

Monetary and Nonmonetary Incentive Measures: Which Work better in the Czech Betting Firm?

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Abstract

In this paper I examine the interrelation between monetary and non monetary incentive measures and the performance of a betting firm in the Czech Republic. Previous studies have focused either solely on monetary measures in order to examine the positive and adverse monetary incentive effects or on measuring the effect of certain non monetary managerial objectives and often on the level of top managers. I argue that the monetary and non monetary incentive measures should be analyzed separately as they influence the final outcome in a methodologically different way and that the analysis on lower level of organization can bring more reliable data. The evidence from unique set of medium term data from the Czech betting firm shows the possible positive effect of increased wage variability on its performance while the effect of trainings and nonmonetary rewards were proven as insignificant.

Keywords: *monetary incentives, trainings, knowledge dispersion, wage dispersion*

JEL Classification: M21, J30, L25

Introduction

In recent years, the fundamental discussion about effects of monetary and nonmonetary managerial measures applied in firms to stimulate the performance of agents is taking place. While in the past, the economics of the firm and organization has been rather a prolongation of macroeconomic postulates or a field of study of sociologists and psychologists, during last three –four decades the situation has changed. We are witnessing a continuous increase of number of scholars interested in the organization and their internal processes mostly focused on institutions, property rights, individual motivation, knowledge and path dependence.

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The contemporary incentive approaches (represented mostly by B. Frey, N. Foss and M. Osterloh) are combining most of these streams, as they claim, that besides capital of the firm in form of tangible and intangible resources, true individual motivation influences the performance of firms the most. So far, there have been numerous contributions to analysis of single types of motivations/incentives (often split to monetary and nonmonetary), however majority of these have focused on empirical testing whether some single incentive measure works at certain conditions or not. Also the quality of data is frequently questionable, as these come from financial accounting (which does not always reflect the reality), questionnaires or statistical databanks.

This paper would like to contribute to the analysis of efficiency of several types of incentives in the Czech betting company on the lowest level of hierarchy (author did not come by any similar analysis dedicated to an enterprise in the Central and Eastern Europe¹). The extensive data are provided by the leading Czech betting company (Fortuna) operating in a legislatively stable environment, not exposed to FX fluctuations, with oligopolistic characteristics. Other industries (other than betting) would hardly provide such a high quality data for such a long period suitable for chosen analysis. The hypotheses that are tested relate to sales effect of various managerial measures (trainings of sale staff, introduction of upside component of the wage, non monetary rewards) applied to workers of the betting shops between 2004 – 2008.

1. Methodological Overview

The modern analysis of the firm starts with Knight's (1921) and Coase's (1937) pioneering papers about role of managers and transaction costs in firms and markets and for several forthcoming decades, these works were attracting only a little attention. Since early 70's firms' boundaries have started to be analyzed at first. Their existence was a subject of a research of two main branches: (1) "the incomplete contract economics" represented by Williamson (1971; 1979) who claimed, that certain centralization in the organization is needed (hence the explanation of firms' boundaries) and so called (2) "contractual approach" by Alchian and Demsetz (1971) who claim, that there is no need for authority (and firm's boundaries). Williamson's contract theories were further developed by Grossmann and Hart (1986), who added dimension of property rights over assets

¹ E.g., Špaček (2006) analyses the consequences related with the application of new trends and technologies in local enterprises while other authors (e.g. Hučka, Malý and Okruhlica, 2007) are often dealing with linking the quality of corporate governance of local enterprises with the quality of market institutions.

of the firm and created entirely new theory of firm's boundaries. Later attention turned from the boundaries to internal structure of organizations and phenomena of information asymmetry, agency theory, institutions, organizational structure etc. were introduced and the corporate governance approach converted them to specific principles, policies, recommendations for the stakeholders and policy makers (e.g. McEnally and Kim, 2010; Tricker, 2009). The knowledge and its various forms in firms (e.g. Nelson and Winter's, 1982, routines, Foss's, 2006, knowledge approach etc.) are attracting special attention as well.

Still today it seems the „oddity” of the economics of organization remains as is not widely accepted and incorporated yet into the main economic journals and teaching books. The explanation for reluctance of respected academic individuals to treat organizational economics seriously might be also a lack of mathematic and econometric formalization. As the firms are getting more service oriented and traditionally measurable inputs as capital, land or workforce are replaced by more abstract terms as individuals' effort, knowledge, management practice, protection of property rights, entrepreneurship etc., the problems with the formalization and quantification can be well understood. Especially the role of managerial measures and the knowledge are changing the traditional perception of organizations today.

