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*Targets and Tools in Variable Wages.
An Overview of Performance-Related-Pay*

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**TARGETS AND TOOLS IN VARIABLE WAGES:
AN OVERVIEW OF PERFORMANCE-RELATED-PAY SCHEMES[♥]**

by *Luca Crudeli*[♠]

Abstract

Since compensatory tools are strictly limited to the varied characteristics of labour market institutions, the economic literature has not yet developed a common terminology. When moving from one country to another, similar terms are used to refer to different tools (lump-sum bonuses, performance-related pay, incentive schemes, gain-sharing, profit-sharing, employee share ownership schemes, competence schemes). In order to qualify such a rich terminology, this work aims to analyse the numerous forms of variable wages, and to see how specific forms of performance-related pay (*tools*) respond to the specific needs (*targets*) of the firms. In fact, the relationship between employers and employees, especially in its most tangible form, the wage system, is the core of modern organisations today. Moreover, the global market has turned the systemic efficiency of the organization into a critical success factor for a company. Given similar environments, the practice of flexible wages has become, as of late, very popular in many countries, most of the time being deemed worthy of public subsidies. First seen as an instrument for facing the uncertainty tied to informational asymmetries, contained within the organization itself (*vertical uncertainty*), variable wages have been traditionally used also as a way for employers to share market uncertainty (*horizontal uncertainty*) with their employees. Aside from these benefits, economic literature has only recently started to investigate how particular kinds of incentive schemes may encourage a more direct participation of employees in the firm, improve the firm's competitiveness, and keep an eye on the development of competences. This last goal, indeed the most interesting, seems to be a response of great innovation to the problem of uncertainty (either *vertical* or *horizontal*).

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0. Introduction

With the rapid integration of international markets and the growing exposure of firms to foreign competition, the relevance of price and non-price competitiveness is increasingly important among all European countries. In fact, a consistent request for large increases in labour wage-flexibility has emerged. Within this price flexibility, the set of compensatory tools that can be categorized under the name of variable wages or performance-related pay is very dissimilar. Since these tools are strictly limited to the various characteristics of labour market institutions, the economic literature has not developed a common terminology. Perhaps due to traditional or legislative reasons, some forms of flexible wages can be very well established in some countries while being completely absent in others. Furthermore, when moving from one country to another, similar terms are used to refer to different tools (lump-sum bonuses, performance-related pay, incentive schemes, gain-sharing, profit-sharing, employee share ownership schemes, competence schemes).

For this reason and in order to provide the reader with some initial understanding of the analysis of the most recent changes that have occurred in the Italian compensation system¹, this work sets out a taxonomy of the different types of flexible wages, the *tools* identified in the literature.

The first step necessary for this analysis is defining *target* and *tool* respectively.

A *target* is a set level of performance that a firm intends to achieve. The main characteristics of a *target* are visibility and measurability². On the other hand a *tool* is a *lever* that can be used by management in order to push the firm toward a previously established *target*³.

A second preliminary step in the analysis is a closer look at the way firms structure variable wages. A firm's compensation policy can be broken into three independent dimensions for purposes of analysis – the *level*, the *functional form*, and the *composition* [Baker, Jensen, Murphy, 1988]. We can analyse this three component with regard to the classical textbook model of an individual work supply. The *level* of compensation is the expected total cost of the pay package to the employer, or the expected total value of the pay package to the employee. In this context the level of compensation only determines the quality and quantity of workers an organization can attract; in order to hire a worker a firm must offer at least the worker's opportunity cost or reservation utility. The *functional form* of compensation provides the definition of the relation between pay and performance, not to mention the definition of performance. In general, while the level of compensation determines *who* the firm can attract, the functional form determines *how the employees perform* once they are hired⁴. The functional form provides the performance incentive for employees, or the *tools* for employers; simple increases in the level of compensation will have no effects on effort or performance except the usual income (and substitution) effects in the labour-supply decision. Finally the *composition* of the pay package defines the relative amounts of the components of the package, such as compensation, quality of working environment, relationship with co-workers, leisure, etc.

¹ In particular we refer to what has happened in Italy after July 23rd, 1993, when Government and Social Partners signed a famous agreement whose aim was to promote the diffusion of pay for participation practices among firms.

² Good examples of *targets* are sales, piece rates, profits, and so on.

³ Good examples of *tools* may be productivity bonuses, profit or revenue sharing, and so on.

⁴ As we will see later on, some authors has pointed out the existence of a *sorting effect* on workers which should be generated by what we have defined here as the *functional form*. In this sense the functional form would not only determine *how* workers will perform after they are hired, but also *who* will be hired. Nevertheless, for the moment we won't take this kind of effect into consideration in order to allow a gradual exposure of the problems involved in the determination of compensation schemes.

Below are four primary characteristics that we must consider in analysing each form of wage flexibility within its respective *targets* and *tools*.

- 1) The nature of the indicators/parameters used in determining the share of flexible wage distribution: are they based on productivity, on the firm's economic and financial performance or on some other kind of indicators?
- 2) The comprehensiveness of the flexible compensation plans: does it involve the whole firm or just a single plant or product line?
- 3) The reference used in fixing those parameters: are they established upon a firm's performance history or a simple spot *target*?
- 4) The type and level of worker participation implied by the *tool*: is it solely economic in nature or does it include the chance to influence work organisation and the decision-making process?

On the basis of these characteristics, we have identified four different kinds of flexible wage *tools* and corresponding *targets*:

- a) Tools that have no explicit links with a firm's performance or workers' participation characterize the first set. The aim of these kinds of *tools* is to lower labour costs by reducing conflicts inside the firm and/or to redistribute part of the firm's *surplus*.
- b) A second set of *tools* is based on a firm's **productive performance or physical output** for a given level of product quality. The aim of this tool is to increase firm productivity through the use of incentive schemes.
- c) A third set of *tools* is based on a firm's **economic and financial performance**. The aim is mainly to redistribute increased revenues (*ability to pay*) and/or share the firm's risk with the employees.
- d) A last set of *tools* measures and rewards workers for **direct participation** in the firm's work organisation and stimulates the development of new abilities (*competences*) and professional skills.

A second aspect to consider in formulating our taxonomy is the way each tool deals with uncertainty. Our *tools* fall into two different categories: A) *Internal tools*, those applicable when parameters deal with firm's endogenous uncertainty⁵; B) *External tools*, those that are appropriate when parameters are in relation to a firm's exogenous uncertainty⁶.

The study is organized as follows. The first part is devoted to *lump sum bonuses* whose *target* is minimising the firms' internal conflicts and reducing union power (anti-unionism; concessionary bargaining motivation). In this part we also consider the case in which employers (managers) and employees (unions) collude in order to benefit from some tax relief eventually settled by the government [Wadwhani, 1988]. The second section of the paper deals with incentive schemes to increase productivity and physical output (*gain sharing*). These kinds of *tools* can motivate either a single agent to embody his principal's goals or a whole group of employees to co-operate with each other, potentially with trade-offs being identified between them. The third part of the paper is devoted to worker economic and

⁵ The theory of reference, in this case, is the principal/agent model and the uncertainty due to asymmetric information.

⁶ Exogenous uncertainty is generated by incomplete information, market failures and unpredictable demands shocks.

financial involvement schemes (*profit sharing* or *employee share ownership schemes*) whose aim is to share the firm's exogenous risk (which is typically supported by employers) with employees. In the last part of the paper we examined those *tools* that encourage workers' direct participation and acquisition of new professional skills⁷(*competence model*). We briefly analyse three different models of worker participation and conclude with a review of policy implications.

1. The “inflexible” flexible wage

Bonus systems, unlike many other innovations of the 1980's grouped under the label “concessionary bargaining”, have persisted and spread throughout the union sector, though their use has tapered off somewhat in recent years. Among the wage *tools* that we shall analyse, bonuses represent the least innovative form of flexible wage. In fact these systems are usually not explicitly connected to firm performance and often simply represent minor or even semantic modifications of existing methods of wage determination. In some cases, bonuses may be part of an evolution toward something radically different from the basic compensation system dominant during the post-war period.

On a general level we can distinguish between two different kinds of *targets* that can motivate the introduction of a lump sums bonus system: *a) explicit targets* and *b) implicit targets*. **Explicit targets** are declared aims that a firm intends to pursue with the consent of the concerned unions. Examples of this kind of *target* may include the encouragement of corporate growth and cooperation among workers, the redistribution of unexpected increases in firm profitability, or the advance of a performance related bonus. **Implicit targets** are indeed as important as explicit ones. The introduction of a bonus system can be, in fact, justified for several reasons, most of which are not always openly declared by firms. First of all a firm can employ bonuses in an anti-union strategy; through the payment of bonuses, the firm can prevent structural wage demands. Secondly, lump-sum bonuses can be used to dampen tensions when the firm intends to move from a traditional wage system to a flexible one. Finally, firms can implement bonuses solely to benefit from governmental subsidies or tax relief. Moreover, a general reading of the industrial relations environment reveals two apparent facts: management tends to view bonus systems as tools to lower labour costs, and unions generally oppose them⁸.

1.1 Lump-sum bonuses

“A lump-sum bonus in a union contract is defined as a contractual payment that does not go into the hourly base wage and is not explicitly tied to individual, group or company performance; contracts frequently specify more than one bonus payment over the life of the agreement, but the amount and timing of the bonuses are always specified at signing” [Erickson and Ichino, 1994, p. 184]. On the basis of such a definition we may identify two different types of lump-sum bonuses:

- a. Bonuses expressed in absolute values (e.g. a \$50 bonus). These kinds of bonuses are the same for every worker and are not connected to structural wages.

⁷ These kinds of *tools* can be considered the most innovative ones.

⁸ This is of course not the case when management and unions collude in order to set up a so called *cosmetic scheme*, as we will see later on.

- b. Bonuses expressed in relative values or percentages (e.g. 10% of a worker's normal earnings). These kinds of bonuses vary from one wage level to another.

Initially, in industries where all parties recognized the need to become more competitive, both of these lump sum payment systems, in lieu of base wage increases, gained reluctant acceptance in collective bargaining agreements. In this sense, they turn out to be a poor wage increase because they do not accrue and build up base wage as an hourly increase would. These considerations suggest, as a first approximation, that bonuses are just a one-shot tactic to avoid raising wages and a management strategy to eventually pay “*non-union wages in a union shop*” [Erickson and Ichino, 1994, p. 185].

