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What are the determinants of the pay gap between conventional firms and cooperatives? Evidence from France

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What are the determinants of the pay gap between conventional firms and cooperatives? Evidence from France¹

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Abstract: The aim of this article is to study the wage differentials between conventional firms and non-worker cooperatives, which has seldom been done in the literature to date. Using French administrative data, we analyse the determinants of these wage differentials. This investigation is carried out across all industries and it is repeated for the banking industry. Taking all industries into account, conventional firms offer lower wages than cooperatives. Most of this pay gap is explained by differences in the characteristics of the employees, jobs and companies. If we focus just on firms in the banking industry, it becomes clear that conventional firms pay higher wages than cooperatives but this gap is explained solely by differences in characteristics. However, their impact is weakened somewhat by differences in the wage return to these characteristics, which work in favour of employees in cooperatives.

Key-words : cooperatives, banking cooperatives, wage, wage comparison between sectors.

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1. Introduction

Cooperatives constitute a vast and composite group of productive entities. They can be differentiated from each other by the nature of their members and of their production (Coop FR, 2012). Cooperatives are generally divided into four major categories (Zamagni, 2012): 1/ producer cooperatives which include, for example, retailers' cooperatives, agricultural cooperatives and artisans' cooperatives. In this case, the members are entrepreneurs. Their objectives may be to reduce transaction costs, to cut the price of inputs, to increase that of their outputs or to obtain greater market power; 2/ user cooperatives which are, for example, consumer cooperatives or housing cooperatives. The members are users of the goods and services produced by the cooperative. The objective is to offer members goods and services of the best possible quality at the best possible price; 3/ worker cooperatives whose members are workers. These are cooperatives that are self-managed by those who work in them; 4/ the final category of cooperatives recognised by the ICA (International Co-operative Alliance) are social or community cooperatives whose membership is diverse but is generally made up of employees and recipients of the social services provided.

Although the statistics on cooperatives are very incomplete and international comparisons have to be undertaken with caution (International Labor Organization, 2013), it is clear that the share of such entities in total employment varies from country to country. Thus the share is greater in Italy (5.5%) and, to a lesser extent, in Spain (2.1%) than in the UK or the USA, where it is much less than 1% (Smith and Rothbaum, 2013)⁵. The number of workers employed in cooperatives in France was almost 310,000 in 2013, which represents about 1.4% of the total number of employees⁶. It should be noted that these numbers do not include employees in subsidiaries that do not have cooperative status. If these are added, then the total number of employees is about one million (CoopFR, 2012). In some areas of activity, however, the share of employees in post in cooperatives can be significantly higher. In France, this is the case in agriculture and the agro-food industry as well as in the financial and insurance sector, where cooperatives account for no less than 20% of total employment (INSEE, 2015). But what is known of employment in cooperatives and its characteristics? Does it have any particular characteristics that set it apart from employment in conventional private companies? This question has been little investigated in the extensive economic literature on cooperatives, or

⁵ At least if only direct employment is taken into account. When indirect employment, and particularly employment in member companies of producer cooperatives, is included, then the volume of employment rises considerably (Roelants et al., 2014).

⁶ See : http://www.insee.fr/fr/themes/detail.asp?ref_id=eco-sociale

rather it has been studied very unevenly depending on the type of cooperative. Employment and pay in worker cooperatives ⁷ did in fact attract the interest of economists at a fairly early stage following Ward's seminal study (Ward 1958).

Ward claims that the objective of worker cooperatives is to maximise per capita earnings rather than profits, as is the case with conventional firms. It can be inferred from this that pay in these cooperatives is higher than in conventional firms quite simply because it includes a share of the profit that is paid not to shareholders but to the workers who are members of cooperatives. It follows from Ward's model that the level of employment would be lower in worker cooperatives than in conventional firms and that an increase in the price of their products should lead to a drop in employment in labour-managed firms, contrary to the reaction of conventional firms to a similar development. The literature in this area has focused mainly on discussing and critiquing these latter predictions (Bonin et al., 1993). From an empirical point of view, the hypothesis of a reduction in employment is not validated. On the contrary, when prices change, employment in cooperatives – unlike in conventional firms – tends to remain more stable, while wages tend to vary (cf. the summaries by Burdin and Dean, 2009, Pencavel, 2012 and Pérotin, 2014).

With regard to the comparison between wages in labour-managed firms and those in conventional firms, some authors have noted that, in labour-managed firms, the trade unions might have a lower profile or be less militant, which could lead to lower wages (Pencavel et al., 2006). Others, such as Becchetti et al. (2013) for example, have suggested that workers might accept lower wages in return for working in organisations whose concerns they share, along the lines of the labour donation hypothesis as applied to the not-for-profit sector (see for example, Preston, 1989). Few empirical studies have sought to effect such a comparison between wages in labour-managed firms and those in conventional firms. Barlett et al. (1992) noted, in the case of Italy, that managers' pay was significantly lower in labour-managed cooperatives. On the other hand, there were no differences for unskilled, skilled and supervisory workers. Pencavel et al. (2006), also using Italian data, calculate that, all other things being equal, wages are lower in worker-owned cooperatives than in conventional firms. The wage equations estimated by Burdin (2013) using Uruguayan data show that wages are higher than in conventional firms but this result does not apply at the top of the wage distribution, where the wage premium is negative in worker cooperatives. Accordingly, these results point in the same direction as those produced by Barlett et al. (1992).

⁷ Also called labour-managed firms.

As far as non-worker cooperatives are concerned, there have been far fewer comparisons between the wages they offer and those in conventional firms, even though there are generally significantly more people employed in this type of cooperative than there are members of worker cooperatives (Smith and Rothbaum, 2013). Studies of pay in non-worker cooperatives have focused almost exclusively on senior managers within the context of the agency relationship between cooperative members and CEOs (cf. in particular among recent studies: Kopel and Marini, 2014; Hueth and Marcoul, 2009; Feng and Hendrikse, 2009). Very little has been written, whether from an empirical or theoretical perspective, on employees' pay. To the best of our knowledge, apart from the very old and descriptive study by Miller (1941), the only exceptions seems to be the study by Gorton et Schmid (1999) and the one by Clemente et al. (2012). Only the last named authors adopt a comparative approach to conventional firms. More precisely, Clemente et al. (2012) analyse the differences in pay between conventional firms, non-worker-owned cooperatives and worker-owned cooperatives. Using data on monthly wages in Spain in 2007, they find that: (1) wages in conventional firms are on average higher than in worker cooperatives. In non-worker-owned cooperatives, on the other hand, wages are higher than in conventional firms; (2) differences exist depending on the industry under consideration.

