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Flexible Wages in Workers' Controlled Firms

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Summary

The motivation that underlies this work is the desire to analyse the institutional arrangements of workers' co-operatives in order to find valid and viable institutional solutions that need to respect at least two constraints. On the one side they must be compatible with the basic principle of industrial co-operation that, in turn, are usually directly linked to the socialist and egalitarian tradition, in its more libertarian streams aiming to a decentralised community development. On the other side, they are bound to be respectful of the theoretical insights given by the modern theory of the firm and to lead to a sane economic development.

One of these arrangements is just wage flexibility in workers' co-operatives. The topic is not new in itself. The specialised literature shows a clear awareness of average income variability in this type of firm. For this reason my work is not aimed at uncovering a feature of workers' controlled firms. Its objective is to put this feature in working institutional terms. The institutional solutions that will be outlined below are intended to reconcile various necessities and to respect different constraints, while guaranteeing the pursuing of the objectives of co-operation.

More specifically it allows for the existence of a basic institutional structure where the same rights and duties are attached to the position of all the members in the organisation. Workers become residual claimants and acquire the right to decide about the distribution of the surplus and the investment projects. All the relevant decisions within the firm are taken by workers' representatives, with a likely reduction of the risks incurred by workers on the job. These nice features have an obvious counterpart in more responsibilities for workers, an increased risk-bearing, the requirement of a more participatory and "consummate" co-operative attitude etc...

For these reasons, my argument is not exclusively linked to the mere income variability, but passes through various stages outlining a fairly complex institutional structure where wage flexibility is a crucial feature. The setting outlined is very similar to the one actually existing in the group of co-operatives located in Mondragon, Basque Regions, Spain.

First of all a new definition of property rights is required, where workers, instead of shareholders, become residual claimants. This quite radical modification of property rights is justified by the centrality that labour enjoys in socialist principles. The surplus in co-operatives is bound to have a similar role to the one of the profit in capitalist firms. Therefore, the shares in the surplus that workers enjoy are necessarily saved at least partly in order to finance new investments. In this respect, the role of individual accounts and collective reserves will be highlighted. In this work self-financing is considered, contrary to other significant sources, an unavoidable feature of workers' co-operatives.

The right to obtain shares of the surplus is matched by the necessity to share in a substantive way the economic risks faced by the firm too. Without the profit and the control over the firm being assigned to a third party (the employer), no other subject apart from workers has a real economic interest in subjecting himself or herself to the incertitude of variable returns.

Finally, workers can become residual claimant and can accept to bear the economic risks of the firm only if substantive control over the key economic variables is granted to them. They would be likely to refuse risk bearing and to renounce to a higher, but highly uncertain income if they were not granted control. The rule "one member, one vote", often chosen by existing workers co-operatives, seems to be the most appropriate to give a prominent role to labour and to grant control to workers.

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1. Introduction

Much of the economic literature on the labor-managed firm suffers from failures to specify clearly the institutional arrangements which the authors have in mind.
Jensen and Meckling (1979, 475)

It has been discussed for a long time now; how to obtain a combination of incentives and income distribution that can be viable in a firm organised as a workers' co-operative. This paper will discuss the opportunity and viability of flexible wages and how they represent a possible interesting solution as experimented in some co-operatives or groups of co-operatives with the aim of obtaining a more central role for labour in production organisation and shifting the rights to the residual from capital to labour. This analysis of flexible wages will also be a good occasion to treat wider and more traditional themes, such as the opportunity for workers to partake in the economic risks of the firm and the opportunity to self-finance the firm by workers. Whilst the latter topics have already been widely treated in economic literature (the reader can see, for example, Vanek, 1996a,b, Dow 1987, 1993a, 1996a,b, Ellerman, 1984, Fleuerbaey, 1993, Alchian and Demsetz, 1972, Jensen and Meckling, 1979), there is not a specific analysis of wage flexibility within the ambit of risk sharing and self-financing. Different approaches are possible at the theoretical level. In this paper I will focus mainly on two aspects of the problem:

- how flexible wages can be justified in the context of the *theory of property rights*
- the possible relationships between flexible wages and the *theory of governance structures..*

Within this paper an important role will also be played by the analysis of case studies. The example of the workers' co-operative movement in Mondragon, Basque regions, Spain will be introduced several times in order to support and complement my theoretical arguments. The authors that have most prominently studied the Mondragon case are Logan and Thomas (1982), Bradley and Gelb (1981, 1983), Ellerman (1984), White and White (1991) and Morrison (1997).

It is convenient to start from the example represented by Mondragon and then to pass successively on to a more theoretical approach.

2. A Real Case of Wage Flexibility: Mondragon

2.1 An Introduction to the Organisational Set-Up of Mondragon

This brief introduction is not intended to be exhaustive, but it should serve as a helping note for readers not acquainted with workers' co-operatives and with the Mondragon experiment. I will give special importance to this co-operative experiment, but not because it is particularly representative of the organisational structure of Producers' Co-operatives (PCs). Actually, these groups of firms show organisational arrangements that are quite peculiar, if not unique, among PC movements. The reason for the introduction is that it is particularly relevant for the topic treated in this paper. The expert scholars on this topic are unanimously in accord in assigning to the Mondragon experiment a special role for the relevance of the results obtained and for the subtlety of the institutional solutions devised. A comparative study of various cases of PCs groups would be a very interesting task as well, but it will not be pursued in this paper¹.

All the PCs in Mondragon are governed with the rule "one member, one vote" that defines the basic right of each singular worker to participate on a perfectly egalitarian basis to the definition of objectives and to the partition of burdens and rewards within the firm. The governance of the firm is not exercised directly by workers (often co-operatives have a high number of members). The general assembly, comprising all worker members, elects representatives that constitute the board of directors (*junta rectora*). In turn, the board of directors appoints the management. There are precise rules that fix the terms and the duration of each institutional role, individual and collective. I have no space, here, to expound them².

