

# Incentive Pay Policies in Finnish Professional Hockey

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Joonas Harjama  
Aalto University School of Business  
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<b>Author</b>	Joonas Harjama	
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**Abstract**

**Research objective.** The purpose of this paper is to provide an explicit theoretical framework for the design and implementation of incentive pay based on the extensive earlier literature regarding the topic. Furthermore, the discussed frame of reference will be utilized to evaluate current incentive pay policies in the Finnish major hockey league, Liiga. Since no earlier research covering this specific topic exists, the aim for this study is as well to initiate further discussion concerning opportunities to enhance athletic performance through financial incentives which may eventually be indirectly reflected positively in financial performance as well.

**Data and methodology.** This paper can be described as a case study, which evaluates current incentive policies in Finnish professional hockey in relation to theoretical framework. Since no relevant previous data covering this specific topic exists, the latter part of this paper presents the results of a survey directed to 69 players in Liiga. To support these results, three executives working in Liiga organizations were interviewed to compose an extensive overview on the status quo regarding monetary incentives.

**Results.** The most effective incentives appear to derive from career development, while in contrast, the endogenous contract-based incentives form only a minor part of incentives. The absence of monetary incentives occurs mostly due to very competitive labour markets, which forces organizations to increase base salaries while competing for desired recruitments. As a result, the guaranteed compensation comes closer, or in some cases may even exceed the estimated value of player contribution which results to declined willingness for organizations to offer monetary incentives on top of base salaries.

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**Keywords** incentives, pay for performance, incentive pay, incentive pay design, sports economics

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## TABLE OF CONTENTS

<b>1</b>	<b>INTRODUCTION</b> .....	<b>4</b>
<b>2</b>	<b>INCENTIVE PAY</b> .....	<b>5</b>
2.1	AGENCY THEORY .....	5
2.2	THE THREE ELEMENTS OF INCENTIVE PAY .....	6
<b>3</b>	<b>PERFORMANCE EVALUATION</b> .....	<b>8</b>
3.1	QUANTITATIVE PERFORMANCE MEASUREMENT .....	8
3.2	SUBJECTIVE EVALUATION .....	14
<b>4</b>	<b>TYING PAY FOR PERFORMANCE</b> .....	<b>15</b>
<b>5</b>	<b>EFFECTIVENESS IN SPORTS: PAYING FOR PERFORMANCE IN NFL</b> .....	<b>17</b>
<b>6</b>	<b>INCENTIVE PAY POLICIES IN LIIGA</b> .....	<b>18</b>
6.1	RESEARCH DESIGN .....	18
6.2	EMPIRICAL FINDINGS.....	19
<b>7</b>	<b>DISCUSSION</b> .....	<b>23</b>
<b>8</b>	<b>LIST OF FIGURES</b> .....	<b>25</b>
<b>9</b>	<b>REFERENCES</b> .....	<b>25</b>

# 1 INTRODUCTION

Paying for performance constitutes an interesting subfield of personnel economics, as it is very practical and affects all of us in working life. Previous research on incentive pay provides an extensive and robust framework for examining key aspects of incentive pay systems. The subject has also been under an intensive discussion in economic research over recent decades (see e.g. Holmstrom & Milgrom, 1991; Datar et al., 2001; Baker, 2001; Prendergast & Topel, 1993). A high-quality incentive pay system provides companies with an effective tool to improve employee performance. More accurately, a well-designed incentive system motivates employees to work harder, smarter, and most of all, better in line with company level objectives (Gibbs, 2012).

In non-sports industries, collective bargaining agreements limit employers' ability for local contracting, and salaries lack especially downward flexibility when poor employee performance takes place. In contrast, European professional team sports offers an interesting platform for studying incentive pay policies since labour markets are highly competitive and wages are more elastic due to the absence of strong collective agreements restricting negotiations concerning salaries. Furthermore, contracts are relatively short in duration, allowing organizations to react to perceived results and thus adjust incentives over time (Longley, 2018). According to a financial analysis conducted by Ernst & Young (2019), the operational environment for the professional hockey organizations in the Finnish major hockey league, Liiga, has been recently quite challenging from financial perspective. At the same time, on average more than a third of organizational costs are allocated to player salaries, forming a significant portion of expenditure. Thus, it is interesting to study how much attention has been paid towards the incentives offered for the players.

This study can be described as a case study, the aim of which is first to discuss the theoretical framework regarding incentive pay. Further, this paper examines the current incentive policies in Liiga and assesses them in relation to the theoretical framework. I expect to find some inefficiencies regarding current policies, and thus aspire for providing valuable suggestions for the future. Moreover, previous research on incentives in Finnish professional sports is quite limited, and this paper looks forward to initiate further discussion for opportunities to enhance athletic performance in Finnish organisations, which may eventually lead to improved financial performance as well.