The aim of the present article is to shed some light on the still little investigated question of the pay of employees in non-worker cooperatives. More specifically, we will seek to answer the following questions. Is there a difference in pay between non-workers cooperatives and conventional firms and, if so, in favour of whom and what are the determinants of that difference?

In order to answer these questions, the rest of the article is organised as follows. In section 2, taking the economic literature on cooperatives as a starting point, we consider a number of hypotheses that might explain why employees' wages in non-worker cooperatives differ, to a greater or lesser extent, from those in conventional firms. Section 3 provides a succinct outline of the French cooperative sector and presents the data used in the article, together with some descriptive statistics. In section 4, the difference in pay between non-worker cooperatives and conventional firms is analysed at the aggregate level (i.e. all areas of activity combined) by using a decomposition method. Section 5 repeats this investigation for banking activities alone, since the savings and credit industry in France includes a high share of cooperatives. Section 6, finally, draws some conclusions from the preceding analysis.

2. Why might non-worker cooperatives pay different wages from those paid by conventional firms?

Are there reasons to suppose that there are differences in pay between non-worker cooperatives and conventional firms and, if so, what is the nature of those differences⁸? In the absence of any previous studies addressing these questions specifically, as already noted, it is difficult to provide a clear answer. Nevertheless, we will attempt to infer from the broader economic literature a number of hypotheses that will then be examined in greater detail.

2.1. The arguments in favour of higher pay in cooperatives than in conventional firms.

The first of these arguments follows from the declaration, made by certain authors, that the agency problem would tend to be more acute in cooperatives and that this would be reflected in greater managerial slack (see for instance: Mester, 1993; Feng and Hendrikse, 2009). From this point of view, a parallel might possibly be drawn with certain theoretical studies of not-for-profit organisations (Rasmusen, 1988). Various reasons have been put forward to explain the greater managerial discretion that might exist in cooperatives.

Firstly, it is said to be a consequence of members' ownership rights being weaker than those of shareholders in conventional firms. After all, the shares held by cooperative members are not negotiable in secondary markets. They can be bought back only by the cooperative and only at their face value (Gorton and Schmid, 1999). Consequently, managers' performance cannot be evaluated externally by the financial markets (Vitaliano, 1983; Hansmann, 1999; Feng and Hendrikse, 2009). Furthermore, a cooperative is not at risk of a hostile takeover. Ownership rights are not only weaker but also more diluted than in conventional firms because of the 'one member, one vote' principle on which a cooperative's democratic functioning is based. Thus managers are sheltered from the threat to which their counterparts in conventional firms are exposed, namely that shares might be accumulated in the hands of a few shareholders trying to strengthen their ability to influence decisions (Rasmusen, 1988; Gurtner et al., 2002). Similarly, the greater degree of managerial slack managers in cooperatives enjoy could be the result of the relative passivity of boards of directors in carrying out their supervisory duties because of their members' limited expertise in the areas crucial to an organisation's operations (Vitaliano, 1983; Siversten, 1996; Feng and Hendriksen, 2009; Hueth and Marcoul, 2009). According to the analyses carried out by Jensen and Meckling (1976) and Fama and Jensen (1983a and 1983b), the

⁸ Throughout the rest of the article and in the absence of any indication to the contrary, the term cooperatives will refer to non-worker cooperatives.

difficulties boards of directors experience in monitoring managers increases the risk of opportunist behaviour on the part of managers and thus exposes the organisation to a greater degree of inefficiency. Management in cooperatives tends to have a preference for expenditure, it is argued, which is reflected in higher operating costs (Akella and Greenbaum, 1988; Boose, 1990; Kroll et al., 1993). The risk is said to be all the greater since managers in cooperatives control collective assets that are not individually attributable to members because of the cooperative principles of the setting up of reserves, limited distribution of dividends and ownership restricted to the face value of the shares acquired by members⁹. For Fonteyne (2007), these assets constitute an intergenerational endowment without final owners that can be exploited by managerial opportunism. Cooperative managers' preference for expenditure can take various forms. We cannot rule out the possibility that it may also extend to expenditure on staff, which would be reflected in higher employment levels than in conventional firms and/or higher wages. An empirical study by Gorton and Schmid (1999) appears to indicate that the higher wages in cooperatives are linked in part to problems of agency. This study uses an approach based on the notion of efficiency wages deployed as an incentivising instrument for all employees (and not just managers) in order to deal with situations in which agency costs are high. They test their approach empirically on a sample made up of employees in Austrian banking cooperatives and show that agency problems are all the more acute there (and pay all the higher) the larger the cooperative is. Although this study does not compare cooperatives with conventional firms, it can readily be inferred from it that if the difficulties in managing agency relationships are greater in cooperatives, then the efficiency wage mechanisms will be more highly developed and pay higher. This risk of managerial opportunism may be further heightened by the multiplicity of goals cooperatives seek to achieve, which makes measurement of managerial effectiveness an awkward task. After all, unlike conventional firms, whose objective is clear since it is simply to maximise profits, cooperatives pursue a number of different objectives (Fonteyne, 2007; Hansmann, 1999; Feng and Hendriksen, 2009; Hueth and Marcoul, 2009). This plurality of goals can be explained by the possible diversity of members' interests, due notably to differences in the temporal footing on which they place their membership of the cooperative (Vitaliano, 1983). Above all, however, it is consubstantial with the very nature of a cooperative and the fact that its members have a 'twin identity' (Ory and Lemzeri, 2012) or 'dual role' (Feng and Hericksen,

⁹ Among the principles of the cooperative sector, ICA claims, with respect to member economic participation, that: "Members usually receive limited compensation, if any, on capital subscribed as a condition of membership. Members allocate surpluses for any or all of the following purposes: developing their co-operative, possibly by setting up reserves, part of which at least would be indivisible...".

2012). These terms refer to the fact that members are both owners and users of the cooperative and that these two aspects are subject to very different performance criteria.

For some authors, however, it is precisely this dual identity that, on the contrary, engenders tighter control of managers by members of the board of directors. According to Hansmann (1999, p. 396), ‘cooperatives are commonly much more closely controlled by their member-owners than are investor-owned firms’. After all, the frequent interaction between managers and members of the board of directors can be a valuable source of information for the latter, providing them with various indicators that facilitate their control of managers. According to Hueth and Marcoul (2009), this frequent interaction arises out of the greater geographical proximity between the salaried managers of cooperatives and their members. This is said to encourage the forging of strong social links between them and to stabilise their relationships. It is not impossible, therefore, that inefficiency costs are lower in cooperatives than in conventional firms, as Mäkinen and Jones (2015) observe in the case of the European banking sector.