It is important to note that both the board of directors and management are given a special role in accord with their institutional position. Briefly, the whole co-operative workforce (general assembly) is entitled to elect the board of directors, to take decisions

¹ A very interesting article that gives numerous comparative insights at the empirical level is the one by Bonin, Jones and Putterman (1993).

about the most important events for the life of the group and to make changes in the basic institutional rules of the group. The board of directors makes all the relevant decisions concerning the policies followed by the individual firms with respect to production, finance and marketing. Finally, the management is entitled to make all the relevant operational decisions on a day-by-day basis and is held accountable to the board of directors, which, in turn, is held accountable to the general assembly of workers. This institutional structure is intended to be a viable type of industrial democracy, where the rights held by each individual worker need to be as valued as the efficient organisation of production and with market competition. Especially relevant is the right granted to managers to freely make organisational decisions, without the possibility of the individual workers to question them on an ongoing basis. This institutional arrangement was traditionally unwelcome in social experiments because the centrality of labour in the production organisation was supposed to imply the right to limit managerial arbitrariness in decision making. However, the direct involvement of workers in the decision making process is likely to lead to a fatal lack of operational co-ordination. Numerous community experiments undertaken in the past have cited this lack of co-ordination as a major cause of failure.

Within Mondragon, changes in the policy of the firm and in the technical solutions adopted are tapped through precise institutional channels and cannot be decided if not at the prescribed dates. Rules devised to deal with extraordinary events (economic crisis, institutional changes, waves of strikes etc...) are well defined, even if they have hardly ever been used.

The institutional and organisational set-up has its interface in the financial structure and investment policy. Also the income distribution is regulated in accord with the principles of co-operation. Wage flexibility is the aspect of the financial and distributive design of the group to which now I turn.

2.2 The Institutional Structure of Flexible Wages in Mondragon

In the co-operatives in Mondragon, wages are divided into two parts. The first one is fixed and it is calculated on the basis of a standard scheme of career advancement.

² For a precise and exhaustive exposition of the complex institutional structure existing in the Mondragon

The mechanisms of calculation of wage levels and wage differentials are quite complex and comprise rules concerning both the advancement in career positions and wage increments. This internal organisation can be nicely reconciled with the theory of internal labour markets studied by Williamson, Watcher and Harris (1996). The bureaucratisation and formalisation of career advancement in Mondragon clearly resembles the same type of phenomenon that characterises modern companies and corporations in advanced capitalism. The presence of an internal labour market responds to the necessities of internal organisation, workers selection and incentive giving highlighted by the same authors. This part of the wage is known in advance and cannot be subjected to revision if not in extreme cases of firm crisis or extraordinary increases in capital.

The second part of the wages, the one distributed at the end of the accounting period, is instead basically variable. The largest part of the surplus (profit) is distributed proportionally on wages³ and accumulated in individual accounts which are titled to individual workers and yield a yearly interest rate⁴. The part of the profit distributed on wages decreases when profits increase on the basis of a fixed formula. The remaining part of the surplus is retained in indivisible reserves that serves the financial needs of the single co-operatives and of the whole movement. The variable part of the wages is retained by the co-operatives (both in collective reserves and individual accounts) and used to finance new investments. The sums comprised in the personal accounts can be withdrawn in the case the entitled worker quits the organisation or retires. The co-operative is given the ultimate right to impose penalties (up to 30% of the individual capital quota) when the withdrawals of funds endanger the survival of the firm. If the co-operative undergoes losses, these are capitalised proportionally on individual accounts as well. It is clear, here, that workers bear a substantial part of the economic risk of their venture. This additional incentive effect could be one of the key elements

group the reader can refer to Thomas and Logan (1982).

³ Proportional subdivision is likely to be the best solution. If, for example, the surplus were distributed on the basis of an equal quota per head, then the quotas would be disproportionately big for low pay workers and not relevant enough for high ranking workers.

⁴ For an enlightening analysis of the importance of individual accounts in solving problems related to firm finance and risk taking, the reader can refer to Ellerman (1984, 876-880) who draws a comparison between the financial structures of the PCs in Mondragon and of the PCs in Plywood (USA - Pacific Northeast).

explaining the high productivity levels shown on average by the co-operatives in Mondragon.

3. Flexible Wages and Property Rights Theory

The issues at stake in property rights theory are, following Jensen and Meckling:

“... the specification of individual rights determines how costs and rewards will be allocated among the participants in any organisation. Since the specification of rights is generally affected through contracting (implicit as well as explicit), individual behaviour in organisations, including the behaviour of managers, will depend upon the nature of those contracts” (1996, 318).

The distribution of rewards and burdens cannot be independent of property rights. In a market economy one of the most relevant, if not the most relevant, property right is the residual claim on surplus. The point can be further illustrated by referring to Hart’s beliefs:

“Ownership of an asset goes together with the possession of residual claims of control over that asset, that is, the owner has the right to use the asset any way that is not inconsistent with a prior contract, a custom, or any law“ (1990, 160).

Hart is not clear enough in underlining that we need to decide what are the relevant assets taken into consideration. Since it is possible to imagine more than one asset to be given residual rights, and since the interests defended by owners of different assets can be in contrast with each other, the precise definition of the asset that is accorded residual rights is necessary.

