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MASTER THESIS
M.Sc. Economics of Management and Organizations

PERFORMANCE-BASED PAYMENT SCHEMES AND MANAGERIAL PERCEPTION OF MOTIVATION: A FACINTATING RELATION

Supervisor: Dr. Sacha Kapoor
Second Reader: Dr. Josse Delfgaauw

STEFANO DEL PARIGI
STUDENT NO: 435088sp

Abstract:

In this thesis, I try to answer the following research question: Is the presence of performance-based compensation schemes associated with higher managerial perception of employees' motivation? I investigate this by implementing a linear probability model, considered the ease of interpretation according to the dichotomous nature of the dependent variable used. Data is taken from the 3rd round of the European Company Survey (held in 2013), and contains more than 22000 observations, corresponding to companies across 31 countries. The answer emerging from the analysis is that different kinds of performance-based payment schemes have different impacts on perceived motivation. In particular, after controlling for variables pertaining to a companies' general characteristics, companies' workforce characteristics and HR practices, and respondents' individual characteristics, the following answers emerge; contrary to expectations, payment by results negatively associate with the perceived motivation, while variable extra pay linked to the results of the team/department and variable extra pay linked to the results of the company have the opposite effect. Variable extra pay linked to individual results and variable extra pay in form of shares ownership do not show significant effects.

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1. Introduction

This thesis investigates the following research question:

RQ: Are performance-based compensation schemes associated with higher levels of employee motivation as perceived by managers?

Due to the structure of the dataset considered, the research question is operationalized by analyzing the association between the presence of five different types of performance-based compensation schemes and the presence of low-motivational issue among employees as perceived by the management.

The relevance of the topic to both the academia and practitioners derives from one aspect of agency relations. Within organizations, principals and agents' goals are rarely perfectly aligned. This implies that principals need to better understand how to convince agents to exert effort in the desired direction, and in order to do so it is fundamental for them to understand what moves them. The specific kind of principal-agent relation considered in the present thesis is the one occurring between managers and employees. Only accurate managerial perceptions of employees' motivation will allow them to motivate employees, and to do so in the most effective way for the organization.

In order to investigate the research question, this thesis draws upon data from the dataset resulting from the European Company Survey, distributed to more than 27,000 companies across the EU. This data is used to fit a linear probability model – and a logit regression as a robustness check. The perceived presence of low motivation issue by management among employees is the dependent variable, the main set of explanatory variables consist of one for each of the performance-based payment schemes available in the database. Lastly, three different sets of control variables pertaining companies' characteristics, workforce characteristics and characteristics of respondents to the survey are included.

After controlling for these aspects, findings emerging from the analysis reveal a negative association between compensation schemes based on the performance of the team or on that of the company and the presence of low motivation issues amongst employees as perceived by the management. Meanwhile a positive association for payment by results emerges. Variable extra pay linked to the individual performance following management appraisal and variable extra pay in form of share ownership instead, do not show any significant association with perceived presence of low motivation issues.

The contribution to empirical literature of the present thesis consists of providing quantitative evidence as to the direction of the association between different types of performance-based payment schemes

and managerial perception of motivation, wandering in a field that has not received enough attention. Whilst there is quite some literature on the inaccuracy of managerial perceptions on company performance, perceptions of company characteristics and understanding of industry dynamics and level of risk, substantially less effort has been devoted to managerial perceptions of employees motivation.

Deriving implications for practitioners from this thesis requires some caution, as the research design allows analyzing association – instead of causality as properly defined, as explained in section 5.2 – between the independent variables and the dependent one. Nevertheless, it is still possible to derive guidance for further research, starting from the emerging evidence of some significant associations, suggesting the importance of defining an approach able to shed a brighter light on the causal relations between these monetary performance-based incentives and managerial perceptions of motivation.

The reminder of this thesis is structured as follows. Section 2 provides a theoretical framework, guiding the reader through some of the relevant literature; this path allows the formulation of the hypothesis examined in this empirical work. Section 3 presents the methodology. After introducing the analytical implant, the focus is mainly on the dataset and the variables selected in relation to the relevant literature. Section 4 describes the analysis. After describing the different model specifications, I present the rationale leading me to the choice of the linear probability model over logit model in the main body of the thesis. A detailed presentation of the analytical results follows. Section 5 concludes the thesis with a discussion of key findings, with an indepth presentation of the findings against the tested hypotheses., an overview of the limitations concerning the dataset and the research implant more broadly, some considerations of the practical implications that can be derived from this empirical work, and finally some suggestions for further research.

2. Theoretical Framework

In this section, I present relevant literature concerning the three main components of the relation examined in the research question: managerial perceptions, motivation and payment schemes. In the first subsection, I discuss papers regarding managerial perceptions, starting from the biases and factors affecting them in general, and then narrowing the scope to the field of perceptions of motivation – a field not yet extensively explored by literature. The second subsection focuses on literature pertaining

motivation, the distinction between intrinsic and extrinsic motivation – including some notions on motivation crowding out –, and a brief overview of the two motivation theories that most closely connect psychology and organizational economics. The third subsection provides literature on the five different types of compensation schemes contained in the dataset considered for the present thesis, and their effect on motivation. Albeit the relation in question regards *perceived* motivation, the latter two subsections serve the purpose of providing a baseline for the discussion.

2.1. Managerial (mis)perceptions

2.1.1. General Evidence

An interesting starting point on managerial perceptions comes from Powell et al. (2006), a work on the relation between causal ambiguity, managerial perception and firm performance. Causal ambiguity is the condition under which neither the firm nor its rivals can determine the causes of firm performance. The section of the article relevant to this thesis is the one in which ambiguity is presented as a property of managerial perceptions. The main three suggested sources of misperception are self-serving biases – resulting in the “above-average effect”, its magnification under ambiguity – the so-called “ambiguity effect”, and in general judgmental biases and heuristics. Self-serving bias considers the tendency to evaluate oneself in a more positive way than what is justifiable. Classic examples include Svenson (1981), where in a study on driving ability 93% of Americans rated themselves as above-average, or Cross (1977), where among a sample of college professors, 94% rated their work as above average. Interestingly, literature provides evidence suggesting that this kind of bias is explicitly evidence-resistant. Preston and Harris (1965) for example, compare two groups of drivers, one with good driving records and one with bad driving records plus at least one accident in their driving history serious enough to require hospitalizations (some of the respondents were still hospitalized at the time of the study). No significant difference in self-attribution of driving skill emerged across the two groups, and both rated themselves as above average.

In addition, Ford (1985) stresses the role of self-serving biases in managerial perceptions. Here the author, following Weiner’s (1979) model of causal attribution, distinguish between external response strategies and internal response strategies to performance downturns. According to the model, the choice between internal and external strategies depends on the locus of causality of the downturns (internal vs external), stability (temporary vs permanent) and controllability. Another fundamental part that plays a role in the

attribution of locus of causality is ego involvement. Again, the example mentioned regards self-attribution, the tendency to attribute to oneself positive outcomes and to external circumstances negative ones.

Dale and Ross (1975) dig further into the role and origin of self-serving and self-attribution biases in one's misperception of reality. The authors accept the starting point of people misrepresenting reality by attributing success to their actions and failure to external causes, but they question if it is not done to enhance one's self-esteem but rather is determined by three perceptual tendencies. The first is to expect that one's own actions create success, the second is the tendency to perceive higher covariation between behavior and increasing success compared to behavior and constant failure, and the third is a broad confusion regarding the concept of contingency. Even if questioning the causes, the study review proposed in this paper still supports the presence of misrepresentation of reality through seeing one's own actions as determinant for positive outcomes.

Some studies involved the perceptual aspect only limited to the non-availability of objective measures of the investigated phenomena requiring managerial perceptions as a proxy. An example is Delaney and Huselid (1996); here the authors analyze the relation between the implementation of Human Resources Management (HRM) practices and the perception of organizational performance. The attention devoted to the "perceptual" aspect is merely the non-availability of objective measure of performances, as the actual relation under investigation was the one between HRM practices and actual performance. The dataset they used, indeed, came from a survey which only contained self-reported measure of performance relative to competitors.

Mezias and Starbuscks (2003) provide the richest overview of studies which question the accuracy of managerial perceptions regarding their organization and their organization's environment. The authors recognize many variables affecting managerial perceptions. The first category mentioned consists of cognitive biases drawn from behavioral psychology and economics (mainly availability bias and confirmation bias). Secondly, they suggest variability across individuals: namely some individuals are better at recalling than others. Next, they mention experience, and in particular field-specific experience. The latter two play a crucial role in aiding an individual's ability to capture relevant information. Another element brought to the picture is societal and organizational culture, which might induce a particular focus on certain information whilst also prompting the neglecting of others. Lastly, they refer to the business more broadly.

Interestingly, the study provides a rich summary of papers where the subpar accuracy of managerial perception is observed. Downey et al. (1975) asked a group of top and middle managers to describe the

uncertainty of their firms' environment, and when compared to objective measures of volatility in the corresponding markets, correlation was close to 0. Another group of studies mentioned provided evidence on extreme variability among employees' views on their own organization: the variability in their description of the specific characteristics under consideration was so high, the researchers were led to the conclusion that it was not even possible to refer to a proper *employees'* view. Another branch of studies presented came from behavioral psychology, and provided further evidence regarding heuristics and biases affecting people's cognition, in particular availability heuristics – Slovic (1980) – and self-serving bias. This refers to people enhancing their contribution to successful events whilst, on the other hand enhancing external causes in the opposite (unsuccessful) case – Singer and Benassi (1981).

On top of this overview, various authors have built experimental papers on the perceptual misalignment issue. In the first one presented, these authors compare perceptions from a distributed survey against objective measures amongst managers surveyed during an MBA course. Questions pertained to firms' characteristics and firms' environments' ones, and again evidence emerged in support of a consistent misalignment between perceptual data and objective measures. In a second refined experiment, the researchers wanted to narrow the subject group to more experienced managers (surveyed within their actual working environment, among their companies). These managers were asked only questions that could be considered relevant to their field (so to maximize the expected level of competence *ex ante*). Evidence was once again found for a consistent misalignment between perceptual and objective facts, even among these hierarchically higher managers from prestigious company. Thus, authors suggest the (surprising) conclusion that problem solving can effectively happen under misrepresentation of the reality, as long as long-term direction is clear. Albeit mesmerizing, this conclusion adds little to the scope of this thesis.