Two further arguments can be advanced in favour of the hypothesis that wages are likely to be higher in cooperatives. The first takes as its starting point the lower cost of capital in cooperatives than in conventional firms. This is due to the fact that cooperatives have less recourse to the financial markets, which is made possible by members’ contributions and the maintenance of reserves. The lower cost of capital could, it is argued, give cooperatives the necessary leeway to raise wages (Fonteyne, 2007)¹⁰. The second argument concerns the possible effects of the cooperative principles on employees, even though they may not themselves be members. Indeed, regarding values, the ICA maintains that: ‘Co-operatives are based on the values of self-help, self-responsibility, democracy, equality, equity and solidarity. In the tradition of their founders, co-operative members believe in the ethical values of honesty, openness, social responsibility and caring for others’. The reference to social responsibility could be reflected notably in a particular concern for employees’ situation in the form of a more generous pay policy. Novkovic (2008, p. 2175) writes that ‘co-operative firms are businesses known to contain a social component’. While this social component mainly concerns cooperative members, it might also be supposed that it could also, through a spillover or mimetic effect, have a positive impact on employees’ pay.

¹⁰ It might be objected that, on the other hand, cooperatives experience greater difficulties in accessing capital markets (Cook, 1994), which may have a negative effect on pay policy. However, there has been much debate as to whether this equity shortage does in fact exist (Lerman and Parliament, 1991) and Hansmann (1999) takes the view that this problem is likely to arise only in the initial phase of a cooperative’s life.

2.2. The arguments in favour of a hypothesis that wages are lower in cooperatives than in conventional firms

Firstly, to return to the parallel between cooperatives and the not-for-profit sector already alluded to above but this time from a completely different perspective, it could be argued that employees in cooperatives might be inclined to make their employer a gift of their labour. This would take the form of lower wages than those they might aspire to in conventional firms. The donative labour hypothesis, let us recall, is based on the notion of a trade-off between increased pay and the intrinsic satisfaction derived from the job itself. From this point of view, the failure to obtain increased wages is compensated for by the greater intrinsic satisfaction derived more particularly from the social benefits created by the organisation's activities (Preston, 1989). Regardless of the fact that the empirical validity of this hypothesis is much debated (see for instance Leete, 2006), the real question is whether it can be extended to cooperatives. After all, cooperatives are not public-serving organizations but member-serving organizations whose activities are, on the face of it, less likely to fulfil the general interest and produce social benefits. The answer to this question might be positive in the case of worker cooperatives. After all, the feeling of sharing a collective destiny built up jointly by all the employees who are members of the cooperative, together with the collective atmosphere of trust and solidarity within the organisation (Jossa, 2009; Ben-Ner and Ellman, 2013), is likely to diminish to some extent the importance attributed to pay in favour of more intrinsic satisfactions of an altruistic nature. However, the hypothesis may be less applicable to non-worker cooperatives. The possibility that certain forms of intrinsic satisfaction, whether they be altruistic in nature or more self-regarding, might be more easily found in these organisations than in conventional firms cannot, it is true, be wholly excluded. For example, Juvin (2005) notes that the geographical and relational proximity between customers and employees is greater in cooperative banks, which may be a not insignificant consideration for employees. It is nonetheless the case that the existence of intrinsic satisfactions does not necessarily find its corollary in lower pay, as Becchetti et al. observe (2013). These authors conclude that, in Italian social cooperatives, the 'donative labour' effect produced by employees' intrinsic motivations is dominated by a productivity effect, produced by the same motivations, which pushes pay upwards.

Furthermore, it might be supposed that employees will accept lower pay in exchange for certain extrinsic advantages offered by their employer, notably job stability (Doeringer and Piore, 1971). Fonteyne (2007) points to the existence in cooperatives of greater geographical stability among employees (and hence less enforced mobility) and more extensive training provision.

Bossler and Schild (2015) also show that employment is more stable in the German cooperative banks.

2.3. The arguments in favour of wage levels in cooperatives and conventional firms being the same

Some processes, notably those linked to state regulation, would seem rather to work in favour of a ‘convergence hypothesis’, in which the business models in the two types of organisation are characterised by isomorphism (Dimaggio and Powell, 1983), of which similar pay levels may be one manifestation. In the banking sector, for example, this convergence is encouraged, it is argued, by the effects of European legislation (Mäkinen and Jones, 2015). Similarly, competition between the two types of organisation and the fear of a ‘brain drain’ leading to the loss of their best employees may induce cooperative to align their wage levels with those of conventional firms.

INSERT TABLE 1

The hypotheses that might be advanced in explanation of the pay differentials between non-worker cooperatives and conventional firms are summarised in Table 1. On examination of these hypotheses, it would seem impossible to derive a single unambiguous prediction from them. Consequently, the existence or otherwise of a pay differential becomes a question for empirical investigation.

3. Context, data and descriptive statistics

The cooperative sector in France is part of a much larger grouping known as the ‘social economy’ that also includes mutuals, voluntary associations and foundations. The extent to which the notion of the social economy is recognised varies considerably from country to country. The degree of recognition is high in the French-speaking world, as it is in some of the Southern European countries, including Spain and Portugal.

The French cooperative sector has a long history. The first (producer and consumer) cooperatives came into being in the 1830s and the sector began to expand significantly in the second half of the 19th century (Gueslin, 1998). In France today, the cooperative sector is governed by a diverse and segmented array of legal arrangements. They are derived from several sources (Jeantet, 2006):

- the Act of 10 September 1947, amended by the Act of 13 July 1992. This legislation sets out the basic principles by which cooperatives operate;

- specific pieces of legislation relating to the different types of cooperative;
- certain provisions in company law, since cooperatives have the status of civil (i.e. non-commercial) company or commercial (trading) company;
- lastly, the 2014 Act concerning the social and solidarity-based economy has introduced some new legal provisions on cooperatives.

The most recent type of cooperative was introduced in 2001. This is the *société coopérative d'intérêt collectif* or *SCIC*, which might be translated as community interest cooperative. This type of cooperative has at least three categories of associates, which necessarily include the employees and the beneficiaries of the goods or services. The establishment of this form of cooperative can be interpreted as a desire on the part of the public authorities to encourage the rapid development of social enterprises.