Hart’s proposition is usually intended to refer, as the author himself does, to physical assets. More recent literature, such as Hodgson (1999a), and the neoclassical literature about human capital stress the importance of intangible assets that, in contemporary capitalism, are acquiring a more and more prominent role. In a knowledge intensive economy, physical assets lose at least part of their traditional importance and knowledge emerges as the real source of the production of wealth (see also Thurow,

1999). In both cases (physical and intangible assets) residual rights are crucial because they represent one of the main economic incentives given to single individuals and collectives. Typically, the actors will accept to face a reasonable amount of economic risk in order to reach those objectives. Hart continues:

“[...] residual rights of control are important because, through their influence on asset usage, they affect ex-post bargaining power and the division of ex-post surplus in a relationship. This division, in turn, affects the incentives of agents to invest in that relationship“ (1990, 161).

It is clear how a different definition of relevant assets and residual rights can deeply affect a contractual relationship by shifting incentives and interests and by changing accordingly the behaviour of agents both at the investment level and at the level of ex-post partition of benefits. In CFs this right is attached to equity. In PCs it should be attached to labour.

The theory of property rights has been given a renewed central role very recently also by Williamson (1998, 25-29). He proposes a four layered scheme where property rights (second layer) appear as the most important building block of an economic system. They follow after and are dependent on informal institutions, customs, traditions, norms and religion (first layer). The defence of the relevance of property rights in the context of transaction cost economics (TCE) demonstrates the strict connection between property rights and governance structures (third layer). The reason is that TCE has traditionally given to alternative governance structures a central role in the definition of comparative efficiency and performance of firms. The type of work I am proposing can be nicely reconciled with the TCE research program if we do not forget that, when we are dealing with different types of property rights bundles, the simple comparison of different governance structures is not sufficient. An investigation in the evolution of property rights is called for. As Williamson indicates in his scheme, this type of evolution is likely to intervene over periods that are, on average, much longer than those concerning governance structures and whose links with traditions and customs are often hard to be explored scientifically.

Regarding the case of Producers' Co-operatives, they respond to the need of giving a more prominent role to labour within the production organisation, both in terms

of status and decisional rights and in terms of job security, profit sharing etceteras. These aims are explicitly stated among the basic principles founding the Mondragon movement. Actually it was the intended aims of the first co-operators to create production organisations where the role of labour was prominent with respect to the one of capital. This principle, that is strongly normative in character, was translated in precise rules that came to constitute a fairly complex contract. I am willing to examine one single rule: the willingness to distribute the surplus on wages and not on equity. My knowledge is not sufficient to know if this rule was introduced consciously and purposefully. In any case, it is possible to study it ex-post in its theoretical justification and in its empirical consequences⁵. Given its centrality, labour was meant to become the residual claimant. The variable that was chosen as representative of the labour contribution in the production process was the wage of the individual workers⁶. I will only note that this choice seems to be completely reasonable, since the wage is the best economic proxy that can represent the value produced by each worker. Therefore, the surplus was distributed proportionally on wages that became variable. We will see in the next sections that this fact is likely to have very strong links with the rules regulating the governance structure⁷.

Here it is instead important to stress the high incentive potential that this type of measure is likely to have. Workers come to accept the greatest part of the economic risk

⁵ For a comprehensive history of the early decades of the Mondragon movement the reader can refer, to Thomas and Logan (1982). The text by Whyte and Whyte (1991) can be useful to follow the evolutions intervened at Mondragon during the eighties. Finally, the books by Kasmir (1996) and MacLeod (1996) and Morrison (1997) give the most recent reports about the group including the important reforms that took place at the beginning of the nineties and that gave birth to the contemporary unified institutional structure of the group (*Mondragon Corporacion Cooperativa*).

⁶ It is important to note a consequence of the distribution of the surplus on wages. As Ellerman rightly notices: "...the current workers do not own the right to appropriate the whole product produced by future workers. This is implemented by the legal structure that assigns the right to the current economic profits to the people currently working in the firm" (1984, 871). This way the surplus would be distributed on a flux variable (the wage) and not on a stock variable (the capital). This structural modification needs careful analysis insofar as it is extraneous to the practice of the most part of firms currently existing. Jensen and Meckling (1979, 481-484) analyse the problem in critical terms. This type of partition of the surplus would cause a reduction of the temporal horizon for investments, with under-capitalisation as an obvious consequence. A possible solution to this problem is given in note no. 8.

⁷ In the literature I did not find a specific treatment of this problem even though it is possible to find traces of its presence in various authors. The one that comes closest to its correct definition is Ellerman. He introduces neatly the problem without going into an explicit analysis: "Part of the economic net income would be imputed to the members in proportion to their labour (with some agreed-upon measurement of "labour", usually called "patronage"), with the remainder credited to the collective account" (1984, 880).

faced by a firm operating in a competitive environment. Since losses are reflected on wages as well, the worker has a strong interest in pursuing the objectives of the firm in order to increase his or her capital quota and not to reduce it. Of course, workers have similar types of incentives, even in CFs, insofar as the flourishing of the firm is the best way to achieve job security, wage increases etceteras. However, the sharing in surpluses and the associated risk represent a further stimulus. At this point, it is important to treat the issue of profit sharing, risk taking and self-financing in a more systematic way, attempting a comparison between the structure of incentives present in CFs and in PCs.

4. Risk-Bearing in Workers' Controlled Firms

This paragraph about risk taking in PCs is included because the viability of flexible wages is strictly linked to the necessity for workers to accept a substantial part of economic risk. In our case the economic risk is constituted by the surplus (or the loss) defined at the end of the period with respect to the fixed wages paid during the same period.

A widespread doubt concerning the possibility of risk bearing for workers is linked to risk aversion. The argument affirms that only wealthy persons can overcome the feeling of risk aversion that hinders the investment of relevant sums of money in risky assets. Since, on average, workers are not wealthy enough, their risk-averse attitude would constitute a serious obstacle for the undertaking of investment plans, especially in capital intensive firms (Bonin, Jones, and Putterman 1993, 1309).

