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Performance-Related Pay or Pay for Participation ? The Case of Emilia Romagna

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Abstract

The income policy agreement of July 1993 – the so-called *Accordo di Luglio* – has considerably changed the industrial relations framework in Italy. The adoption of company agreements, linking workers' compensation to company performance, opened up a new phase in bargaining, increasing the growth of decentralised negotiation between workers' trade union organisations and companies. Previous empirical investigations have mainly analysed this phenomenon at national level, focussing on the factors behind this practice. Less attention has been devoted to the investigation of the diffusion of these negotiating practices at local level. The aim of this paper is to analyse this phenomenon at this level, investigating decentralised bargaining carried out in Emilia Romagna, one of the most industrialised and unionised regions of Italy. In particular, company bargaining on performance-related pay (PRP) and/or pay for participation (PFP) is analysed during the period 1994-1997 within this region. First of all, forms of agreement on PRP/PFP are investigated to find out the incentive, risk-sharing, and participation mechanisms as predicted by economic theory and embodied within each contract. Secondly, an econometric investigation is carried out to identify the variables which can explain their introduction.

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0. Introduction

The income policy agreement of July 1993 – the so-called *Accordo di Luglio* – has considerably changed the industrial relations framework in Italy. The adoption of company agreements, linking workers' compensation to company performance, opened up a new phase in bargaining, increasing the decentralised negotiation between workers' trade union organisations and companies. Previous empirical investigations have mainly analysed this phenomenon at national level, focussing on the factors behind this practice. Less attention has been devoted to the investigation of the diffusion of these negotiating practices at local level. The aim of this paper is to analyse this phenomenon at this level of investigation, studying decentralised bargaining carried out in Emilia Romagna, one of the most industrialised and unionised region of Italy. In particular, company bargaining on performance-related pay (PRP) and/or pay for participation (PFP) are analysed during the period 1994-1997 within this region. First of all, forms of agreement on PRP/PFP are investigated in order to find out the incentive, risk-sharing, and participation mechanisms suggested by economic theory and embodied within each contract. Secondly, an econometric exercise is carried out in order to identify the variables which can explain their introduction.

The choice of this region as our field of investigation is motivated by the fact that in a number of ways the region's industrial system represents – as an extensive literature has shown (Bellini, 1990; Bianchi and Gualtieri, 1990; Brusco, 1982) – a paradigmatic model of local capitalism, combining the large-scale presence of industrial districts with a marked entrepreneurial spirit, strong social cohesion, an exceptionally efficient system of local institutions and intermediate organisations, and, finally, extensive unionisation of the labour force.

The paper is organised as follows. In section 2 we present some characteristics of the database on bargaining activity carried out by firms in Emilia Romagna in the period 1994-1997. In section 3 we analyse the forms of bargaining of PRP/PFP in the 935 companies that have introduced PRP/PFP compensation mechanisms. In section 4 the determinants of the probability of signing a variable compensation mechanism are analysed by means of econometric methodologies. Conclusions follow.

1. The database on bargaining activity

Our analysis is based on the database IRES Emilia-Romagna (*IRESCO)* which contains information on company agreements. This organisation collects all the second level agreements signed at company level between companies and trade union organisations. These agreements mainly concern firms which operate in the private sector.

From the analysis of this database emerges that in the period 1994-1997 decentralised bargaining involved 2,200 companies, accounting for about 250,000 employees (IRES Emilia-Romagna, 1999), with the signing of about 3,000 company agreements. Overall, companies where bargaining involved subjects relating to local/company clauses integrating national agreements, or local management of national agreements, were roughly 1,500 (68% of the total), for a number of employees not much under 200,000 (80% of the total).

2. The decentralised bargaining: some characteristics

In this section we present some characteristics of company bargaining carried out by firms in Emilia-Romagna in the period 1994-1997. These characteristics have been identified by analysing 1782 local management of national agreement involving 1,475 companies and about 200,000 employees (table 1).

2.1 Bargaining for companies: an overall analysis

First, we analyse those issues which significantly affect the climate and the industrial relations within the firm. Among these issues the quantity and the quality of information that is periodically provided to the workers' organisations is certainly quite important. We refer to the information concerning the work organisation and the working hours schedules, the investment projects and the plans about technological and organisational change, the policies about hiring new staff, mobility and dismissal, the ownership structure, and the trends in the product market. Nearly 67% of companies foresee structured forms of information provision, thus providing conditions for a good climate within the company and for good industrial relations. However, the companies in which no structured informational channel is foreseen in the agreement is equal to 33%. A much less positive result emerges from the analysis of another mechanism of

information diffusion: that is, the presence of joint councils[1] and the transmission to the unions of the company balance sheet. Only 16% of companies have joint councils, and only in 7% is the delivery of the company balance sheet (or some sections of it) foreseen. This latter data seems rather significant, especially in relation to the much-recommended involvement of workers through PRP/PFP compensation mechanisms based on company performance.

Secondly, other important issues that contribute to the climate within the firm are the negotiations on work organisation and working hours. As is well known, these are traditional areas of trade union action. While almost half the agreements are specifically directed at working schedules (for 709 companies out of a total of 1,475), only 23% concerns the work organisation (for 341 companies out of 1,475). Therefore, there seems to be a strong negotiation deficit on this issue that has always been important in agreement practices. Another negative finding for trade union policies concerns workers' training. Only 19% of companies foresee negotiated commitments to training. In most cases the formula used is very general. It can be summarised as 'commitment to on the job-training (OnJT) and outside the job-training (OutJT) for the workers'.

Thirdly, it is worth analysing data on bargaining concerning economic issues. Out of the total of agreements analysed, about 60% concerns *PRP/PFP* . If we consider the companies involved in local management of national agreement, about 63% signed agreements on PRP/PFP mechanisms[2]. Hence, the extent of the PRP/PFP phenomenon is remarkable, involving 935 companies out of 1,475.