In next chapter, role of managerial and monetary measures is analyzed at firm (macro) level at first, followed by the more detailed individual and group overview of monetary incentives (Part 1.2) and finally follows summary of recent related researches (Part 1.3).

1.1. Incentives, Agency Theorem and Rewards

The economists tended to focus on effects of monetary incentives and rewards on agent's behavior in the firms “because money represents a generalized claim on resources” (Baker, Jensen and Murphy, 1987) and is easily measurable. Nonetheless it is not the only measure that should be taken into consideration. There are generally recognized two basic types of agent's motivations (initially introduced by Deci, 1972, later developed e.g. by Frey, Jensen, etc.): extrinsic and intrinsic. The extrinsic motivation is an individual preference of satisfaction of one's needs mostly through monetary reward while intrinsic motivation is an individual preference, where the activity or its outcome is valued for its own sake and self-content.² In this case the work itself satisfies an individual, without monetary compensation.

² Few authors deal with the intrinsic motivation as with the endogenous motivation (e.g. J. Tirole), but some other, e.g. Williamson (1979) accept existence of solely extrinsic motivation as an “extreme caricature”.

Osterloh, Frey (2004) are the authors of the “Crowding out and Crowding in” effect of intrinsic and extrinsic motivation. They show that several institutional factors can influence the intrinsic behavior even at non-premium societal levels.³ In a nutshell said, Crowding out effect is the situation, when monetary incentives can damage the intrinsic motivation and thus have a negative effect on agent’s motivation and effort in total. They show some practical examples, e.g. when paying donors for donating blood undermines their willingness to donate the blood for free.

Findings of Osterloh and Frey (2004) are significant for following reasons: they satisfactorily explain possible adverse effect of incentives on final effort and outcome is in contradiction with traditional Agency theory – hence the Crowding out effect of monetary incentives. Furthermore, Deci (1972) claims that money actually lowers employee motivation by reducing the intrinsic rewards that an employee receives from a job, especially when the job is individually assessed as interesting. Also Kohn (1988) offers three reasons why merit pay systems are counterproductive:

1. rewards encourage people to focus narrowly on a task, to do it as quickly as possible and to take few risks;
2. extrinsic rewards can erode intrinsic interest;
3. and that people come to see themselves as being controlled by a reward.⁴

The traditional Agency theory has implications for the analysis of rewards and motivation. The basic outcome of the Agency theory for corporate governance theory is the alignment of interests of both principal and agents. In organizational level this means, that the interest of the owner (principal) should be aligned with the interest of the manager and employee (agent). Unless these interests are perfectly aligned, the rent seeking activities and opportunistic behavior might appear, which would distort required outcome. Jensen, Meckling (1990, pp. 141) enlarged their original notion of Agency theory, that the rewards could be also negative for suboptimal performance: „Cash compensation should be structured to provide big rewards for outstanding performance and meaningful penalties for poor performance”. Does this mean, interests between the principal and the agent should or should not be aligned, if so, in what cases and what extent? The introduction of non-monetary and institutional (managerial) measures in the firm might contribute to the explanation of this dilemma.

Over last two decades plenty of empirical evidences have proved that aggressive forms of performance incentives tend to tempt the agents to misuse these

³ I.e. certain features of the intrinsic motivation appear not only with wealthy individuals who have saturated needs and wants, but also in wider groups of population.

⁴ To similar results has lead the research of Deci, Koestner and Ryan (1999).

rules, mostly at publicly listed companies, which are both more publicly known, compared to private companies, and where distributed shareholder structure often lacks proper control mechanisms of the owners (much more than in private companies).⁵ The monetary incentives are generally considered a very effective tool to manage people: strong pay for performance motivates people to do exactly what they are told to do (Baker, Jensen and Murphy, 1987). When listing the key effects of extrinsic motivation, also some major effects related with intrinsic motivation have to be mentioned. Changing the intrinsic motivation within the firm takes much longer, than in the former case and the outcome is often hardly predictable and noticeable compared with the effect of extrinsic motivation. Last but not least, as Frey and Osterloh (2000, p. 8) note, "... some of the most terrible crimes have been motivated intrinsically, at least in part. Envy, vengeance and the desire to dominate are not less intrinsically motivated than altruism, conscientiousness, and love", therefore monetary and non monetary incentives should be analyzed within one framework.

