

Wage differentials in social enterprises: education premium and the role of PPP geographical disparities

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Abstract

In Italy social enterprises include more than 7,000 institutions with around 250,000 workers serving more than three million people, a big share of which disadvantaged. Using the ICSI 2007 survey conducted by a pool of Italian universities on a representative sample of social enterprises, we analyze the determinants of nominal and real wages (adjusted for the cost of living in the area of residence). Our two main findings show that: i) low wages and absence of “direct” education premia make it hard to attract (beyond intrinsic motivations) young talented workers in this sector even though indirect premia in terms of higher probability of becoming manager exist; ii) cooperative wage differentials are sensitive to regional disparities in PPP even though they do not fully compensate for them: nominal wages are higher in Northern Italy but, after adjusting for the cost of living, they become higher in the South.

Keywords: Social enterprises, wage differentials, education, wage premium, motivations.

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1. Introduction

According to the Italian National Institute of Statistics (ISTAT, 2008), on the 31st of December 2005 there were in Italy 7,363 social enterprises hiring 244,223 workers (plus 34,626 volunteers), serving more than 3,300,000 people and producing goods and services for 6.4 billion €. Social enterprises can be either of “type A”, the most widespread which provide assistance to the elderly and education services to the children, or of “type B”, which deal with work integration of disadvantaged people (mentally and physically disabled, previous drug addicted, ex prisoners, etc.).

As a result of growing government debts, shirking public expenditures and increasing demand of the ageing population, the number of enterprises, of people actively involved and of beneficiaries has constantly grown. More than 70% of social enterprises were born after 1991. In only two years, from 2003 to 2005, the number of enterprises increased by 19.5%, that of workers by 26.2%, and the value of the goods and services provided by 32.2% (in constant 2005 terms).

Social enterprises are not-for-profit organizations which either provide assistance to selected categories of individuals or provide goods and services by reintegrating disadvantaged people who often have low productivity. As a consequence, this sector is not particularly “wealthy” and cannot pay very high salaries. Furthermore, social enterprises face a trade-off between increasing workers’ salaries and providing assistance and services to the largest number of individuals. Therefore, to some extent, it is understandable that they end up trading off some Euros in the pay-pockets of employees and managers in exchange of benefits for their beneficiaries.

However, another important reason for low salaries in Italian social enterprises seems to be that, due to the economic stagnation and high indebtedness of the Italian Government over the last twenty years, public authorities increasingly choose to externalize the provision of social services through auctions whose target is to maximize the rebate and minimize the costs. This, in turn, generates a strong competition among participants to the auctions and a negative effect on workers’ salaries and labor conditions¹. Workers of social enterprises and employees belonging to the public institutions which delegate (part of) the services frequently do the same identical job, the latter having a lower salary and short-term and unstable contracts with respect to the first. To sum up, in order to survive, social enterprises most often need to sign contracts with public authorities, which is achieved by offering rebates in the auctions, which in turn is made possible by cutting salaries.

¹ In a recent (unpublished) investigation on the regulatory policies of the so called “third sector” in Piedmont Marocchi et al. (2009) show that 30% of social enterprises selected through auctions by the public authorities were chosen exclusively or mainly on the basis of the lowest price criterion. Furthermore, two thirds of auction participants did not consider the starting prices as adequate. The authors conclude that, despite of the progresses made in both regulation and tendering exercises, bad commissioning still persists, with low bid as an important selection mechanism, denial of labour cost recovery and unnecessary short-term contracts. “This means an insufficient consideration of the minimum standards guaranteeing the quality of services and a fair workers’ remuneration”.

Given these original characteristics, the goal of our paper is to investigate the determinants of sector wage differentials in social enterprises to verify whether the above mentioned specificities may generate differences with respect to the wage pattern observed in the profit sector. The main issue at stake is related to the downward pressure of the above mentioned factors on wages and to the effective capacity of this sector to remunerate talent.

In fact, low salaries might represent a problem for social enterprises which could end up recruiting individuals with lower talent, skills or willingness to work hard. The literature on gift exchange (Akerlof, 1982), shows that workers modify their behavior according to what they have received from the employer, thereby putting more effort if they feel they have received a fair wage (Rabin, 1998). Thus, by paying low salaries in order to save money, social enterprises might recruit a higher number of workers with lower productivity, the final result being uncertain: it might eventually be negative if savings from lower salaries were smaller than the fall in productivity.

As a partial compensation to this possible vicious circle it must be taken into account that, in economic transactions, effort and behavior depend not only on extrinsic but also on intrinsic motivations.² While the first are of economic kind, based on rewards and punishments, the second are of psychological type, based on the agent's moral values, ideals, interest in the activity, desire to perform well, need of prestige, personal involvement and conviction over the social relevance of the activity undertaken.

As noted by Hansmann (1980) and Handy and Katz (1998), nonprofit employers might offer salaries below those of the for-profit sector in order to self-select the applicants with higher intrinsic motivations. Mosca, Musella and Pastore (2007) build a theoretical setting where effort correlates with both monetary and non-monetary compensations. Using data on a sample of Italian non-profit enterprises the authors show that, by allowing higher non-pecuniary compensations, non-profit enterprises attract workers with similar skills and higher intrinsic motivations, which end up providing a higher level of effort with respect to profit organizations. As in non-profit organizations, also in social enterprises intrinsic motivations might compensate for the low wages paid to workers.

However, if wages and career paths are not subject to fair and effective incentive mechanisms (e.g. there are gender wage gaps or there is no educational wage premium), then intrinsic motivations might be insufficient to compensate for the low wages and social enterprises might face a decrease in the average quality of the job applicants or in their effort. Workers' motivations depend on many factors, among which wage equity, work morale and group cohesiveness play an important role: "the perception of wage fairness or equity is generally understood to be based on the extent to which differences in wages between an individual and the relevant reference group are considered to be justified" (Leete, 2000, p. 425). Thus, wage dispersion would reduce work morale (Stark, 1990), job satisfaction (Clark and Oswald, 1996) and group cohesiveness (Levine, 1991).

² The original definition of intrinsic motivation (Deci, 1971) states that: 'one is said to be intrinsically motivated to perform an activity when he receives no apparent reward except the activity itself'. Prendergast (2007) applies the concept when interpreting the working effort of bureaucrats which have weak monetary incentives but nonetheless perform their jobs because they care about their outcomes.

On the other hand, as noted by Lazear (1991), wage inequity does not automatically imply a loss of motivation or productivity since competition among workers might generate efficiency gains. The perception of fairness diminishes if salaries are too different (high dispersion), but also if talent and effort are not properly rewarded (in case of gender wage differentials, no educational wage premium, etc.). Similarly, long periods without receiving any promotion lead to a fall in intrinsic motivations (Van Herpen et al., 2006), which becomes even more severe if this is not due to lack of talent or effort.

The recent history of social enterprises confirms the worries of wage theories when applied to characteristics of social enterprises' wages. Over the last years Italian employees of social enterprises have been complaining about salaries, working conditions and criteria used for the career paths. After 27 months since the previous national workers' contract expired, on the 4th of April 2008 the labor unions organized a national strike which, according to the promoters, had an 80% participation rate.

The unions requests were: (i) a salary increase of 80 up to 110 € per month, according to the type of job; (ii) a compensation for the inflation which over 27 months reduced the real net wage; (iii) the introduction of a new classification system which allowed a well defined career path in order to reward ability and skills; (iv) the end of what they called a “war among the poor” (rat race) through maximum rebates auctions which has led to falling salaries, increase in temporary and unstable contracts, and consequent worsening labor conditions.

On their side, social enterprises replied that fulfilling all these requirements would lead them to bankruptcy, since increasing salaries would not allow them to win governmental auctions. The issue is complex, since a coordinated reform of classification systems, contracts and salaries in the social enterprises carried out at the country level would eliminate the problem of wild competition among social enterprises, but would reduce at the same time their competitiveness with respect to private firms.