In spite of this, the relevance of traditional bargaining on economic matters is still important. In particular, there is a high proportion of companies with agreements envisaging compensation increases conceded through the traditional production bonus and the lump sum bonus: respectively found in 31% and 27% of companies. Significant is also the weight of the compensation increases provided in the form of super minimum and structural company compensation, with shares respectively of 7% and 12% of companies. In addition, a great number of companies have agreements on PRP/PFP where traditional forms co-exist with innovative compensation mechanisms: 87 companies (equal to 9% of the total), carried out the compensation increases through structural company compensation, 249 companies (27%) through production bonuses,

[1] i.e. bilateral technical committees corresponding to joint councils.
[2] It should be noted that such a percentage diminishes to around 40% if all the 2200 companies involved in the bargaining are considered.

53 companies (6%) through increases in the super minimum, and 268 companies (29%) through lump sum bonuses.

The diffusion of PRP/PFP mechanisms is quite significant. However, it is also necessary to underline the persistence of traditional forms of bargaining on economic matters (compensation, in particular), not explicitly linked to the company's performance, though this does not mean that a share of the compensation increases given through traditional mechanisms is not linked to a company's ability to pay.

2.2 Characteristics of the company bargaining with PRP/PFP and without PRP/PFP

In this section we develop our analysis distinguishing between companies which have introduced PRP/PFP and those that have not. From Table 1 it emerges that there are significant differences between these two types of firms. In particular, the 'quality' of the bargaining appears to be clearly superior if PRP/PFP is taken into account.

With reference to the matters that contribute to the company climate and industrial relations, it emerges that the information provided for the workers' organisations is envisaged in 49% of the companies without PRP/PFP. These appear in 77% of the companies with PRP/PFP. Similar results emerge for the presence of the bilateral technical commission. This joint council turns out to be present in 24% of the companies with PRP/PFP and only in 3% of those without PRP/PFP. Similar results also emerge for the availability of the company balance sheet. This is provided in 10% of the companies with PRP/PFP and only in 2% without.

Other aspects analysed concern the bargaining on work organisation, working hours, and training. With regards to the work organisation, a significant difference emerges between companies with and without PRP/PFP, in favour of the former. With reference to the working hours, the behaviour is the same in the two groups. A more favourable result emerges for the companies with PRP/PFP when training is taken into account. Company commitments concerning workers' training are relatively widespread in those with PRP/PFP: 25% of the companies with PRP/PFP envisage training as opposed to 9% of companies without, even if the weight of a purely generic commitment appears relatively greater compared to an actual specific commitment in the companies with PRP/PFP.

The differences regarding the bargaining on economic issues are also interesting. The bargaining on the structural company compensation, production bonus, and super

minimum is typical of companies without PRP/PFP. However a significant presence should also be noted in companies with PRP/PFP. This result should not come as a surprise. When innovative bargaining forms on compensation are present, the relevance of traditional compensation increases reduces. However, if the lump sum bonus is utilised to carry out compensation increases, different results emerge. Companies with PRP/PFP adopt these forms more commonly than companies without (in 29% of cases as against 25%, respectively). So it turns out that companies that introduce PRP/PFP have a significantly slighter propensity to concede irreversible structural compensation increases in fixed amounts At the same time they have a greater propensity to concede reversible compensation increases, still in fixed amounts, as compensation for the introduction of flexible compensation mechanisms. This result, together with the presence of compensation increases through production bonuses, shows the coexistence in companies with PRP/PFP of traditional bargaining on economic issues and innovative compensation forms.

3. The bargaining forms of PRP/PFP

In this section we analyse the forms of bargaining of PRP/PFP in the 935 companies that have introduced PRP/PFP compensation mechanisms (table 2)[3].

With regards to the company size, small companies (1-19 employees) show a lesser propensity to sign this kind of agreements than larger ones. About 38% of companies with agreements of variable compensation have less than 50 employees. This finding shows how widespread PRP/PFP compensation mechanisms became also in small companies after July 1993.

With regards to the trade union categories, a significant share of companies with PRP/PFP belong to categories of the manufacturing sectors such as metalworkers, chemical workers and food industry workers (75% of total companies). Almost irrelevant is the proportion of companies with PRP/PFP which belong to trade union categories of private services such as transport, printing, banking and insurance (8% of all companies).

The analysis of indicators utilised by the firms is also fundamental for the understanding of the ways in which workers' wages are linked to a firm's performance.

[3] There were 1,080 company agreements on PRP/PFP.

Following the classification developed in previous papers[4], we classify the indicators into three groups.

Group I: indicators of profitability based on data drawn from the company balance sheet;

Group II: indicators of productivity, given by the ratio between output and the input of labour;

Group III: indicators of efficacy and efficiency of the production process.

Such a classification allows us to make a distinction between PRP/PFP mechanisms on the basis of the greater propensity to use variables related to motivations of 'risk sharing', traditional 'incentives' (with the use of indicators of group I and II), and 'participation', for which, still for the purpose of incentives, indicators of group III are used.

Moreover, we analyse other characteristics of the agreements. In fact this is quite important for the evaluation of the different relevance of incentive, risk sharing and participation mechanisms, envisaged in the bargaining.

This information is then utilised to construct synthetic indexes allowing us to identify the various aims underlying the PRP/PFP mechanisms.

3.1 Analysis of the indicators utilised by the firms

From Table 3 it emerges that the indicators of efficacy and efficiency (9%) are not much used compared with the traditional indicators of productivity (57%). On the contrary, it turns out that the profitability indicators (33%) are very much utilised.

However, there are significant differences in the use of the indicators according to the trade union categories, the company size and the geographical areas under consideration.

With regards to the trade union categories it emerges that the profitability indicators (group I) are mainly used in companies operating in service sectors[5]. Moreover they are relatively widespread also in those companies whose agreement is signed by some of the trade union categories of the industry[6]. The productivity indicators (group II) are extremely widespread in the manufacturing companies whose agreements were signed

[4] See Melotti - Pini (1996, 1998), Fabbri - Melotti - Pini (1998, 1999), and Fabbri - Pini (1998, 1999).
[5] Commerce, transport and above all banking and insurance.
[6] Textile workers, printers and also metalworkers.

by chemical workers, building workers, food industry workers and printers. Finally, the efficacy and efficiency indicators are significantly present in the metalworkers' agreements, and to a lesser extent, in the food industry trade union category, in the workers of commerce, the chemical workers and textile workers.

With regards to indicator distribution by company size, no very considerable differences emerge. This evidence seems to show that the size of the company does not matter in the choice of the indicator linking the variable compensation to company performance[7]. On the contrary, firm size affects the degree of complexity of the link between bonus and performance, that is, the number of indicators utilised.

