Inequality in the Earnings of Skilled and Unskilled Workers: Theory and Evidence for Italy 1977-2004

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The wage differentials between skilled and unskilled workers (which is usually identified with the so called college-premium) has received, in recent times, much attention from several economics scholars. Its evolution through time, and the reason of such evolution, has been studied both theoretically and empirically and has often been related to the effect of technological change. The main idea behind this is that progress may be biased towards certain category of workers (usually the skilled), granting them better salaries as new technologies are adopted. The analysis of the American data on this subject is at the centre of several studies. Katz and Murphy (1992) is probably the most influential work, but several other articles followed: for example, Acemoglu (1998) and Card and DiNardo (2002) developed better theoretical models and Baudry and Greene (2005) updated the analysis up to recent years.

On the contrary, very few works have appeared covering the European case and none, to our knowledge, have examined the Italian data. An analysis of the wage differentials in this country is particularly interesting because they show a very different time pattern with respect to their American counterpart. While in the USA those differentials have kept growing from the seventies (though at a much higher rate until the mid eighties than in later years), there is no clear trend for the data in Italy. If we consider the years from 1977 to 2004, the Italian college premium seems to be quite volatile, but it keeps fluctuating around a constant mean, with only the very last years showing a slightly increasing trend. As a matter of fact, the ratio between the average monthly salary of skilled worker and unskilled in Italy fluctuates from a minimum of 1.26 to a maximum of 1.52 (with a mean of 1.39) whereas the American steadily grows from slightly above 1 to 1.29.

It is worth to note that when referring to skilled workers, the above articles (and our paper as well) refers to workers with at least an undergraduate degree while the rest of the workers are considered unskilled. In this sense the differentials between wages of the skilled and the unskilled are strictly related to the college premium.

The approach we follow in this paper is to explain some possible factors that influence the skilled-unskilled differential and to report the theoretical models on which they are grounded. Then, we test which factors (and theories) are able to interpret the Italian data.

When examining these wage differentials there are roughly four main factors that could be able to explain them: the supply of skilled workers, the technological change, the international commerce and several other elements that we could gather in a broad category that is usually called the “institutional factors”.

The first is also the most simple and widely accepted (see Katz and Murphy (1992)): in a competitive market, when skilled workers become relatively more available their relative salary

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should decrease. This however may lead to a less intuitive puzzle: since the skilled worker relative supply keeps increasing through time, why we do not observe a fall in the wage differentials? This consideration open the field to the possibility that the relative demand for skilled workers may be increasing as well (possibly because of technological progress) or that other factors are at works. The role of technological change is usually considered the main reason why we do not observe such a fall in the differentials and the work by Acemoglu (1998) and Card and DiNardo (2002) suggests that the adoption of new technologies favour the more skilled, increasing the demand for their services. This is somehow confirmed in the empirical analysis for the USA. On parallel lines there is the consideration that an increase in the international commerce (brought on through the so-called globalization of the world economy) could reduce the relative demand for unskilled workers. In fact, there is a wide spread belief, at least at the theoretical level (see Krugman and Lawrence (1994) and Borjas and Ramey (1995), to name only a few), that globalization increase the competition from the less developed country so that those sectors with less technological contents (and that employ more unskilled workers) are forced to reduce their prices or their employment. Symmetrically, the wage of the unskilled is reduced and the college gap widen. The final elements are related to the institutional factors and in particular to the institutions in the labour markets. The considerations we have brought forth this fare are tied to the idea that the labour markets operate in perfect competition, but things may work out differently when this is not the case. Indeed, the presence of labour regulations and unions may greatly influence the wage differentials. There are two basic reason for this: first, unionization is more present among the unskilled worker so that the wage pressure is higher for them (see Card (1998)); second, a more regulated labour market seems to promote more wage compression (see DiNardo and Lamieux (1997)). Summing these two effects, we should observe that stronger institutions in the labour markets reduce the college premium.

In our analysis, we derive the data for the Italian case from “Archivio Storico sui Bilanci delle Famiglie Italiane” from Banca d’Italia. This dataset provide information for individual workers from the years 1977 to 2004 (but not all years are present) and from it we derive the average monthly salary for the skilled and unskilled. We adjust those data to take into account compositional effects. In practice, we impose that the composition of workers with respect to gender and experience stays constant through time: this is a standard procedure that was also performed in the other works on the subject. In a similar way, we derive the relative supply of skilled workers. To do this, we follow Katz and Murphy (1992) and we suppose that the supply exactly equals employments. As for the international commerce, we use data on openness (export plus imports over GDP) to measure it. Finally, we try to take into account the institutions in the labour market through the adoption of dummy variables that split the sample in two periods: the first until 1980 and the second after it. We choose this year because traditionally, in Italy, the autumn of 1980 put an end to a season of strong union activism.

We perform the econometrical analysis using both standard OLS regressions and a Semi-Parametric approach. Both approaches seems to deliver similar results, showing that the supply of relative skilled worker is the main force in determining the wage differential and that technological bias is present but feeble. In particular it seems to have a far lesser magnitude than in the United States. The institutional factors seem to matter as well as the wage differentials show a (statistically significant) higher responsiveness to the relative supply after 1980. In practice, this tells us that wage differentials since 1981 seem to be more influenced by the competitive force of supply and demand, while before that year the stronger unions reduced the extent of those competitive forces.