Given the relevance of the topic, the purpose of this paper is to analyze the level of salaries, and identify the main determinants of wages and of the probability to be a manager in the Italian social enterprises. In order to examine in depth this issue we take into account that real wages can be determined only by considering the strong purchasing power (PP) disparities among Italian regions. This is why we compare results obtained on nominal wages (and especially regional wage premia) with those on real wages corrected for geographical PP differences³.

³ The so-called *gabbie salariali* (literally “wage cages”) were a system of setting wages according to some of parameters like, for example, the cost of living or the average workers' productivity in a certain area. This system, established by decree in 1946, was initially applied only to Northern Italy. It was only in 1954 that the whole country was divided in 14 areas, salaries in the richest regions being up to 29% higher than in poorest. Due to the growing opposition by national labor unions, this system was gradually abolished from 1969 and replaced in 1972 by national contracts. However, over the last two years the political party *Lega Nord* (Northern Alliance), which defends the interests of Northern Italian regions, has been proposing to introduce again regional salaries to take into account the higher cost of living in the North.

The article is organized as follows. Section 2 describes the dataset. Section 3 presents econometric evidence over the determinants of wages and of being a manager. Section 4 concludes.

2. Dataset

The dataset used (ICSI 2007) has been built by a pool of six universities⁴ in 2006 through questionnaires submitted to a representative sample of 4,134 employees and 338 managers of more than 300 Italian social enterprises. The sample is stratified by cooperative type, province and age. The Survey contains a large set of questions ranging from socio-demographic controls (age, gender, education, etc.) to economic variables (e.g. wage), from job characteristics (tasks, working hours, overtime) to job satisfaction with respect to a number of possible domains (with colleagues, wage, type of job). The result is an extremely valuable database which enriches our knowledge of the conditions and motivations of people employed in the Italian social enterprises.

Tables 1 and 2 provide summary statistics of the selected variables for employees and managers respectively. Among employees (see Table 1a), around three quarters of the sample are made by female workers (consistently with the proportion observed in the Universe of social enterprise workers), 29% has a university degree and 5% is foreigner. The average net monthly wage (net of taxes, social security contributions, extra pays and bonuses) is 867 € (1,012 € for full-time workers), the average annual bonus being negligible. Thus, salaries are extremely low⁵, especially if one considers the average age and schooling level of people in the sample. Figure 1 shows the distribution of the employees' answers to the question "do you consider your gross wage adequate to your education level?" for the employees, the answers ranging from 1 (much less than what would be fair) to 7 (much more than what would be fair)⁶. We can see that the share of dissatisfied individuals exceeds that of satisfied ones.

The average number of working hours is 31 (37 for full-time workers) and paid overtime is limited. Three quarters of the sample are members of the cooperative. The average number of years spent in the cooperative is 6, ranging from 0 to 36. Temporary contracts are very much in use, which confirms the troubles faced by the strikers requesting more stable jobs, even if a share of these short-term positions might have been created in newly established enterprises and could get stabilized over time. Internships are almost absent. 56% percent of individuals are employed full-time, the remaining 44% being part-time. With respect to job type, the vast majority (68%) provides services to customers. Almost half of the sample respondents work in social enterprises classified as "big" (with more than 49 employees), those of type A being the most widespread.

⁴ Trento, Bergamo, Brescia, Milano Bicocca, Napoli and Reggio Calabria.

⁵ The last OECD (2008) report on wages and taxation shows that Italian wages are on average 17% lower than the OECD average. In 2008 the average net annual wage of a worker (single and without children) was 21,374 € (1,644 € per month considering 13 installments, 1,781 considering 12 installments), taking the 23rd position out of 30 countries. Italy's position slightly improves when considering gross wages, since the fiscal burden has been constantly growing over the last years, reaching an impressive average of 46.5% (6th out of 30 positions).

⁶ The question has been asked only to employees, not to managers.

Table 1b reports the sector of activity of the cooperative (more than one choice is allowed). The taxonomy for A-type social enterprises includes social assistance, health assistance, education assistance, cultural activities, recreation services, or other unspecified businesses. The B-type taxonomy includes agriculture and zootechnics, gardening, garbage collection (e.g. in parks), manufacture (leather, paper, wood), sales in shops, restaurant and catering services, laundry, building, cleaning, and IT/typography/call centers.

Turning to the sample of managers, with respect to employees we can observe higher values for the share of males, age, education level and wages. The net monthly wage is 1,071 € (1,356 if we exclude volunteers), again a very low figure if we consider the seniority and education level of the sample. Figure 2 shows the cumulative distributions of wages of, respectively, employees and managers (without considering the volunteers), from the 1st to the 99th centile. We can see that there are significant differences among income centiles, which makes the analysis of the determinants of wages a relevant issue.

3. Econometric analysis

The dependent variables under investigation in the econometric analysis are the net monthly wage and the net hourly wage, obtained by dividing the monthly wage by the declared number of hours worked each month. Since a number of respondents did not declare the number of worked hours, it turns out that the number of observations decreases significantly when using the hourly instead of the monthly wage. In line with previous studies, we also run estimates where the dependent variables are in natural logarithms to correct for the pronounced skewness of the data: results are very similar, but wages expressed in absolute levels are more intuitive and easier to interpret.

In order to analyze the determinants of wages, we start by adopting a linear specification of the earning function similar to that introduced by Mincer (1974):

$$Y = \beta_0 + \beta_1 Male_i + \beta_2 Age_i + \beta_3 Education_i + \beta_4 Italian_i + \beta_5 Member_i + \beta_6 Yearcoop_i + \beta_7 Permanent_i + \beta_8 Fulltime_i + \beta_9 Medium_i + \beta_{10} Large_i + \beta_{11} AType_i + \beta_{12} NorthEast_i + \beta_{13} NorthWest_i + \beta_{14} Center_i + \varepsilon_i$$

[1]

where the dependent variable (Y) is regressed on a set of independent variables which include a gender dummy ($Male$), respondent's age (Age), education years ($Education$), a dummy for Italian nationality ($Italian$), a dummy which takes value of one if the respondent is also member of the cooperative ($Member$), the number of years of work experience in the cooperative ($Yearcoop$), two dummies for permanent and fulltime job status ($Permanent$ and $Fulltime$ respectively), two dummies for medium and large coop size ($Medium$ and $Large$), a dummy which takes value of one if the respondent works in the A-type cooperative ($AType$) and three macroarea dummies ($NorthEast$, $NorthWest$ and $Center$). We then move to quantile regressions proposed by Konker and Basset (1978), which estimate the coefficients of the

determinants of wages along the entire wage distribution and not only at their mean like OLS.

OLS regressions are designed to estimate conditional mean models, while quantile regressions offer a set of techniques for estimating families of conditional quantile models, which provide a better and more complete view of the relationship among variables of interest. In our work, we are especially interested in the right tail of the distribution, since most of the independent variables are expected to strengthen their effect when salaries increase. If some variables were affecting only a part of the wage distribution, by using OLS we might get insignificant coefficients. Therefore, relying on quantile regressions is advisable and very much in use (see for example the set of studies collected in Fitzenbergen, Koenker and Machado, 2002 and the application to the Italian labor market by Naticchioni, Ricci and Rustichelli, 2007).

3.1 Results on wage differentials

Table 3a shows OLS regression results for the employees. T-statistics are computed by use of heteroskedasticity-robust standard errors. We can see that the (log of) monthly employees' wage is positively affected by male gender, number of years spent in the cooperative, and being a full-time and permanent worker, which is in line with the results on the Italian economy as a whole obtained by Lilla (2005) with the SHIW database provided by the Bank of Italy.