With regards to geographical distribution, our analysis identifies specific behaviour in the choice of indicators. This heterogeneous pattern of behaviour depends not only on the sector composition of the various local systems, but also on the specific behaviour of the various trade union categories and employer associations of the local systems under investigation.

A qualitative analysis of the indicators utilised reveals an heterogeneous pattern. In particular, this is true for those drawn from company balance sheets. On the contrary, the indicators of productivity appear far more standardised, being referred to the two big groups of physical productivity and traditional quality. With reference to those of efficacy and efficiency, it emerges the prevalence of process indicators characterised by a relatively heterogeneous pattern. The low variety of indicators of group III, together with their low number, leads us to observe: a) a very slight presence of indicators of the input-oriented type connected to the work-tasks and learning processes of the human resources[8]; b) a similarly moderate adoption of indicators of decision-making on company organisation[9].

The limited space reserved to both typologies of indicators, consistent with a conception of PFP rather than of PRP, associated to the high frequency of traditional indicators of profitability and productivity, leads us to the hypothesis that in the decentralised bargaining on compensation flexibility, the second concept of bonus has greatly prevailed over the first[10].

[7] As recent analyses have shown also for other local systems (Fabbri - Pini, 1998 and 1999, and Cainelli - Fabbri - Pini, 1999a).
[8] In the meaning given by Leoni - Tiraboschi – Valietti (1998).
[9] See the detailed analysis of the indicators employed in Fabbri - Melotti – Pini (1999).
[10] An analysis was carried out also on: a) distribution of the agreements that envisage *at least one* of the indicators of the first, second or third group; b) distribution of the agreements that envisage exclusively the *joint* presence of indicators of the first and second group, excluding therefore the indicators of efficacy and efficiency; c) proportion of

3.2 A synthetic representation

The analysis carried out on the forms of agreement on PRP/PFP can be presented in synthetic form by means of indexes of participation, risk sharing and incentive mechanisms (tables-7-8-9)[11].

Overall, the degree of participation turns out to be rather low, with an index of 0,452, below the 0,5 level that distinguishes between forms of non-participation and participation[12].

The degree of risk sharing also appears low, although significant. Overall, it turns out to be 0,390, and appears to be substantially based on the non-consolidation of the maximum payable quotas, and also, though to a lesser extent, on the variability of the PRP/PFP, on the mechanism of checking-up and on the indicators utilised, characteristics that regard the *content*, rather than the *form* of the PRP/PFP agreement[13].

The synthetic index of *incentives* takes on the highest value: that is, 0,522 for all the companies. This shows that the traditional form of incentive is more widespread among the companies that adopted PRP/PFP mechanisms. The *content* rather than the *forms* of the PRP/PFP agreements contribute to the determination of this high value. The characteristics of the indicators, parameters and non-consolidation type turn out to be important[14].

From the analysis of the synthetic indexes, the features of the agreements recorded previously are confirmed. These are:

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agreements that do *not* envisage *any indicator* for the connection performance-compensation (table 4). Cf. Cainelli - Fabbri – Pini (1999b) and Fabbri - Melotti – Pini (1999) for details on the results.

[11] The various elements that define the forms of the PRP/PFP agreements have been utilised to calculate indexes aiming to find out in a synthetic way the prevailing mechanism employed in the determination of the PRP/PFP and the way it is run, i.e. degree of participation, risk sharing and traditional incentivation. For the method used to construct the *synthetic indexes*, cf. Fabbri - Melotti - Pini (1999).

[12] The value of the synthetic index of participation can assume values in the interval that goes from -1 to +1. For an immediate comparison with the other indexes, that go from 0 to +1, it has been reproportioned in an analogous scale, for which the value 0,5 indicates a zero degree of participation.

[13] A relation seems to emerge between the size of the company and the value of the synthetic index of risk sharing. We can see that the big companies show a lower index value than that of the smaller companies, but the ones with the lowest are the companies with between 100 to 249. This suggests the presence of a U relation between the degree of risk sharing and the size of the company: both the small and big companies would be relatively more orientated to adopting PRP forms aiming to share risk with the employees. The behaviour of the synthetic index for trade union category and for the local system appears much more differentiated. A high degree of risk sharing characterises the private services, while the industrial categories show lower indexes. Finally, the local systems with a relatively high degree of risk sharing are those of Rimini, Cesena, Imola, Piacenza and Ravenna, while there are much lower indexes in Reggio Emilia, Ferrara, Forlì and Bologna.

[14] The categories that demonstrate a propensity towards this PRP/PFP form are those of the printers, workers in the food industry, and chemical workers. The metalworkers, the union categories of transport workers and of commerce are to be found at the extreme opposite end; and then, an important slice of the private services. With reference to the size of the firm, the degree of the traditional type of incentive appears rather homogeneous, and at the same time no relation seems to emerge between size and the value of the incentive index.

1) The greater influence, in the determination of the synthetic indexes, and hence of the PRP/PFP form, of the trade union category and of the local system, compared to that of firm size;

2) the high propensity to adopt traditional forms of incentivation, rather than of risk sharing, that however do turn out to be present in some trade union categories of private services, specific trade union and both small and large companies;

3) the modest level of participation and involvement of the workers envisaged by the PRP/PFP agreements; with specific reference to the trade union category, the index of participation turns out to be always lower than the *level of neutrality* of 0.5, going above this level only in the companies with at least 1,000 employers and in only two local systems, that of Imola and Ferrara;

4) the propensity of the companies belonging to particular trade union categories (for example, those of printing, banking and insurance) or localised in specific areas (for example, in the local systems of Cesena, Imola and Parma) to associate traditional forms of incentive with forms aiming at a sharing out of entrepreneurial risk with the workers;

5) the absence of significant *trade-offs* between the agreement forms singled out by these indexes.

4. The econometric investigation

We now analyse from an econometric point of view the determinants of the probability of signing a variable compensation agreement. The investigation was performed using a sample of 737 manufacturing firms with over 50 employees, of which 298 had introduced PRP/PFP compensation schemes.