The empirical evidence, in the cases of Italy and the UK, seems to support this theoretical frame [Baglioni, 1997; Fabbri, Melotti, Pini, 2000; Erickson and Ichino, 1994]. We can observe that bonus systems have been widely adopted in the UK, especially during the 1980's, after a decade of strong salary growth during the 1970's. In Italy, lump sum bonuses have been widely adopted following the July 23rd, 1993 governmental agreement; this was justified in order to introduce performance-related pay and to ease the transition from a traditional system to a more innovative compensation system. In fact, bonus systems can be seen as a temporary tactic that has evolved into an explicit incentive or profit sharing system. In contrast it can also be seen as a reversion to the old system of an automatic base wage that increases, once the real base rate has been sufficiently reduced. Generally speaking, the primary goal of bonus systems can be said to have been to avoid a climate of dissatisfaction among workers [Fabbri and Pini, 1998], especially when, after the introduction of a performance-related pay system, average wages have been lower than usual⁹.

In an interesting empirical work based on 455 British firms, Erickson and Ichino [1994, pp. 197-211] identify some main characteristics of lump-sum bonuses:

- a) Uncertainty measures appear to significantly affect the probability that a bonus contract is signed. The more uncertain a firm's environment (i.e. the larger the deviation of sales/assets from the trend in the year before the new contract compared to the five years prior, in other words the larger the variance of excess returns of the firm's stock compared to the recent past), the more likely it is that the firm will shift to a lump sum bonus contract.
- b) Bonuses are more likely to appear in concessionary environments. A worsening of previously negative performance increases the probability of implementing lump sum bonus agreements.
- c) Bonus contracts may also appear in expansionary environments; thus, an increase in positive performance also increases the probability of shifting to lump sum contracts.
- d) Large shocks in the year before the contract tend to increase the probability of observing a lump sum settlement.
- e) The average growth in total take-home pay is generally lower in bonus contracts than in traditional contracts.

⁹ On this subject Baglioni reveals that in her research conducted on 136 firms between 1985 and 1993 she found that in 39% of cases firms had introduced a performance-related-pay system at the same time as lump sum bonuses.

In Italy, a different dynamic is observed. The governmental agreement of the 23rd of July, 1993, which intended to promote the diffusion of performance-related pay, also increased the presence of bonus systems as a side-effect. A significant number of studies have revealed a wide diffusion of bonus systems in different local economic systems [Cossentino and Prosperetti, 1990; Fabbri, Melotti and Pini, 2000; Manera, Paolucci and Rossetto, 1999]. Several general points emerge from these works:

- I. Lump sum bonus agreements are widespread both before and after the July 23rd agreement [Cossentino and Prosperetti, 1990; Fabbri and Pini, 1998].
- II. After comparing sets of research data¹⁰, a slight change in the nature of bonus contracts is evident. After 1993 (the year of the agreement) and especially after 1996 (the year in which the government had implemented tax relief for agreements that were introducing performance-related pay), bonus systems are more often associated with performance-related pay [Cossentino and Prosperetti, 1990; Manera, Paolucci and Rossetto, 1999].
- III. There is a clear correlation between the firm size and lump sum bonuses. In larger firms, bonuses are less common than in smaller companies and tend to be replaced by gain-sharing or profit-sharing wage systems [Cossentino and Prosperetti, 1990; Fabbri, Melotti and Pini, 2000].

1.2 Lump-sum bonuses and cosmetic schemes

The tax relief on performance-related agreements implemented by the Italian government in 1996 seems to have been the cause of the so called *cosmetic schemes*, which have been analysed by Wadhvani [1988] as well as Estrin and Wadhvani [1986]. Due to habits and lack of familiarity, both corporations and workers have to face implementation and transitional costs in order to shift from a traditional wage system to an innovative performance-related one. Indeed, this is why the governments of those countries which intended to promote innovative systems (e.g. UK, USA) in the past have introduced tax incentives to encourage the spread of performance-related pay. However, even given tax incentives, it is always in the interest of firms and unions to mimic the traditional wage system. For this reason, workers and management can get together and agree on the total remuneration for each worker, as they do under a traditional wage system. They can use an estimation of profits in the coming year to calculate the expected value of the performance-linked (profit-linked) income. The base wage can then be set so that in combination with the profit-linked element it achieves the desired overall total (on average). Such a remuneration system turns out to have the same characteristics as a lump-sum bonus system, where the value of bonuses are decided during the bargaining process, thus *ex-ante* the firm's performance. In this sense wages are not flexible at all¹¹. Some interesting studies¹² reveal that cosmetic schemes are strongly present in several local systems in Emilia Romagna¹³. The following general points emerge from the latest set of empirical Italian studies:

¹⁰ Cossentino and Prosperetti [1990]; Manera, Paolucci and Rossetto [1999]; Fabbri, Melotti and Pini [2000]

¹¹ Or, in other words, they don't depend directly on firm performance.

¹² Fabbri, Melotti and Pini [2000]; Fabbri and Pini [2000]; Bianchi, Crudeli, Fabbri and Pini [1999]

¹³ Bianchi, Crudeli, Fabbri and Pini [1999] show that almost a third of the agreements that pretend to introduce performance-related pay in the local economic system of Reggio Emilia contain the characteristics of cosmetic schemes. More specifically those agreements defer the definition of how pay should be linked to

- I. During the 1990's, agreements that introduced any form of flexible wage (gain-sharing, profit-sharing, lump-sums, competence-schemes) have grown sharply in number but not in *bargaining quality*¹⁴. Firms indeed show a general resistance to organisational innovations.
- II. A significant number of agreements that introduce performance-related pay make explicit references to fiscal relief.
- III. The number of agreements which defer to specify how pay should be related to firm performance has strongly grown in the most recent years.

These three preliminary observations cast doubt over the way innovations have been introduced in the Italian wage system and whether firms have been able to assimilate them during the latest bargaining season.

2.0 Tools for boosting productivity

The first question that we should answer before analysing different incentive models is the following: what does “incentive” mean precisely? On a basic level an incentive is an economic *tool* system which, according to a predetermined scale, unequivocally connects a specific set of rewards to a range of possible working performances [Felicetti, 1994]. In contrast with traditional wage pay, rewards are not based on working hours (input), but on specific output-results. A “working performance” is what the firm expects from a worker in practical terms, while “rewards” are bonuses of monetary or non-monetary nature (like goods, services, honours).

Three main aspects characterize an incentive:

- a. what the incentive rewards is the “final result” of the worker’s performance, and not the performance itself;
- b. the connection between results and rewards must be clear to workers before they start the work and produce their performance;
- c. rewards must be one shot bonuses. Obviously, a repeated result can be repeatedly rewarded, but rewards can’t change the structure of the basic wage system [Felicetti, 1994].

Incentives also have a different nature according to the type of workers to which they are addressed. Managers, for example, are usually stimulated by a particular compensation scheme also known as “Management by Objectives” (MBO); salespeople, by contrast, often receive bonuses based on the amount of merchandise sold (commissions), while workmen may receive a remuneration bonus strictly based on their production performances (piece rates). Among all the different kinds of incentive tools we may consider, those which concern production and workers are the most relevant in literature. These types of schemes are usually based on piece rates or specific quality standards and they represent the logical and natural evolution of the “Tayloristic” way to organize a firm. However, on a theoretical basis it is really important not to confuse these kinds of schemes (which we call *gain sharing* schemes)

performance to a future agreement and at the same time they pay a fixed bonus under the heading of performance-related pay.

¹⁴ With the term “bargaining quality” we intend to indicate the bargaining of matters like: a) the sharing of information among workers and between employers and employees; b) the work organization and of production processes; c) the schedule of working time; d) the training of workers.

with the *lump sum* schemes we have seen before. The main difference between the two kinds is that in the case of *gain sharing* schemes, the relationship between rewards and performances is strong and well known ex ante the worker's effort has been produced, while with *lump sum* schemes no connection between effort and reward is needed.

2.1 Individual and group incentives: the gain sharing schemes

Gain sharing plans are one of the possible managerial tools for lowering production costs associated with labour. On a theoretical ground we can say that the main goal of this kind of scheme is to address the firm's internal uncertainty due to imperfect information and internal labour markets. In this sense an individual bonus scheme may encourage employees to share their information with employers, while group schemes may force them to share information amongst themselves. A *gain sharing* plan, however, can fit different needs of the firm. Besides boosting worker effort and firm productivity¹⁵ while also encouraging workers to share their knowledge and information with colleagues and/or superiors, they can soften inter-firm conflicts and reduce basic wages. Finally, jobs with performance-related pay generally attract workers of higher ability, generating a so-called sorting effect for new hiring [Booth and Frank, 1999].

Following the idea that the firm performance depends on workers' effort and effort is volatile rather than constant, this kind of bonuses are usually not consolidated and implemented in the fix part of the wage. In fact, even if these plans are typically promoted to workers as a way of increasing total compensation, workers are often concerned that bonuses may become substitutes for future wage increases that would have occurred in the absence of the plan. This fear is well justified and can be lead back to what in literature is known as the *no gravy theory of bonuses* [Kaufman, 1998]. In the classical textbook model of a competitive market, effort is usually not considered and worker utility depends solely on the compensation rate, which includes the basic wage plus any bonus. If the labour market is perfectly competitive and labour is homogeneous, all firms must pay the same market equilibrium compensation rate. Consequently any bonus would result in an equal reduction to that firm's basic wage rate relative to the wages paid by other firms for comparable workers [Kaufman, 1998]. In other words workers "pay" for bonuses in the form of lower wages and bonuses have no impact on compensation.

In the absence of perfect competition and free entry, bonuses may reflect firm or industry rents and may not be accompanied by reductions in the wage rate even if productivity is unaffected. In this case bonuses may merely be "add-ons" or "pure gravy".

In an interesting article based on empirical evidence, Kaufman [1998] shows that, more reasonably, a firm that adopts a gain sharing scheme hopes to obtain a greater effort from its workers. Since more effort implies a cost in worker satisfaction the firm is obliged to refund workers with a higher total compensation.

Incentive plans, as we define them, link pay to individual output, so that the theoretical frame to which they refer to is the classical agency theory.