Education does not display any effect, while Naticchioni, Ricci and Rustichelli (2007) and Lilla (2005) using the SHIW database show that, in the Italian economy as a whole, holding a university degree has a strong positive impact on wages. Being an Italian citizen has an apparently surprising negative correlation with wages (although in regression analyses on hourly wages this result will disappear),⁷ and jobs which require more skills and imply more responsibilities are rewarded with a premium.

In contrast with some previous researches on traditional (for profit) enterprises, firm size (*large coop* and *medium coop* dummies) does not matter. Many studies have demonstrated the positive link between firm size and wage (see, for example, Lester, 1967, Mellow, 1982 and Bayard and Troske, 1999), the reasons being that large firms are more capital intensive, more productive and pay higher salaries to attract workers of higher quality (see Chuang and Hsu, 2004). From these results it seems that size does not affect productivity in this kind of enterprises, probably due to the type of activities carried on which do not require large economies of scale or high specialization. Social enterprises of type B display a negative wage differential with respect to those of type A, which is most likely due to the lower productivity of the disadvantaged workers employed in the former. The geographical location is obviously correlated with wages since Northern Italy is richer than the South.

⁷Descriptive statistics tell us that non Italian workers in our sample are only 5 percent of the total (Table 1). They generally either are very specialized workers or, in any case, enjoy of a preferential treatment due to the active anti-discrimination policies of many social enterprises. Furthermore, foreign workers are employed in activities in which they work significantly more hours so that the difference in remuneration disappears when we look at hourly wages.

When turning to hourly wages, there are many similarities but also some differences. We find a positive effect of male gender, experience in the social enterprise, jobs requiring skills and responsibilities, and cooperative of type A. Education still does not display any positive effect. However, Italian nationality and having a permanent position are not significant anymore. Working full-time implies a negative hourly wage differential (progressive taxation surely plays a significant role since higher workload implies higher gross wage but also higher marginal rates of contribution) and age has become significant.

Results on gender wage gap are standard in the literature. In fact, males and females have different labor market behavior since women are more likely to move from employment to nonparticipation because of personal, nonjob-related reasons (e.g., family, pregnancy, health) and a longer duration of nonemployment, especially for those exiting to nonparticipation (Bowlus, 1997). Nevertheless, gender wage differentials usually persist even after controlling for many confounding elements (see Oaxaca, 1973, and Cain, 1986 for early works). Furthermore, career interruptions are often the consequence, and not the cause, of low wages, as shown by Groanu (1988).

The result on education is in contrast with previous studies. The relationship between educational wage premia and the distribution of personal labor earnings is the object of a large literature which finds a significant gap between the mean labor earnings of people with different schooling levels. Since definition and measurement problems are of paramount importance in this kind of studies, they usually focus on the differences in relative wages across schooling levels and on the degree of variability, among countries and over time, in the pecuniary returns to work, the main issue being the size of the estimated premium, not its sign (for a survey see Peracchi, 2006).

To sum up, we highlight two elements in our findings. First, the most interesting results are that (i) there is a gender wage gap, (ii) there is no educational wage premium, and (iii) years of experience in the cooperative and age are positive and significant. All these factors combined together might discourage some young educated females and prevent them from applying for a job to social enterprises, since employees' wages seem to be driven mainly by the experience accumulated in the cooperative, without any premium for higher education and in presence of gender discrimination. Given that the number of workers in social enterprises has been constantly growing, 74% of our sample is female and 29% has a university degree, this might be a relevant issue. However, as we will see in what follows (section 3.3), education has an indirect positive effect on wages because it increases the probability to be a manager. Since promotions have been shown to be important drivers of workers' motivations (Van Herpen et al., 2006), this finding partly counterbalances the absence of direct effects of education on wages within the categories of employees and managers.

Second, in this paper we do not consider the problem of endogeneity of schooling choices: people with higher education level might have more favorable family background and higher talent. In order to avoid this omitted variable bias the literature has proposed a number of strategies, ranging from instrumental variables techniques to comparisons between siblings and twins. Since we do not have the data necessary to solve the problem, we follow Peracchi (2006) in distinguishing between returns to education, which is a measure of the causal effect of an extra year of schooling on the worker's earnings, and educational wage premia, which

is a measure of statistical association between schooling years and earnings. Our target is simply to check whether there is a positive correlation between education and wages.

Table 3b repeats the exercise of Table 3a but adds the sector of activity of the social enterprise as additional control. Results do not change. The sector of activity has a significant effect on the total wage, but these differences disappear when looking at hourly wages, the only exception being represented by those cooperatives working in the IT sector, the positive differential probably being driven by the expertise required to provide IT services.

3.2 Correcting for regional PP disparities, quantile regressions and determinants of managers' wages

In Table 4 we replace the nominal self-declared net monthly wage with the real (PPP) income. We do so by dividing the previously used nominal wage by an index of cost of living for each of the four macro regions considered (North-West, North-East, Center and South). The index used is derived from Cannari and Iuzzolino (2009) who calculated the cost of living by integrating the information provided by the Italian National Institute of Statistics (ISTAT) with data from other official sources on other services (e.g. energy, public services, transportation etc.) and on real estate prices and rents. This is necessary since, as explained by the authors in the introduction (see p. 5), data provided by ISTAT refer to only three categories of goods representing around one third of the households' expenditure: grocery, clothing and furniture.

In Table 4 we divide the nominal wages by the average of the 12 indexes provided by the authors for the four macro regions in the Appendix 2 (pp. 33-34)⁸ and observe that the sign of the regional dummy variables is reversed: once corrected for the cost of living, workers in the South of Italy receive a higher total and hourly real wage than people employed in the Center and in the North. The average real income is around 830 €, thus with respect to Southern Italy the negative differential is of 7% for the North-West, 5% for the North-East and 9% for the Centre. Given the longstanding debate over the idea of indexing regional salaries to the cost of living and average productivity (see footnote 3), this is an interesting and relevant finding for the sector of the social enterprises.

Table 5 reports results from quantile regressions for the same equations considered in Table 3a. The quantiles considered are 10, 25, 50, 75 and 90. Previous findings are confirmed, education being never significant. This robustness check shows that the null effect found with OLS does not hide a positive contribution for a share of individuals belonging to some parts of the wage distribution.

Table 6 repeats the OLS regression analysis for the sample of managers. In this case the limited number of observations reduces the number of significant regressors. What we want to underline here is that, like before, there is a gender wage differential, education does not display any robust effect and experience in the cooperative exerts a positive effect. Table 7,

⁸ Since all the indexes are highly correlated, dividing the nominal wage by the single indexes provides very similar results.

confirms with quantile regressions part of conclusions obtained with OLS although, given the limited number of observations, results are less stable.

3.3 Probability of becoming a manager

Having studied the determinants of employees and managers' wages, we turn to investigate variables affecting the probability to be a manager in an Italian social enterprise. Table 8a shows results from a Probit regression where the dependent variable is a dummy equal to 1 if the respondent is a manager and 0 otherwise, while Table 8b shows the marginal effects. Being a manager is positively associated with male gender, age, education, years of experience in the cooperative and having a permanent position, and negatively associated with being member of the social enterprise. The relevant results here are that there is again a gender wage gap but, interestingly, education plays a role in increasing the probability to be a manager.

3.4 The total effect of education

In our study we cannot assume that the choice to be a manager is purely random. Furthermore, since education is used a control variable in both the wage and the manager regressions, we need to rely on systems of simultaneous equations in order to disentangle the effect of education on the two variables and to calculate the total (direct and indirect impact) of education on wages. We cannot run a Seemingly Unrelated Regression system, whose advantage is that it does not require any exclusion restriction, because the dependent variable of the second equation is a dummy variable (equal to one if the respondent is a manager), while the model is meant for continuous variables. Thus, Table 9 shows results from treatment regressions.