## **2 INCENTIVE PAY**

Incentive pay offers an effective mechanism for organizations to improve worker performance. The benefits arise from positive effects to firm value through employees working harder, smarter and moreover, their objectives become more synchronized with the firm level goals (Gibbs, 2012). Kessler (1993) describes incentive systems as a concept that can be summarized as rewarding two competing employees simply so that a more productive individual should, in theory, always receive better compensation for labour input. Lazear & Gibbs (2015) provide a deeper rationale behind incentive schemes, as they propose that incentive pay provides significant value for the organization, on condition that sufficient amount of resources has been invested in designing process. If the guidelines are confusing, employees may inadvertently destroy value, even if the ultimate goal of the incentive scheme would be explicitly determined to maximize firm value.

This paper approaches incentives through economic theory and focuses on monetary rewards. However, it is important to notice the multidimensional nature of incentives and motivation, and incentive systems have been approached also through non-economic frameworks, such as equity or expectancy theories (see e.g. Robbins, 1997). Despite the broad earlier literature explicates motivation also through psychological mechanisms, this paper utilizes the agency problem as its backbone for evaluating the effectiveness of existing pay-for-performance schemes in Liiga.

### **2.1 Agency theory**

The field of personnel economics describes the problem in contracting between the employee (agent) and the employer (principal) through agency theory. Organizations are pursuing firm value maximization by means of worker productivity. Besides improving employee's skills, output maximization can be pursued by encouraging workers to increase their level of effort. The conflict of interest arises because the costliness of effort encourages employee to shirk. To prevent employees from shirking, employer can either monitor worker contribution or affect to individual behaviour. Since the psychology of personnel is hardly governable, organizations should utilize contracting and reward desirable performance with extrinsic incentives (Longley, 2018).

Agency theory is based on an assumption of completely rational individuals with equal preferences maximizing welfare through optimal effort with respect to expected utility deriving from pay. The agent's utility function is built from two factors: leisure and wealth. The costliness of effort describes the appreciation of leisure, whereas pay relates to the utility deriving from increased level of wealth. Hence, worker requires a compensation that at least equals the cost of effort. Furthermore, the agent is assumed being risk-averse by nature. Therefore, the agent must be compensated the riskiness of a pay as a premium for uncertainty of the forthcoming compensation (Eisenhardt, 1989).

## 2.2 The three elements of incentive pay

Gibbs (2012) offers an explicit framework for designing effective incentive systems. His paper approaches incentive pay systems through three key components: performance evaluation P, pay for performance I(P) and base salary S. His observations are very consistent with earlier literature (e.g. Holmstrom, 1979; Lazear & Gibbs, 2015). Hence, the following formal notations in this paper relies on his observations, unless otherwise cited.

Employee contributes to firm value Q, through his efforts,  $e_i$ , in multidimensional tasks  $i = 1, 2 \dots, n$ . This paper looks into effectiveness of incentive pay in professional sports, and thus, Q can be interpreted for winning games as a team. As mentioned, employee is risk-averse by nature and appreciates leisure and wealth. Thus, the utility function of the worker can be denoted:

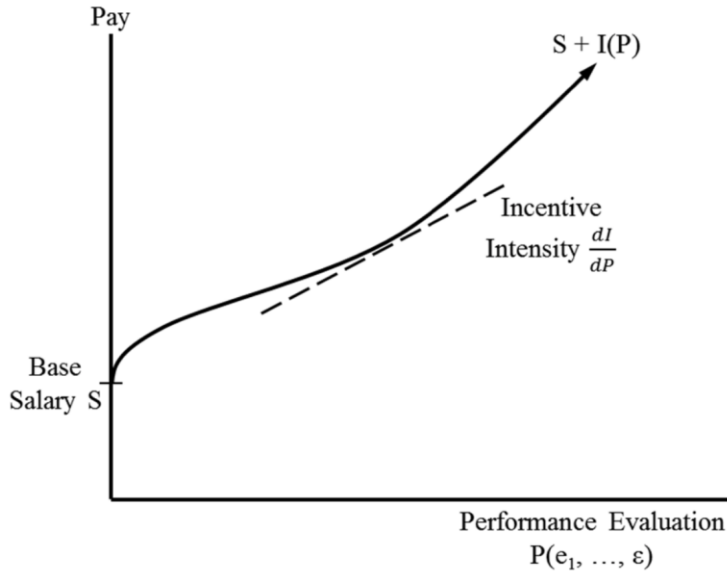
$$U = E[\text{Pay}] - \frac{1}{2} R \sigma_{\text{Pay}}^2 - \frac{1}{2} C \sum_i e_i^2 \quad (1)$$

The first term relates to the riskiness of the pay: R is the coefficient of absolute risk-aversion and  $\sigma_{\text{Pay}}^2$  is the variation of pay. Here, it is important to notice that  $\sigma_{\text{Pay}}^2$  does not depend on  $e_i$ , and therefore risk premium and effort decision do not depend on each other. C denotes marginal disutility of effort, and together with the middlemost term they form the certainty equivalent value for risky income. Here, the reservation utility (outside option or complete shirking) is normalized to zero. The agent chooses optimal level of effort to maximize U with respect to the participation constraint  $U \geq 0$ .