4.1 The dataset utilised for the econometric analysis

The dataset utilised for the econometric investigation was built up by utilising two different statistical sources: (1) the balance sheet data of the *Centrale dei Bilanci* (CB), and (2) the database of the variable compensation agreements constructed by starting from information on company agreements signed in Emilia Romagna during the period 1994-1997. From the matching of these two datasets, we identified 737 firms with balance data, of which 298 signed variable compensation agreements over the period 1994-1997.

The information of the database *Centrale dei Bilanci* concerns manufacturing firms with at least 50 employees operating in Emilia Romagna and with balance sheets

reclassified by the CB in the period 1991-1995. This dataset is composed of 909 companies. From these 909 companies we eliminated those companies with missing data for one of the five years under consideration. Thus we obtained 737 companies. Table 10.1 shows the distribution of companies by geographical location and size, for the whole dataset (909 firms) and for that utilised (737 firms). This table also shows that the degree of coverage of the sample is quite good.

With regards the database on the agreements, see the previous sections. However, in the econometric investigation we only used manufacturing firms with at least 50 employees. Table 10.2 compares the distribution of manufacturing firms for which company agreement is available (861) with that of the companies utilised in the analysis (298). The distribution of the 298 firms by geographical location, size, and trade union category does not show any bias with respect to the initial dataset of 861 firms.

4.2 The econometric methodology

We adopted two different econometric methodologies for estimating the probability that a firm had signed a variable compensation agreement. First we performed cross-section regressions utilising a robust Probit estimator in order to control for the potential presence of heteroschedasticity. Then in order to exploit the panel structure of our dataset and thus to capture non-observable individual effects, we used a random effect Probit estimator.

A possible problem of this analysis is the presence of endogeneity. In order to overcome this econometric problem, we adopted the following procedure. The probability of signing an agreement on PRP/PFP in period *t* is assumed to depend on the characteristics of the firms in period *t-j*, which goes from 1991 to *t-1*. In this case, given the lack of balance sheet data for 1996, the companies with an agreement in 1997 were eliminated from the analysis. Moreover, we took into account the fact that some firms signed the agreement in 1996, 1995, or 1994.

4.3 The empirical results

From the econometric investigation emerge some interesting findings. First of all, we identify the strong relevance on the probability of signing an agreement of the dummies related to the sectors, trade union category, and geographical location (Table 11). The propensity of some local systems and/or some sectors to introduce more

PRP/PFP mechanisms than others can be explained by the different bargaining policies adopted by the local and/or sector trade union organisations and by the Employer Associations. These dummies explain a significant proportion of the probability of adoption. Secondly, the firm's size matters. In fact, the inclusion of size dummies or of the number of employees and sales variable, tends to increase significantly the model's explanatory power.

With reference to the economic factors which can explain the probability of signing an agreement, we obtained the following results. The relevance of the incentive mechanism is confirmed by the econometric analysis. In fact, the level of productivity (PROD1K), measured as the ratio between value added and employees, shows a negative statistically significant effect on the probability. This is consistent with both most international studies, and some Italian contributions (Prosperetti – Ravanelli – Caironi (1996); Del Boca – Ichino (1993)). Moreover the capital/labour ratio (KL) shows a statistically significant effect like the investments per employee and the capital/product ratio. This finding confirms the presence of: (1) restructuring processes (Biagioli – Curatolo, 1997) and (2) firms with higher capital intensity and more advanced technology. Another variable which captures the presence of the incentive mechanism is the rate of growth of the unit labour cost (TCCLUP1K): firms with higher unit labour costs tend to adopt PRP/PFP for two different aims, that is, to introduce wage flexibility and to increase labour productivity.

It emerges from our analysis that the redistributive mechanism is also relevant. In particular, we identified two profitability variables which positively affect the probability of signing agreements on PRP/PFP: that is, the rate of profit (MT) and the growth rate of value added (TCVAK). Moreover, a productivity variable – the growth rate of labour productivity (which should capture both the existence of a distribution mechanism of the benefits of technical progress and any improvements in production efficiency) is positive and statistically significant. The positive effect of these variables confirm the role of gain/revenue/profit-sharing motivation and therefore is consistent with other contributions (see for example Cainelli – Fabbri – Pini (1999c); Del Boca – Capaiuolo (1997) and Prosperetti – Ravanelli Caironi (1996) for productivity; Del Boca – Ichino (1993) and Prosperetti – Ravanelli – Caironi (1996)).

With regards to the risk sharing motivation, we adopted a methodology similar to Prosperetti – Ravanelli – Caironi (1996) and Cainelli – Fabbri – Pini (1999c). Moreover,

we carried out an analysis similar to Erikson – Ichino (1994). The aim of this latter analysis is to find the possible influence of an expanding or contracting environment on the probability of adoption. We found evidence that some indicators are statistically significant, but the sign of the effect is not always the expected one. The first variable which turns out to be positive and statistically significant is the growth rate of financial burdens (TCFINBURK). Growing financial exposure seems to push the firm toward the adoption of risk sharing mechanisms. Other variables related to the indebtedness (total or financial) of the firm does not show more convincing results. With regards to the environment within which the firm operates (Erickson – Ichino, 1994), we have found that favourable market conditions do not affect the probability of adoption, while unfavourable market conditions affect the same probability negatively. Therefore, these findings do not confirm the role of risk-sharing motivation.

We obtained some results in relation to the concessionary bargaining motivation, already emphasised in some Italian contributions. With regards to the cost of labour per employee, or gross compensation per head (WAGEPK), we found a positive and statistically significant effect. In other words, firms with a high compensation level would be more likely to introduce a flexible compensation mechanism. This result confirms the positive effect found in Del Boca – Ichino (1993), but not the negative effect found in Del Boca – Capaiuolo (1997) and Prosperetti – Ravanelli – Caironi (1996).

Finally, we also considered an indicator of sector concentration: that is, an Herfindhal index (HHS). This indicator turns out to be positive as well. A higher sector concentration is associated to a lower probability of adoption. One interpretation of this finding is as follows: the firms that we analyse are mainly located within an economic and productive environment characterised by the extensive presence of industrial districts and local systems of small and medium size firms. Therefore, these firms benefit from Marshallian externalities and agglomeration economy effects.

In order to exploit the panel structure of our dataset, we estimated the base regression by utilising a random effect Probit model. The results of this analysis are twofold. First of all, we confirm the role of some context variables such as size, sector, category, and geographical location in explaining the probability of adoption of PRP/PFP mechanisms. Secondly, from this analysis it emerges that some company

economic variables remain broadly significant, while others are no longer significant. Anyway, the sign of the coefficients does not change.