In order to analyse the wage differences between non-worker cooperatives and conventional firms, we have used the 2010 ‘annual declarations of social data’ (*déclarations annuelles de données sociales/DADS*). These documents, which serve both administrative and fiscal purposes and which all employers have to complete annually, are collected and processed by INSEE (Institut National de la Statistique et des Etudes Economiques). INSEE uses them to compile statistics on pay and employment. Several details on the enterprises (size, industry, legal status, etc.) are provided in the DADS. DADS also provide information on the jobs held (in particular the annual number of hours worked, the gross and net wages paid, socio-occupational group and type of employment contracts) and some characteristics of the jobholders (in particular gender, age and nationality). Nevertheless, DADS unfortunately contain no information on educational level, which is a limitation other analyses of cooperatives have also encountered (Burdin and Dean, 2009; Burdin, 2012; Clemente et al., 2012; Pencavel et al., 2006). No data is available either on job tenure. On the other hand, the DADS do provide information on the socio-occupational categories of jobholders, based on a very detailed occupational classification that provides the basis for wage determination in the relevant collective agreements¹¹.

The data used here also have a limitation due to the fact that the files for certain establishments are not accessible to researchers. The missing data relate mainly to the agriculture industry, which is consequently only very partially covered here¹². By way of compensation, however, the administrative nature of the data means that the coverage of employers is much

¹¹ Collective agreements are legal documents drawn up following agreements between the social partners (employers’ organisations and trade unions) that deal with all aspects of labour law (employment contracts, health and safety, leave, pay) as they affect employees in a particular occupation.

¹² Thus as far as the present paper is concerned, this problem affects agricultural cooperatives and cooperative banks whose activities are associated with agriculture.

more extensive than it would be with survey data. This makes it feasible to carry out an analysis at more disaggregated levels than would generally be possible with the survey data that are available in France because of the limited sample size.

Our analysis includes all non-worker-owned cooperatives, i.e. we exclude only worker cooperatives, which in France have the status of *société coopérative de production* (SCOP), which translates as ‘cooperative and participative company’. Cooperatives’ commercial subsidiaries are not included either, since they are not classed as cooperatives. As far as non-cooperative private-sector firms are concerned, they will be denoted by the term ‘conventional firms’, since this expression is frequently used in the literature on the subject. These are mainly commercial companies of one kind or another (public limited companies, limited liability companies, joint-stock companies etc.). Thus sole traders and private individuals who employ domestic helpers are excluded.

The wages considered in the analysis are gross hourly wages. Besides wages proper (which include overtime and bonuses), this includes profit-sharing and paid holidays as well as taxable benefits in kind. Gross wages are used since we are concerned here with employers’ wages policies and hence with the remuneration offered in the workplace.

Three further points need to be made with regard to the data. Firstly, the units of observation in the DADS are the jobs offered by employers. For INSEE, a job equates to one employee in an establishment, regardless of the number of spells of employment he or she has had there over the course of the year. On the other hand, an employee who has worked in two establishments will figure twice in the DADS, since he/she will have held two separate jobs. This method of counting jobs in the DADS is consistent with our approach, which analyses employers’ behaviour. Secondly, INSEE uses the declarations filled in by employers to make a distinction between ‘*non-supplementary posts*’ and ‘*supplementary posts*’. The distinction is based on minimum thresholds established by INSEE for pay, hours worked and duration of employment. We decided to focus only on non-supplementary posts above these thresholds and which are regarded as ‘real jobs’. Supplementary posts do not reach these thresholds¹³. They are very occasional jobs often held by employees in addition to a non-supplementary post. This decision to include ‘real jobs’ is consistent with the INSEE’s traditional approach in its studies and publications, including its statistics on employment in cooperatives. Finally, it should also be noted that temporary agency workers are not included, simply because they are not counted in

¹³ More specifically, a job is regarded as non-annexed post if pay is greater than 3 times the monthly minimum wage or if the duration of employment exceeds 30 days, the volume of hours worked is greater than 120 and if the ratio of hours worked to job duration in days is greater than 1.5. If these thresholds are not reached, the job is classed as annexed.

the DADS as part to the workforce of the company to which they are seconded but rather as employees of the temporary work agency.

For the year 2010 and the field selected here, the DADS list 15,488,003 jobs held by employees aged between 16 and 65. These jobs are distributed as follows: 15,300,774 in conventional firms and 187,229 in non-worker cooperatives. Thus the latter account for 1.21% of all jobs held by our population. Table 2 presents some descriptive statistics on employees and jobs in cooperatives and conventional firms. Thus men account for the greater share of employment in both types of organisations, but for a much higher share in conventional firms, where they account for almost 6 employees in every 10. Cooperatives, therefore, appear to be rather more feminised. This basically reflects the effect of the industries of which they are part: cooperatives are, after all, more likely than conventional firms to operate in service industries, where more women are employed. It is also in cooperatives that the share of French nationals is highest. The share of workers on permanent employment contracts is broadly the same in cooperatives and conventional firms and the share of full-time contracts in cooperatives is higher than in conventional firms. On the other hand, the structure of the socio-occupational groups differs between the two types of organisation. Professional and mid-level occupations account for almost 60% of jobs in cooperatives compared with 1 in 3 in conventional firms.

INSERT TABLE 2

Table 2 also provides descriptive statistics on the size of the organization and the type of industry where employees work. These show that cooperatives tend to be larger than conventional firms: in the former 79% of jobs are offered by organizations which have a workforce of more than 250, compared with only 40% by conventional firms of the same size. This result echoes an earlier finding for worker cooperatives (Pérotin, 2014). Finally, the cooperatives investigated here have a strong presence in financial and insurance activities in France, since 58% of jobs in non-worker-owned cooperatives are located in this industry compared with just 4% for conventional firms. This would seem to differentiate these cooperatives from worker cooperatives, which are more likely to be found in manufacturing and construction (Pérotin, 2012). Behind financial and insurance activities come the wholesale and retail trades and repair of motor vehicles and motorcycles, industries in which around one in five cooperatives and conventional firms are active.

Finally, with regard to pay, Table 3 shows that average gross hourly pay is higher in cooperatives than in conventional firms. The same applies to median hourly wages. On the other hand, the values of the coefficients of variation show that wage dispersion is greater in conventional firms.