In contrast, employer maximizes profits  $\Pi = E(Q - Pay)$  by utilizing the three key components performance evaluation  $P$ , incentive pay  $I(P)$  and base salary  $S$ . Consequently, pay must be tied with performance, that needs to be measured through  $P$ . To be explicit,  $P$  must capture worker's effort well enough to create any incentives. Finally, the employee is compensated through base salary  $S$  and incentive pay  $I(P)$ . Hence, rational employee maximizes utility:

$$\begin{aligned} \max_{e_i} S + E[I(P)] - \frac{1}{2} R \sigma_{Pay}^2 - \frac{1}{2} C \sum_i e_i^2 \\ \Rightarrow e_i^* = \frac{dI}{dP} E \left[ \frac{\partial P}{\partial e_i} \right] / C, \forall i. \end{aligned} \quad (2)$$

This formal intuition facilitates understanding that base wage is not constitutive part of worker incentives, since  $S$  does not vary with effort. Base salary plays significant role in attracting desirable candidates in labor markets whereas, from the incentive perspective, it remains to be the least important factor.



**Figure 1: Three components of incentive pay plan.**

Equation (2) discloses two focal elements for any incentive system. The designer must think carefully how well the measuring system captures effort, in other words  $\partial P$  should equal  $\partial e_i$  in optimal measuring system. Another key component is the incentive intensity  $dI/dP$ , the

slope in Figure 1. The two previous are closely linked together, since the ability to evaluate performance determines largely the optimal intensity of incentive pay.

So far, the key components behind incentive systems are discussed. To further facilitate the conceptual understanding, the following theoretical sections will elaborate performance evaluation  $P$ , and eventually optimal intensity of incentives  $I(P)$  to form an effective incentive pay plan for the worker.

### **3 PERFORMANCE EVALUATION**

Organizations need to monitor performance in order to reward successful employees. Monitoring can be conducted through two methods, quantitative or subjective evaluation. Quantitative measures are numeric, involving for instance accounting numbers, stock price or in context of ice hockey, goals scored by individual player or games won as a team. In contrast, subjective evaluation utilizes supervisor discretion to evaluate performance, usually assessed through numerical scales or verbal feedback such as “exceeded standards”.

Effective performance evaluation requires well-defined and clearly communicated objectives and measurement system. Too often, employees have little knowledge of the measuring criteria, which may cause too low level of effort or alternatively, the effort might be incorrectly directed (Lazear and Gibbs, 2015). Cooperative teams have become a fixed part of modern organizations pushing employees to improve their social and cooperative skills to supplement occupational competence. Simultaneously, the characteristics of job design has expanded, and thus measuring individual performance has become very multi-layered. Evaluation systems need to acknowledge possible free-riding and variance in workers’ cooperation levels, and still gauge individual contributions effectively (Carlock, 2012).

#### **3.1 Quantitative performance measurement**

With further assumption that incentive part of the pay  $I(P)$  is linear and composed of commission rate  $b$  multiplied with the value of performance measure  $P$ , optimal intensity of incentives depends on certain underlying properties relevant to any numeric measure. The



following section provides a formulation for optimal level of effort for the worker as well optimal strength of incentives set by the employer.

Output can be denoted as  $Q = q_i e_i + \mu$  and performance measure  $P = p_i e_i + \varepsilon$ , where  $q_i$  and  $p_i$  denote the marginal benefit of Q and P, whereas  $\mu$  and  $\varepsilon$  all random, uncontrollable events (mean = 0) taking place during measuring period. Assuming  $q_i$  and  $p_i$  are likely to be random for the organization, and worker observes  $p_i$  before choosing  $e_i$ . Eventually, the firm is able to scale performance measure in various units, while  $I(P)$  rescales it to monetary value for rewarding employee based on performance. For instance, hockey organization in Liiga is able to measure player performance in goals scored, and moreover, broaden chosen measures more suitable for different roles inside the team and then pay bonuses based on commission rate  $b$  and value of performance measure. Disregarding such details, optimal effort and can be solved from equation (2), if assuming vectors  $|q|$  and  $|p|$  are identical length 1:

$$\sqrt{\sum q_i^2} = \sqrt{\sum p_i^2} = 1.$$

Consequently,

$$\begin{aligned} e_i^* &= b p_i / C \\ \Rightarrow \frac{d e_i^*}{d b} &= p_i / C. \end{aligned} \tag{3}$$

Workers effort varies along with the incentive intensity which is described in the right side of equation (3). In the meanwhile, employer looks forward to maximizing expected profits  $E(Q - Pay)$ , considering (3) and participation constraint of the worker:

$$\begin{aligned} \max_b E[\sum q_i e_i] - \frac{1}{2} R b^2 \sigma_\varepsilon^2 - E[\frac{1}{2} C \sum e_i^2] &\Rightarrow E[\sum_i q_i p_i / C] - R b \sigma_\varepsilon^2 - E[b \sum_i p_i^2 / C] = 0 \\ \Rightarrow b^* &= \frac{E \sum q_i p_i}{E \sum p_i^2 + R C \sigma_\varepsilon^2}. \end{aligned} \tag{4}$$

Equation (4) can be interpreted as the optimal intensity of incentives considering general properties of performance measures. Examples in the following sections elaborate this formal intuition of uncontrollable risk, distortion and controllable risk further.