The treatment regression model shown in Table 6 includes the following two equations⁹:

$$Y = \beta_0 + \beta_1 Male_i + \beta_2 Age_i + \beta_3 Education_i + \beta_4 Italian_i + \beta_5 Member_i + \beta_6 Yearcoop_i + \beta_7 Permanent_i + \beta_8 Fulltime_i + \beta_9 Manager_i + \varepsilon_i$$

[2.1]

$$Manager_i = \gamma_0 + \gamma_1 Age_i + \gamma_2 Education_i + \gamma_3 Yearcoop_i + \gamma_4 Peopleinhouse_i + \gamma_5 Nincomeearn_i + u_i$$

[2.2]

In our system, the first regression refers to the wage while the second to the probability of being a manager. In the first equation, controls include all main determinants of wages (each system is run once without and once with the respondent's type of job) while in the second equation we add to the standard controls for being a manager also the number of people

⁹ In the two equation system (v) and (z) are bivariate normal random variables with zero mean and covariance matrix $\begin{bmatrix} \sigma & \rho \\ \rho & 1 \end{bmatrix}$. The likelihood function for the joint estimation of [2.1] and [2.2] is provided by Maddala (1983) and Greene (2003).

living in the house (*Peopleinhouse*) and the number of income perceivers (*Nincomeearn*), which are both expected to affect the probability to be a manager but not the wage. The LR test rejects the null hypothesis that the two equations are independent: moderate selection bias exists and the OLS results may turn out to be unreliable. However treatment regression estimates show that our main results (gender, years of experience, job status) hold. Among them education keeps on having no direct effect on the wage (there is a negative effect on the hourly wage which disappears when using the natural logarithm) and a positive indirect effect through the probability of being a manager. The significance of the exclusion restriction variable (number of income perceivers) also supports the feasibility of employing the Heckman selection method.

We can now calculate the total effect of education. Since being a manager increases average sample wage by around 407 € (Table 9, column 1) and an additional year of education with respect to the sample mean raises the probability of becoming a manager by 10 percent, estimated coefficients tell us that the total effect of an additional year of education is 40.7 € more with respect to the benchmark of a cooperative, temporary, part-time, female employee working in a B-type cooperative in the South of Italy.

To check the robustness of our results with an approach which does not require exclusion restrictions we move to Generalized Linear and Latent Mixed Models (GLLMM), that is “a class of multilevel latent variable models for (multivariate) responses of mixed type including continuous responses, counts, duration/survival data, dichotomous, ordered and unordered categorical responses and rankings” (Rabe-Hesketh et al., 2004, p. 1).

In our case we have a bivariate setting in which the wage level depends on a series of factors which include the manager dummy which is, in turn, endogenous and affected by several variables. To this purpose we select within the broad GLLMM class a mixed response random effect model (Alfó and Trovato, 2004; Cameron and Trivedi, 2005) in which the wage (in the first equation) has a Gaussian distribution while the manager dummy (in the second equation) follows an ordered Logit specification. This kind of model allows to solve the simultaneity effect between worker pay and the managerial / non managerial status.

Results from our GLLMM estimate (see Table 10) show that the main findings are again substantially unchanged. Education is significant in the second (probability of becoming a manager) while not in the first (wage) equation. All the other variables maintain sign and significance of the selection models and the OLS estimates in which the wage regression is estimated separately.

To sum up, when considering employees and managers’ wages it emerges that earnings depend mainly on the number of years of experience in the cooperative while there is no educational wage premium. Talent and skills either are not recognized or are not necessary for the type of job done in the cooperative. Gender discrimination is at work. When looking at the probability to be a manager, gender discrimination seems to persist, but education finally matters. Thus, education does not imply an educational wage premium within each category of workers (employees and managers) but raises the probability of an upgrade, which implies higher wage and responsibility.

Not that the total effect of education here is somewhat larger since the effect of education on the probability of becoming a manager is larger. Estimated coefficients tell us that the total effect of an additional year of education is 164 €. The result depends on the differences between the two models. The GLLMM approach estimates individual random effects which can have zero mean thereby increasing coefficient values. By comparing results from the two models we therefore verify that the statistical significance of the total effect of education is robust while, for the economic significance, we conclude that the true value is highly likely to be placed in the interval represented by the total effect magnitudes obtained with the two different methods.

4. Conclusions

Social enterprises are a powerful and effective provider of social services, ranging from assistance to the elderly and education services to the children to work integration of disadvantaged people. In Italy they hire more than 250,000 people and serve more than three million individuals, their number being constantly rising. There are several reasons for this impressive growth. First of all, the sensitivity toward the problems of the society has increased significantly, spurring a large number of start-up in this sector. Secondly, social services provided by the state are insufficient to cover the demand, especially since the population is rapidly ageing. Finally, the economic stagnation of the last twenty years and the high indebtedness of the Italian Government have pushed the public authorities to externalize the provision of social services.

The current situation of Italian social enterprises is made of lights and shadows. The positive aspect is the aforementioned success witnessed by the number of workers and people served. Unfortunately, our analysis shows the presence of some negative aspects represented by the very low average salaries of both workers and managers, which risk to reduce the applications from individuals with high talent and skills, when intrinsic motivations are not strong enough to compensate for the low pay.

To have a clearer picture of regional real wages we take into account the effect of geographical PP disparities in our estimates. By doing so we find that, even though nominal salaries are higher in Northern Italy, the South benefits from a positive differential which ranges from 4 to 9% with respect to the other three macro-regions considered once we correct for the cost of living in the area of residence.

Finally, the presence of gender wage gaps, the absence of education wage premium and the strong link between salaries and years spent in the coop seem to depict a scenario where the career path is affected by seniority rather than education, with the presence of potential gender discriminations. All these elements might constitute a limit for social enterprises willing to attract the most talented and motivated individuals.

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Table 1a: Descriptive statistics (employees)

Variable	Type	Obs.	Mean	Std. Dev.	Min	Max
Male	DV	4,082	0.26	0.44	0	1
Age	Years	3,986	37.38	9.02	17	73
Education	Years	3,759	12.93	3.35	0	21
University degree	DV	3,759	0.29	0.45	0	1
Italian	DV	4,134	0.95	0.22	0	1
Wage (monthly)	€	3,744	867	299	100	6,453
Ln of wage (monthly)	€	3,744	6.70	0.37	4.61	8.77
Hourly wage	€	2,698	6.70	2.29	1.46	50.00
Ln of hourly wage	€	2,698	1.87	0.25	0.38	3.91
Bonus (yearly)	€	4,134	77.20	285	0	6,000
Hours	Number	3,740	31.31	8.66	2	50
Hours extra	Number	3,092	1.79	3.30	0	30
Hours total	Number	2,916	32.97	9.62	2	69
Member	DV	4,134	0.76	0.43	0	1
Years in Coop	Years	3,905	6.21	4.89	0	36
Permanent	DV	4,134	0.80	0.40	0	1
Temporary	DV	4,134	0.18	0.39	0	1
Internship	DV	4,119	0.00	0.06	0	1
Full time	DV	4,063	0.56	0.50	0	1
Part time	DV	4,063	0.44	0.50	0	1
Job 1: Customer care	DV	3,428	0.68	0.47	0	1
Job 2: Coordinator	DV	3,448	0.07	0.25	0	1
Job 3: Admin & Finance	DV	3,428	0.06	0.24	0	1
Job 4: Human resources	DV	3,448	0.01	0.12	0	1
Job 5: External relations	DV	3,448	0.01	0.08	0	1
Job 6: Support to service providers	DV	3,448	0.11	0.31	0	1
Job 7: Other	DV	3,448	0.06	0.24	0	1
Small (<16 workers)	DV	4,134	0.25	0.44	0	1
Medium coop (16-49 workers)	DV	4,134	0.32	0.46	0	1
Large coop (>49 workers)	DV	4,134	0.43	0.50	0	1
Type A	DV	4,134	0.78	0.41	0	1
North -West	DV	4,134	0.40	0.49	0	1
North-East	DV	4,134	0.22	0.41	0	1
Centre	DV	4,134	0.22	0.41	0	1
South	DV	4,134	0.16	0.37	0	1



Note: Answers range from 1 (much less than what would be fair) to 7 (much more than what would be fair) for the sample of employees only.