Today, the contributors to the agency theory admit the weak point of the direct monetary motivation, calling it a "managerial heroin" (Fuller and Jensen, 2002), however believing, that the terms could be designed in a better way to discourage the focus on the short term results. Furthermore, the researches on equity ownership of agents and incentive alignments have not even proved the link between these two: rather they have failed to find a proof of a significant link between agents' pay and firm performance (e.g. see Barkema, Gomez and Mejia, 1998), even have found that the relative compensation of agents has increased over the time, when the value of the firms has declined (Klinger et al., 2002).

From practical point of view the contribution of an individual is often hard to observe and measure especially due to the existence of free riding, information asymmetry and underinvestment in firm's specific resources. Various authors suggest adding another layer between the Principal and Agent (e.g. see works of Tirole, 1986 or Alchian and Demsetz, 1971) however these then might tend to ally with the agents and their interests. The difficulties with the measurement of agent's contribution (reward) are well explained also by the existence of two types of knowledge (explicit and implicit) (e.g. see Lam, 1998).

The Corporate Governance approach (e.g. see Tricker, 2009) applies the above mentioned theoretical phenomena and predominantly focuses on their explanation on upper managerial levels (management directors and boards), legislative and institutional framework (e.g. Basel II, Sarbanes-Oxley Act) and cultural considerations (Anglosaxon versus German or Japanese management style) in

⁵ E.g. the accounting malpractices in early 2000s' in the U.S. (WorldCom, Enron, Tyco) or in Europe (Parmalat) or moral hazard practices at large investment banks as appeared in 2007 – 2009.

a real life. This approach is thus combining both the theoretical findings and empirical (managerial) practice and recently has resulted in tangible outputs minimizing the negative consequences of the incentive mismatch, information asymmetry etc.⁶

These approaches are valid for most listed large corporations in large countries. These type of companies are not so frequent in smaller and less developed economies of Central and Eastern Europe, still due to lower quality of institutions, some corporate governance consequences can be even more fatal than in Western Europe. Nonetheless, the main focus of this article are the medium enterprises and the analysis of the effectiveness of managerial measures within them on lower (i.e. personal and operational) level of corporate hierarchy.

1.2. Individual and Team Dimension of Incentives in the Firm

The policies of fair and individual assessment and rewards of regular employees (i.e. not only of top managers) are of a key importance for modern firms today. The firms would naturally like to support and promote more effective and beneficial workers as well as to identify those individuals, who are lagging behind though there are also the authorities, e.g. labor unions, which tend to request opposite – i.e. egalitarian approach and conditions to all workers. Therefore the significance of supporting individualistic achievements and competition should be compared against the egalitarian and cooperative (team) approach.

Lazear and Rosen (1981) have shown the competition between workers might have a positive effect on firm's wealth because it increases individual effort which leads to higher productivity but it also can lead to "outright sabotage" (Lazear, 1989, p. 562.) and the larger this disproportion is, the more these effects are reflected in firm's operations. Therefore it seems obvious that the agent's individual situation⁷ and personality do matter in the firm.

According to Lazear (1989) there are two kinds of employees' personalities: the hawks and the doves as well as there are two kinds of firms: the hawks and the doves. The "hawk firms" are trying to persuade the "dove employees" to come to work for them (and exploit them) and "hawk employees" are trying to get into the "dove's firms" (to exploit the environment) but the dove employees are avoiding the hawk firms. Although used in a metaphorical view, this observation

⁶ E.g. the legislation dedicated to problems of Corporate Governance (Sarbanes-Oxley Act, OECD guidelines for Corporate governance), even the existence of always more precise accounting principles reflects the successful transformation of the theoretical phenomena and managerial problems into a construction of enforceable constructions.

⁷ E.g. in terms of Maslow's hierarchy. E.g. different measures work on blue collar employees in Africa and Western Europe.

leads to logical suggestion that certain individuals will always be more inclined for a “hawkian” i.e. rivalrian and individual style of work and relationships while the other group of individuals (the “doves”) would prefer more stable, team- and cooperative firm environment. Even at hawk-type firms (mostly the large corporations) Lazear (1989) calls for some “compression” in order to avoid negative phenomena related with too much rivalry. This interlink nonetheless does not explain, what factors stand behind, that certain types of firms are cooperation and other rivalry based.

A partial explanation can be found in measurability of workers’ outputs. In cases, where the measurability of the workers’ output is clear and based on objective measures, pay-for-performance (hawkian type) remuneration might be applied. Nonetheless, majority of employees’ output can’t be quantified by objective measures or described in any contracts. The main reasons are those, which are standing behind being certain functions organized by firm rather than markets – i.e. economies of scale, impossibility of writing total contract, cheaper information and knowledge flow etc.