INSERT TABLE 3**4. Analysis of the wage differential between cooperatives and conventional firms across all industries**

In order to analyse the wage differential between conventional firms and cooperatives, we use the standard methods of decomposition derived from the studies of Oaxaca (1973) and Blinder (1973), which were extended by Yun (2005) (cf. Appendix 1). In this approach, the difference in average wages between the two sectors is decomposed into a component explained by the differences in employee characteristics (as well as the characteristics of job and firms in the two sectors) and a residual component imputable to the differences in coefficients associated with those characteristics. This latter component is sometimes known as the unexplained component, since it has no connection with the characteristics or, in studies of gender or race wage gaps, the discriminatory component. In the present article, it can be used to compare wages policy in the two sectors. In other words, it enables us to reveal the nature and extent of any possible wage gap between cooperatives and conventional firms for employees, jobs and firms with identical characteristics.

In order to carry out this decomposition, two reference wage structures are considered successively, firstly that for employees in cooperatives and, secondly, that for employees in conventional firms. For each reference group, Table 4 shows the share of the wage differentials that can be attributed to the differences in characteristics (explained component) and that imputable to differences in the coefficients.

INSERT TABLE 4

It is evident from Table 4 that the total difference in hourly pay is negative, which means that conventional firms offer lower hourly pay than cooperatives. This observation is consistent with that made on the basis of Table 3. This difference is explained to a very large extent by differences in characteristics, since these explain between 85% and 89% of the wage gap, depending on the wage structure used as a reference. In other words, the two types of organisation pay different hourly wages essentially because the characteristics of the establishments, jobs and employees who hold them are different.

As for the differences in the coefficients associated with these characteristics, they therefore explain only slightly more than 10% of the total wage gap. The negative sign globally suggests that, given identical characteristics, conventional firms pay their employees slightly less than cooperatives do. Since the share of the total wage gap imputable to the difference in

coefficients is relatively small, the hypothesis of a convergence of pay between the two sectors seems to gain some credence here (see section 2).

Estimating the contribution of each variable to each of the two components of the wage gap separately poses a few difficulties that have been highlighted on a number of occasions (see for instance Oaxaca and Ransom, 1999; Yun, 2005), more particularly with regard to the unexplained component of the decomposition in the presence of categorical variables. Indeed, estimations of the contributions of each of these latter variables to this component are not invariant¹⁴ to the choice of these categorical variables' modalities of reference. Yun (2005) proposes a method for making the estimations of these disaggregated contributions invariant. It is this method that is used in the present article (see Appendix 1). The results are presented in Table 5 in terms of percentage.

It is evident from Table 5 that, regardless of the wage structure used as a reference (that of cooperatives or that of conventional firms), the two characteristics that make the largest contribution to the component of the wage differences imputable to the characteristics are type of industry and socio-occupational group, which together account for about 80% of these differentials. Furthermore, differences in size of organisation explain between 17% and 19% of the wage gap that can be imputed to this same component. Similarly, the total contribution of the age variable is around 10%. The signs allotted to these four characteristics i.e. industry, socio-occupational group, size of organization, and worker's age, which contribute the most to the explained wage gap component, are negative, which indicates that these characteristics are factors in maintaining hourly pay in conventional firms at a lower level than in cooperatives.

These observations are consistent with what was observed in Tables 2 and 3. After all, the share of (more highly paid) managers is greater in cooperatives, which also tend to be concentrated in industries with higher pay levels (such as banking) and in the larger size categories, where wages are on average higher than those in smaller firms. Finally, the employee population in conventional firms is on average younger than that in cooperatives (cf. Table 2), which is significant because, according to the literature, there is a positive link between seniority (approximated by age here) and pay.

On the contrary, the effect of the organizations' regional location is favourable to the employees in conventional firms since it slightly lessens (from 8 to 12%) the wage gap between them and their counterparts of cooperatives. This effect may be due to the stronger presence of conventional firms in the Paris Region (28% of all employees compared with 15% for

¹⁴The invariance problem concerns only those differences in pay that can be imputed to the differences in the coefficients and therefore not to those imputable to the differences in characteristics.

cooperatives). The other characteristics make a lesser contribution to the pay differentials between conventional firms and cooperatives.

INSERT TABLE 5

The weak role played by the unexplained component, i.e. that imputable to the differences in coefficients in the wage gap between non-worker-owned cooperatives and conventional firms, has already been noted. Let us notice immediately that for some determinants (i.e. the socio-professional groups, the size, the region and the industry) the total contribution of these variables may have different signs depending on the wage structure of reference. However, the individual signs of the contribution of each modality of variables stay identical regardless of the wage structure of reference.

The examination of the contributions each variable makes to this component reveals that, besides the differences in constants, it is the differences in coefficients associated with the types of contract and with age that have the most significant effect. The biggest gap of remuneration between conventional firms and cooperatives concerns the permanent contract. The strong negative signs indicate that conventional firms offer lower wages for permanent contract than their cooperative counterparts. As for the worker's age, when taken separately, the respective contributions to unexplained wage gap of "Age" and "Age2", reach respectively about 340% and 98% when the wage structure of the cooperative firm is the reference, and respectively about 263% and 79% when the wage structure of the conventional firm is the reference. In fact, after computation, hourly wage increases until the worker's age reaches 59 years old in the conventional firms and 68 years old in the cooperatives. There is here a 9 year-gap. Although, there is a common concave increasing function between hourly wages and worker's age for both types of firms, we can see that the way experience linked with age is remunerated differs between conventional and cooperative firms.

Other variables (nationality, industry, socio-professional groups and regions) are also not negligible contributors to the wage differences imputable to the difference in coefficients. Nationality and industries contribute respectively negatively and positively to the explanation of wage gap imputable to coefficient differences when for instance, the wage structure of the cooperative firms is the reference. The contribution of the variable relating to socio-occupational groups seems to have a different sign depending on the reference sector used. However, the contribution of each modality of this variable retains the same sign in both cases. Therefore, regardless of the wage structure of reference, it appears that in conventional firms, white-collar (blue-collar) workers receive higher (lower) wages in conventional firms than their counterparts working in cooperatives while the contrary is true for lower-level white collars, skilled and

unskilled white-collar workers (see table A1 in appendix 2). This interesting result suggests that non-workers' cooperatives like labour managed enterprises seem to adopt a more egalitarian wage structure than their conventional counterparts. Finally, some variables like firm size and job time seem to weakly contribute to the unexplained wage gap.