## Uncontrollable risk and distortion

Earlier literature (see e.g. Holmstrom, 1979; Banker & Datar, 1989) emphasizes that key trade-off exists between incentives and uncontrollable risk. Assuming<sup>1</sup> that  $Q = P$  (so that  $\varepsilon = \mu$ );  $\sigma_\varepsilon^2 > 0$ , and the measuring system focuses on output somewhat imperfectly. Therefore, the optimal strength of incentives can be defined as

$$b^* = \frac{1}{1+RC\sigma_\varepsilon^2} < 1. \quad (5)$$

This form is not very useful alone but focusing on the relationship between  $b^*$  and  $\sigma_\varepsilon^2$  implies that when the measurement error (uncontrollable risk) increases, optimal strength of incentives is then weaker, because outcome is more sensitive for luck for both good and the bad. If reflecting this theoretical insight to professional hockey, broader measures such as winning as a team alters players for way higher uncontrollable risk since the outcome is highly dependent on teammates' performance as well. Hence, theoretical intuition would suggest organizations to be careful in providing very strong incentives based on team performance.

Expanding assumptions<sup>2</sup> so that  $P \neq Q$ ,  $\sigma_\varepsilon^2 > 0$  and  $q_i$  and  $p_i$  are not random, optimal incentives appear to be:

$$b^* = \frac{\sum q_i p_i}{\sum p_i^2 + RC\sigma_\varepsilon^2} = \frac{\cos(\theta)}{1+RC\sigma_\varepsilon^2}. \quad (6)$$

This (6) illustrates explicitly the second general property of any performance measure, distortion. Lazear and Gibbs (2015) emphasize that to accomplish its goals, organization must consider how well the chosen performance measure aligns employee interests and organizational goals. Equation (6) describes in a formal manner this alignment, while  $\cos(\theta)$  is the angle between vectors  $|q|$  and  $|p|$ , which equals the formal intuition of how well the marginal product of effort is matching with the effect on output (Datar et al., 2001; Baker, 2002). To illustrate this particular phenomenon in sports, professional hockey players generally invest versatily in physical conditioning covering e.g. strength, stamina and mobility training. If players would be rewarded only based on strength results in physical testing sessions, players

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<sup>1</sup> Case 1: uncontrollable risk

<sup>2</sup> Case 2: distortion

might begin to invest only in strength conditioning ignoring other aspects of physical abilities, which leads to increased  $\cos(\theta)$ . Being a successful team on ice requires diverse physical attributes, and thus this kind of measurement system offers an explicit example of distorted performance measure. Holmstrom and Milgrom (1991) remind that incentive plan should also equalize differences in motivation towards various tasks, and hence not only encourage harder effort in single task.

### Controllable risk

Not all risk is detrimental. Consider equal assumptions as presented prior to equation (6). However, now<sup>3</sup> the worker is able to observe marginal product of effort  $p_i$  before decision. Furthermore, here marginal product of worker's efforts may assumingly be stochastic, and the worker has specific knowledge how to adjust efforts over time, while the employer lacks this knowledge. Now  $Q = qe$ ,  $P = pe$ , and the optimal incentive intensity is equal with (4). With the scaling assumption,  $E(q) = E(p) = 1$ . Hence:

$$b^* = \frac{Eqp}{Ep^2 + RC\sigma_\varepsilon^2} = \frac{1 + \rho\sigma_q\sigma_p}{1 + \sigma_p^2 + RC\sigma_\varepsilon^2}, \quad (7)$$

where  $\rho$  denotes the correlation between  $q$  and  $p$ ,  $\rho \leq 1$  and  $b^* < 1$ . Here, smaller  $\rho$  depicts higher distortion, which decreases optimal strength of incentives. Nevertheless, key implication appearing from (7) is the third general property of measuring systems, controllable risk  $\sigma_p^2$ .

Relying on the assumption that the worker observes the marginal product of effort before deciding effort, this ability can be utilized by the worker to increase effort when  $p$  is high, and vice versa. To elaborate further, the optimal incentive intensity is dependent with  $\rho$ ,  $\sigma_q^2$  and  $\sigma_p^2$ . To demonstrate the utility deriving from specific knowledge,

$$b^* = \frac{1 + \sigma_q^2}{1 + \sigma_q^2 + RC\sigma_\mu^2}. \quad (8)$$

The benefit arises from the specific knowledge that can be related as a random variable for the employer, whilst it is relatively controllable for the employee. Thus, the incentive system should offer stronger incentives to encourage employee to utilize specific knowledge pursuing an

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<sup>3</sup> Case 3: controllable risk

outcome where both parties would be better off. Moreover, if defining that  $\alpha = \frac{\sigma_q}{\sigma_p}$  denotes a measure of worker's relative accuracy of specific knowledge on particular tasks optimal incentive intensity can be rewritten

$$b^* = \frac{1 + \alpha \rho \sigma_p^2}{1 + \sigma_p^2 + RC \sigma_\varepsilon^2}. \quad (9)$$

All else equal, increase in worker's specific knowledge should increase the strength of incentive part of the pay. Controllable risk is one of more recent observations in earlier literature regarding principle-agent problem (Baker, 1992). De Varo & Kurtulus (2010) and Barrenechea-Mendez et al. (2011) are some of the latest contributors to empirical findings that suggest that the more controllable risk exists, the stronger incentives appear to be, and vice versa.