Without neglecting the role of company economic variables, these findings underline the role played by the institutional behaviour of employer associations and trade unions, and by the sector and the scale. The latter can be considered a proxy for the technology.

With the aim of finding further confirmation of our analysis, we also empirically analysed the role of industrial relations in the adoption of PRP/PFP mechanisms. In fact, for a subset of 334 companies of the sample, we have some additional information on the industrial relations. The information concerns the bargaining on issues such as: (a) information transmitted to the organisations of workers' representatives within the company; (b) availability of company balance sheets; (c) presence of joint committees; (d) work organisation; (e) working-time schedule; (f) training; (g) economic deal (structural company compensation, production bonus, super minimum, lump sum bonus).

The econometric analysis allows us to show the role played by the climate of industrial relations (table 11)[15]. In fact, the specification adopted confirms the relevance of context variables, such as the economic sector, the union category and the geographical location as well as the firms' size. Some economic variables related to incentive mechanisms, the redistribution of productivity and profitability, and concessionary bargaining, turn out to be statistically significant. Moreover, the explanatory power of the model increases significantly adding variables related to bargaining on information, work organisation, working-time schedule and training: these have a positive influence on the probability of adoption, with the exception of the bargaining over working-time schedule. Furthermore, the presence of joint committees and the availability of balance sheet data affect adoption positively. These results show a climate of industrial relations favourable to the introduction of schemes of economic participation and participation in decision-making, and in this sense favourable to the adoption of PRP/PFP. Finally, further characteristics of bargaining on economic issues appear to be associated *negatively* with the introduction of PRP/PFP, specifically the bargaining over compensation increases in fixed amounts, reversible and otherwise,

[15] The relative estimate is [6], for which the robust *probit* estimator was utilised.

such as structural company compensation, production bonus, super minimum and lump sum bonus.

All these factors greatly increase the explanatory power of the model, without, however, reducing the influence of the environment and context variables introduced previously, or eliminating the influence of economic variables. These latter appear to play a marginal role in the process of adoption.

5. Conclusions

In this paper we have presented the results of one of the most comprehensive empirical studies ever carried out in Italy on decentralised bargaining after the agreement of July 1993. In particular, we have analysed the decentralised bargaining carried out during the period 1994-1997 in Emilia Romagna, one of the most industrialised and highly unionised regions of Italy.

Some of the results of this investigation can be summarised as follows. The diffusion of PRP/PFM mechanisms shows the success of these new compensation schemes in Emilia Romagna involving more than 60% of the companies in which bargaining takes place. Moreover, this phenomenon also concerns small and medium sized firms. At the same time, our investigation suggests that traditional compensation practices continue to be experienced within the remaining 40% of companies, whereas a mix of traditional and innovative practises can also be found within firms where PRP/PFP was introduced.

A further element of our analysis concerns the 'quality' of the bargaining at company level. From our analysis it emerges that this 'quality' is higher within companies where PRP/PFP was introduced. In other words, 'quality' of bargaining and PRP/PFP are co-evolving together in Emilia Romagna since 1993.

Another interesting finding is that we have identified a significant link between characteristics of the company bargaining and the degree of participation embedded in the PRP/PFP mechanism. The presence within the firm of a system of industrial relations aiming to increase the involvement of workers in the decision-making process tends to be translated into a variable compensation scheme with a greater participation content.

The econometric investigation, aiming to identify the variables which explain the probability of adoption of PRP/PFP mechanisms, confirms some of these results. The

analysis suggests that context and the industrial relation variables substantially increase the explanatory power of the model, even though the impact of the economic variables cannot be completely excluded.

To conclude, compensation flexibility through PRP/PFP mechanisms – as analysed in this paper - can have a relevant function to increase company competitiveness. However, this process can take place in different ways. Within the defensive flexibility framework, PRP/PFP mechanisms can act through unit labour costs reduction or through price adjustment in response to product market changes. On the contrary, within the innovative flexibility framework, the PRP/PFP mechanisms require workers to be co-responsible and involved in the decision making process. Moreover, they should share some of the company targets. From the recent experience of decentralised bargaining carried out in Emilia Romagna it turns out that an innovative flexible model has apparently not emerged. However, neither has a strong defensive flexibility model emerged, to the extent to which both bargaining sides have chosen a certain degree of rationalisation of a potential distributive conflict.

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Table 1: General characteristics of company bargaining

Bargaining issues	**Companies with PRP/PFP**	**Companies without PRP/PFP**	**% of Total Companies**
- Number of companies	935	540	1,475
- *%*	*63,4*	*36,6*	*100,0*
Characteristics of company bargaining (%)			
- Information provision to the union	77,22	48,89	66,85
- Transmission of the company balance sheet to the union	10,16	2,04	7,19
- Presence of joint commissions	23,85	2,78	16,14
- Structural company compensation	9,30	17,04	12,14
- Production bonus	26,63	37,78	30,71
- Super minimum	5,67	9,63	7,12
- Lump sum bonus	28,66	24,63	27,19
- PRP/PFP: with additional lump sum bonus	9,09	-	5,76
- PRP/PFP: with delay clause	16,79	-	10,64
- PRP/PFP: Renewal	10,27	-	6,51
-- PRP/PFP: Replacement	5,03	-	3,19
-- PRP/PFP: Integration	5,24	-	3,32
- PRP/PFP: for the purpose of reductions in social contributions	10,91	-	6,92
- PRP/PFP: Implementation delay	1,71	-	1,08
- PRP/PFP: Revocation	0,32	-	0,20
- Work organisation	25,35	19,26	23,12
- Working-time	48,13	48,15	48,14
- Training:	25,13	8,89	19,19
Those -- with general formulation	20,86	6,67	15,66
-- with specific formulation	4,17	2,22	3,46
-- linked to changes in work organisation	2,57	1,11	2,03
-- linked to study-work programs	0,21	0,19	0,20
-- linked to the introduction of PRP/PFP	0,75	-	0,47

Source: our calculation on IRESCO database.