The relevance of the relation between expectations of outcomes from actions and actual actions also emerges in the stream of literature regarding self-fulfilling prophecies. This refers to the phenomenon by which the expectation of an event can increase the probability of said event happening. More relevant to the current thesis is the case by which people's expectations as to the outcome of their own behavior alters their actual behavior. Archibald (1974) provides a rich overview of the alternative possible explanations for this kind of phenomena. Anxiety reduction, for instance, refers to the prophet preferring the certain negative outcome to the anxiety related to the uncertainty of the prospect involving the negative action, and eventually self-sabotaging himself just to quickly land the certain albeit negative, situation. Defensive effort consists of subjects, often unconsciously, reducing efforts in case of an

anticipated failure that could undermine the prophet's value so to make the negative outcome less threatening –"It was not that I was not good enough, rather that I did not try hard enough". Anxiety distraction refers to ones worry about the eventuality of negative outcome distracting the prophet from taking actions that would effectively prevent that negative outcome. Finally, the most interesting explanation in relation to the present thesis is the one pertaining dissonance reduction, whereby people might tend to interpret outcomes as fulfilling their prophesized outcomes to a larger extent than reality namely to reduce the discomfort arising from cognitive-dissonance.

2.1.2. Motivation-Related Evidence

The social psychology of agencies raises an interesting issue: provided that principals do not *know* what motivates agents, how good are they at *inferring* what motivates them? A notable example modeling how managers' views on their subordinates can differ comes from the seminal paper McGregor (1969). Here the author introduces a broad division between Theory X and Theory Y managers, where the former assumes their employees dislike work, try to avoid responsibilities and want to minimize their efforts, while the latter believe their employees are willing to increase their skills and to pursue organizational goals. As such, managers adhering to the first model shall implement coercive and controlling method to motivate employees, while the other category shall try to allow conditions for employees to achieve their goals whilst pursuing the organizational ones.

This example introduces a topic relevant to the present thesis addressed by Heath (1999), a paper focusing its attention on the social psychology of agency relationships. The author here provides evidence in support of what it defines as extrinsic incentives bias. As explained in more depth in section 2.2.2, intrinsic motivation refers to performing activities as rewarding by themselves, while extrinsic motivation pertains performing activities in order to obtain a separable outcome. This paper suggest that managers over-estimate the importance of extrinsic motivation – and thus the effectiveness of extrinsic incentives – to employees. The view of the author is goes even further, considering this bias as not only as affecting managers, but people in general. In facts, he describes it as a lay theory and provides evidence documenting its validity beyond the managerial environment with four different studies.

The author also addresses the apparent contrast with results of the stream of previous literature providing evidence in support of the actor-observer effect. This effect exists when the observer overemphasizes the

intrinsic motives as drivers which move an actor that is performing an action. The most notable example of such effect is provided in Jones and Harris (1967), where observers attributed pro-Castro attitudes to a student that wrote a pro-Castro essay, despite knowing that the topic of the essay was assigned by researchers. Heath suggests that this actor-observer effect frequently reverses when in the framework of agency relationships: there observers tend to overemphasize extrinsic motives. The suggested reason why, in such context, the effect is reversed is that there are three features making agency relationships different from the ones presented in the experiment. Firstly, agency relationship involve explicit contracts where extrinsic incentives (namely a wage and/or benefits) are contracted. Secondly, such relationships are rather long-lasting: this means that while actors have the time to adapt to monetary factors while they remain still prominent to observers. Thirdly while in the experimental setting where the actor's behavior was shown to be inconsistent with his previous ones, in agency relationships, actors behaviors were instead consistent in perceiving the actors long-term goals and career preferences.

In the first study presented in the paper, 74 MBA students at Chicago Graduate School of Business were provided a list of eight incentives, four of them relatively intrinsic (learning new things, developing skills, accomplishing something worthwhile, feeling good about oneself) and the other four relatively extrinsic (benefits, pay, security, praise from manager). Participants were asked to rank the importance of each for themselves and to predict how three target groups would have ranked them, those groups being their classmates, employees and managers at Citybank. As predicted, results show that participants overestimated the importance given by others to extrinsic incentives. Furthermore, while respondents only ranked extrinsic incentives as being at the top on 22% of the occasions for themselves, they predicted their classmates, managers and employees of the company to considered such incentives as top-ranking much more frequently, 32%, 54% and 85% of times respectively. A second study involved 47 MBA students at the University of Chicago. These students were provided with a similar questionnaire and were asked to answer both for themselves and also to predict a typical fortune 500 employee's or manager's responses. These responses were to be placed on a seven-point scale instead of ranking them as in the aforementioned study. In order to control for self-serving bias, respondents also responded on a seven-point scale as to "how admirable" a person was who responded strongly to that specific motivator. Respondents were also asked to state how "extrinsic" each incentive was. This second study sought to confirm the presence of the extrinsic incentive bias when also controlling for self-serving bias . Within the first study, respondents consistently predicted others to be more extrinsically motivated than themselves; thus the author regressed the difference between the prediction for others and the responses for themselves on each of the incentives over the extrinsic-ness and admirability measures. Even after

controlling for such self-serving bias, respondents considered others as less intrinsically motivated than themselves.

In the third study, the author wants to investigate whether these lay theories supported by evidence in the first two studies also practically affect the choice of the incentives programs consumers would choose to motivate others. More specifically, 94 MBA students at the University of Chicago were provided a list of four motivators and three different descriptions for each. For each description, they were asked to rate how motivating it was for them, how they predicted it would have been for others (same targets as study 2), “how admirable” a person was who responded strongly to that specific motivator, and how extrinsic they found each motivator. The motivators were given a \$1000 bonus for hitting a performance goal, a job in an important department in the company, a job that allows people to choose the tasks to work on, and an assignment allowing people to learn more about their company or industry. Consistent with the results from previous studies, respondents expected others to respond better to more extrinsic framings of motivators compared to themselves. Study 4 presented in the paper tries to generalize the investigation from the previous studies by bringing an akin experimental setting into a business framework. Subjects were managers and employees at Citibank that answered incoming questions from consumers on the company’s services and products in their business setting. In this study, evidence in support of both self-serving bias and extrinsic incentive bias also emerged, increasing the external validity of the findings. In particular, this bias held even when participants knew each other and interacted daily in a business environment.

2.2. Motivation

In this section, I present literature regarding motivation from the fields of labor, personnel and organizational economics and organizational psychology. After introducing some seminal papers illustrating the role of monetary incentives on employee’s motivation within the framework of organizations, I present the concepts of intrinsic and extrinsic motivation and the crowding out effect. The section closes with the presentation of two of the motivation theories most closely related to the current thesis.

2.2.1. Introduction: Rewards and Motivation

Motivation is an impetus or inspiration to do something, according to Deci and Ryan (2000). Interest of workers – what drives and inspires their actions – and of their employers are often not aligned, thus companies design contracts in such a way to induce workers to operate in the interest of firms. This is where incentives enter the motivation-within-organizations picture.

Nevertheless, Fehr and Falk (2002) provide an interesting insight on how far beyond intuitive the relation between incentives and motivation can get. This paper tries to widen the definition of motivation provided by contract theory and agency theory, which are the two theories within organizational economics that are most deeply involved in the analysis between motivation and incentives. These theories tend to think of a worker's motivation merely from the perspective of the *Homo Economicus*, thus what motivates is maximization of income with the lowest amount of risk. The authors instead analyze the interaction between three sets of non-monetary motives with incentives, involving contributions from psychological literature in the picture.

The motives considered are reciprocity, desire for social approval and the desire for interesting tasks. Reciprocity is a contingent kind of social preference, meaning it depends on the reference subject. If, for instance, an agent takes the principal as the reference subject, it will tend to perceive her payoff as positive if her actions are perceived as kind, while it will tend to perceive her payoff as negative if her actions are perceived as hostile. For this reason, reciprocity under certain circumstances can reinforce the power of monetary incentives, whilst being to the detriment of that power under other circumstances (as for instance in Fehr and Gächter (2000b)). Regarding social approval, what the authors mean by that is being subjects to others' admiration, and the importance this can have on shaping human behaviors finds early acknowledgement in economics literature as early as in Adam Smith's 1759 essay "The Theory of Moral Sentiments". Also in this case the interactions with monetary incentives are ambiguous: the need for social approval can reinforce or weaken them depending on factors such as the strategic behaviors among agents leading to multiple equilibria in effort exerted, as most noted in Gneezy and Rustichini (2000a). Desire for interesting tasks refers to the importance of intrinsic motivation: there are certain tasks that certain individuals inherently enjoy doing. As more deeply described below, monetary incentives, under certain circumstances, can massively crowd out intrinsic motivation.

In the next section, I introduce the distinction between extrinsic and intrinsic motivation, a necessary element for an appropriate understanding of the dynamics that link incentives and motivation.

2.2.2. Extrinsic vs. Intrinsic Motivation

Deci and Ryan (2000) suggests two parameters to describe motivation, level and orientation. The first refers to the amount of motivation moving a person, while the latter regards the underlying goal driving an action. When it comes to orientation, one of the main distinctions where it is possible to operate is between extrinsic and intrinsic motivation.

Intrinsic motivation pertains to performing some activities because they are found to be intrinsically enjoyable; rewarding by themselves. This, as Skinner (1953) remarks, is substantially different from stating that said activities are not rewarding: the rewards are present, but they are inherent within the activities rather than separable consequences. Deci (1971) contributes by providing an operational definition for intrinsic motivation, the “free choice” measure, consisting in letting participants to an experiment who have been exposed to a task freely choose whether or not to remain in it or stop.

A considerable part of labor activities can be assumed to not be strictly intrinsically motivated, for instance, due to social demands requiring individuals to assume responsibility for non-intrinsically interesting tasks. Extrinsic motivation, on the other hand, pertains whenever an activity is performed in order to obtain some separable outcome. The degree to which extrinsic motivation is autonomous can vary. For instance, a student exerting a lot of effort on her homework because she finds it will be useful for her career and one doing her homework to avoid parents’ punishment are both motivated by aspects separable for the task itself. Nevertheless, while in the first case there is a personal choice driving the action, in the latter there is a binding external norm to obey. Both Economic and Psychological literatures offer a discrete amount of other, more or less differentiated, definitions for intrinsic motivation. Nevertheless, for the scope of this thesis, diving deeper into this exercise of taxonomy would not add to the discussion.

2.2.3. Motivation Crowding out

Within the analytical part of this thesis, due to constraints imposed by the structure of the data, it will not be possible to account separately for intrinsic and extrinsic motivation, consequently it will also not be possible to analytically measure the effect of rewards on each of these two “sides of the same coin” of motivation. Interestingly enough, intrinsic and extrinsic motivation do not always move in the same direction. This is the case of motivation crowding out, which consists of extrinsic motivators (most notably in the field of labor economics, those of monetary nature) undermining intrinsic motivation.