After sorting out available measures, incentive pay designer must consider the scope of the measurement system. Furthermore, employer should assess if the measuring system involves only one measure, or alternatively combines several measures (Lazear & Gibbs, 2015). The principles behind these decisions are discussed briefly in the following.

### **Balancing between risk and distortion**

Tradeoffs exist generally in any performance measurement system. Conceptually, this can be explicated through the scope of the measure. As a simplification, the chosen measure may be broadly defined or narrowly focused, and moreover, the scope can vary to several dimensions (Gibbs, 2012). Consider that employer would reward players based on team winning the championship, which involves enormous number of tasks that players pursue as both an individual and a team member to reach the goals set for receiving the reward. In contrast, simple measure based on individual performance, such as how much player shoots towards opposing goaltender, includes far less factors between performance and objective. While comparing these options, one must focus on the degree of risk and distortion: generally, any action during games can be performed in a way that increases the probability of winning, and therefore no distortion exists if player is rewarded fully based on games won as a team. In contrast, if player is rewarded based on shots on opponent goal, player may start to shoot thoughtlessly even though teammate would be wide open to score a goal if player under measurement would instead pass the puck rather than shoot selfishly. At the same time, these same examples involve completely the opposite characteristics regarding risk. As described earlier, incentive pay relying on

broader measures causes more risky income for player, whereas narrower measure reduces the risk.

## Combining measures

As described earlier, performance measuring systems are challenging to design, and any single measure alone is not capable to provide sufficient amount or quality of information of employee's efforts. According to Holmstrom's "Informativeness Principle" (1979), performance measurement system should be supplemented by additional measures in case they provide marginal information of employee's actions. Rewarding from performance can be based on different measures separately, or they can be combined into a single measure. Empirically, these both are popular and utilized in real-world contexts (Murphy, 1992). "Informativeness Principle" is based on observation that proper additional measures decrease distortion of an incentive plan. On the other hand, supplementing measuring systems with multiple measures arise different challenges, since measures generally vary in uncontrollable risk. This variance in characteristic of different measures results unbalanced incentive effects for the worker, since relative weights should depend on the level of uncontrollable risk for every measure (Holmstrom & Milgrom, 1991). Gibbs (2012) remarks that combining various may be useful for reducing uncontrollable risk if the measurement errors are negatively correlated. Let us notate performance measurement error of  $P_3$  is

$$\sigma_3^2 = b_1^2 \sigma_1^2 + b_2^2 \sigma_2^2 + 2b_1 b_2 \sigma_{12}. \quad (10)$$

If then  $\sigma_{12} < 0$ , combining multiple measures is sufficient to decrease risk deriving from incentive pay for the worker. This notation is useful if wondering the benefits of relative performance evaluation (RPE), where employee performance is compared to some reference value. Even if the measurement error would be substantial, RPE sorts out the common effect of error and thus provides useful tool for ranking employees (Lazear & Rosen, 1981; Gibbons & Murphy, 1990). This indicates that relative performance evaluation may be useful for organization in Liiga, since the competition setting does not change over time and is equal to every player, thus offering suitable environment for conducting relative performance evaluation.

### **3.2 Subjective evaluation**

Subjective evaluation has been researched relatively little, especially if compared to previous segments. However, it does not reduce the importance of effectiveness of subjective performance evaluation. Universally, supervisor discretion is playing some role in almost any occupations: promotion, threat of termination or providing better office location are all general examples of subjective evaluation (Gibbs, 2012). Subjective evaluation provides support for shortcomings of quantitative measures especially in complex working environments. It may be exploited to increase cooperation if quantitative system alone fails in this regard, and furthermore, incentive pay system involving subjective evaluation have been discovered to be positively associated with wage satisfaction (Gibbs et al., 2004).

Most of earlier literature approaches subjective evaluation through prospective problems that may derive from it. Since the evaluation strongly depends on the supervisor, incentives and preferences of supervisor may cause biased results. One of possible adverse outcomes for the workers is favouritism, if the supervisor is not able to cherish neutrality on evaluations (Murphy, 1992; Prendergast & Topel, 1993). Alternatively, incentives may be distorted if worker acts in a way that pleases supervisor but is in conflict with firm level goals (Prendergast, 1993).