5. Analysis of the wage differentials between cooperatives and conventional firms in banking

It was noted in presenting the descriptive statistics that the financial and insurance industry accounted for a significant share of the jobs held by employees in cooperatives. Consequently, it was decided to analyse the wage differentials between cooperatives and conventional firms in this industry in greater detail. More specifically, the analysis encompasses the banking establishments covered by code 6419 of the ISIC (other monetary intermediation), which accounts for 99.5% of the jobs in cooperatives in our DADS file classified as located in the financial activities industry. Table 6 enables us to compare average and median wages in cooperatives and conventional firms in the banking industry.

INSERT TABLE 6

It can be seen that these wages are lower in the former than in the latter. Average hourly pay for employees in conventional firms is 13.1% higher than that of employees in cooperatives. The difference in median wages, on the other hand, is considerably smaller. However, this comparison takes no account of possible differences in characteristics between the two employee populations. Consequently, once again, the components of the wage differential are analysed using the same methodology as previously.

As shown in Table 7, the contributions to the wage differential that can be imputed to the differences in characteristics and those imputable to the differences in coefficients have the opposite sign. More precisely, average wages in conventional firms are higher than those paid in cooperatives because of the differences in the characteristics of the jobs, employees and firms in question. Nevertheless, the actual wage gap due to these differences is attenuated by the greater value attached to these characteristics, or to some of them at least, in cooperatives. In other words, for a strictly identical set of characteristics, employees in cooperatives are better paid.

INSERT TABLE 7

As before, we sought to identify the main variables that help to explain this wage differential. The results are presented in Table 8 below. They show that the pay gap between

conventional firms and cooperatives (in favour of the former) that can be imputed to differences in characteristics can be explained, to a very large extent, by the variables relating to socio-occupational group and regional location. Depending on the wage structure taken as a reference, the first variable explains between 69 and 92% of the proportion of the wage gap attributable to the differences in characteristics. Geographical location explains between 48 and 61% of the wage gap. As far as socio-occupational category is concerned, this result reflects the lower share of managerial staff in the cooperatives' workforces (25.6% compared with 40.8% in the conventional firms). The explanation is to be found in part in the fact that cooperatives have concentrated certain highly profitable activities carried out by highly skilled employees in subsidiaries subject to private law that do not have cooperative status (Bisault, 2012).

INSERT TABLE 8

The component of the pay gap that can be imputed to the differences in coefficients is in the banking industry easier to interpret than in the previous section, since no effects in opposing directions can be observed at the level of the variables and of their modalities. It has been noted that, in the banking industry, the differences in coefficients work in favour of employees in cooperatives. Four variables i.e. the worker's age, type of contract, nationality and socio-professional group, explain a large share of the wage gap imputable to differences in coefficients. Like previously, pay rises more significantly with age in conventional firms. In fact, we observe that hourly wage increases until the worker's age reaches 50 years old in the conventional firms and 68 years old in the cooperatives conducting to an 18 year-gap. In the conventional firm, wages of permanent and fixed term contracts are lower in the conventional firms than in cooperatives. However the permanent contract is a strong contributor to pay differences imputable to coefficients like in the overall sectors. As for the socio-professional groups in the banking sector, they also present an interesting positive sign indicating that conventional firm offers higher wages than cooperatives. Yet, white-collar workers still receive higher wages whereas blue-collar workers receives lower wages than their counterparts working in cooperatives. Unsurprisingly, this difference of sign is due to the strong differences of coefficients in the upper-white-collar group. We observe again the tendency of the cooperatives to have a more egalitarian wage structure like it is the case in labour-managed firms.

6. Conclusion

In the somewhat restricted empirical investigations that have been carried out into wages in cooperatives, it is worker cooperatives that have attracted most attention. This is very probably due to the emphasis that has been placed on this type of cooperative in theoretical research,

notably with regard to the democratic ideal they are meant to represent. Consequently, although there are more employees in non-worker cooperatives than in worker cooperatives (Smith and Rothbaum, 2013), there have been very few analyses of pay or, more broadly, of jobs in the former.

That has been the purpose of this paper. We have attempted, firstly, to ascertain whether or not there is a difference in pay between non-worker cooperatives and conventional firms and, secondly, to identify the determinants of that difference. To that end, we formulated a number of hypotheses that might explain why employees' pay in non-worker cooperatives differs from that in conventional firms. We then drew on administrative data in the form of the DADS in an attempt to evaluate the wage differential between conventional firms and non-worker cooperatives in France.

It emerges from our analysis of these data that pay in cooperatives is higher than in conventional firms if the analysis is conducted across all industries. Decomposition of this wage differential into a component explained by employee, job and company characteristics and an unexplained component reflecting the differences in the value attached to those characteristics enabled us to show that the differential is explained largely by the first component: the two types of organisation pay different hourly wages essentially because the characteristics of the establishments, jobs and employees who hold them are different. More specifically, the characteristics that make the largest contribution are type of industry and socio-occupational group and, to a lesser extent, size of organization and workers' age. This finding tends to confirm the hypothesis that there is a degree of convergence in the pay offered by conventional firms and non-worker cooperatives. Analysis of the unexplained component of the pay gap, which accounts for a small share of the total pay gap, indicates that pay is lower in conventional firms than in cooperatives when employee and job characteristics are identical. The characteristics that make the greatest contribution to this unexplained component of the pay gap are type of contract and age. Nevertheless, in short, it can be concluded that at this aggregated level of the investigation, there are no substantial differences in pay policies between the two sectors (non-worker cooperatives and conventional firms).

We then focused on the banking industry, which accounts for a large share of total employment in cooperatives. This time, the pay gap works to the benefit of employees in conventional firms. Decomposition of this pay gap reveals that it is entirely imputable to the differences in job and jobholder characteristics. The variables that make the greatest contribution are socio-occupational group and regional location. On the other hand, the component relating to the coefficients works in favour of employees in non-worker cooperatives, the variables that

make the greatest contribution to this part of the wage differentials being workers' age, type of contract, nationality and socio-occupational group. In other words, if the two types of firms had the same pay policies, the pay gap to the detriment of employees in non-worker cooperatives would be greater than is observed in reality. In the banking sector, therefore, the hypothesis that pay is higher in non-worker cooperatives (the characteristics being identical) gains some credence.