Not only the institutional and firm specific settings should be taken into account but also certain individual personal characteristics do matter. Danthine and Donaldson (2008) combine the mentioned factors in one framework and do suggests to involve (high level managers) into various incentive schemes. Nonetheless they also introduce the influence of the personal wealth position of the agent and show two divergent cases, where privately wealthy managers ought to be risk neutral (but may not be motivated enough) as long as relatively poorer managers are exposing too much of their property into one asset (incentive program, corporate shares etc.) and therefore they might be not acting fully in line with the principals neither (shareholders). This factor has to be taken into account when analyzing the employees at lower hierarchy level in the organization (they may behave differently than the top managers.)

Besides immediate monetary incentives (ex post, ex ante rewards) or performance based measures (option rights etc.), there are also alternative ways, how to differentiate between more and less endowed individuals within organizations – promotion based systems, tournament systems etc.⁸ Again, these tools are universal neither, e.g. in certain industries, which are fundamentally stable and can’t be expanding at a high pace (as they operate either on saturated markets or they are operating on the declining markets⁹), the wide-applied promotion incentives would not be very trustful.

⁸ E.g. see (Budinský and Valenčík, 2009) for interlink between reward and performance in organizations.

⁹ For example utility companies like distributors of gas, water, electricity or mining companies.

1.3. Recent Empirical Approaches to Incentives and Remuneration

The analysis of internal environment (mostly in order to facilitate the knowledge exchange) and the motivation of agents at all levels of the organization play a key role in contemporary economic analysis of organizations. It has become obvious, that these factors are significantly affecting the output and overall performance of the firms.

Ichniowski, Shaw and Prennushi (1995) on example of steel producers from the US show that more liberal: i.e. “free” management of the employees, their various trainings, social confidence and motivational schemes are leading toward their rising productivity. Bandiera, Barankay and Rasul (2004) on the example of a fruit farm in England is comparing two rewarding models: one based on number of pieces of picked up fruits, second based on relative placement among the workers. In case of relative rewarding, the performance is rising by 50% at same level of quality of the output. Grund and Westergaard-Nielsen (2005) on the example of Danish companies is demonstrating, that the firms, which have higher standard deviation of salaries are producing higher value added.

These numerous examples of changes in rewards models/incentivisation might suggest that they might lead to positive results for the firm, nonetheless, when the incentivisation exceeds certain level, it can adversely influence the firms: e.g. Bloom (1999) uses the data of the major league baseball teams and shows, that the level of wage dispersion among team members is negatively related to several measures of individual and team performance. Also Pfeffer and Langton (1993) come to similar result on the example of researchers and their research capacity. Carpenter and Seki (2005) used Japanese fishermen to show, that the incentives to competition lead to lower level of cooperation among them and that the final effect might be contra-productive. Osterloh and Frey (2004) also show that the generous and aggressive incentive schemes lead to suboptimal results.

There are also other factors, which might influence the way, workers are competing or cooperating with each other. The cooperation between teams of researchers is described by Adams et al. (2004), who is finding out, that information technologies are essentially making the cooperation easier and that teams lead by private subjects are cooperating much more and are reaching better results compared to those, which are lead by public bodies. Uhlaner et al. (2003) have found that in small and medium enterprises (SMEs), the tacit knowledge is the most important component of knowledge and that incorporation of new knowledge management strategies (external knowledge networks) is associated with higher sales. On the other hand, codification of knowledge, trainings and certification were not found to have an effect on sales growth or the firm.

It is thus clear that the contemporary authors have well described, that the individual and collective performance *can be effectively managed and that certain measures work sometimes in an opposite direction* in each firm. However, not many authors have attempted approaching this topic in a combined way, i.e. analyzing both the monetary and managerial effects in one framework and to test it at once. The most relevant theoretic contributors which did so at least partially are Frey, Osterloh, Weibel and Foss (see the list of references).

2. Applicable Tools for Fortuna and their Classification

Maximization of firms' profit and value can be understood as the main goal of its owners and partly also of its managers. Introduction of certain managerial measures at Fortuna between 2004 and 2008 was therefore undertaken with the same goal. Assuming, the company was well equipped with tangible and intangible assets (e.g. hardware, software, network of shops etc.),¹⁰ besides other measures focused on costs minimization and price strategy, there remained managerial tools to maximize the effective effort of Fortuna's employees. Their short overview follows in order to explain options management had at their disposal.