Economic and psychological literature have tried to explain the phenomenon, drawing from each other throughout last six decades. Ever since the first pieces of empirical evidence regarding motivation crowding out emerged, the psychological stream of literature tried to build theoretical models in order to rationalize the findings. Early examples of empirical evidence come from Kruglanski et al (1971), Deci (1971) and Lepper et al. (1973). The hypothesis that extrinsic rewards could undermine intrinsic motivation in those papers was tested by comparing behavior levels of a treatment group that received a tangible reward and a group that did not, after the reward had been removed. In the first study the intrinsic motivation was operationalized by levels of task recall and reported enjoyment of the task, in the second by choosing tasks already being consistently performed by participants (puzzle solving and writing students' newspaper headlines), while in the third by the selection of participants (nursery schoolchildren) who were interested in drawing. Consistent results emerged as to the presence of motivation crowding out. The two most important theoretical contributions from the psychological stream of literature came from Self-Determination Theory (SDT) and Cognitive Evaluation Theory (CET), a sub-theory of the former – most notably for both, Deci and Ryan (1985). While the former contributed by shedding light on the understanding and definition of the social and environmental circumstances affecting intrinsic motivation, the latter focused more on the direction of the social factors. CET argues that factors conducing a feeling of competence will be able to enhance intrinsic motivation *but only as long as* it is associated to a sense of autonomy or according to de Charms (1968) an internal perceived locus of causality. Otherwise, they will result in motivation crowding out.

Early empirical works in the economic stream of literature were encouraged by the study of health related behaviors. Timmus (1970) for instance analyzes the case for monetary compensation applied to blood donation, claiming it could undermine the sense of social duty of individuals leading to a decrease in their willingness to donate blood. Later on, literature's exploration widened its boundaries and considered a variety of applications. Those range from the "Not-in-my-backyard problem" – more formally, socially desirable but locally unwanted projects – as in Frey and Oberholzeer-Gee (1996), to effort exerted on task pertaining to non-monetary relations, as in Gneezy and Rustichini (2000b). A stream of contributions within the economic literature more closely related to this study is the one pertaining to motivation in the workplace. According to Kreps (1997) intrinsic motivation in the workplace is difficult to observe in isolation as it might hide as a hidden '*worker's response to fuzzy motivators as fear of discharge, censure by fellow employees, or even the desire for coworkers' esteem*'. Huffman and Bognano (2015) provides a notable empirical contribution to motivation crowding out with different kinds of compensation. The experimental setting involved 39 workers hired to convince the attendants to a street festival to register

for a company database. Participants who were randomly assigned to the control group received a flat amount of 18\$ per hour, while those in the treatment group, were also entitled to an additional 5\$ per sign-up during the second out of the five total hours of that working day. Results showed that workers in the treatment group, albeit performing better during the treatment hour compared to the control group, performed considerably worse when the incentive was removed, and furthermore, self-reported intrinsic motivation dropped in the treatment group.

In the next two subsections, I provide a brief overview of two motivation theories that contributed most heavily to the comprehension of motivation in psychology and economics. The first theory I present is the Agency theory, which provides an explanation of the rationale for incentives provision. Then, I more formally introduce the above-mentioned Self-Determination and Cognitive Evaluation theories, which present some of the possible drawbacks of monetary incentives.

2.2.4. Motivation Theories: Agency Theory

John Stuart Mill, in his 1836 essay “On the Definition of Political Economy” introduces the concept of *Homo Economicus* as self-interested, maximizing his utility function, fully rational and with independent preferences¹. The consequence of the first two characteristics, as per the words of Bonner and Sprinkle (2002), is that “... *as long as the expected benefits provided by monetary incentives outweigh the costs of doing a certain task, incentives tied to performance theoretically should lead to effort being directed toward the rewarded task or activity...*”. The agency problem concerns situations where a principal’s and an agent’s goal are not aligned and division of labor – the principal delegating to the agent – is in place, with consequent asymmetric information due to the imperfect observability of actions. Another misalignment between the principal and the agent relevant to this theory is the one regarding risk attitude: they might indeed prefer different actions accordingly. In this framework, incentives work as a tool to try to limit agents’ self-interested behavior.

More formally, as summarized by Eisenhardt (1989), the goal misalignment deriving from the agent being self-interested, together with the imperfect actions’ observability, results in two widely cited aspects of the agency problem. These are moral hazard, consisting within this framework of the agent simply not exerting the contracted-upon effort level, and adverse selection, consisting of lowest skilled agents taking

¹ Throughout the decades, economic literature has redefined those assumptions, for example with the contribution of Behavioral Economists on bounded rationality.

advantage of their position with the upper hand when it comes to information asymmetry. In this situation, either the agent can invest in information systems in order to try to discover the agent's behavior, or alternatively when this is too costly he can align the agent's behavior to his by contracting on the outcomes – for instance Harris and Raviv (1978) or Holmstrom (1979). Since outcomes of agent's action do not depend exclusively on said actions, outcome-related payment schemes impose some extra risk to be borne by the agent. Consequently, factors as outcome uncertainty, higher agent's risk aversion or lower principal's risk aversion, make outcome-based payment schemes less attractive – for example Harris and Raviv (1979).

2.2.5. Motivation Theories: Self-Determination Theory and Cognitive Evaluation Theory

Self-Determination Theory (SDT) and Cognitive Evaluation Theory (CET) were introduced by a series of papers from Deci and Ryan across 1985 and 1986. While SDT analyzes both social and environmental factors, CET focuses on the social factors able to enhance or detrimentally affect intrinsic motivation. Both theories start from the assumption that intrinsic motivation is an inherent propensity, and as such cannot be caused but catalyzed. CET argues that, by satisfying the basic psychological need for competence, interpersonal events and structures such as rewards and feedback can enhance intrinsic motivation for that action. Nevertheless, for feelings of competence to enhance intrinsic motivation, they must be accompanied by a sense of autonomy – internal perceived locus of causality as per de Charms (1968). Stated differently, for intrinsic motivation to be reinforced, both needs for competence and autonomy must be satisfied. Nevertheless, it is important to keep in consideration that for activities that are not intrinsically appealing to an individual, the principles of CET do not apply.

As mentioned above, extrinsic motivation pertains to whenever an activity is done in order to obtain some separable outcome. However, SDT suggest that extrinsic motivation can vary greatly in the degree to which it is autonomous. Some actions come from personal endorsement and a feeling of choice (e.g. a student doing homework because she is convinced this will be beneficial to her career), while some others involves mere compliance with an external control (e.g. a student doing homework only to avoid parental punishment). According to SDT, *internalization* is the process of taking in a value or regulation, and *integration* is the process of more fully transforming the regulation into one's own – Williams and Deci (1996). Motivation can vary along the dimension of internalization from a-motivation, to passive compliance, to active personal commitment. According to the degree of autonomy, SDT categorizes

extrinsic motivation as follow. Following Ryan and Deci (2000), the least autonomous form is external regulation, this concerns behaviors performed only to obtain an externally imposed reward. A higher level of autonomy characterizes introjected regulation: it concerns individuals performing actions out of a feeling of pressure to avoid guilt, anxiety or to foster pride. Both of these kinds of extrinsic motivation feature an external perceived locus of causality (EPLOC). In regulation through identification the individual has identified with the importance of a behavior and has accepted its regulation as her own. The most autonomous form is integrated regulation, occurring when regulations have been fully assimilated, through a process where new regulations are brought into congruence with one's values. Albeit these latter integrated forms of motivation are autonomous and un-conflicted, they remain extrinsic, as actions are performed for their instrumental value for an external outcome. It is possible for individuals to "move" along the internalization line. They might begin by performing an activity moved by external regulation, as with rewards, and end up finding the activity intrinsically interesting, and vice versa.

2.3. Payment and Rewards

Aguinis (2013) defines reward systems as the set of mechanisms for distributing both tangible and intangible returns as part of an employment relationship. Within this empirical thesis, I limit my analysis to monetary rewards, more specifically focusing on five types of compensation schemes: payment by results, subjective payment, payment linked to the performance of the team, payment linked to the results of the company and finally share ownership.

In this section, I present literature related to the different kinds of compensation schemes that will constitute the set of main explanatory variables in the model at the core of this study.

2.3.1. Payment by Results (e.g. piece rate)

The theoretical rationale for linking payment to measures of individual performance has been presented through sections 1 and 2, nevertheless literature has also provided some empirical evidence in support. An example worth mentioning is Lazear (2000). This seminal paper provides a widely known empirical illustration of workers behavior in response to incentives, focusing on the relation between performance pay and productivity, more than motivation. The author took advantage of the management change at a large auto glass company, which involved a change in compensation method from hourly wage to piece

rate for the workforce, and observed the effect of said change on the output and profits of the company, the latter being out of the scope of this thesis. The results provide evidence in strong support of the classical economic theory. Indeed, not only average output per worker rises by 44%, but also this increment can be divided in two different effects: the average worker producing more, and a screening effect allowing to hire and retain the most productive workers. For sake of completeness, the paper also showed that the increased gains for the company were shared with the workers, and that this new compensation method increased the variance in output, due to the incentive for most ambitious workers to differentiate themselves. Aguinis et al. (2012b) and O'Boyle and Aguinis (2012) provide other support for the ability of pay-for-performance to retain top-performers.

As mentioned in section 1.3, there is also some empirical evidence suggesting that under mentioned circumstances incentives might crowd-out intrinsic motivation. Further warnings on the relation between individual performance-based payment schemes and motivation regard the case in which employees might lower their effort when measurement of their performance is not in place anymore, as in a field experiment among teachers presented by Courty and Marschke (2004). Also, employees might take advantage of the possible flaws in measurement schemes to maximize their profits, as in another field experiment by Larkin (2014), involving employees at a software company.

2.3.2. Subjective Payment

As Baker et al. (1993) suggests, firms can try to overcome the limits of objective measures of performance by implementing subjective assessments of performance. This practice results particularly useful when the available measures of performance are extremely noisy. Hammer (1975) suggests that a necessary condition for the efficacy of subjective assessment of performance systems is trust between workers and supervisors.

On the other hand, there are some warnings regarding subjective assessment of performance, which are related to the aspect of attachment between the supervisor and the employee which may result in biases in the evaluation process, as emerged from the empirical analysis in Berman et al. (2002) on friendship between managers and their employee. On the other hand, it has been argued that it is not clear how to disentangle the evaluation bias from the fact that, as emerging for instance from Rhoades & Eisenberger (2002), that friendship between managers and employees is positively correlated with performance of employees, also when this is evaluated with objective measures.