The classical model of agency theory involves an agent who takes an action to produce a certain level of output. The principal owns the output but contracts to share it with the agent by paying a wage contingent on output (like it happens under an incentive scheme) [Gibbons, 1996]. If we neutralize the effect of any random negative event which might impact production and therefore wages, such as machine breakdowns and other problems beyond worker's control, by implementing an overlay of minimum guarantees, the uncertainty that

¹⁵ With the final result of lowering *real wages*.

still characterizes the level of output can be associated to two major issues: a) *moral hazard* and b) *adverse selection*.

Following Holmstrom's idea [1982, pg. 324] we may say that "*Moral hazard* refers to the problem of inducing agents to supply proper amounts of productive inputs (effort) when their actions cannot be observed and contracted for directly. *Adverse selection* refers to a situation where actions can be observed, but it cannot be verified whether the action was the correct one, given the agent's contingency, which he privately observes."

Both moral hazard and adverse selection are generated by internal information asymmetries within the firm. In other words, we could say that firms have an internal information market, where agents are monopolists of information, and principals can't purchase as much of it as they need. We will call this kind of endogenous inefficiency, concerned with firm's internal information asymmetries, *vertical uncertainty*.

Even if it is a robust instrument of analysis, the classical agency model doesn't consider some important issues [Gibbons, 1996].

- 1) *Performance measurement*: First of all it has to be stressed that there is a big distinction between the agent's total contribution to firm value and the agent's measured performance. Even well-informed insiders may find it extremely difficult to assess an agent's total contribution to firm value, because total contribution includes aspects of performance such as the effects of the agent's actions on co-workers and the long-run effects of the agent's current actions. Furthermore, to enforce a contract contingent on agent's total contribution, the parties would have to specify ex ante how this contribution has to be measured ex post (so that the measurement can be as fair as possible). These difficulties are assumed away in the classic agency model: the agent's total contribution is called "output", as though it could simply be counted at the end of the contract period. On a practical level, this issue implies great distortions. When measured performance omits important dimensions of total contribution, firms understand that they will "get what they pay for", and so may choose weak incentives in preference to strong but dysfunctional incentives.
- 2) *Implicit contracts*: A worker's total contribution to firm value may be impossible for a court to measure using a method specified ex ante, but well-informed insiders may nonetheless agree ex post on a particular worker's contribution. The great advantage of such ex post setting up is that the parties can take into account events that occurred during the contract periods that were not foreseen ex ante. Thus, it might be possible for the worker and the firm to use an "*implicit contract*" based on total contribution rather than an "*explicit contract*" based on distortionary performance measures. For example, the firm might promise to pay a bonus if the worker's total contribution exceeds a critical level. The problem is that the firm will be tempted to renege in order to pocket the worker's contribution and save the bonus.
- 3) *The ratchet effect*: A firm may reduce the piece rate if it learns that the job can be done more easily than was at first thought. This may cause an output restriction as workers' repercussion. Thus workers anticipate that the firm will ratchet the rate and so work slowly to prevent the firm from discerning the true pace at which the job can be done. In other words, it seems natural to consider an environment in which the workers have private but complete information about the job's difficulty and a worker's effort cannot be properly monitored.

Although the focus of gain sharing is on improvements in labour productivity and employee sharing in the cost savings, some forms of those schemes (like Scalton plans) often

provide for a modest degree of participation in control¹⁶ as well as for participation in the economic returns. Most gain sharing plans require an explicit formula and usually operate plant-wide to include all hourly employees. However, differences among gain sharing schemes include (1) the scope of the employees that are covered (normally non-managerial employees), (2) the formula of cost sharing, (3) the specific issues on which employees may make suggestions [Jones, Kato, Pliskin, 1997]. On a general level we can divide these schemes into two different groups: a) individual schemes and b) group schemes.

Individual incentive plans are strictly devoted to overcoming *vertical* uncertainty (between a principal and an agent). If mobility costs are sufficiently high, such that the incentive contract need not be negotiated due to a threat of quitting, then the insurance feature of the incentive contract dictates that the progression of wages should be internally designed by firms and independent of the future market conditions [Baker, Gibbs and Holmstrom, 1994].

At the same time, **group incentive plans** try to force employees to share information, not only with employers, but also with their colleagues. The efficiency of this kind of plans can be rendered ineffectual by the well-known *free rider problem*, but we will treat group incentives, free riding, and peer pressure later on.

2.1.1 Individual plans

Individual incentive schemes became quite common within the popularity of the *scientific management* theories. Today, corporate production processes are much more integrated than before; this has made hard to isolate personal contributions to general productivity and to measure individual effort. Furthermore, in modern firms the *systemic efficiency* [Cossentino, 1987] is much more important than single agent's effort. As a matter of fact, in integrated production environments performances are much more dependent on the way agents interact and to how these interactions are structured, rather than upon an agent's personal productive performance. In this sense it is interesting to observe the existence of a consistent *trade-off* between individual incentives and group incentives. If individual bonuses are supplied on the basis of the *agents' relative performances*, competition is encouraged more heavily than co-operation, with expected negative consequences on the firm's overall productivity¹⁷ [Cossentino, 1987].

A firm should decide whether to set up an individual incentive scheme based on the preliminary analysis of costs and benefits. Generally speaking, the benefits of incentive pay are measured by firm performance, and the costs can be divided into **measurement costs** and **comparison costs** [Rayton, 1997].

- a. **Comparison costs** are those associated with employee perceptions of pay structure equity. Each increase in the pay of one employee causes other employees to re-evaluate their pay compared with the new relative structure. Thus each pay increase in a firm with N employees spawns N(N-1) comparisons.
- b. **Measurement costs** are the expenses incurred as a result of measuring employee performance. Small firms generally have measurement cost advantages over big firms. Greater opportunities for the manipulation of evaluations and the sheer scale of the

¹⁶ We will treat the argument of participation more specifically later on in this paper.

¹⁷ This is the case of the well known rank-order tournament schemes, in which rewards are fixed and known ex ante the job is done, and they are assigned to the first N best performing employees [Schotter, 1997]. For further reference see also Lazaer and Rosen [1981].

evaluation problem make it more difficult for large firms to determine the source of a change in performance.

Both measurement and comparison costs increase with firm size, and so the agency literature predicts the use of incentive pay should decrease as firm size increases [Rayton, 1997]. Furthermore, employees seem to be deeply concerned by *horizontal* equity of compensations. Actually, treating employees differently from each other may be detrimental to their morale [Baker, Jensen and Murphy, 1988]. At the centre of this is the employee and their co-workers. It is not sensible to create rivalry by setting up implicit promotion contests between workers whose co-operation is important to the firm. Similarly, it may be important to sort workers into different groups depending on their personality types [Lazear, 1989]. Political interaction among workers is, in fact, a significant aspect of the work environment, but it has been all but ignored by economists who analyse labour markets. Employee personalities are crucial in this respect because pairing two passive workers together may dilute some incentives that might be realized by putting an aggressive individual with one who is more passive.

On the practical side, the realisation of an individual pay scheme is an appropriate solution when:

1. the performance of the single individual influences in a meaningful way the performance of the entire productive process;
2. the performance of the individual is identifiable and measurable with regards to containing costs;
3. workers are highly differentiable by their personalities, such that firms can use personalities to increase the effectiveness of the incentive scheme:
- 4a. the organizational position occupied by the individual is characterized by low interdependence with the other positions; the organizational model must therefore not give much importance to the co-operational aspects between the employees; *or*
- 4b. the organizational position occupied by the individual is inserted in a frame of relations, but it is possible to calibrate the *boosting tools* in such way to generate a co-operative behaviour;

Apart from those characteristics that have to be present in order to have a successful individual incentive plan, we have to consider that an appraisal based on relative performances may generate a bias in the functioning of company's internal organization, with rising of strong competition between groups of workers. In the case in which a sure interdependence between the agents exists (point 4b), the bias can have a considerable negative effect over firm's performances. The example proposed by Felli and Ichino [1996] is rather emblematic. We consider a company constituted by a productive division whose scope is to diminish production costs, and a sales division whose scope is to maximize revenues. The quality of the product is crucial and assumes opposite valences for the two divisions. An increase of product quality leads to an increment in sales and in the performances of the relative division, but, at the same time, it generates an increase of productive expenses. A reduction of product quality reduces production costs and raises the performances of the sister division, but at the same time it force the sales division to increase expenses in advertising for keeping the actual sales rate at its current level. Thus we have in this case negative complementarities between the activities of the two divisions. In this case a bonus system scheme based on the relative appraisal of the two divisions performances would evidently turn out as counter-productive. In particular the productive division would stretch to diminish costs by lowering quality, in order to not only improve its own performance but also to

worsen the performance of the sales division. Therefore, a good solution to this problem would be that of *intercrossed-incentives*, by which the remuneration of each division is connected not only to its own targets, but also, in an opportune way, to the goals of the others with whom interactions exist. Furthermore, in presence of more complex situations, where the integration of the production process is strong, a group bonus plan may be even more effective.

Once that cost/benefit analysis is done, if it is convenient to set up an individual pay plan, we still have to decide which kind.

Many kinds of incentive plans exist, but three are the basic types: *piece rates*, *more elaborate incentives*, and *commissions* [Mitchell, Lewin and Lawler, 1990; Camuffo, 1996].

Piece rates essentially make pay proportional to output, though there may be an overlay of minimum guarantees and adjustments to allow for machine breakdowns and other problems beyond worker control.

More elaborate incentives are essentially variants of piece rates that depart from proportionality. Typically what is involved is a reward, or an extra reward, above a specified production or even quality standard.

Commissions, unlike other incentive plans, are normally based on a value measure rather than a physical output. They are generally used as compensation systems for sales personnel. As with other incentives, commission systems may entail a simple, flat percentage of sales or more elaborate arrangements involving kinks in the reward curve [Mitchell, Lewin and Lawler, 1990].

2.1.2 Group plans

Group plans are pay schemes especially designed for those environments in which teamwork is predominant. A good definition of teamwork has been given by Alchian and Demsetz [1972, p. 779]: “*Two men jointly lift heavy cargo into trucks. Solely by observing the total weight loaded per day, it is impossible to determine each person’s marginal productivity. With team production it is difficult, solely by observing total output, to either define or determine each individual’s contribution to this output of the cooperating inputs. The output is yielded by a team, by definition, and it is not a sum of separable outputs of each of its members.*” In other words a team production is advantageous when there exist production techniques in which the *common output* obtained by the team is greater than the *sum of the single outputs* that may be obtained by the single members. This may occur in presence of some economies of scale in the production techniques used by the firm. When production organization in teams is somehow advantageous, a firm can encourage its setting by introducing a group incentive scheme.