Table 2: Distribution of PRP/PFP with reference to trade union category, local system and company size

Trade union category	Total	Local system	Total	Firm size (employees)	Total
Food	124	**Bologna**	176	**1-19**	74
Chemicals	137	**Ferrara**	38	**20-49**	278
Commerce	52	**Imola**	22	**50-99**	206
Finance	16	**Rimini**	58	**100-249**	206
Building	49	**Parma**	98	**250-999**	119
Metalworking	484	**Piacenza**	21	**1,000 +**	47
Printing	11	**Reggio Emilia**	182	**nd**	5
Textiles	56	**Forlì**	23		
Transport	6	**Ravenna**	45		
		Cesena	22		
		Modena	170		
		Outside ER	80		
Total	***935***		***935***		***935***

Table 3: Distribution of indicators with respect to company size

Company size (employees)	Indicators of Group I	%	Indicators of Group II	%	Indicators of Group III	%
1-19	26	35,62	42	57,53	5	6,85
20-49	111	32,46	206	60,23	25	7,31
50-99	106	33,44	185	58,36	26	8,20
100-249	122	29,12	247	58,95	50	11,93
250-999	89	37,55	127	53,59	21	8,86
1,000 +	46	37,70	62	50,82	14	11,48
Nd	9	42,86	9	42,86	3	14,29
Total	*509*	*33,25*	*878*	*57,35*	*144*	*9,40*

Table 4: Distribution of the agreements in accordance with the indicators

Type	% Agreements with indicators of Group I	% Agreements with indicators of Group II	% Agreements with indicators of Group III	% Agreements with indicators of Group I & II	% Agreements without indicators
%	*43,10*	*55,94*	*13,69*	*19,14*	*24,39*

Table 5: Consolidation and indicators group

Group of indicators / Degree of consolidation in the companies		No	< 50%	>50%	Total
No. Of Companies		711	92	132	935
%		76,04	9,84	14,12	100,00
% Companies without indicators (24,385%)		*79,82*	*4,39*	*15,79*	228
% Companies with indicators (75,615%)		*74,82*	*11,60*	*13,58*	707
Group of indicators	**Denomination**	**No**	**< 50%**	**>50%**	**Total**
Total		*74,82*	*11,60*	*13,58*	*707*
I	***Indicators of profitability***	*78,16*	*9,93*	*11,91*	*403*
II	***Indicators of productivity***	*71,32*	*13,19*	*15,49*	*523*
III	***Indicators of efficacy - efficiency***	*62,50*	*16,41*	*21,09*	*128*

Table 6: Variability of flexible compensation with respect to company size

Company size (employees)	Base	Min - Max	0 - Min - Max	0 - Max	Yes - No	Absolute	*Index* (*)	Coeff. of variation
1-19	31	19	11	6	2	5	0,32	1,05
20-49	81	94	49	29	11	14	0,37	0,84
50-99	48	69	48	23	5	13	0,41	0,74
100-249	31	75	50	37	8	5	0,45	0,61
250-999	17	45	30	14	1	12	0,46	0,64
1,000 +	1	26	11	5	1	3	0,47	0,50
nd		2	1	2			0,54	0,42
Total	*209*	*330*	*200*	*116*	*28*	*52*	Average	
Total (%)	*22,35*	*35,29*	*21,39*	*12,41*	*2,99*	*5,56*	*0,41*	*0,73*

Legend

The term **Base** refers to lump sum bonus (in fixed amounts) and to the case in which the variable compensation is less than 5% with respect to a lump sum bonus (in fixed amounts).

The term **Min – Max** refers to a premium with a lower limit and an upper limit, for which anyway a fixed amount is distributed to the worker independently of his/her performance.

The term **0 - Min - Max** refers to a variable compensations system for which a given performance is required to obtain the premium, and subsequently the premium increase in an interval **Min – Max**.

The term **0 – Max** refers to a compensations system for which the premium is totally variable with the presence of an upper limit.

The term **Yes - No** refers to premium distributed only if a given performance is realised.

The term **Absolute** refers to a variable compensations system with limits not well defined.

The **Index** of variability of the bonus, presented in the table, was obtained on the basis of every typology of variability previously considered, going from no variability (Base), to maximum variability (Absolute) maximum.

Graph 1: Value of variable compensation with respect to company size (%CCNL)

