they address the issue of potential endogeneity of profits (due to the possible simultaneous determination of wages and profits) by IV estimates. Their result is that of a significant ‘sorting effect’ of high-ability workers into high-profitability firms; also, they find a confirmation of endogeneity since the extent of rent sharing, severely underestimated in FE estimations, is larger with IV.

Finally, they pay attention to several dimensions of heterogeneity in rent sharing providing a final set of estimates which show the extent to which the pay - profitability link is affected by heterogeneities by regions, sectors, professional composition of the workforce, and gender.

Their results lead to a number of interesting conclusions. First, Italian wage determination is consistent with rent-sharing theory. However, significant disparities exist. Quite unexpectedly, on average in Southern regions the degree of rent sharing is

higher than in the rest of Italy and more pronounced in the service industry. Furthermore, men and white-collars are the main beneficiaries of rent-sharing opportunities.

Not surprisingly, rent sharing occasions are more limited for the female workforce, whose benefits are lower by around 3.4% with respect to their male colleagues. Italian experience confirms that rent sharing is also related to other sources of inequality, including gender discrimination. This leads to the final contribution of this symposium which focuses on the largest European economy, Germany.

According to the 2008 Employment Outlook, in 2001, the latest year for which comparable data were available for many OECD countries, on average gender wage disparities were around 17%. In addition, even if almost all OECD countries have adopted anti-discrimination laws, the speed of reduction of the wage gap between women and men has slowed down in most countries. Lowering discrimination thus calls for increasing attention on institutional settings which may mitigate the gender pay gap.

One of these institutions is represented in Germany by works councils. As synthesised by Addison et al. (2010), in Germany, collective bargaining on wages agreements have always been determined at sectoral level. However, de-facto, work councils have always been involved in wage setting for two main reasons. First, their codetermination rights give them enough power that they exercise *sotto voce*. Second, they contribute in determining wage drift, i.e. in fixing wages above tariff levels (i.e. the formal wage set at sectoral level) and participate in determining the provision of special premia and bonuses.

There is evidence that the presence of works councils is associated with low intra-firm wage differentials between skilled and unskilled employees, but also with increased innovativeness. These results are coherent with the hypothesis that this institution reduces wage inequality to increase cohesiveness and solidarity among workers, as suggested by Jirjahn in his background discussion.

The question posed by the author is whether establishment-level codetermination reduces gender wage discrimination or whether it reduces a wage differential that reflects productivity differences between men and women. In order to disentangle between these two competing hypotheses, Jirjahn tests the association between the share of female employees and profitability⁶. Jirjahn finds that works councils limits gender discrimination, rather than preventing employers from adopting intra-establishment wage differentials strictly linked to (unobserved) differentials in productivity. This is an interesting result which confirms that legal institutions of codetermination by giving 'voice' to employees enhance cooperative employer-employee relations, without detrimental effects on enterprise performances, as also shown in other studies (Damiani and Pompei, 2010).

⁶ The hypothesis is the following: in firms where there are unobserved differentials in productivity by gender, but not discrimination, employers may tend to downward adjust wages for the female component to compensate lower efficiency with lower pays. This wage flexibility may be hindered by the presence of works councils, which thus exert a negative influence of firm profitability. In such situations, the higher is the share of female workers, the lower the profits. On the contrary, in situations where women are discriminated, the presence of works councils mitigate (unexplained) wage disparities and no systematic relationship between the share of female and profits may be found.

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