The *targets* that employers want to reach by the introduction of plans of this type may be distinguished into two different kinds:

1. First of all, like any incentive plan, group gain sharing may be seen as a way to **improve production efficiency**. While single incentive plans are directly connected to a worker’s personal output, group incentives encourage productive efficiency through an **increased sharing of information among co-workers**.
2. Secondly, improved co-operation is often associated with a **greater consensus** between the workers and the management. While *productive efficiency* may be referred to the quality of the job itself, workers’ *consensus* strictly depends on the environment in which the job is carried out and therefore on the men more than on their roles.

Although distinguished within a plan by the conditions that may favour or inhibit them, efficiency and *consensus* are highly complementary and are very important for modern complex organizations. "To obtain a high efficiency without consensus - crude productive order - or, vice versa, a manifest consensus without efficiency - a participated unproductive order - is, in fact, possible only in the short term. Which one is the relationship between the two is an open problem [...]" [Ceri, 1989]. It is therefore clear to the company that, in order to achieve good productive efficiency, the management must first reach a good consensus among its employees. For these reasons, what a collective plan resolves to realize, is to stimulate co-operation among employees, not to mention between employees and employers. In this way production efficiency results can be improved from a relational point of view, in the measure in which group plans construct a common organizational language [Camuffo, 1996], which is the means through which business priorities and information are shared.

The empirical evidence gives support to the idea that group gain sharing plans are often oriented toward consensus. Numerous empirical works based on Italian firms¹⁸ highlight that these kind of schemes have been used to help the introduction of some dramatic changes in the firm's organisation. In these cases the *target* of the schemes has been that of generating employee consensus toward new organizational rules and the new corporate policy.

Although group gain sharing plans are proficient tools for encouraging co-operation, increasing the distribution of knowledge and consensus among workers, they are not exempt from problems. The most famous obstacle to proper functioning of group schemes is the so-called *free rider* problem that we will briefly summarize in the next section.

By what we have seen in this section it seems clear that designing a group incentive scheme is not an easy task since many issues must be taken into consideration. First of all, as we have seen in the case of single incentives, it is fundamental to define ex-ante how performances will be measured ex-post. Moreover managers should be aware that the way in which rewards will be tied to results (outputs) will strongly influence employees' behaviour, sometimes with negative effects and distorted behaviour. Therefore it must be an overriding goal for a good manager to preview and anticipate these distortions in order to maximise firm performance.

3.0 Free riding and peer pressure

While the moment is appropriate for introducing the concepts of *free riding* and *peer pressure*, these two features are not limited to group gain sharing concepts alone; all schemes that tend to reward the overall or group performance risk the development of these traits, of which will be analysed later on in this work.

Now consider a work team composed by n individuals, which is operating under a group pay scheme. For each improvement in production the group will receive a bonus that has previously been bargained. Yet, since the work team is composed by n employees, each of them will only get a $1/n$ of the total bonus paid to the whole team. In other words, supposing a direct positive correlation between workers' effort and production improvements, every single component of the team would only enjoy $1/n$ of his effort output, while the other $n-1/n$ part of it will be destined to the rest of the team. From this point of view it is easy to understand how, each team worker will not be encouraged to maximise their effort. Like a lazy cyclist on a tandem bicycle, a team worker can lower his effort, even to the point of nothingness, and he may still get the bonus. In our metaphor, the lazy bicyclist alone does not cause the bicycle to stop moving.

¹⁸ Prosperetti [1995], Fabbri and Pini [2000], Biagioli and Cardinaleschi [1991].

In contrast to the single-agent case, the free rider issue is the cause of moral hazard problems even when there is no uncertainty in output [Holmstrom, 1982]. The reason for this is that agents who cheat cannot be identified if joint output is the only observable indicator of the effort. Although, in a well known article, Alchian and Demsetz [1972] argue that efficiency can be restored by bringing in a principal who monitors the agents' inputs (efforts), this seems not to be possible in a very integrated productive environment, or at least it may be costly to implement.

Recently Kandel and Lazear [1992] and Barron and Gjerde [1997] have analysed the relationships which occur in a multi-agent environment in a more in-depth manner. These works are very meaningful and extend the multi-agent setting to a multi-activity one. This is accomplished through the introduction of the activities of agents beyond the traditional efforts devoted to increasing output. In this case, the principal must consider how the incentive scheme affects the allocation of effort by agents across various activities. Among those activities that may be taken by an agent¹⁹ are those actions to detect and punish shirking by co-workers. This activity is commonly known as *peer pressure*.

Following the ideas of Kandel and Lazear [1992, p.806], peer pressure can be classified as either *internal* or *external*. "*Internal pressure exists when an individual gets disutility from hurting others, even if others cannot identify the offender. External pressure is created when the disutility depends specifically on identification by others. Sociologists sometimes distinguish guilt from shame. Guilt is internal pressure, whereas shame is an external pressure. In the context of the firm, the important issue is observability. A worker feels shame when others can observe his actions. Without observability, only guilt can be an effective form of pressure*". While internal pressure (guilt) is a feature which is embodied in the worker himself²⁰, external pressure (shame) strictly depends on the firm's internal organization, job division, and the observability of the output. Thus it may be efficiently promoted by the pay scheme adopted.

Beside its positive effects on effort, external pressure may also be the source of some extra costs. First of all the principal must compensate workers for their monitoring efforts and also for the cost that peer pressure imposes on them [Barron and Gjerde, 1997]. With peer pressure, indeed, the equilibrium effort is higher than it would be without it, but in a firm with peer pressure, workers may be worse off than those who are not exposed to such forces. While pressure guarantees higher effort, it does not guarantee higher utility because the pressure itself is a cost borne by all members of the firm. It may produce higher effort levels, but workers may feel badly about working in an environment that has rampant peer pressure [Kandel and Lazear, 1992]. In other words introducing peer pressure alters the optimal compensation package, while a pay scheme that encourages pressure too much may be inefficient because it turns out to be detrimental to workers' morale and inevitably to cooperation, which is contrary to our stated goal. Moreover, in order to be effective as a motivational device Kandel and Lazear [1992] recognize two main components on which peer pressure must rely. First, each member's effort must affect the well-being of the rest of the team. In this way each member has strong incentive to monitor other members' effort. Second, in addition to desire to exert pressure, the team members must have the ability to affect each other choices. This may be achieved, as we have already seen, with some informal form of pressure such as shame, or social exclusion.

¹⁹ For example in Milgrom [1988], the additional activity involves actions to influence task assignments, while in Holmstrom and Milgrom [1991] the additional activity involves actions such as quality control or maintenance of capital assets.

²⁰ For this reason we won't take this form of peer pressure into consideration. Guilt is in fact not easily observable. In addition to this, hiring workers with a greater sense of guilt seems to be more of an adverse selection problem rather than one of moral hazard.

4.0 Tools for sharing risk and increasing labour flexibility

Until now we have seen pay schemes conceived for the improvement of productivity (gain sharing) or in order to soothe contrasts between employers and employees (lump sums). As such, we have focused our analysis on those *tools* that deal with what we have called *vertical uncertainty* and that encourage the sharing of information on a firm level (*target*), that is among both employers and employees as well as among colleagues of the same “rank”. Yet, firms are not solely concerned by *vertical uncertainty*, but also by all possible shocks that may derive from the markets in which they interact. Unexpected increases in raw material prices, or sudden falls in sales, for example, are, generally, one of the greatest concerns for every firm. We will call these last situations *horizontal uncertainty*, in order to distinguish this kind of uncertainty with the one we have previously discussed.

In the classical model of firms, *horizontal uncertainty* exclusively involves the managers or the owners of a firm, while the labour force is strongly protected by a rigid wage system. Of course, as Weitzman [1983; 1984] argued in his famous works, while this is true in the short run, a longer timeframe may show that workers are affected by *horizontal uncertainty*²¹ too, even if the risk of losing the job is not easily quantifiable since it depends on a large number of variables such as the health of the firm, the competitiveness of the economic system, and the level of welfare in the social system. Starting from this theoretical framework, and following the idea of Ichino [1994], we can identify a particular form of variable wage which may interact with the distribution of *horizontal uncertainty* (risk) between the two main firm’s stakeholders (employers and employees), and between the two different time horizons (long term and short term). This form of *pay-for-performance*²² is called *profit sharing*.

Differently from the gain sharing schemes that we have seen above, in profit sharing plans rewards are connected to some financial variable (usually taken from the firm’s balance sheet) which is supposed to capture and give a good representation of the firm’s overall performance. Since financial performances are variable in time in a similar and even deeper way than productive performances are, as well as gain sharing, profit sharing are not consolidated in the worker’s fix wage.

“In traditional wage systems unions and firms bargain ex ante over a compensation level that does not depend on the state of the world. Under this regime the wage represents a predetermined fixed claim on the value of the firm. Alternatively a profit sharing system can be described as a system in which the union and the firm bargain ex ante over a compensation schedule that does depend on the state of the world. In his case, the flexible compensation earned by workers is no longer a predetermined fixed claim but becomes a residual claim on the value of the firm.” [Ichino, 1994]. In other words, we see that profit sharing schemes are tightly entwined with the worker’s participation in the financial returns of the firm. By setting up this kind of scheme the firm decides to tie part of the worker’s wage to its financial performance. This implies that the cost of labour will vary in the same direction as the firm performs, thus resulting in wages influenced by *horizontal uncertainty*. In general firms will have a greater incentive to set up a flexible remuneration system when profits are particularly variable, in order to transfer some of the risks to workers. Profit sharing provides a way of doing this. Such a strategy should appeal to firms who prefer to employ workers who are tolerant of risk [OECD, 1995]. On the other hand, employees, also

²¹ In fact, if a firm, for example, persists in having negative performances, this may lead it to finally dismiss some of its employees.

²² Here we are not longer talking about *performance-related-pay*, but of *pay-for-performance*, or, in other words, the context in which *profit sharing* may be analysed is the *ability to pay* of the firm, rather than its willingness to *pay for ability*. This last point will be more clear when we will analyse profit sharing.

may find some advantages in participating in such a scheme. First of all, they may be willing to accept the risks associated with profit sharing if their basic wage levels are relatively high. Secondly, they may recognize the possibility of spreading the risk of losing their job (in case the firm doesn't perform well) over a longer period of time²³, by "changing" it into the risk of receiving a lower wage (see also Chisholm [1997]).