2.1. The Managerial Tools

The managerial tools (including psychological and the tools of human resources – HR) are tools which might be applied by management in the firm usually without large extraordinary expenditures in comparison with the expenditures necessary for the acquisition of certain assets (e.g. new production line etc.). With regards to the agency theory, asymmetric information, transaction costs etc. the corporate governance and the managerial practices affect the institutional environment within firms. Some of the most common managerial measures applied are proper organizational structure, trustworthy environment, selection of proper workers for each task and their development, proper promotion mechanism, maintaining the affinity to the organization etc.¹¹ At Fortuna the impact of development of workers (i.e. trainings) on their performance is analyzed.

Special attention should be focused on application of information technologies (IT) to manage and distribute the knowledge within the firm as the nature of IT cannot be linked solely with neither managerial nor asset-based measures.

¹⁰ This is quite obvious assumption – the agents equipped with insufficient or even excessive base of resources in the firm will achieve subprime profit levels in comparison with the efficiently equipped peers.

¹¹ Detailed overview of managerial measures can be found in numerous management literature.

The information technologies do exist to make the information flow and knowledge exchange and storage faster and more efficient – „speed and reach“. On one hand the ownership of certain software or hardware equipment could be perceived as a production resource, on the other hand without the careful inputting of proper information (a purely managerial hardly measurable task), the final result would not be optimal. Though IT is an important element for Fortuna, it serves rather for the raw data exchange between headquarters and shops than between the shops themselves, therefore not much attention is dedicated to IT in analysis.

2.2. Changes in Variance of the Salaries

While the management decision about the gross level of salaries is the result of the labor market and firms' resources, their structure is not. The same change in variance of salaries in two peer firms can lead to very different results depending on mix of employees, corporate culture, information technologies, routines, etc. combined with equipment by the capital or resources. The propensity to share and transfer knowledge in the firm can be used as the explanatory factor of these (e.g. see Foss, 2006), though this is not the case of Fortuna, where single workers in shops are rather isolated from each other.

The variance of the salaries *is the only known managerial measure*, which can be analyzed and *measured* throughout various firms, throughout various industries, and can provide objective description of this aspect of the institutional environment of the firm. All other measures (see the managerial, IT or HR practices) have a rather qualitative than quantitative substance. The knowledge governance approach (e.g. Foss, 2006) explains, that in firms and organizations, where the benefits of knowledge centralization and coordination role of the center exceed the benefits of the market mechanisms, the cooperative setting of the firm's institutions would be advised (to similar conclusion comes also e.g. Lazear, 1989). Therefore the firms, which prefer low variability of wages, are those, where the cooperation and team work play a key role and vice versa.

The cooperation predominates for the firms, which are based on manual and routine work and possibility of the initiative of the employee is suppressed. The optimum is at low levels of wage variation, the knowledge of the company is centralized in the firm – in its copyrights, databases, knowledge bases etc (dove firms).

Optimum at high level of wages' variation is typical for those companies, which are based on human capital in terms of their individual capabilities (hawk firms) and the tacit knowledge in general terms is stored in their employees. Capital as a production factor does not act in main role (e.g. see the role of "experts").

The employees can considerably harm each other's business. This description covers professions like traders, sales representatives and derivation of these roles, where the individual performance is the success/failure element.¹²

Obviously, the largest number of the firms is falling to the "grey zone", where the optimum lies between extremes of maximum egalitarian or rivalrian wages and Fortuna with majority of its employees in retail outlets is not the exception. Hence this might suggest the incentive scheme for Fortuna's employees should be positioned somewhere between egalitarian and rivalrian schemes but not in their extremes.

3. Empirical Analysis: The Effect of Monetary Incentives and Trainings on Performance of Employees

In following chapter, Fortuna, its situation, assumptions and sources of data and limitations are described at first. Later, the hypotheses are set and tested via statistical tools. Finally the results are shown and analyzed.

3.1. Data and Methodology

The data used in this study originate from two sources: The Ministry of Finance of the Czech Republic (MoF), the department of Games of Chance and from Fortuna sázková společnost, a. s. (Fortuna) a leading Czech sports betting operator over the years 2004 – 2008. There are not many other industries than the gambling, where the effect of external factors is limited in a high extent, for a long period and the product offer is stable and identical in all shops.¹³ There are also other industries which operate in stable markets and have a strong human component (e.g. telecoms, retailers) nonetheless the frequent introduction of another products in these would make the eventual statistical analysis of incentives less accurate.

As of today, Fortuna is part of a larger group of betting companies (Fortuna Group), with sister companies operating in Slovakia, Poland and Croatia. Fortuna (established in 1990) is a traditional provider of various gambling services,

¹² Also professions where the unique idea or achievement is a matter of success are in this group – scientists, academics, lawyers, tax advisors etc.