Table 1b: Descriptive statistics (employees' sector of activity)

Variable	Type	Obs.	Mean	Std. Dev.	Min	Max
Sector A1: Social assistance	DV	4,157	0.53	0.50	0	1
Sector A2: Health assistance	DV	4,157	0.31	0.46	0	1
Sector A3: Education assistance	DV	4,157	0.49	0.50	0	1
Sector A4: Cultural activities	DV	4,157	0.19	0.39	0	1
Sector A5: Recreation services	DV	4,157	0.33	0.47	0	1
Sector A6: Other	DV	4,157	0.08	0.26	0	1
Sector B1: Agriculture and zootechnics	DV	4,157	0.01	0.12	0	1
Sector B2: Gardening	DV	4,157	0.12	0.32	0	1
Sector B3: Garbage collection	DV	4,157	0.08	0.27	0	1
Sector B4: Manufacture	DV	4,157	0.02	0.14	0	1
Sector B5: Sales in shops	DV	4,157	0.03	0.16	0	1
Sector B6: Catering and restaurants	DV	4,157	0.03	0.18	0	1
Sector B7: Laundry	DV	4,157	0.02	0.15	0	1
Sector B8: Building	DV	4,157	0.02	0.13	0	1
Sector B9: Cleaning	DV	4,157	0.09	0.28	0	1
Sector B10: IT, typography and call center	DV	4,157	0.03	0.17	0	1

Table 2: Descriptive statistics (managers)

Variable	Type	Obs.	Mean	Std. Dev.	Min	Max
Male	DV	280	0.53	0.50	0	1
Age	Years	280	45.75	9.61	24	75
Education	Years	280	14.48	2.66	5	21
University degree	DV	338	0.52	0.50	0	1
Italian	DV	279	1.00	0.06	0	1
Wage (monthly)	€	280	1,071	709	0	3,400
Ln of wage (monthly)	€	221	7.14	0.41	5.52	8.13
Hourly wage	€	156	8.94	2.98	2.84	21.25
Ln of hourly wage	€	156	2.14	0.32	1.04	3.06
Bonus (yearly)	€	280	132	317	0	3,600
Hours	Number	221	34.59	7.53	8	55
Hours extra	Number	156	3.72	5.67	0	30
Hours total	Number	156	38.49	8.41	16	68
Member	DV	338	0.39	0.49	0	1
Years in Coop	Years	278	8.20	5.48	0	32
Permanent	DV	221	0.85	0.36	0	1
Temporary	DV	221	0.03	0.16	0	1
Small (<16 workers)	DV	319	0.45	0.50	0	1
Medium coop (16-49 workers)	DV	319	0.30	0.46	0	1
Large coop (>49 workers)	DV	317	0.26	0.44	0	1
Type A	DV	319	0.71	0.45	0	1
North -West	DV	335	0.38	0.49	0	1
North-East	DV	335	0.19	0.39	0	1
Centre	DV	335	0.17	0.38	0	1
South	DV	335	0.26	0.44	0	1

Fig. 2a: Cumulative distribution of employees' wages (in Euros)

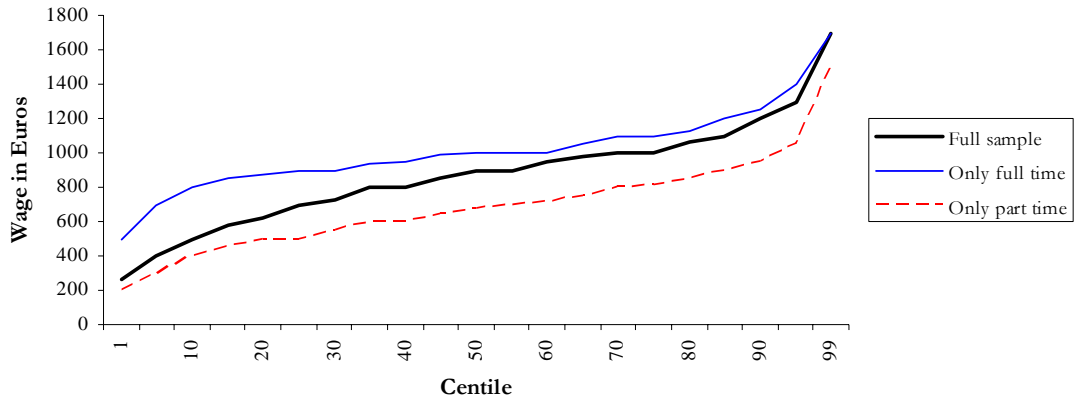


Fig. 2b: Cumulative distribution of managers' wages (in Euros)