2.3.3. Payment linked to the performance of the team

The above mentioned work from Ryan and Deci (2000), with regards to the motivations driving behaviors, also suggests that in a work environment, as many tasks tend not to be intrinsically interesting, they must initially be prompted “externally”. One of the stringer motivators for external prompt is the behaviors might be valued among other individuals within their environment. This suggests that a shared goal with the rest of the team, upon which there is a common incentive, can work as a strong motivator. Scott and Tiessen (1999) suggests that in the decision for whether or not team-performance-based incentives should be in place, the relative time devoted by employees to tasks performed in team compared to those performed individually should have great importance. Empirical literature provides a substantial amount of evidence evidence in support of the efficacy of team-performance-based incentives for raising employees’ motivation. Hamilton et al. (2003) presents an analysis with data from a natural field experiment resulting from a garment plant shifting from individual piece rate to group piece rate incentives. Results not only showed that even after controlling for selection of high-ability workers in the teams, productivity raises by 14%, but they also suggest the presence of non-pecuniary benefits as higher-productivity workers joined the team earlier and were less likely to leave the company compared to low-productivity workers. Other empirical evidence from field experiments within retail chains come from Delfgaauw et al. (2013, 2014, 2015) and from Friebel et al. (2017).

2.3.4. Payment linked to the results of the company

As per Bryson and Freeman (2007), fair share capitalism is the term used to define schemes linking employees’ pay to a group or company performance. This type of schemes have been incentivized with a more favorable taxation compared to profit-related payment. The authors conducted an empirical analysis with data regarding British private sector companies, and found a positive relation between the implementation of such schemes and performance at the company level. Results show that such incentives are even stronger when applied also to non-managerial employees, and when accompanied by a higher degree of autonomy for employees.

It has been argued that payment linked to result of the company have both a direct and a direct effect on employees’ effort level. The direct effect is similar to the one presented for the other compensation schemes: as payment is linked to performance, workers raise their effort level. Nevertheless, in this case,

due to the link between performance and rewards being more blur, delayed in time and the individual contribution to the company output lower than in previous cases, this direct effect might be weakened – Weitzman and Kruse (1990). The indirect effect instead, acts by rising the identification of the employees with the company, educate them to acquire ownership of their performance, and foster a sense of proud in their mansion – Bishop (1987) – but also in this regards the same limitations emerged.

2.3.5. Share Ownership

Arguably, when workers own a very small part of a firm, the return on their increased effort is negligible, which suggests this kind of compensation might be a weak motivator, as Oyer (2004) suggests. Employees are not compensated for the extra risk they bear. The paper also points out that when stock options for managers or company-wide profit sharing plans are not indexed to the market, these plans end up rewarding luck (market's return increase out of a company's employees actions). Nevertheless it explains that the reason of this non-indexing is that firms find optimal to align their employees' compensation with their outside opportunities (described by market trends). Consistently Oyer and Schaefer (2005) shows that company-wide option plans are more frequent in industries where the average firm's return more strongly correlates with the industry average return. Still Oyer (2004) mentions that another important reason why firms choose not to provide stock plans indexed to the market is that it might mean give employees shares of competitors, which firms understandably might be reluctant to do.

Both papers build toward the same direction, more explicitly stated in the latter. They argue that this kind of compensation schemes is not used for increasing employees motivation, due to limitations similar to the ones emerged in section 2.3.4, but instead for sorting and retention. Indeed by linking rewards to a the volatility of the market the company should be able to attract more positive workers (sorting), and by the deferred-compensation nature of this payment schemes it raises their cost for leaving (retention).

2.4. Conclusions and Hypotheses Formulation

Throughout the previous sub-sections, I introduced relevant literature in order to provide a theoretical framework to build the analysis upon. Literature on managerial perceptions provides evidence suggesting that those frequently lack accuracy, and that several biases and heuristics make managers overestimate

their ability to affect employees' motivation. Managers tend to be in general overconfident on the ability of their actions to cause desired actions, and literature on self-fulfilling prophecies suggest different reasons why managers shall end up perceiving higher motivation among their employees when implementing actions thought to increase their motivation.

Different theoretical models indeed, offer a variety of justifications of the presence of incentives within firms and various explanations on the matter of whether or not incentives shall affect motivation. Especially within the stream of economic literature, it is widely agreed that the relation between incentives and actual motivation shall be positive, at least for those based on individual performance – either payment by result of after subjective assessment – or team performance. Furthermore, various pieces of empirical literature examined the relation between different forms of performance-based compensation and motivation, suggesting explanations for the interaction of different elements leading to the observed outcomes, in particular suggesting some of factors that might limit the motivating effect of payment schemes based on the company firm – also intended as shares ownership. Psychological literature adds an important piece to the puzzle, with its contribution on motivation crowding out, suggesting that under certain circumstances, the crowding-out effect of incentives over intrinsic motivation can majorly detriment the overall effect of economic incentives on motivation. Unfortunately, the database considered does not shed any light on the split between intrinsic and extrinsic motivation concerning the 'low motivation issues' observed by the management. By this I intend that I am not able, within the analysis, to observe the relation between the different forms of compensation and perceived or actual intrinsic (nor extrinsic) motivation alone, but only between said payment schemes and overall perceived motivation. This, as will be discussed more in depth in section 5, constitutes an important limitation of the analysis.

Lastly, literature on managerial perceptions of employees' motivation highlights how managers and people in general show the tendency to overestimate particularly the motivating power of extrinsic motivators – and the role of extrinsic motivation in general – for employees.

The literature examined, leads me to the formulation of the following five hypotheses as an instrument to answer the research question presented above.

H₁: Payment by results is negatively associated with perceived presence of low motivation issues.

H₂: Variable extra pay linked to the individual performance following management appraisal is negatively associated with perceived presence of low motivation issues.

H₃: Variable extra pay linked to the performance of the team, working group or department is negatively associated with perceived presence of low motivation issues

H₄: Variable extra pay linked to the results of the company or establishment is negatively (but weakly) associated with perceived presence of low motivation issues.

H₅: Variable extra pay in form of share ownership scheme offered by the company is negatively (but weakly) associated with perceived presence of low motivation issues.

The reason why last two hypotheses differ from the previous ones in terms of the strength of the association is that, while there is no difference with the previous ones as far as the managerial perceptions of motivation are concerned, the literature presented throughout the section suggest that the *actual* association with motivation shall be weaker.

Next section illustrates the methodology I use to verify these hypotheses.

3. Methodology

This thesis investigates the relation between the presence of different forms of performance-based payment schemes and the managerial perception of employees' motivation. The research question is operationalized by analyzing the relation between a set of main explanatory variables, corresponding to the availability within a company of one of the five different forms of compensation-based schemes in the database, and the dependent variable, corresponding to perceived low motivation with the company's employees by the management. I do so by estimating a linear probability model (LPM) in order to take into account the dichotomous nature of the dependent variable. Data are obtained from the third wave of the European Company Survey among 32 countries – 27 being EU members. In order to isolate as clearly the relation between the set of main explanatory variables and the dependent variable, I gradually introduce in the regression three sets of control variables regarding different aspects relevant to the issue, following a nested regression approach. The first set contains company-level variables, the second contains work force and Human Resources (HR)-related variables, while the variables in the third set pertain the very respondent of the survey (respondent-related variable).

In the subsequent sub-sections, I explain in full length these different relevant aspects of the methodology for the present research.

3.1. Sample and Data

3.1.1. The European Company Survey (ECS)

Data for present analysis are obtained from the third wave of the European Company Survey (ECS), carried out in 2013 among 32 countries: the 27 EU members, Croatia, the Former Yugoslav Republic of Macedonia, Iceland, Montenegro and Turkey. The European Foundation for the Improvement of Living and Working Conditions (Eurofound) has carried ECS out every four year since its introduction in 2004-2005. Eurofound is a European Union Agency, whose role is to provide knowledge to assist in the development of better social, employment and work-related policies.

The ECS is a questionnaire-based representative sample survey carried out by telephone in the languages of the countries, and consists of two questionnaires, one asked to the management and one to the employee representative within the same establishment. The focus of the two questionnaires varies, and for the scope of this thesis, I choose to utilize data from the management side. The structure of the questionnaire for the management contained questions on different aspects relevant to the scope of the survey. The different blocks of questions pertain: company/establishment characteristics, changes in the establishment, employee characteristics, activities in the establishment, work organization practices, teamwork and task rotation, outsourcing and collaboration, training, career development, working time arrangements, pay, employee representation structures, employee involvement, establishment/company outcome and respondent characteristics. Among this considerable amount of data, I choose to focus my attention on the set of variables presented in the next section.

3.1.2. The Dataset

The full dataset made available by the Eurofound consisted of 27,019 observations (one for every survey respondent from the management of a different company) and for each observations 142 variables. In order to obtain a clean dataset I first select the variables of interest for the analysis, then eliminate

observations containing missing values or outliers. The result is a clean dataset consisting of 20 variables – described in the next section – defined for 22,076 observations.

3.1.3. Variables Descriptions

This section provides an overview of variables included in the clean dataset, summarized in Table 1 (corresponding elements of the questionnaire can be found in the appendix):

Table 1: Descriptive Statistics and Summary of variables.