Lazear and Gibbs (2015) emphasize benefits for both sides. Supporting Gibbs et al. (2004), they suggest that benefits arise under extreme conditions impossible to perceive ex ante. Subjective evaluation is useful also in intermediate conditions. If an adverse outcome takes place due to recklessness, punishment may be fair if the employee would have been able to prevent such outcome. Moreover if e.g. employees in managerial level are not capable to accomplish adequate preparedness alone, they are still expected to organize their profit centre so that decisions are decentralized to ensure specific knowledge is exploited, for instance regarding safety at work. These examples may be suitable for professional sports, considering that injuries take place relatively often. Hence, employer could conduct an evaluation to define if it was due to inappropriate training methods reducing recovery or alternatively only bad luck.

## **Career-based incentives**

Career development is often based on subjectivity. Besides rewarding short-term performance, employers should offer an encouraging career ladders for workers. Empirically, career development provides a significant incentive to perform in job, since proceeding further in hierarchy usually requires signalling of one's abilities to recruiting supervisors. Besides promotions increase earnings, it functions as an effective signal for labour markets for employee's abilities and appreciation (Lazear & Gibbs, 2015).

According to Gibbs (1994), career development is able to sort workers based on skills, but also generate incentives. His findings suggest that career development is often linked to significant increases in life-time earnings. Promotions involve an immediate reward, and despite if it would not be remarkable, merely the feeling of being able to pursue the next step in career ladders facilitates higher motivation and performance.

Reflecting to promotions as a form of incentives based on subjective evaluation, the environment in professional hockey appears to offer effective structures for career-based incentives, since variation between earnings among different leagues are remarkable. For instance, in National Hockey League (NHL) players earn on average of \$2.78 million per season, while in its main rival league, Kontinental Hockey League (KHL) contracts remain between \$0.1 and \$1.2 million in value. Despite players in Liiga are well-compensated professional athletes, the salary level remains closer to €100.000, while the average settles down to €75.000 and the highest paid players may receive up to €250.000 in euros. However, there are still many professional leagues in Europe, where earnings remain in lower levels than in Liiga. These observations indicate that players face significant incentives through career development since better performance increases probability to sign into top tier leagues where salaries can be enormous (Miettinen, 2020; Lempinen & Pesu, 2019; 2112 Hockey Agency, 2020; Baker, 2019).

## **4 TYING PAY FOR PERFORMANCE**

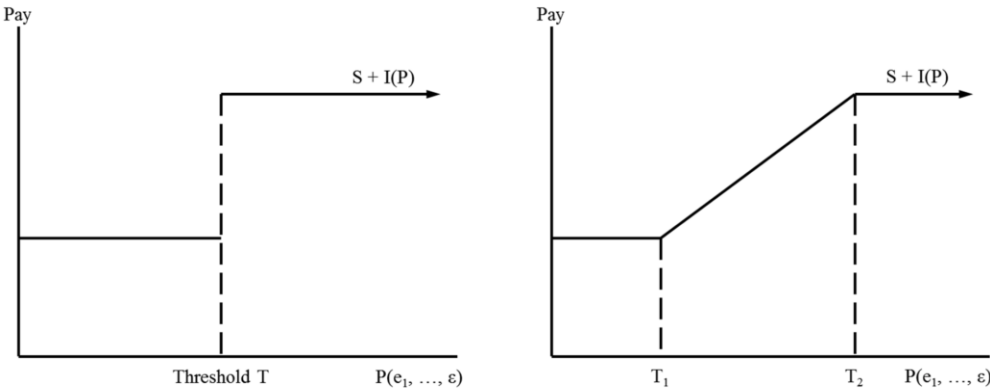
The last step in designing process is to choose whether incentive pay should be for linear or non-linear scheme. Theoretical section has discussed this far only linear incentive models,

where the incentive pay structure is completely linear without any modifications. An incentive plan that is fully based on performance is the most effective tool to prevent shirking. On the other hand, risk-averse agent is highly uncomfortable with this kind of plan as it provides no shield against uncontrollable events. As an upside, the pay increases unrestrictedly enabling very high earnings for the most talented employees. However, if no limit for rewarding exists, this structure involves high risk for the employer if superior performance takes place most likely due to luck. Thus, completely linear plan requires some modifications to suit well into real world contexts. A floor provides worker with a base wage and linearly growing reward after certain threshold. This type of incentive pay scheme shields employee against downside risk. However, it is important to set the threshold accurately. Appropriate threshold encourages worker to exert constant high effort. If the threshold is too challenging, there is not any incentives left since the flat section is the only relevant part of the function. For the employer side, reasonable limit provides insurance against excessive luck. To conclude, the vital benefit of the linear incentive pay model is the constant positive marginal benefit of effort. Hence, it encourages employees to constantly maximize the level of effort not dependent on past (Lazear & Gibbs, 2015).