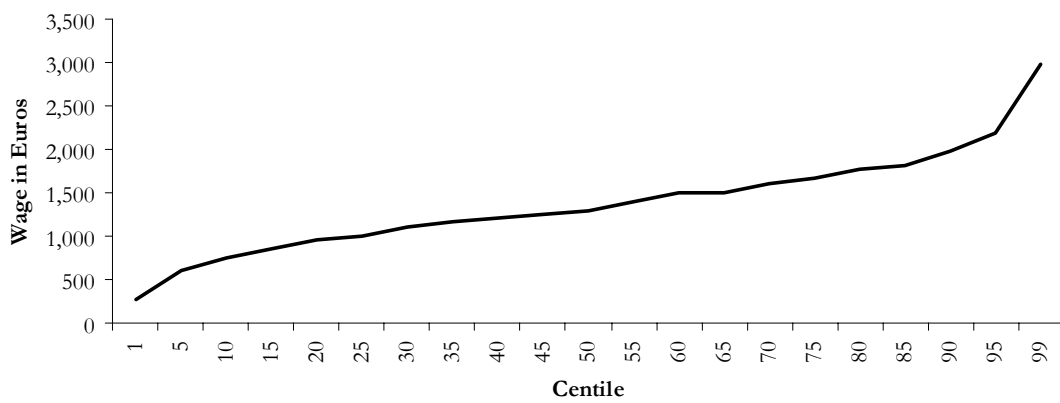


Table 3a: OLS regressions of employees' monthly wage

Dependent Variable	Wage	Ln of Wage	Hourly Wage	Ln of Hourly Wage
Male	70.29 (7.41)	0.08 (6.61)	0.31 (2.26)	0.04 (2.65)
Age	0.64 (1.30)	0.001 (1.25)	0.01 (2.07)	0.001 (2.31)
Education	0.05 (0.04)	0.001 (0.64)	0.001 (-0.23)	0.001 (-0.72)
Italian	-97.36 (-3.36)	-0.11 (-3.51)	0.02 (0.13)	0.001 (-0.06)
Member	-8.74 (-0.89)	0.001 (-0.10)	-0.45 (-3.08)	-0.06 (-3.61)
Years in Coop	8.20 (7.85)	0.01 (8.00)	0.04 (3.53)	0.01 (3.98)
Permanent	53.06 (4.43)	0.08 (4.41)	-0.37 (-1.65)	0.001 (-0.14)
Full time	286.86 (34.22)	0.39 (33.27)	-0.53 (-5.01)	-0.06 (-5.10)
Job 2: Coordinator	140.33 (7.82)	0.15 (7.53)	1.09 (4.83)	0.14 (6.02)
Job 3: Admin & Finance	109.15 (6.04)	0.11 (5.03)	0.65 (3.95)	0.09 (4.05)
Job 4: Human resources	151.07 (4.12)	0.15 (3.65)	0.52 (2.15)	0.09 (2.95)
Job 5: External relations	150.94 (2.70)	0.16 (3.34)	0.86 (2.14)	0.13 (2.57)
Job 6: Support to service providers	-85.38 (-6.33)	-0.12 (-5.27)	-0.61 (-4.06)	-0.09 (-4.61)
Job 7: Other	-5.72 (-0.28)	-0.03 (-1.01)	0.29 (0.74)	0.001 (0.14)
Medium Coop	10.70 (0.97)	0.02 (1.60)	-0.07 (-0.55)	-0.01 (-0.74)
Large Coop	1.90 (0.17)	0.01 (0.74)	-0.09 (-0.57)	-0.02 (-1.16)
Type A	54.46 (4.77)	0.08 (4.87)	0.45 (2.60)	0.06 (3.51)
North-West	111.39 (8.46)	0.16 (8.31)	0.42 (2.86)	0.08 (3.95)
North East	119.56 (8.54)	0.19 (9.24)	0.40 (2.42)	0.07 (3.44)
Centre	79.62 (5.70)	0.13 (6.62)	0.47 (2.10)	0.06 (2.66)
Constant	508.16 (11.72)	6.16 (110.47)	6.05 (14.99)	1.74 (33.36)
N	2,560	2,560	1,888	1,888
R2	0.49	0.47	0.07	0.09

Note Results are from OLS regressions with heteroskedasticity-robust standard errors. T-statistics are reported in brackets.

Table 3b: OLS regressions of employees' monthly wage, with sector of activity

Dependent Variable	Wage	Ln of Wage	Hourly Wage	Ln of Hourly Wage
Type A	75.92 (4.04)	0.11 (3.82)	0.95 (3.23)	0.14 (4.49)
Sector A2: Health assistance	34.21 (3.51)	0.02 (1.82)	-0.19 (-1.57)	-0.02 (-1.47)
Sector A3: Education assistance	-28.54 (-2.60)	-0.04 (-2.49)	-0.17 (-1.24)	-0.02 (-1.28)
Sector A4: Cultural activities	-13.26 (-1.27)	-0.01 (-0.55)	-0.02 (-0.16)	0.01 (0.56)
Sector A5: Recreation services	-18.20 (-1.81)	-0.01 (-0.92)	0.13 (0.90)	0.02 (0.98)
Sector A6: Other	15.78 (1.04)	0.01 (0.37)	-0.18 (-0.91)	-0.01 (-0.21)
Sector B2: Gardening	-19.37 (-0.80)	-0.06 (-1.85)	0.17 (0.66)	0.001 (-0.10)
Sector B3: Garbage collection	37.08 (1.77)	0.08 (2.56)	0.27 (1.26)	0.07 (2.37)
Sector B4: Manufacture	-94.60 (-2.70)	-0.12 (-2.29)	-0.31 (-0.89)	-0.03 (-0.66)
Sector B5: Sales in shops	66.71 (2.11)	0.06 (1.74)	0.33 (1.16)	0.05 (1.36)
Sector B6: Catering and restaurants	80.55 (3.17)	0.13 (3.56)	0.09 (0.41)	0.04 (1.06)
Sector B7: Laundry	27.19 (1.30)	0.05 (1.73)	-0.12 (-0.62)	-0.02 (-0.63)
Sector B8: Building	58.94 (1.67)	0.05 (1.33)	0.12 (0.44)	0.04 (1.01)
Sector B9: Cleaning	-50.24 (-2.77)	-0.05 (-2.05)	-0.11 (-0.52)	0.001 (-0.15)
Sector B10: IT, typography and call center	-11.45 (-0.52)	-0.03 (-0.74)	0.90 (2.26)	0.11 (2.46)
N	2,560	2,560	1,888	1,888
R2	0.51	0.49	0.08	0.10

Note: Results are from OLS regressions with heteroskedasticity-robust standard errors. T-statistics are reported in brackets. The regressions contain the same identical controls as in Table 3a, plus the sector of activity. The table shows only the coefficients of the sector of activity of the cooperative of type A or B. Sectors A1 and B1 are the base to avoid the dummy variable trap. For variable legend see section 3.

Table 4: OLS regressions of employees' monthly real wage (PPP)

Dependent Variable	Wage	Ln of Wage	Hourly Wage	Ln of Hourly Wage
Male	66.75 (7.17)	0.08 (6.61)	0.31 (2.28)	0.04 (2.65)
Age	0.59 (1.23)	0.001 (1.25)	0.01 (2.02)	0.001 (2.31)
Education	0.01 (0.01)	0.001 (0.64)	0.001 (-0.40)	0.001 (-0.72)
Italian	-92.80 (-3.44)	-0.11 (-3.51)	0.01 (0.09)	0.001 (-0.06)
Member	-8.20 (-0.86)	0.001 (-0.10)	-0.42 (-2.98)	-0.06 (-3.61)
Years in Coop	8.31 (7.78)	0.01 (8.00)	0.04 (3.38)	0.01 (3.98)
Permanent	51.08 (4.39)	0.08 (4.41)	-0.34 (-1.60)	0.001 (-0.14)
Full time	275.68 (33.89)	0.39 (33.27)	-0.51 (-5.06)	-0.06 (-5.10)
Job 2: Coordinator	133.45 (7.83)	0.15 (7.53)	1.02 (4.83)	0.14 (6.02)
Job 3: Admin & Finance	107.20 (6.13)	0.11 (5.03)	0.62 (3.86)	0.09 (4.05)
Job 4: Human resources	133.95 (3.73)	0.15 (3.65)	0.49 (2.07)	0.09 (2.95)
Job 5: External relations	159.39 (2.84)	0.16 (3.34)	0.79 (2.07)	0.13 (2.57)
Job 6: Support to service providers	-75.90 (-5.67)	-0.12 (-5.27)	-0.58 (-3.92)	-0.09 (-4.61)
Job 7: Other	1.59 (0.08)	-0.03 (-1.01)	0.27 (0.74)	0.001 (0.14)
Medium Coop	16.95 (1.56)	0.02 (1.60)	-0.06 (-0.49)	-0.01 (-0.74)
Large Coop	10.66 (0.99)	0.01 (0.74)	-0.06 (-0.38)	-0.02 (-1.16)
Type A	56.18 (5.02)	0.08 (4.87)	0.43 (2.58)	0.06 (3.51)
North-West	-59.76 (-4.23)	-0.05 (-2.38)	-1.02 (-6.64)	-0.14 (-7.01)
North East	-41.60 (-2.81)	-0.01 (-0.56)	-0.95 (-5.66)	-0.13 (-6.15)
Centre	-74.27 (-5.00)	-0.06 (-2.92)	-0.85 (-3.85)	-0.13 (-5.74)
Constant	605.06 (14.37)	6.28 (112.70)	6.96 (17.34)	1.86 (35.74)
N	2,560	2,560	1,888	1,888
R2	0.48	0.46	0.10	0.14

Note: Results are from OLS regressions with heteroskedasticity-robust standard errors. T-statistics are reported in brackets. The regressors are the same as in Table 3a, but the dependent variable is the real wage, given by the nominal wage divided by an index of the cost of living for each of the four macro regions considered. For variable legend see section 3.