Although the risk sharing effect is the most peculiar feature of profit sharing schemes, there is few empirical works dealing with this issue, while much more common is the effort to identify the correlation between this kind of plans and the firms' performances²⁴. Despite this evidence, it is true that while in gain sharing plans the increase in workers' performances is a direct consequence as well as the main purpose of the scheme, in profit sharing this linkage seems to be little weaker. It is indeed unlikely that a worker may feel substantially motivated by the fact that his individual wage is linked to a company-wide performance indicator that is largely out of his control. Therefore, any improvement in performance that has been recently tested seems to derive more from some "side-effects" of the pay scheme, like, for example a process of "identification" by employees to the firm as a whole [Estrin, Grout and Wadhvani, 1987], an increased amount of trust by employees in their employers [Sgobbi, 2000], and a smaller turnover of the workforce, rather than performance gains which result directly from the scheme itself. Nevertheless, the presence of profit sharing is fundamental in order to have these positive effects, since the scheme itself requires greater transparency, more attention towards human resources, and trust-based relationships (as we will see in the next sections of this work). A last reason for adopting a profit sharing scheme has been analysed in several works by Prosperetti [1994; 1995; Prosperetti, Ravanelli, Caironi, 1996]. Supporting his idea with empirical studies this author shows that this kind of schemes are prevalently adopted by those firms which intend to redistribute their increased "*ability to pay*" to their workers and do not want to rise the firm's internal conflicts.

4.1 Profit Sharing and Employee Share Ownership Schemes

The standard definition of profit sharing, as reported by the OECD Employment Outlook of 1995, was adopted at an International Congress on Profit Sharing held in Paris back in 1889. To quote: "*Profit-sharing refers to definite arrangements under which workers regularly receive, in addition to their wages and salaries, a share on some pre-determined basis, in the profits of the undertaking, the sum allocated to workers varying with the level of profits*" [OECD, 1995, p. 141]. By this very first definition three important characteristics of this kind of scheme can already be identified.

- a) The level of the bonus is determined by reference to company performance. Although normally assessed in terms of profits, the field of interest extends to schemes which are based on a combination of measures, including productivity,

²³ In an alternative approach Weitzman [1983; 1984; 1985] goes further than this, by investigates the effects of profit-sharing on the long-run resting point of the economy, the non-accelerating inflation rate of employment (NAIRU). Following Weitzman's idea, if profit sharing is introduced, employment will be increased. The reason is that, at the same level of total remuneration, the marginal cost of labour has fallen (on the assumption that the firm can ignore any restrictions on the total compensation that it must pay) and, therefore, the firm will employ extra workers. Since profit sharing would have a positive effect on the social welfare, Weitzman proposes the use of tax incentives to encourage their introduction. Although this is a really fascinating theory there are, however, many difficulties with this argument, as it has been recognized by authors like Nuti [1986] and Wadhvani [1988]. See Kruse [1993] for a more detailed summary of the individual studies of the effects of profit sharing on employment stability.

²⁴ See Jones, Kato, Pliskin, [1997] for a detailed summary of the individual studies of the effects of profit sharing on productivity and firm performances.

provided they are regarded as measures of company performance. Incentive schemes based on individual and group performance are excluded from the definition, as are bonuses paid independently of company performance.

- b) The rules determining the level of the profit sharing bonus and the arrangements for its distribution between employees are both determined and made known in advance. Thus, discretionary bonuses are excluded.
- c) Bonuses have to be an addition to regular wages. Thus, profit sharing is a way for redistributing a firm's financial surplus while protecting workers from excessive performance fluctuations.

The profit sharing bonus is paid to all or most employees in a firm or establishment, although executive bonus schemes are generally excluded. However, the coverage of the scheme may be subject to restrictions, for example a specified length of job tenure at the firm.

There are several ways profits may be distributed among the firm's workers. On one hand, we have cash-based schemes, where the part of the worker's wage linked to the firm's profits is paid in cash, while on the other hand we have deferred profit sharing, where linked remuneration is paid not in cash but as a corporate equity. We designate this last kind of schemes as employee share ownership schemes (ESOS). More precisely, we may distinguish between three main types of profit sharing schemes [OECD, 1995]:

- (1) *Cash-based bonuses*, which involve immediate cash payment out of profits. These schemes provide a more direct linkage between employee remuneration and the condition of the firm in the short-run, and don't imply any change in the firm's equity distribution.
- (2) *Shared-based bonuses* (which we have partially already discussed), which involve the possibility of employees acquiring shares in the company free or on preferential terms. Profit sharing involving employee share ownership should provide a more forward-looking and longer-term incentive than cash-based schemes. Of course, share-based schemes also involve employees in the possibility of the loss of capital, as well as lower income, if the shares do poorly.
- (3) Finally, in *deferred profit sharing* the bonus whether in cash or in shares, cannot be realised before a pre-determined period of time has elapsed. From the firm's point of view, this avoids unexpected burdens on cash flow, and may also serve to strengthen the long-term attachment of employees to the company.

Employee shareholding schemes are included only if the share allocation can be regarded as a profit sharing bonus. For this reason regular distributions of share or stock options, made regardless of company performance, cannot be considered profit sharing plans. In the literature, the generic term "employee share-ownership" is frequently used to denote both *share-based profit sharing*, and *employee share-ownership*, while "profit sharing" is sometimes used to refer to both profit sharing in the strict sense of profit-related pay, and share-based profit sharing [Poutsma and Huijgen, 1999].

Employee share ownership schemes may take many forms. The most common arrangement supplements standard employee wage payments with a payment to workers which is automatically used to purchase the company's ordinary shares, either held in trust for the workforce or allocated to the personal accounts of individual workers. Alternatively, workers may be given options to purchase their firm's equity, possibly at preferential rates. Further, let's say "extreme" variants include producer cooperatives, where all the firm's shares are collectively owned by its workforce, and employee buyouts, where the company's

shares are owned by its individual workers but nobody else [Estrin, Grout and Wadhvani, 1987].

Of course, the distribution of corporate equity may imply some consequences in corporate governance. In fact, the more and more we move from a cashed-based scheme to a share-based one, the less the role of owners and employees are defined and this blurring can allow worker direct participation in the firm's decision-making. In this sense, the connection between profit sharing and workers' direct participation gives profit sharing a third dimension which vastly increases the potential to make these schemes a multi-purpose tool. Moreover, workers' participation in decision-making, although having an additional positive effect on productivity (as we will see later on), may be interpreted as a way for introducing greater democracy in one firm's industrial relations. Although these arrangements may have a positive effect on a firm's performance (as the empirical evidence shows²⁵), workers' direct participation is usually limited in all profit sharing schemes, not to mention that share-based schemes often carry no voting rights.

4.2 Productivity effects of profit sharing and determinants of adoption

A considerable body of evidence suggests that the introduction of profit sharing is associated with a rise in the level of productivity in the firm (see, for example, Cable and FitzRoy [1980], FitzRoy and Kraft [1987], Mitchell, Lewin and Lawler, [1990], Weitzman and Kruse, [1990], Wadhvani and Wall [1990], Bhargava [1991], Kraft [1991], Capannelli, Cossentino and Prosperetti, [1991], Carstensen, Gerlach and Hüber, [1995], Kruse [1992; 1993], Prosperetti [1995]). All these studies adopt various methods, and use different datasets of different countries. Ideally, the specification should guard against reverse causality, especially for variables related to company performance. For example, an association between the presence of profit sharing and a high level of productivity might be due either to a tendency for more productive firms to introduce profit sharing, or it may be due to the positive effects of profit sharing on productivity. Despite these difficulties, it is useful to point out that, as we have discussed above, although profit sharing tends to have a positive effect on productivity, these schemes are different than group gain sharing. Indeed, profit sharing encourages productivity only through a very indirect way, which as it is, can be broken into some primary "channels" which we may easily identify.

1. Profit sharing may have incentive effects through encouraging individual workers in a firm to **monitor each other's effort**, in order to improve their overall performance levels (just like we have seen in the case of group incentive plans and peer pressure dynamics). This seems to be more likely in firms which have a generally cooperative and participatory atmosphere [OECD, 1995].
2. Most profit sharing seems to be in addition to regular wages, rather than a substitute. If perceived as such, the sharing schemes may **function as an "efficiency-wage"**, and motivate workers. In fact, employees, who feel they are paid more than the "going wage" may respond with harder work out of sheer gratitude, or from fear of losing the rent or wage differential attached to their job [FitzRoy and Kraft, 1992].
3. Profit sharing, especially in the share-based or deferred form, will facilitate a **long term relationship between worker and firm**, which increases loyalty to the firm. This will encourage the emergence of a sense of identification with the objectives of management and will reduce conflicts and dissension [OECD, 1995; Carstensen,

²⁵ We will actually see what *direct participation* of workers in firm's decision making process implies later on in this work.

Gerlach and Hüber, 1995]. Long-term relationships are also the base for long-run industrial policies inside the firm. A lower turnover, will, indeed, motivate the worker to invest in their own human capital, like *on-the-job* and *off-the-job* training, increasing the firm's overall knowledge-base.

4. In the case of share-based schemes, employee equity ownership might also increase productivity by **inducing managers to become more efficient**. This because the existence of a large block of interested shareholders might exert a restraining influence on managers who wish to pursue non-profit-maximizing objectives [Estrin, Grout and Wadhvani, 1987].

We will see in the next paragraph how all these effects can be further strengthened by the presence of additional non-financial worker participation in the firm, while for the moment it is quite interesting to see what the elements are, on a firm and institutional level, that have contributed in the diffusion of profit sharing forms.