¹³ Gambling as industry has been chosen for various reasons, but the consistency and transparency of the data are the main reason. Gambling is a tightly regulated industry, where the licenses to operate the Games of chance are given by MoF CR only to a limited number of parties who fulfill certain criteria so the new market entrants are quite rare. Also no major change of legislation has occurred between 2004 – 2008 (in 2009 the additional distribution channel for sports betting was legalized).

which are permitted by the MoF CR – sports betting, numeric games, video terminals, virtual horse and grey hound races and these services are sold via various distribution channels: proprietary network on high streets (Regular shops), shops operated with third parties mostly in sport bars (“Fortunky”). It is selling the services through the phone and since January 2009 also through internet.

The retail network is changing over the time, nonetheless it has been quite stable in the selected period (1. 1. 2004 – 31. 12. 2008). Due to profitability reasons, the underperforming shops have been closed or relocated therefore the base for this analysis is represented only by permanently operating branches at the same locations both on high streets and in sport bars. The process of selection of the proper locations for the branches is a part of know-how as locality affects significantly performance of the branch.

Table 1
Overview of Analyzed Shops

	1. 1. 2004	31. 12. 2008	Permanently Working Shops within the Period
No. of Regular shops	451	465	364
No. of Fortunky	47	132	30

Source: Management of Fortuna

The proprietary Regular shops are staffed by employees of Fortuna, the operations in Fortunky are managed by employees of sport bars by their own responsibility and costs. The owners of sport bars have signed the profit sharing agreement with Fortuna but except standard marketing support and initial training, they are not receiving any special treatment or training from Fortuna.¹⁴

More than 90% of the analyzed employees were females, the churn rate was stable and the product offer in shops was identical in entire network. Typically two to three workers are permanently employed at the shop; they are temporarily changing their workplace only in summer months for few days, when vacations are taken.

Before January 2006 the fixed wage system for remuneration of the employees in proprietary shops was in place. Workers were remunerated solely upon their work experience at Fortuna or decision of the local manager. No further bonuses were provided to the employees.

Since 1. 1. 2006 new employment contracts have been signed with all Fortuna employees, where additional flexible part of the salary has been introduced.

¹⁴ The terms of these contracts are standardized, where the commercial details depend on each individual case. *Fortuna* is providing the sport bars with IT infrastructure i.e. terminals (all shops are linked with the headquarters via the internet) and some basic furniture (whiteboards) and advertisement goods (city lights, logos etc.).

The main terms of the contract were as following: minimum monthly sales per shop were set by the regional director, which were then adjusted for each month due to No. of working days and seasonality. If the shop outperformed, employees could have split certain fixed percentage of the positive difference among themselves. Had the shop underperformed, employees would have had guaranteed certain minimum salary. There was no upper limit on bonuses. Had the sales consisted of extreme high odds, the shop was analyzed individually.¹⁵ This measure therefore supported also internal control of employees at the shop: if one employee was not performing his/her job properly, other colleagues were suffering as well. For the purpose of statistical analysis, the dummy variable was set up since 1. 1. 2006 for this case (see “W dummy for wage increase” later in the text).

Between October 2006 and June 2007 the series of trainings to improve sales skills of the employees took place.¹⁶ After initial testing phase in October 2006, when the trainings were provided to the employees of selected 30 shops, the content was adjusted to better fit Fortuna’s requirements and was afterwards launched to all employees at shops. After the training, regular “mystery shopping” campaigns were held in to follow the change of the behavior of workers, nonetheless the mystery shopping results were unsatisfactory and repressive measures had to be undertaken. Since June 2007 all new employees are participating on such training in the first weeks of their employment at Fortuna parallel with the traditional training that was run before – e.g. how to operate the betting shop, how to explain customers the products etc. For the purpose of the statistical analysis, the dummy variable was set since 1. 1. 2007, when more than 50% of the employees have participated in the trainings (see “T dummy for training” later in the text).

In addition to these, for a limited period of time between March and November 2007, the non monetary incentive scheme has been introduced in order to improve the launch of new products (new fidelity clubs, the captive newspaper

¹⁵ The sales plan was set in accordance with the last years’ performance of the shop and each shop has its own individual plan. This management decision was not intended to cut the personnel costs but to attempt to motivate the workers for a better performance. The variable part of the salary was representing at the conservative sales assumptions approximately 25% of the gross salary (e.g. if the employee had fixed CZK 12,000 gross salary before the change 2005, since 2006 he had fixed salary of CZK 9,000 and CZK 3,000 as a variable part set up upon conservative sales assumptions). Additional monetary incentive was provided for those employees, who worked in shops with longer opening hours.