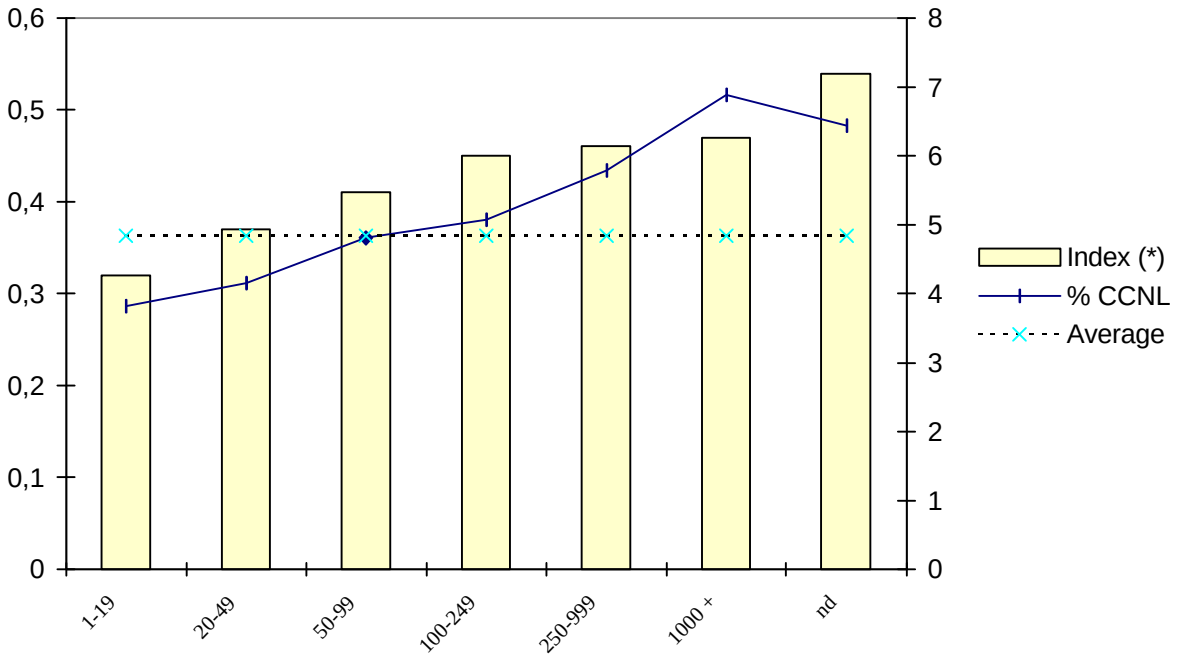

Table 7: Indexes with reference to trade union category

Trade union category	Participation	St. Dev.	Risk-sharing	St. Dev.	Traditional Incentivation	St. Dev.
Food	0,454	0,122	0,365	0,157	0,610	0,218
Chemicals	0,464	0,146	0,353	0,153	0,592	0,222
Commerce	0,427	0,129	0,466	0,171	0,499	0,195
Finance	0,415	0,101	0,508	0,141	0,500	0,134
Building	0,432	0,116	0,363	0,127	0,533	0,241
Metalworking	0,459	0,155	0,393	0,161	0,479	0,206
Printing	0,445	0,111	0,420	0,161	0,586	0,199
Textiles	0,421	0,132	0,407	0,126	0,545	0,193
Transport	0,323	0,060	0,567	0,170	0,457	0,147
Total	*0,452*	*0,144*	*0,390*	*0,159*	*0,522*	*0,215*

Table 8: Indexes with reference to firm size

Company size (employees)	Participation	St. Dev.	Risk-sharing	St. Dev.	Traditional Incentivation	St. Dev.
1-19	0,388	0,151	0,424	0,161	0,508	0,205
20-49	0,429	0,146	0,401	0,158	0,522	0,224
50-99	0,444	0,145	0,389	0,156	0,504	0,220
100-249	0,483	0,133	0,366	0,161	0,547	0,219
250-999	0,474	0,130	0,389	0,165	0,536	0,192
1,000 +	0,517	0,132	0,376	0,145	0,495	0,195
nd	0,510	0,126	0,490	0,132	0,463	0,208
Total	*0,452*	*0,144*	*0,390*	*0,159*	*0,522*	*0,215*

Table 9: Indexes with reference to territorial areas

Local system	Participation	St. Dev.	Risk-sharing	St. Dev.	Traditional Incentivation	St. Dev.
Bologna	0,479	0,158	0,369	0,152	0,515	0,198
Cesena	0,433	0,114	0,514	0,147	0,533	0,234
Ferrara	0,509	0,133	0,299	0,158	0,572	0,213
Forlì	0,479	0,172	0,333	0,204	0,527	0,178
Imola	0,507	0,123	0,471	0,174	0,518	0,188
Modena	0,406	0,124	0,406	0,153	0,611	0,200
Piacenza	0,393	0,045	0,473	0,102	0,293	0,131
Parma	0,446	0,127	0,412	0,159	0,516	0,237
Ravenna	0,371	0,106	0,460	0,144	0,493	0,212
Reggio E.	0,472	0,163	0,338	0,151	0,504	0,221
Rimini	0,418	0,104	0,451	0,161	0,453	0,224
Outside ER	0,491	0,137	0,392	0,138	0,500	0,195
Total	*0,452*	*0,144*	*0,390*	*0,159*	*0,522*	*0,215*

Table 10.1: Distribution of companies, database IMPERO.

	Distribution of companies with PRP/PFP	
	Total Manufacturing Industrial Companies	***Examined Companies***
Province of Emilia-Romagna		
Bologna	26,73%	26,05 %
Ferrara	3,63%	3,66 %
Forlì - Cesena	5,94%	5,70 %
Modena	24,09%	24,97 %
Piacenza	4,51%	5,02%
Parma	9,57%	8,96%
Ravenna	5,17%	5,43 %
Reggio Emilia	18,15%	17,64%
Rimini	2,20%	2,58 %
Total	100,00%	100,00%
Company size (employees)		
1 – 99	51,38	51,70
100 – 249	32,89	32,97
250 – 999	13,86	13,03
> 999	1,87	2,31
Total	100,00%	100,00%
Total	**909**	**737**

Table 10.2: Distribution of industrial companies with PRP/PFP, database IRESCO.

	Distribution of companies with PRP/PFP	
	Total Manufacturing Industrial Companies	***Examined Companies***
Province of Emilia-Romagna		
Bologna	21,49%	24,83%
Ferrara	4,30%	5,70%
Forlì - Cesena	4,53%	4,03%
Modena	19,63%	20,81%
Piacenza	2,44%	4,03%
Parma	10,34%	8,72%
Ravenna	4,30%	5,03%
Reggio Emilia	19,72%	22,15%
Rimini	5,35%	4,70%
Outside Emilia-Romagna	7,90%	-
Total	100,00%	100,00%
Company size (employees)		
1 – 99	60,39%	41,28%
100 – 249	22,88%	38,59%
250 – 999	11,85%	16,78%
> 999	4,41%	3,35%
n.d.	0,47%	-
Total	100,00%	100,00%
Trade union category		
Food	14,40%	8,39%
Chemicals	15,91%	20,13%
Building	5,69%	4,36%
Metalworking	56,21%	58,72%
Wood	1,28%	1,01%
Textiles	6,50%	7,38%
Total	100,00%	100,00%
No. total of companies	**861**	**298**

Table 11: Basic econometric analysis and variables of industrial relations(*)