A complete explanation of the reasons firms adopt profit sharing seems impossible due to the lack of current evidence. In all the countries where profit sharing is quite diffused, like Canada, France, Germany, Italy, Japan, Mexico, the Netherlands, the United Kingdom, and above all the United States [OECD, 1995], these schemes have been adopted by a variety of firms presenting very different features. In most cases it is impossible to find empirical analysis on the bargaining process of performance-related pay and its result. First of all, it is not very clear whether larger firms should be expected to be more likely to introduce profit sharing than smaller ones. Although this seems to be the case for Italy [Fabbri and Pini, 2000; Cainelli, Fabbri and Pini, 1999; Bianchi, Crudeli, Fabbri and Pini, 1999;], on a theoretical basis, if profit sharing is regarded purely as a wage-incentive system, it might seem less attractive for larger firms, where the incentive tends to be diluted more strongly (see free-rider problem). Nevertheless, as we have seen, profit sharing is more than a simple incentive system. In fact, it mainly consists of a corporate policy for associating workers with the aims of their companies, and this may also commend it to larger or highly decentralised firms, where such a policy is hard to implement. A second key element which determines the introduction of profit sharing is the organisational structure of the firm. If worker outputs are difficult to monitor, and employees have considerable discretion about their working methods, the introduction of a profit sharing scheme might have some advantages, especially if the need for a high degree of co-operation is felt. Furthermore, these schemes may be less useful where the work is machine-based, and more attractive where a higher proportion of white-collar employees is present. This is because generally, in the second case, output is more difficult to monitor, and the firm needs to increase the commitment of its highly skilled workers. A final firm characteristic which may be important for the adoption of profit sharing is concerned with industrial relations. Some countries require the adoption of profit sharing schemes to be negotiated with the workforce [OECD, 1995]. In these cases the introduction of the scheme will be easier when there is a relatively high degree of trust between workers and management. Although unions have traditionally opposed profit sharing, this negative attitude has been recently modified. They now seem to consider these schemes as an opportunity to gain influence and to have access to a broad spectrum of entrepreneurial decisions. Their reasoning is that group participation in profits should have an impact on the major determinants of profits²⁶. An increasing influence of unions within a firm could consequently raise the probability of introducing the scheme [Carstensen, Gerlach and Hüber, 1995].

The probability of adopting a profit sharing scheme has not only to be found in firm's characteristics, but also in the local economy environment. As it emerges in OECD [1995], in

²⁶ We will see later on how participation will affect productivity and how it may be introduced.

many cases the countries' legislation encourages the adoption of these schemes by firms through some form of fiscal incentives, or through legislative compulsion. Moreover, the recent growth in profit sharing, observed in a number of countries, is often associated with changes in legislation (as in the case of Italy). In absolute terms, legislation has a strong impact on the adoption of the schemes. France, for example, is one of those countries to have regulations obliging firms with 50 or more employees (since 1990) to share profits, by means of "*participation*" (a particular French profit sharing plan). In the United Kingdom legislation also strongly encourages profit sharing, but solely by means of tax concessions. In Canada and USA, tax concessions are also provided for certain types of profit sharing. Both countries have traditionally encouraged the use of deferred schemes as a mean of building up employee funds for retirement. Finally, in Italy some form of tax concession has been introduced in 1996 [Fabbri, 2000]. Although performance-related pay in the Italian economic system is recent and has not been structured and codified yet, tax concessions intend to promote performance-related-pay schemes, included some forms of profit sharing.

Many are the reasons behind the spread of promotion for this kinds of pay schemes. First of all an increase in competition in product markets has led to a search for better company performance. Secondly, in recent years there has been considerable discussion of the potential effects of profit sharing on employment patterns²⁷. Although statistics may overestimate the phenomenon, being biased by what in the literature is called "cosmetic bargaining". As it has been pointed out by Wadhwhani [1988], and as Del Boca, Kruse and Pendelton, [1999] and Bianchi, Crudeli, Fabbri and Pini [1999], in the case of Italy, with the presence of fiscal incentives, employers and employee may find it advantageous to collude and disguise old fixed bonus-based paying schemes under the new label of performance-related pay. It would be possible to detect how much of the evidence is effectively biased only by reading every single contract and by analysing their compensation formula²⁸.

5.0 Direct participation, fairness and trust

The financial participation schemes we have analysed above, are often implemented within a wider involvement of workers into decision-making [Poutsma and Huijgen, 1999] and *direct participation*. In contrast to the traditional form of workers participation, which takes place through the intermediary of employee representative bodies, such as works councils or trade unions, and may be termed as *indirect participation*, direct participation involves employees themselves.

The literature (whether theoretical or empirical) has showed a great interest in direct worker participation, for two main reasons. On one hand, economists have analysed how workers *voice* [Cable and FitzRoy, 1980] in firm decisions may improve the efficacy of financial schemes; thus studies have concentrated their efforts on what we may call *consultative participation* of workers. On the other side, sociologists and experts of industrial relations have seen direct participation as a way to introduce a wider industrial democracy in firms, through what they have called *representative or delegative participation* [Bagioni, 1995].

On a general basis, we have consultative participation when managers encourage employees to make their views known on work-related matters, but they still reserve the right to take action or choose against it. On the contrary, with representative participation,

²⁷ For more details on this purpose see Weitzman [1984, 1985], and Meade [1986]

²⁸ More specifically, Bianchi, Crudeli, Fabbri and Pini, [1999] have analysed a total of 935 contracts collected in the provinces of Parma and Reggio Emilia in Italy, and have found a large 45,16% of suspect contracts which, although setting up a performance-related bonus scheme do not present any real relation between firm performance and worker pay.

management gives employees increased discretion and responsibility to organise and do their jobs without immediate feedback. Results and performances may then be periodically monitored through some form of bilateral team briefings, which involve both workers and managers [Poutsma and Huijgen, 1999]. In other words, the key distinguishing features for direct participation are consultation and delegation. Indirect and financial participation may be an integral feature of a participative strategy, but does not necessarily involve consultation or delegation. Although consultative participation and representative participation are two quite different issues, in some advanced industrial relations contexts, they may converge²⁹.

The economic reasons for the introduction of direct participation combined with financial participation are numerous. Following the idea of Cable [1988] and analysing both the firm's structural characteristics and its performance as the outcome of a strategic game between workers and employee, both of which may choose whether to co-operate or to seek to impose unilateral control over the firm, we may see that "*positive collusion*" [Cable, 1988, p. 124] between the two increases the total available for distribution, thus the total pay-off of the game. This happens through several main effects of direct participation on firm performance.

- (a) First of all, it **improves information flows**. Direct participation is a way of opening up access to technological choices which, though feasible, may be outweighed by considerations of strategic control in traditional firms [Cable, 1988]. Furthermore, if profit sharing (or group schemes in general) is implemented in a co-operative climate, it contributes to a greater sense of identification of the workforce with the fortunes of the company. In such a climate workers may be motivated to make helpful suggestions based on their own experience and knowledge. This will change the information flow, from a unique top-down flow, to a bi-directional flow, in which workers have *voice* in the organization of the production process.
- (b) Second, participation **reduces the risk of conflict between management and workers** by "normalizing" it. In general, workers, may react negatively if profit sharing simply confers responsibility without power, particularly when corporate performance is unsatisfactory. On the contrary, if workers participate in decision-making they will have a more direct responsibility toward the performance of the firm [OECD, 1995].
- (c) However, from the managerial point of view, increased worker participation may lead to an **easier implementation of decisions**, once taken.
- (d) Moreover, as far as the delegative model is concerned, **the worker council can have an important role** by gathering the information to monitor and supervise the adoption and execution of a profit sharing scheme, and disseminating completely reliable information to the work force. It may be a key instrument for supporting the goals the firm wishes to attain with profit sharing [Carstensen, Gerlach and Hüber, 1995].
- (e) Finally, worker direct participation is a good mean for **reducing the free-rider problem**. This develops for two reasons: 1) with a lower turnover, employees are involved in a repeating game model where co-operative strategies become more advantageous [Jones, Kato and Pliskin, 1997]; 2) *voice* in decision-making gives workers the perception of greater fairness and equity of the job, and dissuades them from shirking.

This last point (about fairness and equity) is of especial importance and gets to the core of the participation issue. Specifically, direct participation clarifies organizational contingencies. This helps workers understand more clearly what is expected of them and increases the

²⁹ This may happen, for example, when workers consulting organs become essential institutions strongly embodied in the firm organisational structure.

likelihood that they will work toward rewards that they value. In a certain sense participation in decision-making increases the control that workers perceive they have. Moreover, an even greater issue deals with **worker direct participation in the implementation phase** of the compensation scheme. Cooper, Dyck and Frohlich, [1992] suggests and seems to prove that participation in the development of a distribution rule might lead to a rule that the participants deem to be fair. Moreover, it is difficult to conceive of a situation in which participants would willingly develop an unfair rule. These considerations suggest that worker participation in the development of gain sharing or profit sharing plans may help to reduce the free-rider problems. With Cooper's et al. [1992, p. 478] words we could say that "*participation lends a subjective dimension to an objective fair decision rule; it adds procedural justice to distributive justice*".

Of course the introduction of a brighter workers' participation can be successful only if accompanied by a trust-based approach towards working relationships and human resources in general. As the firm "internalises" the vertical uncertainty of the market by a greater flexibility of its internal structures, it is not more possible for employers to stipulate complete contracts for hiring workers. This forces them to a change in the strategy of human resources managing, moving from a *tit-for-tat* approach, by which workers are strictly monitored and eventually negative outcomes are perceived by managers as lack of effort, rather than to a *trust-based* approach, where workers have the chance to look for alternative ways to reach the desired result³⁰[Sgobbi, 1999].

Up to this point, the theme of direct participation fairness and trust-based relationships turns out to be a truly innovative and fundamental element for the success of any flexible compensation scheme. Recently this has been recognized by the *First European Workshop for Employee Ownership and Participation* which took place (with the support of the European Commission) at the European Parliament in Brussels at the end of April 1999. From the final acts of the workshop some "*outline of good practice models*" (both on the firm level than on the level of legislation) in implementing a participatory scheme emerge, some of which are worth being summarized here.

- 1) The best way to improve participation is to improve the interaction between direct participation, representative participation and financial participation. Financial participation must be integrated through participation in decision-making, information and adequate training for workers in the corporate governance.
- 2) Participation in decision-making is also a powerful tool for reducing the risk connected with share-based plans. Shares are risk capital, and workers involved in share-based plans are unable to differentiate their portfolio risks³¹. Safeguards should be introduced against speculation, the risk of losses for workers and inappropriate use of participation plans.
- 3) Worker participation should be voluntary, under both national and corporate regulations. This guarantees a better allocation of the workforce (see the *sorting-effect*) and the development of trust-based work relationships.
- 4) For employee shareholders to enjoy full access to their rights and balanced dialogue alongside the company's other stakeholders, provision must be made for training and information on fundamental business issues and the company's management.