Table 5: Quantile regressions of employees' wage, selected coefficients

Quantile	Dependent Variable	Wage	Ln of Wage	Hourly Wage	Ln of H. Wage
q10	Male	53.35 (4.20)	0.07 (3.34)	0.03 (0.24)	0.01 (0.32)
	Education	-0.57 (-0.34)	0.001 (-0.39)	-0.02 (-1.33)	0.001 (-1.37)
	Years in Coop	5.87 (4.17)	0.01 (3.21)	0.02 (1.18)	0.001 (1.19)
	Permanent	75.95 (4.93)	0.13 (5.17)	0.41 (3.09)	0.09 (3.37)
q25	Male	52.93 (5.33)	0.06 (4.57)	0.11 (1.66)	0.02 (1.55)
	Education	-0.87 (-0.70)	0.001 (-0.19)	-0.01 (-0.99)	0.001 (-1.23)
	Years in Coop	6.93 (6.45)	0.01 (6.25)	0.04 (5.53)	0.01 (5.58)
	Permanent	60.98 (5.06)	0.11 (6.61)	0.26 (3.26)	0.05 (3.79)
q50	Male	57.93 (6.62)	0.06 (4.73)	0.24 (3.19)	0.04 (3.37)
	Education	0.70 (0.64)	0.001 (0.10)	-0.01 (-1.08)	0.001 (-1.15)
	Years in Coop	8.47 (9.23)	0.01 (6.69)	0.05 (6.02)	0.01 (6.96)
	Permanent	43.00 (4.11)	0.05 (3.46)	0.12 (1.37)	0.02 (1.48)
q75	Male	69.68 (6.01)	0.07 (6.60)	0.19 (2.35)	0.03 (2.38)
	Education	0.73 (0.50)	0.001 (0.23)	0.001 (-0.48)	0.001 (-0.30)
	Years in Coop	9.02 (7.30)	0.01 (8.02)	0.04 (4.22)	0.01 (4.32)
	Permanent	51.90 (3.66)	0.06 (4.62)	-0.14 (-1.35)	-0.02 (-1.41)
q90	Male	110.14 (5.92)	0.10 (6.30)	0.55 (3.29)	0.07 (3.44)
	Education	2.05 (0.85)	0.001 (0.81)	0.01 (0.62)	0.001 (0.41)
	Years in Coop	5.80 (2.82)	0.01 (2.77)	0.04 (2.39)	0.01 (2.33)
	Permanent	47.84 (2.07)	0.06 (3.13)	-0.60 (-2.92)	-0.07 (-2.63)

Note: Results are from quantile regressions with the same control variables as in Table 2. For reasons of space only coefficients and heteroskedasticity-robust t-statistics (in brackets) of selected variables are shown. For variable legend see section 3.

Table 6: OLS regressions of managers' monthly wage

Dependent Variable	Wage	Ln of Wage	Hourly Wage	Ln of Hourly Wage
Male	266.98 (4.32)	0.20 (3.83)	1.31 (2.65)	0.15 (2.79)
Age	2.41 (0.45)	0.001 (-0.08)	0.02 (0.38)	0.001 (-0.07)
Education	22.16 (1.60)	0.01 (1.20)	0.17 (1.74)	0.02 (1.52)
Years in Coop	15.30 (1.97)	0.01 (1.63)	0.10 (1.68)	0.01 (1.70)
Permanent	145.90 (1.38)	0.12 (1.28)	0.30 (0.41)	-0.01 (-0.06)
Administrator	-28.48 (-0.09)	-0.08 (-0.32)	1.29 (0.54)	0.06 (0.30)
Member	59.09 (0.98)	0.03 (0.56)	0.13 (0.28)	0.001 (-0.03)
Medium Coop	-6.54 (-0.08)	-0.03 (-0.37)	0.24 (0.37)	0.02 (0.22)
Large Coop	205.82 (2.48)	0.18 (2.60)	0.67 (1.05)	0.10 (1.39)
Type A	59.50 (0.79)	0.03 (0.55)	0.19 (0.34)	-0.01 (-0.23)
North-West	255.56 (2.82)	0.22 (2.79)	1.46 (2.31)	0.17 (2.42)
North East	277.57 (2.75)	0.25 (3.02)	1.18 (1.52)	0.14 (1.47)
Centre	190.39 (1.72)	0.16 (1.67)	1.35 (1.53)	0.15 (1.65)
Constant	220.96 (0.54)	6.41 (21.04)	2.38 (0.81)	1.58 (5.16)
N	214	214	152	152
R2	0.25	0.21	0.20	0.20

Note: Results are from OLS regressions with heteroskedasticity-robust t-statistics. For variable legend see section 3.

Table 7: Quantile regressions of managers' wage, selected coefficients

Quantile	Dependent Variable	Wage	Ln of Wage	Hourly Wage	Ln of H. Wage
q10	Male	251.89 (1.55)	0.30 (1.47)	1.11 (1.19)	0.16 (0.96)
	Education	25.45 (0.78)	0.02 (0.41)	0.33 (1.17)	0.05 (0.96)
	Years in Coop	9.69 (0.60)	0.01 (0.40)	-0.01 (-0.16)	0.001 (-0.22)
	Permanent	187.25 (0.72)	0.24 (0.82)	1.19 (1.14)	0.22 (1.15)
q25	Male	113.96 (1.40)	0.11 (1.44)	1.36 (3.12)	0.21 (5.42)
	Education	4.25 (0.26)	0.001 (0.28)	0.14 (1.39)	0.02 (2.49)
	Years in Coop	10.67 (1.31)	0.01 (1.05)	0.07 (1.52)	0.01 (2.23)
	Permanent	333.50 (2.67)	0.39 (3.21)	0.04 (0.04)	0.001 (-0.01)
q50	Male	247.98 (3.27)	0.19 (3.43)	1.10 (1.71)	0.12 (1.76)
	Education	5.24 (0.34)	0.001 (0.11)	0.12 (0.95)	0.01 (0.81)
	Years in Coop	21.90 (2.69)	0.01 (2.24)	0.09 (1.25)	0.01 (1.25)
	Permanent	53.43 (0.41)	0.02 (0.21)	-0.15 (-0.12)	-0.03 (-0.25)
q75	Male	259.15 (3.40)	0.16 (2.81)	1.14 (1.67)	0.11 (1.53)
	Education	17.74 (1.12)	0.01 (0.82)	0.15 (1.15)	0.02 (1.28)
	Years in Coop	18.19 (2.15)	0.01 (1.57)	0.12 (1.64)	0.01 (1.07)
	Permanent	-98.78 (-0.72)	-0.05 (-0.47)	-1.07 (-0.80)	-0.08 (-0.54)
q90	Male	368.87 (3.04)	0.18 (2.75)	1.39 (0.55)	0.10 (0.52)
	Education	49.37 (1.87)	0.02 (1.49)	0.30 (0.71)	0.02 (0.74)
	Years in Coop	11.88 (0.91)	0.01 (1.04)	0.21 (0.76)	0.02 (0.83)
	Permanent	104.64 (0.52)	0.04 (0.63)	-0.54 (-0.19)	-0.05 (-0.24)

Note: Results are from quantile regressions with the same control variables as in Table 5. For reasons of space only coefficients and heteroskedasticity-robust t-statistics (in brackets) of selected variables are shown. For variable legend see section 3.