Variable		No. Observations	%
Dependent Variable			
Perceived low motivation issues	Yes	4597	20.8
	No	17479	79.2
Main Explanatory Variables			
Payment by Results	Yes	8962	40.6
	No	13114	59.4
Variable extra pay linked to individual performance after appraisal	Yes	11284	51.1
	No	10792	48.9
Variable extra pay linked to performance of the team	Yes	7189	32.6
	No	14887	67.4
Variable extra pay linked to performance of the company	Yes	8305	37.6
	No	13771	62.4
Variable extra pay in form of company shares	Yes	1551	7.0
	No	20525	93.0
Company-Level Control Variables			
Country	(32 countries, full list omitted for brevity)		
Sector	The Private Sector	20200	91.5
	The Public Sector	1876	8.5
Establishment Size	10 - 49 employees	11757	53.3

	50 – 249 employees	7002	31.7
	250 + employees	3317	15.0
Financial situation	Very bad	288	1.3
	Bad	1611	7.3
	Neither good nor bad	6067	27.5
	Good	11143	50.5
	Very good	2967	13.4
Economic activity type	Industry	7620	34.5
	Construction	1965	8.9
	Commerce and hospitality	5336	24.2
	Transport and communication	1479	6.7
	Financial services and real estate	929	4.2
	Other services	4747	21.5
Workforce and HR-Related Control Variables			
% Employees with permanent contract	None at All	592	2.7
	Less than 20%	990	4.5
	20% to 39%	621	2.8
	40% to 59%	971	4.4
	60% to 79%	1857	8.4
	80% to 99%	8187	37.1
	All	8858	40.1
% Women Employees	None at All	457	2.1
	Less than 20%	6915	31.3
	20% to 39%	5123	23.2
	40% to 59%	4754	21.5
	60% to 79%	2909	13.2
	80% to 99%	1736	7.9
	All	182	0.8
% Employees over 65 years of age	None at All	1822	8.3
	Less than 20%	10082	45.7
	20% to 39%	6391	28.9
	40% to 59%	2759	12.5
	60% to 79%	814	3.7
	80% to 99%	185	0.8
	All	23	0.1
% Employees with higher education	None at All	2675	12.1
	Less than 20%	10321	46.8
	20% to 39%	4114	18.6
	40% to 59%	1931	8.7
	60% to 79%	1325	6.0
	80% to 99%	1317	6.0
	All	393	1.8

Regular manager-employee meeting	Yes	19535	88.5
	No	2541	11.5
Number of hierarchical levels (numerical variable*)			
Respondent-Related Control Variables			
Respondent Gender	Male	9931	45.0
	Female	12145	55.0
Respondent Position	Manager	5425	24.6
	Owner/Proprietor	2307	10.5
	HR manager	10340	46.8
	Other	4004	18.1
Respondent tenure (numerical variable*)			

*Numerical Variable	Mean	Median	St. Dev	Min	Max
Number of hierarchical levels	3.76	3.00	2.56	1	10
Respondent tenure	11.58	9	9.55	0	44

About 21% of the respondents state that management at their company is experiencing low motivation issues. In terms of availability of different forms of compensation schemes, 41% of respondents mentioned the availability of payment by results, 51% mentioned availability of variable extra pay linked to individual performance after appraisal, 33% mentioned availability of variable extra pay linked to the performance of the team or department, 38% mentioned availability of variable extra pay linked to the performance of the company, while only 7% mentioned availability of variable extra pay in form of company shares. Following a brief description of the variables included in the analysis:

PerceivedLowMotivation: The dependent variable throughout the various specifications of the model is the presence of perceived issues of low motivation among employees by the management. This is operationalized through a close end question – resulting in a dichotomous variable – concerning whether or not the management encounters issues of low motivation among employees.

Among the independent variables, I first introduce the set of main explanatory variables which I will use the research question. These regard the availability of different forms of performance-based compensation.

PaymentByResults: Availability of payment by results within the company to at least some employees is the first of the five main explanatory variables corresponding to the five different types of performance-

based compensation included in the questionnaire. Again, it is operationalized through a close end question providing a dichotomous variable.

VariableExtraPayIndivid: Availability of variable extra-pay based on individual performance is the second kind of performance-based compensation considered in the questionnaire, asked with the same kind of close end question and resulting in the same kind of variable.

VariableExtraPayTeam: This variable regards availability of variable extra-pay based on the performance of the team/department, similarly to the previous ones.

VariableExtraPayCompany: The fourth type of performance-based compensation scheme the questionnaire investigates the availability of is variable extra-pay based on the results of the company, asked as the ones mentioned above and resulting in the same kind of variable.

VariableExtraPayShares: The last one among the main explanatory variables is still a dichotomous one regarding availability of variable extra-pay in form of shares ownership.

Following, I introduce the control variables added in the subsequent specification of the model.

Country: This variable consists of a country code for where the company is registered (Operationalized with a dummy for each country but Belgium, the reference category). The sample contains the 27 EU members, Croatia, the Former Yugoslav Republic of Macedonia, Iceland, Montenegro and Turkey. This variable was included in order to control for the effect of culture regarding job perception and overstatement and cross-country economic differences (on the importance of cultural differences on effectiveness of performance-based payment schemes see for example Hofstede (2005))

Sector: I include a variable regarding whether the company operates in the private or public sector. This is obtained from a related close end question resulting in a dichotomous variable. The rationale behind this control variable lays in a stream of literature investigating the difference in motivation across workers in the public and private sector, resulting in mixed evidence (Franco et al. (2002) provides a vast meta-analysis on the subject).

EstablishmentSize: This variable regards establishment size by number of employees in 3 categories: 10-49 employees, 50-249 employees and 250+ employees. Data are obtained from coding an open end question pertaining the number of employees, which results in an ordinal factor of three levels. This variable is included according to the literature mentioned in section 2.3.4 regarding the possible effect of company dimension on employees' motivation.

FinancialSituation: This variable pertains the claimed financial situation on a 5 point scale, from very bad to very good, resulting in a five levels ordinal factor. It is include in order to control to make sure to take into account the possible effect that a concerning financial situation of the company they are working for can have on employees motivation.

EconActivityType: In order to seek maximum comparability across the companies considered, I also control for the economic activity type they are involved in as defined by the Nace6.2 definition adopted by the EU. This variable, similarly to what shown for countries fixed effects, results in a nominal factor operationalized with a dummy for each of the six categories of the classification system considered: industry, constructions, commerce and hospitality, transport and communication, financial services and real estate, and finally other services.

I also include variables regarding workforce characteristics, again in order to avoid obtaining results which might be driven by different motivation levels across workers 'types'. In order to unveil this possible spurious correlation I control for the following:

PercEmployeesPermContract: The percentage of employees in the company with a permanent contract relates to the stream of literature on relational contracts and repeated interactions, one of the most proficuous examples of game theory contaminations to the field of Economcis. The ordinal factor reflects percentages from 0% to 100% in blocks of 20.

PercWomEmployees: This variable reflects the percentage of women employees in the company. A considerable amount of literature in psychology has studied troughout the decades differences in motivation levels, directions, intensity and triggers – Judit et al. (2007) provides a rich review on the subject. The ordinal factor reflects percentages from 0% to 100% in blocks of 20.

PercOver65Employees: The percentage of employees in the company over 65 years of age is also included. Also in this case the corresponding ordinal factor reflects percentages from 0% to 100% in blocks of 20. Inceoglu et al. (2012) provides an overview of the facors which literature has shown to alter motivation throughout life. These include, among the others, perceived utility of work-related output, habituation, external opportunities in terms of wages and promotions, moving through different stages of life, different levels of societal norms. For this reason, including the only age-related measure available in the questionnaire can help achieving a more precise comparability across observations.

PercHigherEdEmployees: I also include the percentage of employees in the company with higher education, where again this is operationalized through an ordinal factor reflects percentages from 0% to

100% in blocks of 20. Hitka and Balozova (2014) among the others, shows evidence in support of the fact that levels of education, more than affecting directly the level of motivation, tend as it was the case for age, to change the triggers of it.

Bonner and Sprinkle (2001) provides a framework for analyzing incentives and motivation in which, building on a substantial amount of inputs from both Economics and Organizational Psychology, great relevance is given to environmental variables. These consist of conditions and circumstances affecting the surrounding of the employee performing his tasks. For this reason, I also include two variables pertaining this field.

HierarchicalLevels: This numerical variable provides the number of hierarchical levels in the company. Not only same considerations presented for the dimension of the company and the perceived ability to affect the output apply, but also the findings on the importance of autonomy presented in section 2.2.2 on CET are relevant. Furthermore, there might be a self-selection of more motivated employees toward more structured companies where career escalation is more tangible, or towards less structured ones where they can enjoy a higher degree of autonomy. Albeit investigating the direction of this possible phenomenon exulates the scope of present thesis, I choose to control for the number of hierarchical levels.

RegularEmplManagerMeetings: This dichotomous variable regards the presence of regular meetings between employees and immediate manager. Bonner and Sprinkle (2001) defines the double effect, cognitive and motivational of feedbacks. Furthermore, regular meetings with immediate managers can work as a proxy for an open and opened-to-communication work environment, which falls within the environmental variables described by the paper.

Finally, I consider three variables regarding the very respondent of the survey. As presented in the literature in section 2, ego-involvement plays an important role in shaping perceptions. For this reason I incorporate two variables pertaining characteristics of the respondent that might induce her to overstate or be more lenient toward the company when asked to represent it outside, and to its ability to perceive the effectiveness of her actions for the company. On top of that, I also control for gender of the respondent.

RespondentGender: Gender of the respondent to the survey on behalf of the company is asked with a close end question resulting in binary variable.

RespondentPosition: The position within the company of the respondent to the survey on behalf of the company is asked with an open-end question, which one coded is operationalized as a nominal factors with four categories: manager, owner, HR manager, other.

RespondentTenure: The last variable included is a numerical one pertaining the tenure within the company of the respondent to the survey on behalf of the company.

Below, the corresponding descriptive statistics.

4. Analysis

This thesis investigates the relation between different forms of performance-based compensation and the perceived level of motivation among employees. In order to answer the research question I estimate a regression using the linear probability model. In the next subsection, I introduce the different specifications of the estimated model following the nested approach mentioned above. Then, I illustrate the results of the analysis.

4.1. Model Specifications

This thesis tests various hypotheses related to the effect of performance payment on managerial perceptions of employees' motivation. In order to do so, I set up various regression models using a nested approach, starting from the simplest specification, and gradually adding different sets of control variables. The model is estimated using the linear probability model (LPM).

The core of the model consists of the investigated relation between the presence of the five kinds of performance-based compensation available in the dataset (the main explanatory variables) and the perceived presence of low motivation issues among employers. In order to unveil possible hidden factors affecting the relation between performance-based compensation schemes and motivation, I gradually introduce sets of control variables. I start from a set of control variables pertaining some main characteristics that define the different companies at, in facts, a broader company level. These characteristics include the country where the company is located, whether they operate in the public or

private sector, the establishment size, their (claimed) financial situation, and finally the type of economic activity they operate in. The next set of control variables I introduce are related to the composition of the work force and HR practices among the companies considered. The four variables on the composition of labor force provide the percentage of employees respectively with permanent contracts, of female sex, over 65 years of age and lastly with an higher level of education. Other two variables are included, one regarding the number of hierarchical levels in the company, and one which is a dummy for the presence of regular meetings between employees and their immediate manager.