A limitation of this study is that the education levels of employees are not known. Therefore, we cannot exclude that the absence of this variable affects the results or our decomposition. Beyond this limitation, two avenues for future research can be suggested on the basis of these results. Firstly, while the main part of the wage differences between conventional firms and cooperatives can be explained by differences in characteristics, the role played by organisational characteristics such as size of firm, type of industry, location and hierarchical organisation in terms of socio-occupational groups raises questions about the structuring role that employers might or might not play in the labour market. Thus the respective influence of employees' characteristics and of organisational characteristics needs to be better documented. To that end, the data used here should be supplemented in order to obtain more information on employees. Secondly, the second avenue our study opens up concerns those aspects of working and employment conditions other than pay, which has been the focus of attention here. Beyond pay differentials between conventional firms and non-worker-owned cooperatives, what is the situation in respect of employment contracts, working time, workplace accidents or training opportunities, for example? These other aspects of working and employment conditions should be analysed in order to provide a more complete view of employment in cooperatives. Here too, however, richer data than those provided by the DADS are required.

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TABLES AND APPENDICES

Table 1: What hypotheses might explain the pay gap between non-worker cooperatives and conventional firms?

Nature of the conceivable hypotheses	Pay gap between cooperatives and conventional firms
Managerial slack is greater in cooperatives : <ul style="list-style-type: none"> - <i>weaker ownership rights, which reduces the capacity of holders of such rights to influence decisions;</i> - <i>passivity on part of boards of directors;</i> - <i>difficulties in evaluating the performance of cooperatives and their managers;</i> Consequences : <ul style="list-style-type: none"> - <i>more pronounced propensity to expenditure among cooperative managers;</i> - <i>payment of efficiency wage.</i> 	Positive
Cost of capital lower for cooperatives	Positive
Cooperatives' greater social awareness with regard to members and employees	Positive
Existence among cooperative employees of intrinsic motivations, the effects of which are, on the face of it, variable: <ul style="list-style-type: none"> - <i>'Donative labour' effect: lower pay in cooperatives</i> - <i>'Labour productivity' effect: higher pay in cooperatives</i> 	Indeterminate
Convergence of business models and isomorphism	None
Risk of 'brain drain' leading to loss best employees	None
Managerial slack is no greater in cooperatives : <ul style="list-style-type: none"> - <i>managers are monitored by member-owners</i> - <i>strong social ties between managers and members</i> 	None
Lower pay in cooperatives in exchange for extrinsic non-wage benefits	Negative

Table 2. Descriptive statistics on employees and jobs (in %)

Variables	Conventional firms	Cooperatives
Men	59.52	51.42
Average age (in years)	38.1	39.6
French nationals	91.56	98.07
Professional	16.27	20.66
Mid-level occupations	18.10	38.14
Lower-level white collars	32.62	24.81
Skilled blue-collar workers	22.80	10.87
Unskilled blue-collar workers	10.21	5.52
Open-ended (permanent) contracts	83.28	85.23
Full-time contracts	79.6	85.5
Organizational size		
Fewer than 10 employees	18.72	3.73
10-49	23.31	8.81
50-249	18.96	8.20
250-1999	20.56	46.04
2000 employees and over	18.45	33.22
Industry		
Agriculture, forestry, fishing	0.11	0.60
Foods products	3.42	3.81
Manufacturing (apart from foods products), mining and quarrying	17.94	1.15
Construction	9.47	2.33
Wholesale trade and retail trade; repair of motor vehicles and motorcycles	22.59	21.94
Transportation and storage	6.18	2.18
Accommodation and food service activities	7.87	1.19
Information and communication	5.50	0.91
Financial and insurance activities	4.00	57.89
Real-estate activities	1.48	0.62
Professional, scientific and technical activities, administrative and support service activities	15.49	6.06
Other services	5.97	1.33

Source: INSEE, DADS 2010. Authors' own calculations.

Table 3. Hourly pay in cooperatives and conventional firms (in euros)

Variables	Conventional firms	Cooperatives
Average gross hourly wage	17.47	20.72
Median hourly wage	13.57	18.48
Standard deviation	70.05	18.69
Coefficient of variation	4.01	0.91

Source: INSEE, DADS 2010. Authors' own calculations

Table 4. Aggregated decomposition of the wage differential between conventional firms and cooperatives on all industries

Reference wage earners	Wage differential due to the differences in:		
	Coefficients	Characteristics	Total
<i>Cooperatives</i>	-0.022653*** (0.001975) 11.2 %	-0.178952*** (0.001844) 88.8 %	-0.201605 <i>100.0 %</i>
<i>Conventional firms</i>	-0.030372*** (0.000796) 15.1 %	-0.171233*** (0.000333) 84.9 %	-0.201605 <i>100.0 %</i>

Standard errors in brackets

*Level of significance: ***:0.001, **:0.01, *:0.05*

Source: INSEE, DADS 2010. Authors' own calculations.

Table 5. Disaggregated decomposition of the wage differential between conventional firms and cooperatives in economy as a whole

	Wage gap explained by differences in			
	Characteristics		Coefficients	
	Wage structure of:		Wage structure of:	
	Cooperatives	Conventional firms	Cooperatives	Conventional firms
Gender	-4.50%	-3.99%	6.36%	0.71%
Nationality	5.34%	3.40%	244.33%	194.55%
Total Age	10.43%	8.17%	437.54%	341.77%
Age	24.49%	23.80%	339.32%	263.07%
Age ²	-14.06%	-15.64%	98.22%	78.70%
Socio-occupational group	32.78%	53.37%	44.24%	-74.69%
Type of contract	1.21%	0.50%	1082.40%	811.71%
Working Time	0.17%	0.24%	-2.30%	-2.06%
Size of firm (number of employees)	17.06%	19.49%	1.75%	-8.04%
Region	-12.04%	-8.82%	23.05%	-4.05%
Industry	49.55%	27.64%	-90.40%	68.65%
Intercept			-1646.97%	-1228.55%
TOTAL EFFECT	100.00%	100.00%	100.00%	100.00%

Source: INSEE, DADS 2010. Authors' own calculations.

Table 6. Hourly pay in cooperatives and conventional firms in the banking industry (in euros)

Variables	Conventional firms	Cooperatives
Average gross hourly pay	26.72	23.62
Median hourly pay	21.88	21.69
Standard deviations	107.03	22.46
Coefficient of variation	4.01	1.03

Source: INSEE, DADS 2010. Authors' own calculations.