Table 8a: Probit regression for the probability of being manager

Variable	Coef.	Std. Err.	z	P>z	[95% Conf.	Interval]
Male	0.59	0.08	7.29	0	0.43	0.75
Age	0.04	0.001	10.99	0	0.04	0.05
Education	0.10	0.01	7.35	0	0.07	0.12
Member	-0.72	0.09	-8.2	0	-0.90	-0.55
Years in Coop	0.02	0.01	2.58	0.01	0.001	0.03
Permanent	0.31	0.11	2.71	0.007	0.09	0.53
Medium Coop	-0.32	0.10	-3.24	0.001	-0.51	-0.13
Large Coop	-0.36	0.10	-3.59	0	-0.56	-0.16
Type A	0.19	0.10	1.91	0.056	-0.01	0.39
North-West	0.06	0.12	0.52	0.606	-0.17	0.28
North East	0.001	0.13	0.01	0.992	-0.26	0.26
Centre	0.01	0.13	0.07	0.947	-0.24	0.26
Constant	-4.74	0.28	-16.71	0	-5.29	-4.18
N	3,664					
Pseudo R2	0.21					

Table 8b: Marginal effects

Variable	dy/dx	Std. Err.	z	P>z	[95%	C.I.]	X
Male*	0.05	0.01	5.87	0	0.03	0.07	0.27
Age	0.001	0.001	8.88	0	0.001	0.001	37.62
Education	0.01	0.00	6.97	0	0.001	0.01	13.04
Member*	-0.07	0.01	-6.52	0	-0.08	-0.05	0.74
Years in Coop	0.00	0.00	2.66	0.008	0.00	0.00	6.21
Permanent*	0.02	0.01	3.12	0.002	0.01	0.03	0.81
Medium Coop*	-0.02	0.01	-3.54	0	-0.03	-0.01	0.32
Large Coop*	-0.02	0.01	-3.67	0	-0.03	-0.01	0.42
Type A*	0.01	0.01	2.15	0.032	0.00	0.02	0.77
North-West*	0.001	0.01	0.51	0.609	-0.01	0.02	0.41
North East*	0.001	0.01	0.01	0.992	-0.02	0.02	0.19
Centre*	0.001	0.01	0.07	0.947	-0.02	0.02	0.22

Note: The dependent variable of the Probit regression is a dummy variable equal to 1 if the person is a manager, which is the case for 7.5% of the sample.

* dy/dx is for discrete change of dummy variable from 0 to 1. For variable legend see section 3.

Table 9: Treatment regressions

Equation 1	Wage		Ln of Wage		Hourly Wage		Ln of H. Wage	
Male	94.11 (9.35)	93.72 (8.97)	0.09 (7.81)	0.09 (7.07)	0.27 (2.40)	0.34 (2.71)	0.05 (3.98)	0.06 (3.99)
Age	-0.28 (-0.52)	0.11 (0.20)	0.001 (-0.72)	0.001 (0.03)	-0.01 (-1.53)	-0.01 (-0.90)	0.001 (-0.12)	0.001 (-0.01)
Education	0.22 (0.17)	0.17 (0.13)	0.001 (0.67)	0.001 (0.58)	-0.03 (-1.92)	-0.03 (-2.01)	0.001 (-1.19)	0.001 (-1.43)
Italian	-61.14 (-2.71)	-66.38 (-2.85)	-0.07 (-2.54)	-0.06 (-2.24)	0.15 (0.60)	0.16 (0.60)	0.02 (0.63)	0.02 (0.70)
Member	3.29 (0.31)	-5.37 (-0.49)	0.01 (0.92)	0.001 (0.24)	-0.33 (-3.02)	-0.43 (-3.61)	-0.04 (-3.34)	-0.04 (-3.21)
Years in Coop	10.84 (10.61)	11.09 (10.62)	0.01 (10.001)	0.01 (8.85)	0.05 (4.59)	0.06 (5.01)	0.01 (5.89)	0.01 (5.82)
Permanent	62.08 (5.06)	63.51 (4.97)	0.09 (6.49)	0.10 (6.05)	-0.23 (-1.72)	-0.32 (-2.16)	0.001 (0.001)	0.001 (-0.11)
Full time	286.29 (31.34)	287.58 (30.74)	0.39 (36.35)	0.39 (33.15)	-0.46 (-4.64)	-0.50 (-4.57)	-0.05 (-4.60)	-0.06 (-4.83)
Manager	406.72 (12.61)	469.20 (13.08)	0.33 (6.61)	0.40 (7.01)	5.34 (23.41)	5.73 (19.30)	0.44 (9.20)	0.48 (8.67)
Constant	455.50 (12.10)	457.39 (11.75)	6.14 (137.19)	6.13 (125.06)	6.53 (15.82)	6.54 (14.51)	1.75 (38.05)	1.76 (34.45)
DVs for type of job	No	Yes	No	Yes	No	Yes	No	Yes

(Cont.)

(Cont.)

Equation 2	Manager		Manager		Manager		Manager	
Male	0.54 (6.84)	0.58 (6.27)	0.53 (6.74)	0.56 (6.16)	0.44 (5.25)	0.49 (5.04)	0.54 (5.88)	0.59 (5.51)
Age	0.04 (8.91)	0.04 (7.26)	0.04 (8.76)	0.04 (7.15)	0.03 (6.74)	0.03 (5.23)	0.04 (7.54)	0.04 (6.08)
Education	0.10 (7.18)	0.10 (6.02)	0.10 (7.19)	0.10 (6.05)	0.09 (6.09)	0.10 (5.29)	0.11 (6.55)	0.12 (6.06)
Years in Coop	0.01 (1.18)	0.01 (0.72)	0.01 (1.09)	0.01 (0.61)	0.01 (0.98)	0.01 (0.97)	0.01 (0.89)	0.01 (0.68)
People in the house	0.14 (3.67)	0.18 (4.03)	0.14 (3.65)	0.18 (4.06)	0.19 (5.60)	0.24 (6.11)	0.17 (3.96)	0.22 (4.36)
Income perceivers	0.02 (0.38)	0.01 (0.23)	0.01 (0.29)	0.01 (0.16)	0.02 (0.38)	0.04 (0.66)	0.02 (0.44)	0.02 (0.28)
Constant	-4.88 (-16.93)	-4.96 (-14.22)	-4.84 (-16.87)	-4.92 (-14.21)	-4.32 (-13.38)	-4.42 (-11.12)	-5.02 (-14.58)	-5.30 (-12.36)
Rho	-0.13	-0.12	-0.17	-0.18	-0.72	-0.75	-0.35	-0.38
LR indep. of eq. (P-value)	0.02	0.03	0.08	0.06	0.001	0.00	0.00	0.00
N	3,332	2,735	3,332	2,735	2,475	2,020	2,475	2,020
Log L.	-23,659	-19,155	-1,159	-859	-5,979	-4,791	-550	-395

Note: Results are from treatment regressions where the dependent variable of the first equation is one of the four variables for wage and that of the second is the dummy variable for being a manager. In the wage equation, all regressions include dummy variables for cooperative size (medium and large) and type (type A), and for macro region (NW, NE and Centre). Results are consistent with previous findings and are not shown for reasons of space, but are available upon request. Every system is run once with and once without dummy variables for the type of job as a regressor in the wage equation. For variable legend see section 3.

Table 10: GLLMM simultaneous model

Regressor	Coeff.	Z-Value
Equation 1: Determinants of net monthly wage		
Constant	438.87	11.83
Male	99.04	10.04
Age	0.05	0.09
Italian	-61.36	-2.72
Member	3.20	0.31
Years in Coop	10.95	10.74
Permanent	61.17	4.99
Manager	338.80	18.11
Education	0.78	0.62
Full time	286.23	31.33
Medium Coop	2.33	0.20
Large Coop	12.87	1.11
A Type	61.07	5.65
North-West	135.13	10.27
North-East	143.72	9.70
Centre	102.20	7.05
Regressor	Coeff.	Z-Value
Equation 2: Determinants of being a manager		
Constant	-24.36	-3.56
Male	2.52	3.49
Age	0.20	3.21
Education	0.49	3.37
Years in Coop	0.04	1.19
People in the House	0.51	2.51
Nr. Income Perceivers	0.17	0.74

Note: Results are from GLLMM simultaneous model where the dependent variable of the first equation is the nominal self-declared net monthly wage, net of taxes, social security contributions, extra pays and bonuses.