To answer these doubts, we can refer again to the Mondragon experiment. The investment policy followed by this group of co-operatives demonstrates that workers' risk aversion does not need to prevent sufficient expenditure in durable assets. The institutional structure in which workers happen to save and invest capital plays a crucial role in finding a solution to this problem. First of all workers are more likely to accept considerable degrees of risk bearing in PCs than in CFs because in the former they can exert stricter control over the investment policies and can retain a wider part of the surplus. It is well possible that, in other institutional settings (e.g. within CFs), workers show a much higher degree of risk aversion. Workers' risk aversion in CFs could be due not very much to their intrinsic characteristics, but to the lack of control over the investment plans and to the lack of residual rights undergone in those settings.

Disregarding the institutional environment in which workers' behaviour is observed can be a fatal mistake. Workers are likely to accept risk bearing only when their interests are sufficiently protected. Partial or complete control over the financial variables of the firm could constitute a necessary condition for inducing workers to accept risk sharing. The devising of proper rules and institutions able to protect savings and investment in risky assets becomes crucial⁸.

Besides the very possibility for workers to accept a certain amount of economic risk, there is a second problem. Workers cannot diversify their investments as it happens on financial markets. They are bound to invest their learning capabilities in their job or in a limited numbers of jobs. This type of rigidity exposes the workers to the dangers linked to a certain type of job more than financial markets are exposed to the dangers linked to a particular investment project. Here, it should be noted that the above mentioned rigidity is intrinsic to labour itself, both in CFs and in PCs. It does not characterise exclusively the latter. The right way to find an answer to this type of problem is to ask what type of firm gives workers more job protection. Here the membership granted to workers in PCs gives advantages with respect to CFs. While CFs show wage rigidity and high fluctuation in employment, PCs tend to show a more rigid demand of labour and less fluctuation in employment. CFs will tend to react through hiring and laying-off of workers. PCs will react to demand shocks with fluctuations in wages and number of hours worked. This characteristic has often been considered a negative one for PCs because it cause a more rigid short-term supply curve. It should be noted instead that it guarantees more job protection. New employment will be produced most of all through new investments in existing firms and creation of new firms, whilst

⁸ We understand that the institutional environment is not irrelevant by comparing different cases of groups of PCs too. It is shown by Bonin, Jones and Putterman (1993, 1307-1311), the level of capitalisation and risk taking varies widely across different groups of PCs. They often exhibit insufficient capitalisation and scarce workers' risk bearing. This result is in contrast with the Mondragon case where the level of capitalisation and risk sharing is appropriate to obtain efficiency and to sustain market competition. The comparisons of the rules that guide the accumulation of capital are crucial in this situation. For example, where collective reserves gather all or the main part of firm savings, under-capitalisation is likely to occur, because workers will not have the perspective of appropriating personally the returns of their investments and will tend to reduce the surplus quotas reinvested in the firm. Moreover, when workers are free to distribute the firm's reserves in the form of current income myopic objectives can prevail and current expenditure may come to substitute investments. It is probably not a case that in the Mondragon group the surplus is distributed on accounts entitled to individual workers, and the capitalised savings cannot be withdrawn before quitting the firm or retirement. The empirical evidence seems to leave the door open to

for CFs employment can fluctuate widely even in the short-run⁹. The conclusion is that this second objection is basically not-relevant with respect to the type of risk taking analysed in this paper.

If, on the one hand, workers in PCs will have to bear a substantial part of the economic risk, on the other hand they acquire control over important variables linked to production and distribution. By varying wages and effort, they can drastically reduce the effects of demand shocks. Workers in CFs are often obliged to accept the closure of the ailing firm in which they work without having the possibility to intervene actively to save it. The losses caused by unemployment can be much higher than the costs undergone in the attempt to restructure a firm. Furthermore, workers' control over the organisation of production will decrease the risks of injuries during the work. Their control over accounting variables will reduce the risks of opportunistic statements about the situation of the budget. In CFs contrasting interests and asymmetries in information about relevant variables will lead more often to confrontation. In PCs more economic risk is traded off with less risks linked to the production process and to the distribution of income. Here, the conclusions can be that the effective risk (both economic and non-economic) borne by workers in CFs is possibly higher than in PCs.

One of the main reasons why worker-members of self-managed firms acquire the right to appropriate the surplus is just because they accept to bear a substantial part of the economic risk. This means that the surplus they share, when it is positive, is a net gain with respect to workers in capitalist firms. In other words, the level of wages for worker-members is roughly similar to the wages enjoyed by workers in capitalist firms. However, the former obtain the right to a share of the surplus that the latter do not have. It is difficult to find any other economic justification for this net gain not linked to risk-bearing¹⁰.

risk taking under workers' control, provided a suitable institutional environment is devised. On the contrary, substantive workers' risk taking in CFs can encounter serious if not fatal difficulties.

⁹ These are some of the most important results of the Ward (1958), Domar (1966), Vanek (1970) model that constitutes the core of the neoclassical theory of labour-management.

¹⁰ Besides criticisms addressed toward risk taking, there are also criticisms addressed toward **self-financing**. Only to cite two among the most important authors, Vanek (1996a) and Fleuerbaey (1993) contrast this possibility.

Vanek shows a negative attitude because workers' ownership itself would lead to the concentration of wealth in the hand of a limited part of the working population. This new elite would tend to choose the hiring of workers and would become a new capitalist class. I do not have space here to analyze in depth

Finally, nothing prevents workers from saving their wages and investing in diversified assets, as already happens for workers in CFs.