Another general rewarding structure is so-called lump-sum rewarding plan that provides a discrete bonus after ex ante set threshold. This kind of structure relates promotion as an incentive perfectly, since on average, shifting higher in hierarchy increases earnings. Another possibility to utilize this structure is when incentives rely heavily on subjective evaluation, and providing precise qualitative assessment is challenging. However, under certain circumstances this system may facilitate adverse courses of action. The slope of the marginal benefit of effort is either zero or infinite for the worker, meaning there exists extremely high incentives to exert effort, or vice versa no incentive at all. The latter occurs if the threshold is out of employee's reach during the current measuring period. Infinite marginal benefit of effort arises when the threshold is relatively close at the end of the measuring, and employee aspires by any cost to reach the threshold. Thus, lump sum rewards may lead to excessively high risk taking or alternatively, complete shirking (Lazear & Gibbs, 2015; see also Tzioumis & Gee, 2013). Rewarding players with lump-sum plan may be problematic, since the marginal benefit of reaching objectives may potentially either be zero or infinite. For instance, if the threshold is set for 20 goals and the player has not scored enough in the first half of the season, incentives may be partly or fully removed since the threshold is out of reach. Player might undergo significant decline in motivation due to inadequately designed incentive system.



To summarize, the base wage covers worker from uncontrollable events, while limit reduces employer side risk in case excessive performance happens due to luck. Non-linear incentive pay plan links the marginal benefit of effort with past performance, which oftentimes encourages worker to increase risk taking or to decrease effort level significantly if rewards are out of reach. In contrast, linear models are very robust against these conflicts of interest deriving from previous performance, and thus leading towards more effective outcomes where both parties are better off.



**Figure 2: Lump-sum bonus & linear bonus with floor and limit**

**5 EFFECTIVENESS IN SPORTS: PAYING FOR PERFORMANCE IN NFL**

Kim et al. (2018) have studied the impact of increasing the relative share of incentive pay on the performance of National Football League (NFL). Regardless that financial resources of an average NFL organization are substantially larger than in organizations in Finnish professional hockey, this study provides some indication of the effectiveness of incentive pay in professional team sports.

The researchers approach the effectiveness of incentive pay through two different measures, Winning Probability Added (WPA) and Expected Points Probability Added (EPA). These metrics are created to measure the effect of player performance on the probability of winning and collecting points, taking into account the varying level of importance between different situations inside the game. The authors validate these measures by emphasizing the

fundamental idea behind player recruitment: players are signed based on expectations of their ability to increase probability of winning games, or ultimately the championship.

The study included the realized monetary values of a total of 694 NFL contracts between 2004 and 2013. Performance-based compensation ranged from 0% to 100%, of which as many as two-thirds were compensated solely based on accomplishing certain objectives and thresholds. For comparison, only 20% of contracts guaranteed more than one-third of realized income. The effect of incentives was examined by comparing differences in performance among players whose salaries were largely based on performance with the players whose income was less dependent on performance. If performance-based incentives would not really motivate individuals towards better performance, researchers should not detect significant differences between performance metrics.

The results were explicit. Stronger incentives indeed had a positive effect on player performance, even in the highest income categories. In contrast, performance was not dependent on the length or total value of the contract at statistically significant level. This outcome is precisely in line with the theoretical intuition that key driver for encouraging players towards better performance is incentive pay rather than base wage.

The credibility of the study is further enhanced by the fact that EPA and WPA metrics were built to isolate the performance and effort levels from pure good fortune. Furthermore, the setting between different games is very similar, and the rules in football supported by professional referees further promote comparability of player performance in the sample. Hence, this paper indicates that competitive advantage can be achieved through designing effective endogenous incentive pay systems for professional athletes.

## **6 INCENTIVE PAY POLICIES IN LIIGA**

### **6.1 Research design**

Since there is no earlier data regarding incentive pay policies in Finnish professional hockey, the status quo remained to be found out by conducting a survey for the players. To supplement the survey, three executives working in Liiga organizations were interviewed. An ambition for this section is to constitute a distinct overview of incentive systems in Liiga to enable proper

evaluation between existing policies and theoretical framework. Data for this section is fairly narrow, since contents of the player contracts are not public. This survey was conducted to 69 players in Liiga that covers approximately 10-15% of all players in Liiga. Despite the sample is narrow, it helps us to form an understanding of current policies. Both the survey and interviews were conducted anonymously to ensure reliable and genuine results. The following section will uncover the status quo inside Finnish professional hockey regarding paying for performance.

## **6.2 Empirical findings**

This section is separated in two, the first part gathering together the relevant findings of the empirical study, whilst the latter pieces together the results based on executive interviews. Findings are presented in a descriptive manner to the extent they facilitate the further qualitative analysis.

### **Survey for the players**

The survey for the players involved multiple questions regarding salary level, realized share of performance-based pay compared to total income and applied performance measures for rewarding from both individual and team perspective. Moreover, players were enquired their preferences considering e.g. if the rewards should be based on team or individual performance.

The attendees were divided into four categories based on their salary level during last ice hockey season 2019-2020 to examine how the wage level affects to the incentive plan for individuals. Simultaneously, this categorizing enables evaluation of how well the population is represented in the survey. As a result, the sample forms a legitimate representation of the population from the pay distribution perspective since the respondents were quite evenly balanced between the categories. However, more experienced players and players performed better in the past seem to be slightly more present since 30.4% of the respondents earned less than the median player earned in previous season, which was in total €55.000. This observation is further validated since 37.7% of the respondents earned more than €100.000, whilst during season 2018-2019 roughly one-fourth of players totalled such income in the population (Miettinen, 2020).