The full model contains also a set of variables regarding the actual respondents to the questionnaire. Indeed. I control for gender, position and tenure, since, as mentioned in sections 2.1 and 3.1.3, ego involvement varies across respondent's characteristics, and so can do the accuracy of perceptions. The resulting full model follows:

Full Model: Main Explanatory Variables + Company-Level Variables + Workforce and HR-Related Variables + Respondent Variables:

$$\begin{aligned} \text{LowMotivation} = & \alpha + \beta_1 \text{PaymentByResults} + \beta_2 \text{VariableExtraPayIndivid} + \beta_3 \text{VariableExtraPayTeam} + \\ & \beta_4 \text{VariableExtraPayCompany} + \beta_5 \text{xVariableExtraPayShares} + \sum_{j=6}^{36} \beta_j \text{Country}_j + \beta_{37} \text{Sector} + \\ & \sum_{j=38}^{39} \beta_j \text{EstablishmentSize}_j + \sum_{j=40}^{43} \beta_j \text{FinancialSituation}_j + \sum_{j=44}^{48} \beta_j \text{EconActivityType}_j + \\ & \sum_{j=45}^{50} \beta_j \text{PercentageEmployeesPermanentContract}_j + \sum_{j=51}^{56} \beta_j \text{PercentageWomenEmployees}_j + \\ & \sum_{j=57}^{62} \beta_j \text{PercentageofEmployeesOver65}_j + \sum_{j=63}^{69} \beta_j \text{PercentageofEmployeesWithHigherEducation}_j + \\ & \beta_{70} \text{HierarchicalLevels} + \beta_{71} \text{RegularEmployeeManagerMeetings} + \beta_{71} \text{RespondentGender} + \\ & \sum_{j=72}^{74} \beta_j \text{RespondentPosition}_j + \beta_{75} \text{RespondentTenure} + \varepsilon \end{aligned}$$

The dependent variable corresponds to presence of perceived low motivation issues. The explanatory variables are the dummies respectively for availability of payment by results, of variable extra pay based on the individual performance, of variable extra pay based on the performance of the team, of variable extra pay based on the performance of the company and finally of variable extra pay in form of company's share. According to the interpretation of LPM the above equation explains what is the probability of presence of low motivation among employees, given the availability of the various form of compensation, and the coefficients represent the marginal increase in that probability given the presence of the

corresponding type of compensation. According to the hypotheses of the thesis, the first three coefficients are expected to be negative and significant, while the latter two to be non-significant. This would imply that the first three are associated with lower probability of low perceived motivation by managers among employees, while the latter two are not.

4.2. Linear Probability Model

The dependent variable in the model is a dichotomous one taking value 1 if the management encounters low motivation issues among employees, 0 otherwise. The categorical nature of the dependent variable representing the binary outcome has to be taken into consideration when choosing the estimation method for the regression model. The choice, as far as models of binary choices are concerned, is between the linear probability model (LPM) and the non-linear probability models as Logit and Probit. LPM consist of applying the OLS estimation method to a regression with a dependent variable. This way β_x represents the change in probability that $Y=1$ given a unitary change in x .

An alternative to LPM is Logit model. While LPM assumes that the probability p is a linear function of the regressors, the logistic model assumes that the natural log of the odds $p/(1-p)$ is a linear function of the regressors. The reason why in the main body of this thesis I incorporate LPM is ease of interpretation. Nevertheless, as a robustness check, I also estimate the logistic regression (Logit) and include the results in the appendix (see Table 4 in appendix 3).

4.3. Results

Table 2 in Appendix 2 contains correlations regarding the data, where it emerges that there are no worryingly high correlations among the covariates. Table 3 below presents a summary of regression results.

Table 3: LPM Summary of results.

Dependent Variable: Low motivation perceived by management.

Variable	(1)	(2)	(3)	(4)
Intercept	1.218*** (0.004)	1.480*** (0.027)	1.443*** (0.038)	1.456*** (0.038)
Payment by results	0.023*** (0.006)	0.027*** (0.006)	0.028*** (0.006)	0.028*** (0.006)
Variable extra pay linked to indiv. perf. after appraisal	-0.007 (0.006)	-0.002 (0.006)	-0.001 (0.006)	-0.001 (0.006)
Variable extra pay linked to performance of the team	-0.001 (0.007)	-0.018** (0.006)	-0.016* (0.006)	-0.016* (0.006)
Variable extra pay linked to performance of the company	-0.039*** (0.006)	-0.018** (0.006)	-0.016* (0.006)	-0.016* (0.006)
Variable extra pay in form of company shares	-0.01 (0.011)	0.006 (0.011)	0.009 (0.011)	0.009 (0.010)
Country dummies	No	Yes	Yes	Yes
Establishment Size 50-249	-	0.055*** (0.006)	0.042*** (0.006)	0.039*** (0.007)
Establishment Size 250+	-	0.075*** (0.008)	0.054*** (0.008)	0.050*** (0.009)
Financial Situation Bad	-	-0.076** (0.025)	-0.076** (0.025)	-0.077** (0.025)
Financial Situation Neither good nor bad	-	-0.245*** (0.023)	-0.242*** (0.023)	-0.243*** (0.023)
Financial Situation Good	-	-0.341*** (0.023)	-0.335 (0.023)	-0.337*** (0.023)
Financial Situation Very Good	-	-0.375*** (0.024)	-0.367*** (0.024)	-0.367*** (0.024)
Economic activity dummies	No	Yes	Yes	Yes
Number of hierarchical levels	-	-	0.005*** (0.001)	0.005*** (0.001)
Regular manager-employee meeting	-	-	-0.058*** (0.008)	-0.059*** (0.008)
Respondent's Tenure	-	-	-	-0.001*** (0.000)
Respondent's Position dummies	No	No	No	Yes
Adjusted R ²	0.002	0.090	0.096	0.097
N observations	22,076	22,076	22,076	22,076
N of perceived low motivation among sample	4,597	4,597	4,597	4,597

Notes: Standard errors between brackets. *, **, and *** denote significance at the 5%, 1%, and 0.1% levels, respectively. Variables not included in the table: Public Sector dummy, % Employees with permanent contract, % Women Employees, % Employees over 65 years of age, % Employees with Higher Education, Respondent's Gender Dummy.

Columns 4 displays the coefficients for the full model, where beside the set of main explanatory variables, also all the sets of controls are included. Among the main explanatory variables, only three are statistically significant at 5% confidence level. Payment by results in particular is positively associated with the presence of perceived low motivation issues, more specifically presence of payment by results corresponds to an increase in the probability of presence of perceived low motivation by 2.8%. Variable extra pay based on team's results and variable extra pay based on company's results appear to have the opposite sign in association. More specifically, presence of either the first or the second corresponds to a decrease in the probability of perceived low motivation issues of 1.6%. The two remaining compensation schemes do not appear to have a significant relation with the dependent variable. This means we cannot reject the null hypothesis of the significance test that the coefficients are (individually) different from 0. Variable extra pay linked to individual performance after appraisal is associated with a .1% decrease in the probability of perceived low motivation issues, while variable extra pay in form of company shares corresponds to a .9% increase of that probability.

These results do not support, for the vastest parts, the hypotheses tested in this thesis. Indeed, the expected coefficients for the presence of the performance-based payment schemes would have all been negative, with the last two smaller in magnitude. This would have meant that the presence of those payment schemes would have corresponded to a lower probability of perceived low motivation issues, with a weaker association for variable extra pay linked to the performance of the company and variable extra pay in form of company shares – due to a weaker effect of those motivators on the actual motivation and not to the perceived one. Instead, the coefficient for the first payment scheme considered is actually positive and significant, meaning that the presence of payment by result is associated with an increased perception of low motivation, exactly the opposite of what anticipated. Among the others, only variable extra pay linked to the performance of the team and the one associated to the performance of the company present the expected negative and significant coefficient, but contrary to expectations, those are of same magnitude, while the latter was expected smaller. Interestingly, the sign of the relation for all coefficients shows consistency across all model specifications; also, the changes in terms of magnitude and statistical significance that occur are minor.

In particular, the introduction of company-level control variables shows the strongest overall effect on the main explanatory variables – also due to it being the group with the highest number of controls. These are dummies regarding the country where the company is established, a dummy for whether or not the company operates in the public sector, an ordinal categorical variable describing establishment size, an

ordinal categorical variable describing the claimed financial situation of the company, and a categorical variable describing the industry in which the economic activity in which the company is involved. In the table, for ease of interpretation, only the ones with significant coefficients are reported. The introduction of this set of controls corresponds to a .4% increase in the coefficients for presence of payment by result, a decrease of .5% in magnitude – the coefficient is negative – for the coefficient for presence of variable extra payment linked to individual performance after appraisal, a 1.7% increase in magnitude – also this coefficient is negative – for variable extra pay linked to the performance of the company, and a .4% variation for the variable extra pay in form of company shares that makes the coefficient shift from negative and non-significant to positive and non-significant. Across all model specifications where present, coefficients for the dummies regarding the establishment size and financial situation remained strongly significant and consistent in the trend. In the full model in facts, increase in establishment size from less than 50 employees to between 50 and 250 was associated with an increase in probability of perceived low motivation issues of 3.9%, and a further increase in establishment size was associate with an even stronger increase in the probability – 5%. Every step along the five-point-scale regarding the claimed financial situation was associated with a decrease in the probability of perceived low motivation issues.

The introduction of HR and workforce-related controls has a weaker effect on the analyzed relation. It results in a variation bounded between .1% and .3% for all of the five coefficients of the main explanatory variables, and no observable change in statistical significance at 5% level. HR-related and workforce characteristics do not seem to have hidden relations between the main set of explanatory variables and the dependent variable that the previous specification had not been able to capture. Every additional hierarchical level there is associated with a .5% increase in the probability of perceived low motivation issues, meaning that more structured companies are associated with lower perceived motivation. Presence of regular meetings between employees and their managers are instead associated with 6% decrease in probability of perceived low motivation issues.

Respondent-related control variables have an even weaker effect on the main explanatory variables, both in terms of magnitude and significance – namely, no observable effect. Importantly, this leads to no evidence for differences across survey respondents being responsible for the observed results. Coherently, none of the coefficients in this last set of variables being statistically significant, which is in contrast with the literature on ego involvement.

Beyond the remarks on statistical significance, it is important to discuss also the economic significance of these coefficients, especially of those of the main explanatory variables – corresponding the performance-

based payment schemes, even more so since they differ from the expectations. The greatest of the main explanatory variables' coefficients corresponds to less than 3% of variation in the probability of perceived low motivation issues among employees, which is a very modest association. All of the other coefficients are of similar magnitude, and thus scarce economic relevance, with the only exception of those regarding self-reported economic situation of the establishment. The better the (claimed) financial situation, the lower the probability of perceived low motivation issues. In particular, the difference in the probability of perceived low motivation associated with an improve in claimed financial situation from neutral to good is 34%, and from good to very good stands even higher at 47%. Next section contains a wide and detailed discussion of the results mentioned.