5. Profit Sharing in CFs and PCs

A wide literature about profit sharing within capitalist firms has been developed so far. The issue of flexible wages in PCs is crucially linked to the problem of surplus sharing too. Important insights can be gained by analysing the theory of profit sharing in capitalist firms and by translating the relevant variables (when it is possible) in terms of workers' controlled firms. This section has the aim of obtaining this result and its elaboration is relevant with respect to the main topic of the paper. The author that studied most comprehensively the possibility and consequences of profit sharing in CFs is Weitzman (1996). The theory of profit sharing is strictly intertwined both with the principal-agent theory (Jensen and Meckling 1976, 318) and with the theory of economic risk in market economies.

As Mancinelli and Pini (1999) state, profit sharing can help to solve both the agency problems pointed out by Jensen and Meckling (*ibid.*, 318-320) and those deriving from asymmetric information and contrasting interests between principal and agent. In this case, the principal is interested in increasing the agent's productivity and in reducing the possibility of shirking and other types of opportunism, without particular links with the overall economic risk faced by the firm in the market setting. When

this objection. I will only note that proper institutional solutions (such as mandatory personal accounts for all the worker members and reduced utilization of the employment contract for PCs) can eliminate this danger even in the presence of workers' ownership.

Fleuerbaey's argument against self financing affirms that workers who have to invest their own funds and subsequently share the profits with the newcomers will under-invest because they will not want to share the fruits of their investments with new members who did not bear the sacrifices. I think this problem can be overcome again with the proper institutional arrangements. With personal saving accounts within the firm, workers will retain the property of the sums invested. New members will strengthen the firm, and, accepting the Ward-Vanek-Domar results, they will increase the average earnings of the firm. The surpluses accruing to the sums invested by incumbent workers can be considered money earned by the whole organisation, with the active participation of new members. Therefore, the surpluses will be correctly distributed to the whole membership and not only to the older members who financed the investments. Incumbent workers will not object to new investments because they retain the ownership of those funds and will reap the (increased, because of the Ward-Vanek-Domar argument) fruits of their investments when they remain within the firm. When they retire or quit, they will get the invested money and the capital gains back and they will be able, if they wish, to invest that money in different projects. This way the problem of the time horizon for investment in PCs can be dealt with in economic terms (see also above note no. 4).

economic risk is taken into consideration instead, a profit sharing scheme can be devised not only in the interest of the agent (employer), but also in the interests of all the other actors present in the firm who, in this respect, have the same objectives. A good performance of the firm in the market is relevant to all of them. We want to understand how to distribute the economic risks in such a way to obtain the best possible results.

The fact that the motivations backing the behaviour of agents in the two cases are different does not mean that they cannot coexist at the same time. Actually, they are likely to coexist and in real situations it can be difficult to distinguish the two effects. Unless precise knowledge about the reason for certain behavioural attitudes is available, straightforward conclusions are often not granted.

My strategy here will be to expound the various possibilities of profit sharing schemes and then to comment on them with respect to the distinction between principal-agent theory and the theory of economic risk. This distinction will be related both to capitalist firms and producers' co-operatives.

5.1 Participation in Profits, But Not in Losses

The first possibility that we can imagine is present when the employer arbitrarily assigns productivity premiums to individual workers or to groups of workers. This possibility is often seen as a solution of the agency problem in the relationship between shareholders and managers in capitalist firms. Since the role of managers is very delicate and important, the employer will have a strong interest in motivating hired managers and in reducing the agency costs by means of incentive schemes. When there are no contractual constraints that link the premiums to the performance of the managers (or of the workers in general), the agent is not particularly induced, ex-ante, to increase her effort because she can fear opportunism on the side of the principal. If instead the premium is granted ex-ante, this time opportunism on the side of the agent is likely to be obtained.

An intermediate and more effective solution is to promise a precise increase in the basic wages accorded if specific targets are met. This solution can give valuable results and reduce agency costs if the agent has the possibility to verify the results obtained by

the firm. Trust between principal and agent can help to make the agent more dedicated. This can happen, for example, when there are personal and well established relationships between the two. These conditions are often fulfilled between employers and managers, but more rarely between employers and normal employees. Furthermore, since in this hypothesis the workers participate in profits, but not in losses, there is not a clear relationship between this type of profit sharing scheme and the overall economic risk faced by the firm. The avoidance of losses is not present as a stimulating incentive.

In a capitalist firm we have the additional constraint that the surplus is assigned to shareholders and this represents the main reason for shareholders to start and run the firm and to bear the economic risk. Premiums cannot endanger shareholder incentives, and, therefore, are necessarily limited with respect to the overall dimension of the surplus. The effects of this incentive scheme is likely to be limited, even if positive. The problems present in CFs can be less severe in PCs. Here, the interaction between workers and their representatives on the board of directors is closer and trust can develop more easily. In the absence of an employer, agency problems can arise only between management and rank and file workers. However, given the democratic set-up of the governance structure, it is dubious if managers can be considered to have diverging interests with respect to workers even in the presence of asymmetries in information. The theoretical premises of agency costs become weaker. Finally, workers in PCs can be granted much wider residual rights, and the economic incentive represented by surplus distribution will be stronger.

When the promise of a share in the surplus is given not to the individual worker, but to the whole collective of workers, or to groups of workers, the well-known free-rider problem will also be present, both in CFs and in PCs. In the presence of collective incentives, each singular worker will find it convenient to reduce effort and reap the part of the surplus produced by someone else (the reader can see, for example, Alchian and Demsetz 1972, and Weitzman and Kruse 1990). I will not enter in this long lasting controversy, often examined in the context of repeated prisoners' dilemma games (Alchian and Kruse, 1990). I will only observe that workers may well choose the collusive solution and act as an individual who increases effort in order to obtain the expected share of surplus, provided residual rights are well defined and workers are able to calculate the part of the profit they will obtain. Self-interested workers will pay

attention first of all to the dimension of the surplus share obtained with respect to their own wage. They will not pay too much attention to other workers shares of surplus and this fact is important to prevent feelings of envy toward workers in higher rank positions.