¹⁶ The trainings consisted of 2 working days spent with an external lector, who taught the workers the basic sales skills; also the vision and mission of the company has been emphasized to the workers. The trainings were focused on provision of explicit skills and best practices, which were according to the management not followed by the workers before (cross selling and upselling initiatives, greetings etc.).

sold etc.). The workers were rewarded by T-shirts, balls etc. For the purpose of the statistical analysis, the dummy variable was set since 1. 3. 2007 until 31. 11. 2007 (see “N dummy for non-monetary incentives” later in the text).

In the meantime, Fortuna has heavily invested into improvement of its brand awareness, improved its product offer etc. However, these efforts were affecting entire sales network, while the before mentioned *trainings of sales practices, wage adjustments and nonmonetary incentives have been applied solely on the proprietary network of shops and not on Fortunky.*

This fact enables to attempt quantifying the impact of the commercial trainings and monetary and non monetary incentives on total performance of employees in Regular shops.

3.2. Hypotheses

The methodological approaches as shown in previous chapter suggest that there are several ways to managerially influence the total effective effort of the workers. These include decisions related with corporate culture, internal management and HR policies, trainings, promotions or remuneration structure etc. This methodological framework also suggests that the companies with low variability of wages are those, where workers are performing routines, they are not skilled and the knowledge is stored in headquarters.

Fortuna with its central headquarters providing quite sophisticated products (the odds) to the shops combined with the economies of scale, should therefore be the case, where the wage dispersion should be at relatively low levels. Nonetheless based on the methodological framework the maximum total effective effort might be achieved at wage dispersion levels higher than zero because there is certain personal element in the work performed by the employees of Fortuna. The workers in the shops are the only people, through whom Fortuna directly communicates with its customers. They are responsible for the outfit of the branch, explanation of the products; these workers are with clients, when they are receiving their wins as well as when they are losing.

Therefore the moderate increase in the wage dispersion (introduction of a motivational scheme) is supposed to lead to a higher level of performed total effective effort by the employees. *Ceteris paribus* the increased effective effort of the employees should be reflected in measurable outputs – in this case increased sales per branch. Similarly the trainings in Fortuna which focused on development employees’ sales skills should in line with the framework contribute to higher awareness of the workers about the proven sales practices (i.e. enlarged set of explicit skills) and thus to achieve higher sales as well. Hence, following hypotheses are made:

- H1: The trainings of commercial skills of employees had a positive effect on overall output of employees measured by sales per shop.
- H2: The change of variability of wages had a positive effect on overall output of employees measured by sales per shop.
- H3: The temporary nonmonetary incentive measures had a positive effect on overall output of employees measured by sales per shop.

3.3. Results

The Difference in difference multiple regression was applied and the regression equation would have had following form.¹⁷

$$R = b_0 + b_1 * F + b_2 * T + b_3 * W + b_4 * N + b_4 * T * F + b_5 * W * F + b_6 * N * F + \text{error} \quad (1)$$

where

- R – Regular shops monthly sales (dependent variable),
- F – Fortunky monthly sales (control, independent variable),
- T – dummy for training,
- W – dummy for wage increase,
- N – dummy for nonmonetary incentives.

Multiple Regression Analysis equation is following:

$$R = 79,10 + 2,65 * F - 23,50 * T + 89,40 * W - 10,56 * N - 0,02 * T * F - 0,19 * W * F + 0,08 * N * F \quad (2)$$

There is a statistically significant relationship between the variables at the 99% confidence level. The R-Squared statistic indicates that the model as fitted explains 85% of the variability in Regular shops. Since the Durbin-Watson value is greater than 1.4, it indicates there is probably no serious autocorrelation in the residuals. In determining whether the model can be simplified. The coefficients of trainings and non monetary measures are negative (–23.5 and –10.56 respectively) so the effect of their introduction on sales would be negative, nonetheless as the respective P-values are more than 0.6 these results are statistically insignificant. On the other hand the significance of monetary measures is higher (P-value 0.23) and the coefficient in equation is larger than zero (+89.4). *Thus while the Hypotheses H1 and H3 were not proven, H2 might be accepted, though at a subprime significance level.* For more details see Annex 1. These results therefore still might draw some possible interpretations and implications.