³⁰ In this sense we may say that the worker is a *work-furnisher* rather than someone who carries out some pre-determined tasks.

³¹ In facts, workers subjected to a shared-based plan face a great risk if the company performs poorly, by the devaluation of their corporate shares and the probable job loss.

This last point, in particular, is of especial importance and takes us to the last issue we will treat in our paper: knowledge (in broad sense) as an extremely good resource for improving flexibility, fairness and cohesiveness inside the firm.

6.0 Innovations and the changing economical environment

The flexible wage forms dealt with up to this point have only concerned that which is known in literature as *defensive flexibility* [Fabbri and Pini, 1998]. Both gain sharing and profit sharing are, indeed, tools, which intend to lower labour costs by increasing productivity or by charging workers by an additional share of risk. In this environment workers require narrowly defined skills, and it is due to this specialization that employees can readily be divided into distinct, well-defined occupations. Nonetheless, in the literature it is possible to identify an idea of flexibility that is more deeply rooted in the firm organizational structure and nature. This is the so-called *innovative flexibility* [Fabbri and Pini, 1998]. With this approach, the firm is not solely concerned with *minimizing the risk* that comes from a troubled and instable market, but it also interprets the rapid environmental changes as an important chance for growing by identification of new resources and anticipation of innovation. With innovative flexibility, therefore, human resources become a crucial element. Workers who are involved in a flexible innovative environment are often given responsibilities spanning more than one of the traditional occupational groupings. For this reason innovative flexibility is more appropriate in those environments where economic turmoil and external shocks are an important issue. Indeed, the implementation of this new kind of approach implies a constellation of fundamental changes in production technologies, the nature of physical and human capital and the way in which the firm is organized. As well, it sets in motion a process of restructuring the organization of work in many firms in advanced industrialized countries [Linbeck and Snower, 1999].

In order to distinguish the new economic environment in which those changes take place, it is useful to note some primary characteristics.

- 1) On the technological side, the production process has recently experienced an important **shift from** what we may define *hard technology* (in which big manufacturing machines were protagonists) **to soft technology** (where the use of computers is predominant) [Zollo, 1999]. This has brought a deep change in production. Computer based production processes, indeed, may easily be re-defined and changed at an incredible low cost. Just as no task-specific machines are no longer implemented, task-specific workers have become obsolete. In this type of firm, the traditional separation of roles tends to break down, as does the traditional set of worker attitudes that were once required by employers.
- 2) A second force, significant throughout the industrialized world, has been the **steady growth of human capital per worker**, generated by education systems, vocational training programs, and on-the-job training. This growth (especially as generated by education systems) has taken the form not only of "*capital deepening*", in the sense that individual workers have improved particular skills, but also has resulted in substantial "*capital widening*", or the ability to perform a greater variety of tasks [Linbeck and Snower, 1999].
- 3) Third, the growth in human capital and information technologies has increased the importance of **economies of scale in task-complementarities**, whereby the activity of one task raises the productivity of another task. In other words, just as labour and

capital may be complementary in the production process, different occupational types of labour may be as well [Linbeck and Snower, 1999]³².

- 4) Finally, the **shift of the firm operative principles from an action-based structure to a knowledge-based structure** [Follis, 1999]. In order to take advantage of the greater amount of human capital, and of the economies of scale in task-complementarities, the firm organizational principles need to impressively increase their evolutionary dynamism. At the same time, this forces workers to improve their *inter-task* knowledge³³.

These four major changes lead us to an important restructuring of the internal organization of firms and requires a redefinition of the role played by the worker towards a higher-performance standard [Handel and Gittleman, 1999]. First of all, job tasks in high performance workplaces oblige greater variety and skill than traditional Taylorized jobs; often, this involves formal job rotation schemes and delegation of some craft, supervisory, human resource, and record keeping tasks to less skilled workers. Second, since responsibility is widespread, employees should participate in problem solving, and organizational decision-making, particularly through formal teams and in the area of quality improvement. Finally, these practices should be supported by non-traditional compensation systems, such as pay for skills mastered on the job, performance bonus, which reward skill acquisition and participation in productivity improvement³⁴. In other words, since modern corporations are no longer built up over a rigid structure of well defined duties and roles, and their competitiveness basically depends on the way they manage knowledge and information through the blurry nexus of relationships of their internal labour market, the compensation schemes defined up to this point seem to be ineffective and underestimating the role of human resources.

6.1 Skills, competences, and organizational structure

In order to design a new kind of compensation scheme whose target is to improve the company performance by developing and using knowledge as a strategic innovative tool, we first must define what we mean by *knowledge* and what role it plays inside the firm.

Following the idea of Nelson and Winter [1982] a *skill* is the minimal feasible set of knowledge (as *flow*). Firms build up their knowledge (as *stock*) by collecting skills. The process of acquiring individual skills into a productive organization consists of a setting up of production *routines*. By going more into detail, we may identify some specific features of skills [Turvani, 1999].

1. Skills are strongly embodied in the personal background of individual knowledge. For this reason, they may be seen as a ***tacit characteristic of each worker***, given by some factors - nature, culture, education - which are exogenous to the firm itself.
2. The tacit nature of skills makes it **difficult to transfer them from one worker to another**. While technology, for example, is a kind of knowledge that may be separated

³² An example of labour complementarities is offered by Linbeck and Snower [1999, p.7] themselves, “*the productivity of managers is enhanced by the services of their secretaries, and managers do not themselves have to perform secretarial tasks for this complementarity to arise*”.

³³ *Inter-task knowledge* arises when a worker can use the information and skills acquired at one task to improve his performance at other tasks. This concept is somehow opposite to the one of *intra-task knowledge*, which is a result of learning-by-doing in the traditional sense [Linbeck and Snower, 1999].

³⁴ In the following paragraphs we will analyse a specific form of pay for skills which is called *Compentece Model*.

from the product it is embedded in, skills are not separable from the men that possess them.

3. For these reasons the use of skills is, in a way, automatic and doesn't require any waste of energy. **Skills turn themselves into routine tasks**³⁵.

It is very important to stress the strong link between skills and routines. In fact, on a firm level, routine plays a very important role; it represents a sort of corporate capital of knowledge and therefore they may be identified in the organizational structure of the firm, itself.

As defined as above, routines are quite a traditional tool and are effective only in a generally stable environment, where processes can be codified and shocks can be dealt as exceptions. In order to introduce innovations and to cope with market instability and soft technology, skills and routine are a necessary but not sufficient ingredient of modern firms. Therefore, in designing our new production process we need to introduce a brighter concept of knowledge, that entails different characteristics: the *competence*.

The idea of *competence* goes back to the works of Boyatzis [1982] who defined it as an individual trait and behaviour that is associated with effective performance [Camuffo and Comacchio, 1999]. This approach implies that competences are strictly related to the role of the worker and especially the organizational context. As this definition of ability (knowledge) pays greater attention to the institutional context in which the work takes place, it is much more flexible in nature. In such a framework, competences do not solely depend on worker's characteristics; they also are determined by the corporate organization itself (the production environment). Moreover, since competences are associated with effective performance, despite being an individual trait as compared to skills, they can be created and/or improved by workers and firms. This last aspect is extremely important and reveals a powerful conceptual knot [Zollo, 1999]. It looks like, in a certain sense, that competences and firm organization feed each other in a sort of enigmatic Moebius strip where individual competences are a powerful resource for the corporate organization. At the same time, the latter is a powerful resource for competence growth. From an individual point of view, the concept of competence is a bright extension of that of skill, as we have previously seen it. The main assets of an individual that can be linked to it are: 1) the background of knowledge; 2) the professional competence; and 3) the effective behaviour [Leoni, Tiraoschi and Valietti, 1999]. According to Spencer and Spencer [1993], we can identify five types of worker's characteristics which form a consistent background to a given set of competencies, these are:

- a. *Basic knowledge of specific disciplines*;
- b. *Motivations*, which are the major forces that push a worker toward certain objectives and away from others;
- c. *Traits*, or, in other words, physical characteristics;
- d. *Image of oneself*, or self-esteem;
- e. Finally *skills*.

It is evident that competences rely, although on basic formal aspects, on some visible, but informal, attitude of workers like *motivations* and *image of oneself*. This, in fact, corresponds with what we have seen about task complementarities and the nature of new organizational forms. In other words, in order to set up a positive working environment, where information flows are not obstructed but become a core element, socialization, and therefore motivation and image of oneself, are certainly essential elements.

³⁵ In fact, this represents the most important advantage of skills. When jobs are routine-based workers can be less concentrate in doing their normal tasks and therefore free mind resources for dealing with exceptions [Turvani, 1999].

Based on the sketch of the nature of competences that we have provided, some assumptions may be drawn about their influence over the firm organizational structure [Follis, 1999]. First of all, we have seen that competences strongly refer to practical activities, since they consist, in general, of a bundle of abilities that allow a worker to successfully accomplish given tasks. From this point of view, the main difference between skills and competences lies in the fact that, while skills need a pre-defined production process (a pre-defined path of actions), an organizational structure which concentrates on competences give the worker greater autonomy. While “normal” workers are traditionally supposed to carry on specific duties, “competent workers” are furnishers of personally-developed *services*. Secondly, the change in the organizational structure has to be supported by a change in the focus of the firm’s internal roles and training procedures. *Roles* and *hierarchy*, which were fundamental elements of the rigid Tayloristic firm, have to give way to *individuals* and *co-operation*; *learning-by-imitating*, a pre-determined path of tasks to accomplish, has to be substituted by *on-the-job* and *off-the-job* training that can improve problem solving abilities. Finally, on the basis of their definition, competences are easily observable³⁶. This last point is of extreme importance and allows us to implement a specific compensation scheme capable of rewarding the creation and implementation of competences inside the firm.

6.2 Tools for supporting innovative processes: the competence model

To be a valid and rewarding operational tool, competences must be measured. It is, therefore, necessary to establish a criterion which allows us to give concreteness to a *competence model*.

Boyatzis [1982], who was the first to formalize a competence-based model, sets up a codification process based on a codebook of 22 competences grouped in three different clusters: action, human resource management and analytical reasoning³⁷. Two types of analysis are carried over on the basis of this codebook. The first one aims to identify the most common competences of each role. In this way the compensation scheme is role-based and encourages the developing of specific competences. The second analysis is carried out over each role and consists of distinguishing what we may call *threshold competences* (which are essential basic characteristics required to be minimally efficient, usually knowledge) from the *distinctive ones* (which are competences that differentiate superior elements from the average) [Spencer and Spencer, 1993].