The opportunity of profit sharing is explicitly not recognised by Alchian and Demsetz (1972). They affirm that the necessity for supervision and control of the production process renders a central monitor a necessary institution. Decentralised monitoring would incur higher costs and increased shirking possibilities. The reward that is likely to be appropriate for the central monitor is the claim over the residual. In his 1984 article, Putterman (172-175) correctly answers to Alchian and Demsetz. He points out that the necessity for supervision and monitoring do not imply in any sense a unique monitor different from workers' representatives and does not even imply the necessity to give residual rights to a subject different from workers. Different kinds of agencies can perform the same tasks as well¹¹. The legitimate criticisms addressed to the scarce incentive represented by surplus distribution in workers' controlled firms could be overcome in the presence of a well defined set of property rights that respects both the interests of the individuals and the pursuing of collective objectives.

¹¹ Alchian and Demsetz move, on these grounds, direct objections to the possibility of labour-management. The most important one concerns the non-viability of a pure rental system where workers rent the assets necessary to run the economic concern by themselves. If costs deriving from rental are higher than costs undergone with ownership, individuals will choose to buy assets and not to rent them to labour-managed firms. Jensen and Meckling (1979) analyse as well the possibility of self-management. Their critical point of view resembles the one by Alchian and Demsetz. They present a detailed list of insightful objections to the possibility of implementing a pure rental system based on their theory of agency costs.

The answer to Jensen and Meckling is that first of all the main possibility they take into consideration is the pure rental system that is only one of the possible property arrangements for self-managed systems and actually one of the less observed in reality. Even if we admit that the possibility of renting assets is not the most economical, there remains the possibility of direct worker ownership and loan financing. The main objection opposed to the former possibility is again the one concerning the time horizon for investments. In note 8 I attempt an answer. Secondly, the authors affirm that the renting of assets is not efficient because workers will not take care of these assets like their owners and this fact will increase agency costs. However, they are silent about the major costs caused by the owners of physical assets not taking care of the labour they hire in capitalist firms. Who hires labour (the employer) is likely not to use it as properly as its natural owners, namely workers, and this fact can have negative social effects.

I cannot go through all the objections moved by Jensen and Meckling here. I will only note that almost all the possible obstacles they envisage have been overcome in Mondragon. In general, all the criticisms presented, though very useful to make us aware of possible problems on the road to industrial democracy, fall short of demonstrating the non practicability of labour-management.

Whilst my arguments rest very much in the dominion of classical economics with the assumption of self-interested individuals, I do not exclude arguments that focus their attention on social values such as trust and peer group relations to explain workers' commitment and discipline in co-operatives. Bradley and Gelb (1981), for example, follow a strategy similar to mine, but introduce also an analysis of vertical and horizontal supervision where worker-manager trust and the workers' commitment to self-management play a crucial role. The two types of argument are not necessarily in contrast with each other. The reconciliation can pass through qualified concepts of methodological individualism, such as the idea of institutional individualism defended by Agassi. Another possibility is to resort to theories of social behaviour that try to reconcile individualism and collectivism, highlighting the mutual interaction between the individual and the structure, where both individuals and structures play an important role in defining the final outcomes of social interaction. Here the names of Giddens (1976, 1984) and Hodgson (1999b) are particularly significant.

5.2 Participation Both in Profits and Losses

The second possible incentive scheme is one in which the workers, individually or collectively, are entitled to partake the surplus when the economic results are positive, but they have to bear part of the loss when the results are negative. When no contractual constraint compels employers or managers we have again an absence of incentives, *ex ante*, to increase effort both in CF and PC.

This second solution will potentially have both the features of reducing agency costs and improving the performance of the firm because of risk sharing. However, employees may not accept this solution in CF because it would expose them to the risk of employers' opportunism still more than in the first incentive scheme. If the employer controls the whole organisation of the firm (for example by appointing the managers) employees do not have valid channels to control the acceptability of the decisions taken, even in the presence of published results (accounting make-up is always possible). The charge of losses would be especially confronted by strong suspicion. The foregoing argument could represent the crucial explanation of the fact that, in the most part, CF wages are fixed or variable only in a very limited way. Lack of control and risks of opportunism on the side of employers and managers are likely to push workers not to

accept wage flexibility with respect to market risks. Furthermore, in CF residual rights are assigned to the employer. As in the first incentive scheme the profit quota distributed to workers (individually or collectively) cannot be very relevant. Therefore, this quota is not likely to exert special incentive effect if it is extended to the whole collective of workers. Again, it can be effective if it is addressed only to part of the collective of workers (e. g. managers). However, in this case shirking problems with connected supervisory costs and limitations of efficiency will persist with respect to the other workers.

The situation can be substantially different in the PCs case. Here, workers are usually granted all or a substantial part of the control on the governance structure of the firm. Since workers elect the board of directors, and managers are usually part of the collective of workers as well, feelings of trust are more likely to develop. For an empirical confirmation of this effect in the case of the Mondragon movement, the reader can refer to Bradley and Gelb (1981, 221). Workers have more effective channels to control the results and accounts of their firm. Moreover, the part of the surplus granted to workers in PCs is usually much larger than in CFs. In this type of situation, the perspective of obtaining a share in the surplus can become appealing and can have a relevant effect on the behaviour of workers, even if the risk of loss bearing is contemplated as well. If the average expected surplus is sufficiently high, the incentive can be strong enough for risk-averse workers too.