5. Discussion and Conclusion

5.1. Key Findings

This research question investigated within this thesis concerns the relation between different forms of performance-based compensation schemes and managerial perceptions of employees' motivation. In particular, in the introduction five hypotheses are presented, regarding said relation between each of the five specific forms of payment schemes and the perceived presence of low motivation issues across employees.

Evidence emerging from the statistical analysis presented in section 4 provides evidence in support of only two out of the five hypotheses evaluated. More specifically, after controlling for three sets of aspects that can affect the investigated relation, the following picture emerges.

Concerning payments by result, a positive and significant relation between presence of said compensation scheme and presence of perceived low motivation among employees emerges, which is strongly in contrast with H_1 . A possible explanation for this surprising result regards the actual motivation, which is the object of managerial perceptions, more than managerial perceptions. This explanation derives from one of the limitations of the dataset I present in the next sub-section: the lack of information on intrinsic and extrinsic motivation separately. While monetary incentives have a positive direct effect on extrinsic motivation, they can also have an indirect effect in the opposite direction on intrinsic motivation. As

presented within the theoretical framework section, various motivation theories insist on the importance of the feeling of autonomy to enhance competence and ultimately intrinsic motivation. This kind of performance-based compensation scheme instead, is the one that requires the highest level of control of the performance, thus incurring in the highest risk of jeopardizing the feeling of autonomy for employees, with a possible detrimental effect on overall motivation.

Concerning variable extra pay linked to the individual performance following management appraisal, the relation emerging is non-statistically significant while negative in direction. Albeit the direction is the one expected, the lack of statistical significance does not provide sufficient evidence in support of H₂. A possible explanation here again regards the actual underlying level of motivation, more than the perceptions, and it comes from a rather vast stream of literature insisting on the detrimental effect that biased appraisal can have on employees' motivation – most notably, Gibbs (2004). In particular this study provides evidence in support of a strong positive association between effectiveness of subjective payment and tenure of the manager performing the appraisal, which is used to proxy trust in the manager. The dataset does not provide any information on how long managers and employees have been working together. This means that, while the average tenure of the respondents is rather long (more than 11 years), their employees might not have spent enough time in that establishment/department to have developed trust in the manager, her feedback in the appraisal, and be motivated by that.

When considering variable extra pay linked to the performance of the team, working group or department instead, the relation with presence of perceived low motivation issues is negative and significant, exactly as predicted by H₃.

A similar negative and significant relation emerges for variable extra pay linked to the results of the company or establishment, which is in contrast with H₄: the relation seems to be stronger than expected. This might suggest that, albeit the literature suggest that this payment scheme is less effective than the previous ones in raising actual motivation of employees, the effect of managerial perception is as strong as for the other ones.

Lastly, the relation between variable extra pay in form of share ownership and the presence of perceived low motivation results non-significant (and negative) relation, which supports only partially H₅.

In the next section I introduce some of the limitations to the study implant which have might contributed to the mixed-evidence emerging from the analysis.

5.2. Limitations

Evidence emerging from this analysis allow accepting only two out of the five hypotheses presented in section 1. While this should primarily be ascribed to the three rejected hypotheses not describing a true relation between the respective forms of compensation and motivation perceived by management, in this section I present some aspects that have limited the power of the analysis, thus potentially affecting the quality of results.

Firstly, data come from a questionnaire. This means that all data in the dataset are claimed, and some of the answers might come from opinions and beliefs, more than from *actual* facts. While this was a positive and fundamental characteristic for the dependent variable, since the relation investigate regards managerial perceptions, this might still raise some concerns regarding other variables. There is indeed no way to check for intentional or unintentional (information non-available, distraction, question misunderstood or misinterpreted) mistakes in the answers. In order to take this limitation into account, I included in the model a set of variables pertaining some measurable respondents characteristics, plus the country of the establishment – since also cultural differences might have played a role. Nevertheless, misunderstandings or evaluation errors varying across respondents could still not be controlled for, and can only be *assumed* to be normally distributed or to have mean equal to 0. For example, what is to be considered a low level of motivation, or a good financial situation, might substantially vary across respondents. Next two limitations concern the dependent variable.

The second limitation regards mainly the actual underlying level motivation, but also the managerial perception of those, and it emerges from sections 2.1.2 and 2.1.3 of the literature review. In those sections I introduced the concepts of intrinsic and extrinsic motivation, and the potentially detrimental effect that monetary incentives can have on intrinsic motivation. Unfortunately, it was not possible to separate extrinsic from intrinsic motivation with the dataset available. This implies that the only relation that was possible to observe was between the different forms of incentives-based compensation schemes and an overall, aggregated motivation. This limitation is particularly relevant since, as presented in the above-mentioned sections of the literature review, the effect of monetary incentives on motivation, results from two components pushing motivation in opposite directions: extrinsic motivation increases while intrinsic motivation can be crowded out to widely different extents. Importantly distinction between intrinsic and extrinsic motivation also affects managerial perceptions, as explained by Heath (1999) – see section 2.1.2. Indeed, managers tend to overestimate the role of extrinsic motivation, but different payment schemes

can affect intrinsic motivation differently, as suggested by the role of autonomy according to CET, so their perceptions might not always be aligned to the variation of the underlying level of motivation, across compensation schemes. While it was not possible for me to account for this lack of information, a possible way to improve further research in these regards is presented in section 5.4.

A third limitation still concerning the dependent variable is its dichotomous nature. This indeed forced the analysis into a compromise for the choice of the regression technique. On the one hand, stands the choice of the linear probability model included in the main body of the thesis, with its ease of interpretation but forcing some of the Gauss-Markov assumptions. On the other hand, the logit model included in the appendix – as argued above, similar argument would be valid for the probit model – offers a more meticulous analytical framework, but leaves behind a lot in terms of ease of interpretation. The way I addressed this limitation was to include both of the options respectively in the main body of the thesis and in the appendix. Next two limitations concern the set of main explanatory variables.

The fourth and fifth limitations concern the variables corresponding to the availability of the different forms of performance-based payment schemes. Firstly, no information on the percentage of the employees obtaining those incentives is available, nor how that availability is distributed along the hierarchical structure, and most importantly if the respondent to the questionnaire is also the party who decided to implement the compensation schemes. This latter element might greatly affect the level of ego involvement. It is plausible to assume that, for instance, if the HR management was in charge of the decision of compensation schemes, but the respondent was a manager of another department, her ego-involvement in depicting the incentives as effective could be lower than the case where an HR manager was to respond to the survey. A way to overcome this issue would simply consist of asking solely to people from the department in charge of the decision of payment scheme to respond the survey. Secondly, no information on the strengths of those incentives is available. Both characteristics might vary substantially across companies, for this reason in section 5.4 I propose suggestions on how to enrich data in these regards.

Lastly, a major limitation pertaining to this paper is the focus on a mere association between the different types of performance-based payment schemes and managerial perception of motivation, instead of a proper research of causality. Albeit the introduction of various sets of control variables partly mitigates the issue of omitted variable bias, it is still not sufficient to infer a proper causal relation. Randomized control trial would be the first-best in terms of causal inference, and would consist in randomly allocating managers across companies with different (here including none) available performance-based

compensation schemes, but this for evident reasons is not possible. This circumstance leaves the research for causality at risk due to possible omitted variable bias, which occurs when a variable (unobserved) is correlated both with both the main explanatory variable(s) – here availability of performance-based schemes –, and the outcome – here managerial perceptions of employees motivation. This unobserved variable might be for instance attention of companies to engaging HR policies in general, among which there are also monetary incentives: this research for engagement would correlate to both availability of such payment schemes and to raising managers' expectations in terms of employees' motivation through the creation of a motivation-focused environment, and not purely through the incentives themselves. Another issue that the lack of this approach might hide is reverse causality, occurring in case of managers giving high importance to employees' motivation, self-selecting in companies where more attention is devoted to motivating payment schemes. A second-best solution that would allow inferring causality would consist of the instrumental variable approach. An instrumental variable (IV) is a one that affects the explanatory variable without affecting the dependent variable – in this thesis model it would mean affecting the probability of the company making the different forms of incentives available without affecting managerial perception of employees' motivation. The main issue with the IV approach is that it is not simple to find a valid instrument, as it needs indeed to satisfy the two above-mentioned conditions of relevance and exclusion restriction. The former condition means that the instrument has to affect the dependent variable (or treatment): in the so called 'first stage regression' of the treatment over the instrument, the coefficient must be enough strong. The latter refers to the instrument affecting the dependent variable in the main regression (or outcome) only through the treatment. Within the context of this thesis, with the available dataset, no valid instrument was available, and for this reason I decided to exclude this approach and to exclude causality from the scope of the research.

5.3. Practical Implications

The only evidence in support of a negative and significant association between availability of performance-based payment schemes and perceived presence of low motivation issues, emerges with regards to variable extra pay linked to the performance of the team, working group or department variable extra pay linked to the results of the company or establishment. This results, are robust for both linear probability model and logit, and have been controlled for different sets of variables that might have biased results or hidden unobserved relations. Albeit controlling for many possible confounding factors, deducting causality

from correlation without an instrumental variable approach is still risky. For this reason, I am not confident in deriving HR-managerial implications from the implant of this thesis.

The only practical implication I am confident of providing is the contribution of this thesis to the literature on incentives and motivation. Indeed, this thesis provides evidence for a negative association between those two kinds of compensation-based schemes and perceived low-motivation among employees. Within the next section I suggest in detail how further research could investigate a causal relation.

5.4. Future Research

The set of limitations presented above, offers the first guidelines for further research opportunities. Firstly, more precise insights might be drafted from a dataset containing data not from a questionnaire's answers – hereby excluding the one regarding managerial perceptions. This would eliminate variability coming from difference in interpretation of questions and from cognitive biases among respondents. Secondly, it would be useful to have information regarding extrinsic and intrinsic motivation of employees separately, so to account for the motivation crowding-out effect that monetary incentives have been proved to have, and most importantly to also control for the extrinsic-incentive bias affecting managerial perceptions. As mentioned above, it would be even better in terms of freedom of choice for models, if given variables were not dichotomous. Some suggestions on how to operationalize intrinsic and extrinsic motivation derive from the literature presented in the theoretical framework in section 2. Literature has suggested coherence with the field of study (for higher education positions), attitudinal tests and also self-reported enjoyment of tasks. Another possibility for further research would involve a research implant including more precise information regarding which employees are incentives available for, and the strengths of those incentives, with respect to the fixed part of their income. As mentioned in subsection 5.2, it would also be of great relevance in relation to literature on ego-involvement having data regarding whether or no respondents were responsible for the implementation of the payment schemes available in the company. Again, the best option would include non-questionnaire-derived data.