Table 7. Decomposition of the wage differential between conventional firms and cooperatives in banking industry

Reference wage earners	Wage differential due to the differences in:		
	Coefficients	Characteristics	Total
<i>Cooperatives</i>	-0.053615*** (0.0021332) -287,6 %	0.0722566*** (0.0013767) 387,6 %	0.0186414 100.0 %
<i>Conventional firms</i>	-0.054164*** (0.0017104) -290,6 %	0.072805*** (0.001357) 390,6 %	0.0186414 100.0 %

Standard errors in brackets

*Level of significance: ***:0.001, **:0.01, *:0.05*

Source: INSEE, DADS 2010. Authors' own calculations.

Table 8. Decomposition of the wage differential between conventional firms and cooperatives in the banking industry

	Wage gap explained by differences in			
	Characteristics		Coefficients	
	Wage structure of:		Wage structure of:	
	Cooperatives	Conventional firms	Cooperatives	Conventional firms
Gender	-1,06%	-1,46%	4,58%	3,98%
Nationality	-1,42%	1,96%	154,15%	157,11%
Age total	-0,36%	-7,75%	-1008,59%	-1008,28%
<i>Age</i>	9,76%	18,60%	-2305,29%	-2269,90%
<i>Age</i> ²	-10,13%	-26,35%	1296,70%	1261,62%
Socio-occupational group	69,29%	92,05%	-89,75%	-57,53%
Type of contract	-49,88%	-29,29%	248,28%	272,92%
Working time	1,18%	-0,49%	-30,81%	-32,72%
Size of firm	34,05%	-15,83%	87,65%	20,06%
Region	48,20%	60,81%	-32,27%	-14,50%
Intercept			766,76%	758,97%
Total	100,00%	100,00%	100,00%	100,00%

Source: INSEE, DADS 2010. Authors' own calculations.

Appendix 1

As applied to the object of the present article, the methods of decomposition developed by Oaxaca (1973) and Blinder (1973) involve separating out two components of the wage differential between employees in cooperatives and those in conventional firms. The first relates to the differences in characteristics between the two groups of employees and the second is a residual component (sometimes called the unexplained component) that equates to the differences in the coefficients associated with the characteristics.

Let us consider the wages (expressed as logarithms) of employees in cooperatives and in conventional firms evaluated at the average value of their respective characteristics. We have:

$$\overline{\ln w_g} = \overline{X_g'} \hat{\beta}_g, \quad (1)$$

where w_g , $\overline{X_g'}$ and $\hat{\beta}_g$ are, respectively, the hourly wage, a vector of explanatory variables and the vector of the coefficients associated with them, and $g=f,c$ (with the index f for conventional firms and the index c for cooperatives).

Thus the difference in average wages between employees in conventional firms and those in cooperatives is equal to:

$$\overline{\ln w_f} - \overline{\ln w_c} = \overline{X_f'} \hat{\beta}_f - \overline{X_c'} \hat{\beta}_c \quad (2)$$

which can also be written:

$$\overline{\ln w_f} - \overline{\ln w_c} = (\overline{X_f'} - \overline{X_c'}) \hat{\beta}_c + \overline{X_f'} (\hat{\beta}_f - \hat{\beta}_c) \quad (3)$$

The transition from (2) to (3) takes place by means of some basic operations, which bring into play $\overline{X_f'} \hat{\beta}_c$, a counterfactual representing a population whose characteristics are those of employees in conventional firms and whose coefficients are those of employees in cooperatives.

Another counterfactual might also be considered, namely $\overline{X_c'} \hat{\beta}_f$, which this time represents a population whose characteristics are those of employees in cooperatives and whose coefficients are those of employees in conventional firms. (2) then becomes:

$$\overline{\ln w_f} - \overline{\ln w_c} = (\overline{X_f'} - \overline{X_c'}) \hat{\beta}_f + \overline{X_c'} (\hat{\beta}_f - \hat{\beta}_c) \quad (4)$$

In (3) and (4), the first term represents the component relating to the difference in characteristics between the two groups of employees, while the second term represents the component that express the differences in coefficients, which may refer to the differences in pay policy between the two types of firms.

Estimation of the contributions of each of the variables to the unexplained component poses a problem as soon as categorical variables appear in the wage equations. This problem was noted by

Oaxaca and Ransom (1999) and is known as the invariance or identification problem. Oaxaca and Ransom (1999) show that the contribution of each categorical variable varies depending on the reference modality chosen for that variable, since the value of the constant changes with this reference modality. It should be emphasised that this problem does not exist when it comes to estimating the unexplained component in its entirety.

Yun (2005) proposes a method for resolving this identification/invariance problem by estimating normalised wage equations.

Consider the following initial equation, with T continuous variables and S categorical variables denoted D , each with J_s modalities (or categories):

$$\ln w = \alpha + \sum_{t=1}^T X_t \gamma_t + \sum_{s=1}^S \sum_{j_s=2}^{J_s} D_{sj_s} \beta_{sj_s} + e. \quad (5)$$

α is the constant and it is assumed for simplicity's sake that the reference modalities are always the first ones.

Yun's method (Yun 2005) of solving the invariance problem involves estimating the following normalised equation:

$$\ln w = \alpha + \sum_{s=1}^S \bar{\beta}_s + \sum_{t=1}^T X_t \gamma_t + \sum_{s=1}^S \sum_{j_s=1}^{J_s} D_{sj_s} (\beta_{sj_s} - \bar{\beta}_s) + e \quad (6)$$

where $\bar{\beta}_s = (\sum_{j_s=1}^{J_s} \beta_{sj_s}) / J_s$

Appendix 2

Table A1. Contributions of the Socio-professional and contract variables to the coefficient component in the decomposition of the wage gap between non worker cooperatives and conventional firms at the aggregate level

	Wage structure of cooperatives		Wage structure of conventional firms	
	Contribution	%	Contribution	%
Socio-professional group	-0,010026	44,2%	0,022691	-74,7%
Professional	0,024500	-108,1%	0,031107	-102,4%
Mid-level occupations	0,009313	-41,1%	0,019616	-64,6%
Lower-level white-collars	-0,023420	103,4%	-0,017814	58,6%
Skilled blue-collar workers	-0,012904	56,9%	-0,006155	20,3%
Unskilled blue-collar workers	-0,007515	33,2%	-0,004064	13,4%
Type of contract	-0,24529	1082,4%	-0,246598	811,7%
Permanent	-0,22108	975,6%	-0,226280	744,8%
Fixed-Term	-0,03080	135,9%	-0,026879	88,5%
Not specified	0,00659	-29,1%	0,006560	-21,6%
Total effect	-0,022662	100,0%	-0,030380	100,0%

Source: INSEE, DADS 2010. Authors' own calculation