5.3. Workers are Owners of Equity Shares

The third possibility for profit sharing schemes is the participation of workers in the equity of the firm. Equity can be transferred to workers as a premium or sold. In the former case the effect on productivity can be relevant. However, if workers are not guaranteed the transfer of equity they may not have ex-ante incentives to increase effort, unless the distribution of equity is linked to the overall performance of the firm. In any case, the transfer is bound to be limited for the same reasons already mentioned.

Since in CFs equity carries the right to vote for the formation of the board of directors, workers can never become the owners of the majority of votes, as this fact would expose the other shareholders to the risk of their opportunism. Bradley and Gelb (1981, 215) stress the fact that workers could vote increases in wages so strong as to

eliminate capitalist profits altogether. Workers' opportunism prevents large workers' shareholding in capitalist firms. As in the previous cases, limited categories of workers (e.g. managers) may especially benefit from equity transfers, but the overall result is likely to be limited. If minority equity packages are transferred to workers not as a premium, but sold, then workers will have to invest resources in a risky asset that is not under their control. Risk aversion is also likely to limit their investment due to the necessity to diversify financial assets. Even here, only limited amounts of equity are likely to be transferable and the effects on productivity, even when positive, are bound to be limited.

As far as PCs are concerned, in most cases workers own all or a substantial part of the capital of their firm. In PCs workers own risky assets not necessarily in the form of equity. On the contrary, it is difficult to find a precise correspondence between equity in CFs and risky assets in PCs. Often these kinds of assets are held in indivisible collective reserves. In other cases, like in Mondragon, the reserves are divisible, but the surplus is distributed proportionally on wages and retained within the firm in order to finance investments. Most importantly, this type of risky asset cannot be sold, being attached to the membership of a particular worker. The membership itself cannot be sold as well. In a system like Mondragon, if the property rights on the individual accounts and their yields were sold they would then constitute loans that give a fixed return (the one calculated at the end of each year on individual accounts). The sale of the right to the share of the surplus calculated proportionally on wages seems to be incompatible with the very structure of the system. It would constitute the renouncement to the residual rights by the workers. Moreover, it would create an equity-like asset whose concentration in the hand of non-worker third parties could be incompatible with workers' control.

One of the nicest consequences obtained by distributing the surplus proportionally on wages is an equilibrate, even if by no means completely egalitarian, partition of the total wealth accumulated by the economic system over the whole population of workers. If workers ceded their rights over the residual this effect would be lost and concentration of capitals would appear again.

Coming now to equity proper, various problems are likely to arise in PCs trying to issue equity, both in the case it is directed to worker members only and in the case it is sold to external financial supporters:

- *a) Only worker members are allowed to own capital shares of the firm;* capital quotas in the form of equity can be bought or sold. There is an incentive to create a market for capital quotas in order to obtain a wider share of the surplus. This type of market is perfectly functional to a capitalist environment, but in a co-operative environment, it would likely lead to an excessive concentration of wealth that is not easily reconcilable with the democratic organisation of production. The wealthiest workers would have a strong incentive to limit the admission of new members and to hire employed labour. The system would converge toward a capitalist one, as has already happened in the case of some of the biggest Plywood PCs in the USA Pacific Northwest. When the surplus is distributed on wages, the problem should not show up for the reasons given above (the right to the wage and to a share of the surplus is personal and not saleable).
- *b) Capital quotas are sold to external financial supporters;* the issuing of equity would reduce the incentive of workers to reinvest the surplus in their firm. Workers would favour, for example, wage increases. Workers' opportunism clearly constitutes a disincentive for external financial supporters to buy capital quotas. The sale could remain viable if PCs were able to guarantee returns higher than the average in order to cover increased risks for investors. In this case, however, financial support would be obtained by increasing costs, with a competitive disadvantage with respect to CFs. Workers would need to accept a cut in wages for their firm to remain competitive. This type of situation is hardly compatible with the spirit of workers' emancipation which animates co-operative ideals. The economic mechanism outlined would not avoid a concentration of wealth at the social level and, possibly, would aggravate it. It is doubtful if the right to manage the firm would be valued so high as to accept lower wages. Moreover, exchanges would remain unstable and, if the risk of opportunism arising from asymmetric information and

contrasting interests is too severe, the deals would not be made at all, eliminating the very possibility of equity in the case of PCs.

It should be noted that, in principle, this type of problem should not exist in the case of flexible wages with capitalisation of the variable part. Here, wages and surplus are assigned to the same subjects. Contrasts of interest between different subjects is absent, even if there is an obvious trade off between consumption and investment. Cuts in wages are not harmful for workers any more, insofar as they mean higher personal accounts, more investments and capitalisation.

It is not the aim of this paper to compare further risky assets in CFs and PCs. The topic deserves to be developed more satisfactorily. The discussion about equity should not make us forget that external financial support for PCs is possible in the form of loans remunerated with a fixed interest rate. The main objection to this possibility is the one advanced, for example, by Dow (1996, 183). He affirms that workers are likely to be rationed on the credit market because they cannot offer enough collateral as a guarantee. Very simply, the answer could be that if the individual worker is not able to offer enough collateral, a competitive PC may well be able to do so.

6. Flexible Wages and Governance Structure. Workers' Rights and the "One Member, One Vote" Rule.

In the institutional setting presented above, the centrality of labour is reaffirmed in the double and mutually reinforcing fashion of the rights to a fixed wage and to the residual on the one side and of the right to manage and control organisational variables on the other. The latter aspect has not been treated extensively in this paper. However, its centrality is doubtless both for the theory of worker controlled firms and for the theory of the firm in general. While an exhaustive treatment of the problem of governance in PCs' would by far trespass the aims of this work, I will dedicate this section to the linkages between financial and distributive solutions such as flexible wages and the governance of PCs insofar as the two elements are intertwined. I believe this extension is necessary because the new structure of property rights that I have delineated will also have effects on the governance of the firm. At the same time the governance of the firm needs to take into account the new incentives and the economic relations arising from the new property rights. Most importantly, risk-bearing and self-

financing are likely to require control over the relevant variables within the firm by those subjects that bear the relevant risks and financial burdens, namely workers. It should be noted that workers, in the type of PCs described, have at stake both financial resources and their own labour power, becoming the only relevant actors within the firm.