The most relevant aspect to address with further research in order to be able to provide practical guidance to practitioners is the research for causal inference, and sub-section 5.2 provides some suggestions for a possible instrumental-variable approach. A quasi-natural experiment would occur in case an higher

authority, for example governments, were to impose performance pay, but since this scenario seems rather unlikely, the research for solid instruments among richer datasets seems the most viable path.

A last suggestion for further research I would like to mention, involves expanding the analysis to also non-monetary incentives and their effect on managerial perception of motivation, possibly incorporating the improvements in the analytical implant just mentioned.

5.5. Conclusion

This thesis has investigated the relation between the presence of different performance-based payment schemes and managerial perceptions of employees' motivation. It has provided quantitative evidence in support of a negative association between the availability of payment schemes including variable extra pay based on either the performance of team or of the company and presence of perceived low motivation issues by the management. No significant relation emerged for variable extra pay linked to the individual performance following management appraisal or variable extra pay in form of share ownership. A positive and significant relation instead, emerged – contrary to the relevant hypothesis stated – for payment by results. Possible explanations for this latter result have been provided, according to indirect effects of performance-based payment schemes and motivation crowding-out on the actual levels of motivation, rather than managerial perceptions. Despite these suggested explanations, the fact that evidence emerged supports only two out of the five hypotheses stated, claims the necessity for further research in the topic. In these regards, possible directions have been suggested starting from limitations deriving from the dataset structure, but also transcending those limitations. In particular, relevance of further research regarding causal relations between different forms of performance-based payment schemes and managerial perceptions of employees' motivation, together with the analysis of direct and indirect effects of incentives of performance have been stressed.

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7. Appendices

7.1. Appendix 1: Questionnaire extracts

Q2.

APRIVATE

A public sector organisation is either wholly owned by the public authorities or they own more than 50%.

Is your establishment part of ...

- The private sector or 1 CONTINUE
- The public sector? 2 CONTINUE
- [Don't know] 8 CONTINUE
- [No answer] 9 CONTINUE

Q5.

ANUMBEMP

Approximately how many employees work in this establishment? Please include all employees that are formally based in this establishment, regardless of whether they are physically present or carry out their work outside of the premises.

Each employee is counted as one person, regardless whether they are working fulltime or part-time (= headcount). Your best estimate is good enough.

- Number of employees: _____
- [Don't know] 99998
- [No answer] 99999

Q33.

Could you please tell me for this establishment, the number or percentage of employees, who ...

			[PERCENTAGE CATEGORIES]									ABSOLUTE NUMBER
			None at all	Less than 20%	20% to 39%	40% to 59%	60% to 79%	80% to 99%	All	DK	No answer	
Q33A	CEMP PERM	...have permanent contract?	1	2	3	4	5	6	7	8	9	
Q33B	CEMP WOM	...are female?	1	2	3	4	5	6	7	8	9	
Q33C	CEMP OLD	... are older than 50 years of age?	1	2	3	4	5	6	7	8	9	
Q33D	CEMP HIED	... have a university degree?	1	2	3	4	5	6	7	8	9	
Q33E	CEMP PART	... work part-time, that is less than the usual full-time arrangement?	1	2	3	4	5	6	7	8	9	

Q24.

EHIERA

How many hierarchical levels do you have in this establishment, including the highest and the lowest level?

[Flat organisations (ie.. all being equal) have 1 level of hierarchy. "0" cannot be accepted as an answer, answer has to be > or = 1.]

- Number of levels: _____ levels CONTINUE
- [Don't know] 998 CONTINUE
- [No answer] 999 CONTINUE

H23.

Now I am going to read out certain variable payment options on top of basic pay that might be in place in your establishment. Could you please tell me for each of these options, whether or not they are available to at least some employees?

			Yes	No	DK	NA	
H23A	HVPBRES	Payment by results, for example piece rates, provisions, brokerages or commissions	1	2	8	9	CONTINUE
H23B	HVPINPER	Variable extra pay linked to the individual performance following management appraisal	1	2	8	9	CONTINUE
H23C	HVPGRPE	Variable extra pay linked to the performance of the team, working group or department	1	2	8	9	CONTINUE
H23D	HVPPRSH	Variable extra pay linked to the results of the company or establishment (profit sharing scheme)	1	2	8	9	CONTINUE
H23E	HVPSHOW	Variable extra pay in form of share ownership scheme offered by the company	1	2	8	9	CONTINUE

P1.

Does the management encounter any of the following problems at this establishment currently?

			Yes	No	DK	NA	
P1A	KOSICK	High level of sickness leave	1	2	8	9	CONTINUE
P1B	KOSKILL	Difficulties in finding employees with the required skills	1	2	8	9	CONTINUE
P1C	KORETEN	Difficulties in retaining employees	1	2	8	9	CONTINUE
P1D	KOREDUDU	A need to reduce staff	1	2	8	9	CONTINUE
P1E	KOLOMOT	Low motivation of employees	1	2	8	9	CONTINUE

E1.

In this establishment, which of the following practices are used to involve employees in how work is organised?

			Yes	No	Don't know	No answer	
E1A	JREG MEE	Regular meetings between employees and immediate manager	1	2	8	9	CONTINUE
E1B	JSTA FFME	Regular staff meetings open to all employees at the establishment	1	2	8	9	CONTINUE
E1C	JADH OC	Meetings of a temporary group or committee or ad-hoc group	1	2	8	9	CONTINUE

P3.

KFINAN

How would you rate the financial situation of this establishment? Is it very good, good, neither good nor bad, bad, or very bad?

- Very good 1 CONTINUE
- Good 2 CONTINUE
- Neither good nor bad 3 CONTINUE
- Bad 4 CONTINUE
- Very bad 5 CONTINUE
- [Don't know] 8 CONTINUE
- [No answer] 9 CONTINUE

R1. [INTERVIEWER]

LSEX

Please record the sex of the respondent.

- Woman 1 CONTINUE
- Man 2 CONTINUE

R2.

LPOSIT

What position do you hold?

- Manager 1 CONTINUE
- Owner/proprietor 2 CONTINUE
- Human Resource Manager / Personnel manager 3 CONTINUE
- Other 4 CONTINUE
- [No answer] 9 CONTINUE

R3.

LTENURE

How long have you been working in this establishment?

[Please enter the nearest year. Enter '0' if less than 6 months.]

[INTERVIEWER: Pay extra attention so the answer given for this question must not exceed the years of operation of this establishment shown below:]

- _____ years
- [No answer] 99 CONTINUE

7.2. Appendix 2: Tables

Table 2: Correlation Matrix.

	Country	Private sector	Establ. Size	% Employees w/ permanent contract	% Women employees	% Employees older than 65	% Employees w/ higher education	No. of hierarchical levels	Payment by results	Extra pay linked to individual performance after appraisal	Extra pay linked to the performance of the team	Extra pay linked to the performance of the company	Extra pay in form of company shares	Regular manager-employee meetings	Claimed financial situation	Respondent gender	Respondent position	Respondent tenure	Economic activity type
Country	1																		
Private sector	0.030	1																	
Establishment size	0.002	0.080	1																
% Employees w/ permanent contract	-0.092	-0.021	-0.081	1															
% Women employees	-0.056	0.074	0.030	-0.016	1														
% Employees older than 65	-0.060	0.177	0.147	0.044	0.036	1													
% Employees w/ higher education	0.11	0.091	0.062	0.035	0.015	-0.051	1												
Number of hierarchical levels	0.065	0.025	0.313	-0.029	-0.005	0.018	0.066	1											
Payment by results	-0.022	0.106	-0.108	0.016	0.002	0.035	-0.070	-0.043	1										
Extra pay linked to individual performance after appraisal	0.001	0.021	-0.159	0.030	-0.004	0.007	-0.100	-0.074	0.325	1									
Extra pay linked to performance of the team	-0.041	0.025	-0.162	0.019	-0.011	0.006	-0.109	-0.077	0.287	0.389	1								
Extra pay linked to performance of the company	-0.021	0.055	-0.162	-0.013	-0.000	-0.031	-0.104	-0.055	0.260	0.318	0.342	1							
Extra pay in form of company shares	-0.030	0.038	-0.092	0.013	0.010	-0.006	-0.101	-0.047	0.126	0.148	0.164	0.215	1						
Regular manager-employee meetings	-0.029	-0.009	-0.067	-0.012	-0.035	0.044	-0.110	-0.036	0.074	0.105	0.092	0.107	0.046	1					
Claimed financial situation	-0.055	0.064	-0.059	-0.019	0.001	0.069	-0.076	-0.048	0.074	0.089	0.067	0.105	0.054	0.065	1				
Respondent gender	0.072	-0.037	-0.075	0.007	-0.153	-0.029	-0.072	-0.009	-0.022	-0.000	-0.010	-0.002	-0.005	-0.012	-0.033	1			
Respondent position	-0.078	0.018	0.191	-0.012	-0.009	0.024	0.041	0.082	0.001	-0.018	-0.000	-0.017	-0.011	0.036	0.0186	-0.287	1		
Respondent tenure	-0.065	0.034	-0.033	0.029	-0.029	0.141	-0.147	-0.022	0.053	0.053	0.028	0.021	0.030	0.073	0.034	0.116	-0.092	1	
Economic activity type	0.013	0.158	-0.076	-0.017	0.239	-0.023	0.331	-0.039	0.006	0.006	0.005	0.037	-0.021	-0.053	0.006	-0.055	-0.017	-0.075	1

7.3. Appendix 3: Robustness check – Logit model

Table 4: Logit Summary of results with average marginal effects.
Dependent Variable: Low motivation perceived by management.

Variable	Coefficient	St. Error	P> z	Av. marginal effect
Intercept	1.218***	1.480***	1.443***	-0.028
Payment by results	0.186	0.040	0.000***	0.028
Variable extra pay linked to indiv. perf. after appraisal	-0.004	0.041	0.916	-0.001
Variable extra pay linked to performance of the team	-0.107	0.044	0.014*	-0.016
Variable extra pay linked to performance of the company	-0.104	0.042	0.014*	-0.015
Variable extra pay in form of company shares	0.063	0.074	0.395	0.009
Company-level control variables	Yes			
Workforce and HR-related control variables	Yes			
Respondent-related control variables	Yes			
Adjusted R2	0.002	0.090	0.096	0.097
N observations	22,076	22,076	22,076	22,076

Notes: Standard errors between brackets. *, **, and *** denote significance at the 5%, 1%, and 0.1% levels, respectively.

For brevity reasons, only the full model is reported, and marginal effects are in line with the ones from the LPM.