	Probit model	*Probit model with t / t-1*	*Random effects Probit model with t / t-1*	*Probit model with annual dummies and t / t-1*	*Probit model only for PRP/PFP companies with indicators and t/t-1*	*Probit model with industrial relations variables and t/t-1*
	[1]	*[2]*	*[3]*	*[4]*	*[5]*	*[6]*
Variables						
Constant	-0.864**	-0.630**	-0.535**	-	-0.734**	2.713**
D100_200	0.381**	0.326**	0.351**	0.311**	0.355**	0.548**
D200_500	0.518**	0.505**	0.496**	0.495**	0.555**	0.154
D500	1.239**	1.167**	1.192**	1.132**	1.236**	0.922**
SIND2	-0.680**	-0.706**	-0.879**	-0.632**	-0.635**	-0.583**
SIND4	-0.643**	-0.449**	-0.973**	-0.325**	-0.584**	__
DB	0.449**	0.511**	0.473	0.487**	0.423**	__
DI	-0.721**	-0.606**	-0.633**	-0.604**	-0.571**	__
DJ	__	__	__	__	__	-0.870**
DK	__	__	__	__	__	-0.926**
DM	0.267**	0.308**	0.174	0.380**	0.343**	-0.453**
DN	-0.324**	-0.331**	-0.765	-0.193	-0.637**	-0.780**
DMO	0.171**	0.134**	0.174	0.131**	0.124**	-1.302**
DRE	0.493**	0.377**	0.371**	0.378**	0.307**	-1.371**
DFE	0.754**	0.722**	0.681**	0.743**	0.728**	__
DRN	1.211**	1.210**	1.283**	1.207**	1.272**	-0.453
DPR	__	__	__	__	__	*-2.144***
DBO	__	__	__	__	__	-1.687**
HHS	-2.771**	-5.216**	-0.204**	-6.306**	-4.664**	-5.177**
MT	0.00013*	0.00013	-0.00000008	0.00010	0.0001**	-0.000217
TCVAK	0.0010**	0.0008**	0.0009	0.00078**	0.00081**	-0.001144
KL	0.130**	0.136**	0.0021	0.129**	0.123**	0.0756
PROD1K	-0.0021**	-0.0035**	-0.000047	-0.0030**	-0.0033**	-0.0032*
TCPROD1K	0.0012	0.00071**	0.00064	0.00078**	0.00087**	0.00087*
WAGEPK	0.0085**	0.0059**	0.00007**	0.0082**	0.0047*	0.0148**
TCCLUP1K	0.0011*	0.0023**	0.00165	0.0021**	0.00063**	-0.0022**
TCFINBURD	0.0007**	0.0005*	0.00058	0.00045*	0.00092**	-0.00007
D91	__	__	__	-0.623**	__	__
D92	__	__	__	-0.622**	__	__
D93	__	__	__	-0.641**	__	__
D94	__	__	__	-0.846**	__	__
D95	__	__	__	-1.104**	__	__
INFO	__	__	__	__	__	*0.165*
WOB	__	__	__	__	__	*0.206***
WTB	__	__	__	__	__	*-0.335***
ON-JT	__	__	__	__	__	*0.274***
JC	__	__	__	__	__	*0.825***
BALSH	__	__	__	__	__	*0.582***
SC	__	__	__		__	*-0.788***
PB	__	__	__	__	__	*-0.871***
SM	__	__	__	__	__	*-0.873***
LSB	__	__	__	__	__	*-0.568***
No. of observations	*3685*	*3327*	*3327*	*3327*	*3127*	*1447*
Chi2	*433.98*	*369.04*	*92.67*	-	*364.46*	*375.82*
-Log Likelihood	*2217.39*	*1915.84*	-	*1890.21*	*1693.74*	*490.80*
Pseudo R2	*0.108*	*0.103*	-	-	*0.112*	*0.347*

(*) Method of estimation: robust PROBIT (significant at 90%, significant at 95%).*

Table 13: Legend

Variables [1]	***Denomination***
EMPL	Number of employees
SALES	Annual sales
VA	Value added
MT	Technical margin: gross operative margin / net investment
ROE	Return on equity
PROD1(2)	Labour productivity: value added (or sales)/ employees
IMTEC	Net investment
CL	Labour-cost: value added - gross operative margin
WAGEP	Gross compensation: labour cost / employees
ICAP	Capital intensity: net investment / employees
KL	Capital-labour ratio: net investment / labour cost
CLUP1(2)	Labour-cost per unit of output: labour cost / labour productivity
FINDEBT	Financial debt: financial burden /net assets
FINBURD	Financial burden
HHS	Herfindhal Index
AMBCON AMBESP	Value of the estimated coefficient if < 0 (if > 0) in the regression of the company performance over the time trend, 0 otherwise
INFO WOB WTB JC BALSH	Information provision; bargaining on work organisation; bargaining on working-time; presence of joint commission; transmission of the company balance sheet to the union
ON-JT ON-JTG ON-JTS ON-JTWOB OUT-JT ON-JTPR	Bargaining on training; Bargaining on training only on general principles/lines; Bargaining on training on specific principles/lines; Bargaining on training linked to changes in work organisation; Bargaining on training linked to study-work programs; Bargaining on training linked to the introduction of PRP/PFP
SC PB SM LSB	Structural company compensation; production bonus; super minimum; lump sum bonuses
D50 D50_100 D100_200 D200_500 D500	Number of employees: < 50; 50-99; 100-199; 200-499; > 499
DA	Food, Beverages and Tobacco (ISDB Oecd code: FOD)
DB	Textiles and Clothing (ISDB Oecd code: TEX)
DC	Leather Industries (ISDB Oecd code: TEX)
DD	Wood and wood products(ISDB Oecd code: WOD)
DE	Paper and paper products, printing and publishing (ISDB Oecd code: PAP)
DF	Petroleum and coal (ISDB Oecd code: CHE)
DG	Chemical products (ISDB Oecd code: CHE)
DH	Rubber and plastic products (ISDB Oecd code: CHE)
DI	Non-metallic mineral products (ISDB Oecd code: MNM)
DJ	Metal products, except machinery and transport equipment (ISDB Oecd code: BMA)
DK	Machinery and equipment (ISDB Oecd code: MEC)
DL	Electrical goods and office machines (ISDB Oecd code: MEL and MIO)
DM	Transport equipment (ISDB Oecd code: MTR)
DN	Other manufacturing industries (ISDB Oecd code: MOT)
SIND1 SIND2 SIND3 SIND4 SIND5 SIND6	Trade union category dummies: food (DA); textile (DB, DC); building (DD, DI); printing (DE); chemicals (DF, DG, DH); metalworking (DK, DL, DM, DN)
DRN DFO DRA DFE DBO DMO DRE DPR DPC	Province dummies: Rimini; Forlì-Cesena; Ravenna; Ferrara; Bologna; Modena; Reggio Emilia; Parma; Piacenza

Note: 1) In tables 11 and 12, where the denomination of the variables includes the capital K, this means that the variables are taken in real terms, while TC before the denomination means that the variables are expressed at the rate of change.