As it may be known, most workers' co-operatives attach the same kind of rights and duties to all members on the basis of purely egalitarian ideals. There are various ways in which the egalitarian principles can be translated into formal rules. For example, one of the solutions proposed in the past was the equality in the distribution of income (Proudon). This solution can be easily criticised on economic grounds since it would eliminate all incentives to increase effort and to acquire skills. Furthermore, it would not take into consideration the inequalities existing in biologically transmitted capabilities. As a result, this solution has hardly ever been adopted and its applicability cannot be theoretically granted. Modern and contemporary co-operatives tend to adopt a solution that focuses on the *personal and inalienable rights* (such as the right to govern the firm and the right to appropriate part of the surplus). This is actually the solution adopted in Mondragon too, where the differences in economic remuneration can be very wide, but where all the members are granted the right to participate in their firm governance on a perfectly equal basis. The rule "one member, one vote" is meant to incorporate the core of the egalitarianism and it is a crucial element in the comprehension of the governance structure of PCs.

What are the possible links of this institutional setting with the issue of flexible wages? It is possible to start, again, from property rights theory. In Hart's (1990, 160-164) theory the attention is addressed to *physical assets*. Hart analyses the General Motors – Fisher Body merger that occurred in the United States at the beginning of this century. He concludes that the merger would not have occurred in the absence of the specific physical assets held by Fisher Body that allowed this firm to hold up General Motors for a fairly long period of time. General Motors eventually chose to integrate vertically with Fisher Body, although it had to pay an above market price for this merger. It should be noted that Benjamin Klein (1996) gives a quite different account of the same case. He focuses his attention on *organisational ownership* underlining the fact that not physical assets, but organisational ownership constituted the strong point that allowed Fisher Body to hold up General Motors. My position is nearer to the latter.

The reason is simply that organisational assets and human capital gave Fisher Body the possibility to hold up General Motors. General Motors could have invested in the physical assets necessary to produce car body parts without the merger with Fisher Body. However, the only way to acquire Fisher Body's organisational assets was the merger. Physical assets are more easily replicable than organisational assets. As Nelson and Winter (1982) stress, organisational assets (routines) may well be unique, even if imitation is possible. Physical assets are much less likely to be unique.

In his recent publication *Economics and Utopia*, Hodgson (1999) stresses the idea that *human capital* and *knowledge intensive labour* may well represent the future of economic development. Without going into the details of his argument, what is relevant here is that the focus of the attention, in the cited writings, shifts progressively from physical assets to organisational assets and, finally, to human capital as the crucial constituents of production. This point of view fits very well, for example, with the original plan of the founders of the co-operative movement in Mondragon. These founders explicitly designed a type of production organisation where labour and, therefore, human capital were to be the most prominent factors of production.

In a knowledge intensive economy it is impossible to create a precise hierarchy among workers on the basis of their acquired skills. There are difficulties in the measurement of these skills. The only variable able to discriminate among different workers' capabilities is their marketed value defined by their remuneration. This fact justifies wage differentials on the one side, and indicates the rule "one member, one vote" as the most reasonable institutional structure on the other side. It could be objected that the value of a skilled worker can be considered superior to the one of an unskilled worker even before the production process takes place and without the need to approximate the value of their products with their wages. This fact would justify a more prominent role for skilled workers in the governance of the firm. This conclusion, in my view, is flawed. Every type of job (even the simplest one) needs a specific personal knowledge (Hayek teaches).

Moreover, the results obtained do not rely only on education, but also on experience and innate capabilities. In the absence of a precise method to "rank" workers, the most sensible thing to do is to give every worker the same rights without preventing wage differentials. This rule does not discriminate among workers at the outset of the

production process, when their intrinsic qualities are unknown, but it allows for economic discrimination on the basis of the measurement of the results obtained¹². It represents, in my view, the best possible institutionalisation of the centrality of labour and human capital in the governance of the firm. It is in stark contrast with the rationale existing in capitalism, where absolute prominence is given to physical and organisational assets. The capital has a direct relationship with the capability to acquire these types of assets and consequently it is accorded the right to retain the surplus. Of course, individuals or groups of individuals embody the entrepreneurial activity, but their role is intrinsically connected to the operation of physical and organisational activities whose interests they represent. The existence of big corporations shows how, in advanced capitalism, the role once occupied by individual entrepreneurs is often substituted by anonymous shareholding and financial elite.

The solution proposed in this section retains a fairly strong respect for the economic value of the factors involved (contrary to many other socialist projects), insofar as it allows for market competition, and differential remuneration for different contributions. However, it can represent also a viable way to give to labour a central role in any economic activity, as required by the core of socialist and egalitarian principles.

7. Concluding Remarks

Some strong points emerge from the foregoing elaboration about the possibility and relevance of flexible wages as a solution to long lasting and long discussed problems concerning incentive giving and accumulation of capital in workers' controlled firms. The contrasts of interests that characterise CFs are reduced and new incentives are created for an increased performance of the firm.

On the premise that the viability and the results of this type of solution need to be carefully assessed at the empirical level, the theoretical insights given by the theory of property rights and by the theory of governance structures seem to constitute a good starting point for the justification of institutional experimentation in community development and decentralised socialist systems. The analytical study of institutional

¹² Marginal productivity of labour could be easily brought into the discussion, but my analysis is not using neoclassical tools.

arrangements such as flexible wages can give new impulse to the theory of economic democracy.

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