Once this conceptual grid has been set up the next step is to establish a valid criterion of measurement which enables us to concretely build the compensation scheme. In order to accomplish this, Spencer and Spencer [1993] suggest a distinction between *effective performance* from *superior performance*.

1. *Effective performance* is a minimum “acceptable work level”. Below this level, a worker may not be considered competent in his role.
2. *Superior performances* are instead superior “standard deviations of average performance”.

As defined above, competences consist of an internal benchmark that may be used or evaluate individual performances according to the different roles of workers [Leoni, Tiraboschi and Valietti, 1999]. On this basis wage reward are paid to the single worker according to the competences which are *effectively expressed* during the working time. This

³⁶ Even though they are not easily measurable, as we will see further on.

³⁷ We do not report the codebook here, for further references see Boyatzis [1982] or Camuffo and Comacchio [1999].

has two main consequences. On one hand, it is advantageous for the firm to encourage the development of competences by training workers³⁸. On the other hand, the corporate organization is not defined through a structured organization and definition of roles; but it is built on the base of experience and modelled around its most important factor, human capital. According to Cainarca and Sgobbi [1998] because of its particular features the competence model may be defined as an *input-oriented* pay scheme, while gain sharing and profit sharing are both *output-oriented*. In fact, what is rewarded by the competence model is the *quality* of the labour factor (an input), while in a gain sharing or profit sharing scheme rewards depend on final results.

With the competence model, departing from the personal contribution that may be given by every single worker, it is possible to build a flexible organization that responds to the mutability of markets by turning learning and knowledge into its focal points. It is not possible to define an “absolute form” of competence model, but we need to take every single firm as base. Given the nature and the peculiar goals that they intend to pursue, we will have to identify different needed competences and different roles. Moreover, since every worker is called to invest in the human capital of the firm, bonuses should be at least partly consolidated in the worker’s fix part of the wage, thus, in other words, investments although immaterial ones, should be somehow rewarded.

A last element to consider is the role of **trust**. Although in the competence model rewards are addressed to single workers, trust plays a fundamental role. Transparency and fairness in the assessment of competences constitute, in fact, the fundamental presuppositions necessary to establish a consistent climate of collaboration inside the firm. Workers don’t have to “suffer” the assessment competences solely as an action in which they are passive objects. Rather, they should recognize it as a correct way to focus in on their own limits, from which they can then move toward personal improvement.

Of course, some reasonable criticisms can be advanced to the plant of the competence model. First of all, to implement such a compensation scheme, the firm should bare great organizational costs. Indeed, in order to work efficiently, the competence model needs to be settled in totally different cultural environment than the traditional one, where knowledge is highly considered and rewarded. Nonetheless, the additional costs of setting up a different cultural environment must be adequately compared with the consequential advantages; for instance these may include the increase in information flows and the improvement in the effectiveness of its treatment. A more radical criticism concerns the fact that there is no empirical evidence of the existence of a positive link between competence and firm profitability. Even though some case studies exist, it is impossible to understand whether the adoption of a competence model is at the origin of positive firm performances, or vice-versa, well performing firms are more prone to adopt such schemes.

7.0 Some final implications

In this work, we have analysed various forms of flexible wage and the targets that each intends to reach. These can be easily summarized in *Chart A1*.

In this simplified panorama, the retributive schemes of purely financial nature, such as lump sums, gain sharing and profit sharing, are referable to a more traditional view. By contrast, a greater degree of direct participation of workers placed side by side by a decisive focus on the development of competences and learning exhibits more innovative elements. The scheme is not exhaustive, however, and we should not forget that planning a flexible retributive system is, in reality, a very complex trial which strongly depends on the nature of

³⁸ Both on-the-job training and off-the-job training are usually offered by this kind of firms.

the firm and the economic environment. Therefore, the choice of one any of the models analysed in the paper must come down to a preventive study of the costs and the benefits that may be associated to it. A very sketchy way of doing this is proposed in *Chart A2*.

As we can notice in the chart our analysis has been strongly centred on the firm's private interests. However, despite the firm's particular preferences, from a social viewpoint, some models can be more interesting than others. Employee Share Ownership Schemes and competence models, for instance, are undoubtedly preferential channels through which a greater industrial democracy and greater attention to the development of knowledge (and therefore a greater focus on elements concerned about long period growth) can be pursued. In regard to this intention, it is somewhat necessary to make some observations.

Both retributive schemes (ESOS and competence model) workers are suited to effect inefficient portfolio allocations. In the first case, this happens because the employee possess shares of the same enterprise in which they work. It's easy to imagine that, in the case of bankruptcy, the worker would lose a two-tier source of revenue (job and financial turnout). A similar effect is present in the functioning of a competence model. Here, the investment of the worker is not represented by financial assets, but by a sort of firm-specific knowledge that the retributive model obliges him to acquire. If the know-how the worker acquires is not subsequently saleable on the labour market, he, again faces a two-tier lost when he is terminated.

These points are extremely important and should be taken into consideration by any policy maker that intends to encourage the adoption of flexible compensation schemes. In order to achieve a proper functioning of the system, for example, the diffusion of competence-based schemes should be accompanied by increased investments in schooling and education. Since it has been proved that an educated workforce is easier to train, the lost of a job by an educated worker will be less of a burden even though he is hired under a competence-based scheme.

As a final remark regarding scheme choice, it is interesting to note the complete dearth of literature that deals with what workers' preferences are. This seed will be an interesting theme for further research.

Chart A1

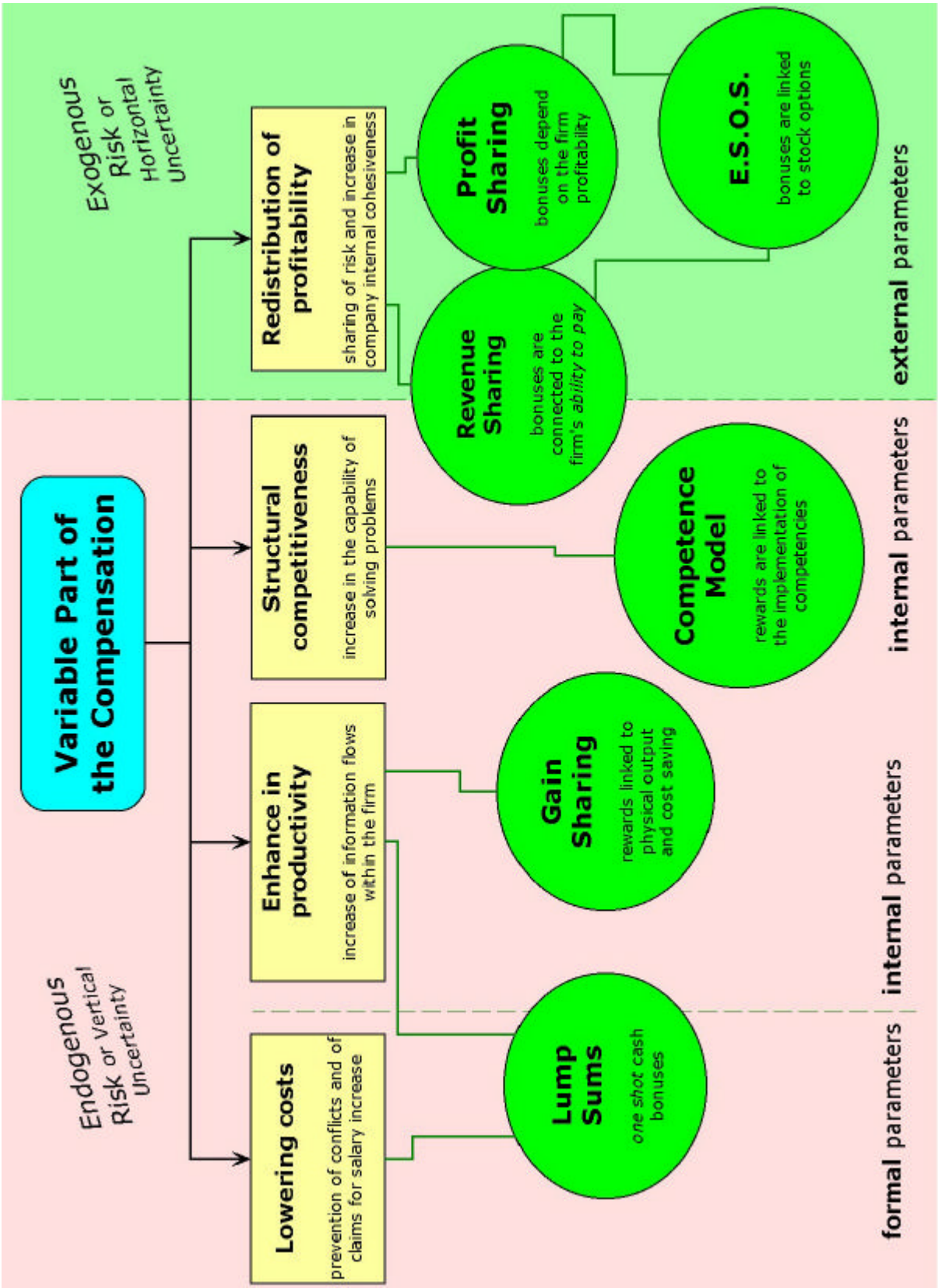


Chart A2

Compensation scheme	Kind of compensation	Targets	Costs	Consolidation
<i>Lump Sums</i>	Bonuses are not connected to any specific parameter	Lowering labour costs by preventing conflicts	- Scarce innovations	No
<i>Gain Sharing</i>	Rewards are connected to individual productivity	Rise in productivity	- Monitoring costs - Scarce or negative influences on co-operation among colleagues	No
	Rewards are connected to team productivity	Rise in productivity and co-operation among colleagues	- Impossible to monitor personal contributions - <i>Free riding</i>	No
<i>Profit Sharing</i>	Rewards are connected to firm's profitability	Redistribution of firm's profitability and risk sharing	- Employees: inefficient portfolio allocation - Employers: loose of authority and firm control	No
<i>Competence Model</i>	Rewards are connected to the implementation of competences and specific <i>know-how</i>	Human resource developing	- Deep changes in both organizational and cultural contexts	Yes

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