The reasons for a such result might be:

- (1) The relatively larger immediate marginal change in salary variance due to new labor contracts (0% before vs. approx. 25 % on average afterwards) while

¹⁷ For simplicity reasons, the other independent variables like e.g. inflation rate, GDP rate etc were excluded. Thanks to Witkovsky from Slovak Academy of Sciences for helpful assistance with statistical analysis.

the employees might have had certain knowledge base before the trainings took place, so the training could have not been marginally so much effective;

(2) The time consequence of the two policies changes – change of salary structure at first could have lead to change of behavior of employees and application of the practices, they individually consider to work at best while the trainings were set by headquarters with the measures, the management considered to be applied (and maybe not so effective).

(3) The impact of a short time non monetary incentive measure in order to support the launch of new products in 2007 could have also blurred the effect of the trainings on Sales increase.

(4) Another reason for lower than expected influence of the trainings on total effective effort is due to time period, during which the trainings have taken place (Oct. 2006 – Jun. 2007), so no exact date can be set for the start of the change (Jan. 2007 was taken when the majority of shops was trained)¹⁸ and there were no restrictive measure applied immediately after the trainings.

(5) Last but not least, the same as the employees might take certain time to practice and fine tune certain sales skills, the customers also need certain time to accommodate to a new approach, to get to know new products and use them.

Based on methodological introduction, the more obvious (though not automatically more significant) effect of the salary change might have been expected, as with a new contract the employee starts behaving differently immediately while the application of skills from trainings takes longer and its roll-out was spread out in a longer period.

The author had the possibility to compare the results also with other companies of the Fortuna Group (in Slovakia, Poland and Croatia) where similar measures were undertaken, nonetheless the due to regulatory, market and strategy changes (too strong other independent variables covering with the introduction of the measures) in these companies the figures would not lead to such a high quality data set, as those which came from Fortuna.

Conclusion and Implications

The core contribution of this paper is the first empirical analysis of the monetary and non-monetary measures applied in the Central and Eastern European Company. The numerous authors agree, that there should be and often is an interrelation

¹⁸ The author was testing various settings of dummy variable for this case, even the setting of the dummy variable from July 2007 or its incremental increase from October 2006. Nonetheless, these would not significantly change the results – the effect of training would still remain statistically insignificant or even negative.

between the managerial measures and the firm performance, nonetheless, the empirical results are frequently contradictory mostly because the difficult measurability of the effect of single managerial decisions.

The unique dataset in this paper was intended to measure the effect of introduction of monetary and non monetary incentive measures and trainings, however the effect of trainings and non-monetary measures on the employees' output was not proven. The analysis has nonetheless shown that there might have been a positive effect of the introduction of the monetary measure on Company's sales, though this hypothesis was proved with 77% probability only.

Few important consequences arise: (1) the result of this empirical analysis is in line with methodological approaches of other authors who claimed, that the monetary measures work faster and more distinctly than the non-monetary measure. (2) The role of additional formal knowledge (i.e. trainings) has not been proven to be significant for the selected pool of workers while the informal knowledge (assumably better utilized due to change in incentives) might have shown its significance.

The future studies could further examine the effect of monetary and non-monetary measures on companies in other sectors and regions, further attention could be dedicated to examination and incorporation of organizational structure into the existing framework. Also the analysis on other levels of employee hierarchy might bring interesting findings and finally, the interaction between intrinsic and extrinsic motivation could be examined as well.

Annexes

Dependent Variable: Regular Shops				
Parameter	Estimate	Standard Error	T-Statistic	P-Value
Constant	79.1023	39.9031	1.98236	0.0528
Fortunky (F)	2.65504	0.252888	10.4989	0.0000
Trainings (T)	-23.5067	95.9734	-0.244929	0.8075
Wages (W)	89.4006	73.953	1.20888	0.2323
NonMonetary (N)	-10.5637	93.0062	-0.113581	0.9100
TrainingsFortunky (T*F)	-0.025346	0.566767	-0.0447204	0.9645
WagesFortunky (W*F)	-0.195271	0.460983	-0.423598	0.6736
NonMonetaryFortun (N*F)	0.0822687	0.532015	0.154636	0.8777

Analysis of Variance					
Source	Sum of Squares	Df	Mean Square	F-Ratio	P-Value
Model	468382.0	7	66911.7	41.59	0.0000
Residual	82045.0	51	1608.73		
Total (Corr.)	550427.0	58			

R-squared = 85.0943 %; R-squared (adjusted for d.f.) = 83.0484 %; Standard Error of Est. = 40.1089;
Mean absolute error = 30.9993; Durbin-Watson statistic = 1.61518

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