The results were clear and consistent with respect to what was revealed in the interview sessions. While the salary level increases, the strength of incentives diminishes. The reasoning behind this phenomenon will be explicated further while discussing through key findings based on interview sessions.

The survey enquired both potential sources for earning bonuses defined in contracts as well the realized levels of these bonuses. Only 56.5% of respondents reported that contracts involved some individual bonuses, whilst bonuses based on team performance were included in 62.5% of contracts. However, the average amount of realized monetary rewards was only 3.2% of total income, whilst as much as 60.8% of players reported zero realized bonuses. Hence, both previous observations indicate that contract-based incentive pay does not form a significant source of income for most players in Liiga.

For players whose contracts involved performance-based pay, the applied individual performance measures were quite similar with each other and not matching very strongly with job design. Players are generally measured through the amount of goals scored, total points, games played and time-on-ice. The last one reflects the trust coach has on player's abilities. Total points summarizes both scored goals and assisting teammate for scoring. Goaltender performance is measured through save percentage and goals against on average, which both are quite robust for measuring their ability to protect the own net. Normally, the incentives are tied for performance by non-linear, lump-sum bonus structure. If contracts include incentives based on team success, the rewarding plan is also based on lump-sum structure providing discrete bonuses. The threshold is often set for qualifying into the first round of playoffs, while proceeding further towards finals or championship provide additional discrete bonuses.

Eventually, the last section of the survey investigated player preferences regarding the potential effects of stronger incentives, potential for better match the measures with job design and finally whether the incentive pay should be based on individual or team performance. Firstly, the players were asked how their motivation or performance would change if their pay would be more strongly tied to performance. Answers were very consistent: more than three-quarters of players reported that their motivation and performance would not significantly change.

Secondly, player opinions were distributed quite evenly when they were asked if the performance measures could be better matched with job design. 54% of respondents reported

that measures could be designed to match better with job design. Some players provided additional information that, in their opinion, player statistics are not reported precisely enough to be properly utilized in incentive systems, or alternatively the measuring system is lacking decent coordination among the league regarding definitions of e.g. how faceoffs or tackles are reported.

Thirdly, the majority of players stated that incentives based on team performance are more important to be included into rewarding plans. This result is well in line with Baruch et al. (2004), as their research paper examining Chinese professional sports suggested that incentives for athletes should be dependent on the level of desired collaboration between players. For instance, athletics is more suitable for individual bonuses whilst ice hockey can be seen to be one with far more cooperation, and thus incentives based on team performance should be more existent in incentive pay plans for ice hockey players. Additionally, some players voluntarily reported that based on earlier experience individual bonuses may lead to adverse scenarios from team perspective since incentives based on individual performance may increase self-interests at the expense of team success, which is well in line with observation of e.g. Lazear & Gibbs (2015): “you get what you pay for”.

## **Executive interviews**

Interviews revealed very soon that results of the survey and incentive pay policies in organizations participating for these interview sessions were highly consistent. Executive interviews provided important additional information of current policies and reasons behind the system. Interviews revealed that in these organizations, incentive pay is not very broadly utilized. To demonstrate, one CEO revealed that realized bonuses were only 1.5% of the total player budget in their organization.

Commonly, the most experienced players with proven abilities are not rewarded based on individual performance besides the base salary. The interviewees were very consistent with their perceptions why this is the current situation. First of all, labour markets in professional ice hockey have become more global than ever, which has led to tougher competition for players. Furthermore, the Finnish professional sports market is relatively small compared to the greatest rival leagues in Europe. In other words, this reflects strictly to the financial resources of organizations, which, according to the interviews, exposes Finnish organizations to compete by

raising base wage to induce desired players. At the same time, the guaranteed compensation comes closer, or in some cases may even exceed the estimated value of player contribution which results to declined willingness for organizations to offer monetary incentives on top of base salaries, even if encouraging players by incentives would increase player performance during games, which most likely results better athletic performance also as a team. Thus, the minor role of incentive pay is to some extent conflicting, since athletic performance can be assumed to be one of the key drivers for financial performance as well. However, player performance is somewhat risky, and certain level of performance is thus included into the base salary because of tough competition in labour markets.

In contrast, for younger players with shorter background in professional hockey, incentive pay systems are involved in most contracts. This policy derives from the fact that their market value is hard to measure, since they are only in the beginning of their career with narrow proof of existing skillset compared to true professionals. Hence, their range of outside options is far smaller than for more experienced players. According to the interviews, the rewarding structures are in most cases based on lump-sum plan, providing a discrete bonus after reaching some threshold.

Instead of individual bonuses, these organizations participating the interviews tend to reward players based on team success. To advance the fairness of the system, these rewards are generally evenly shared among the players, independent of player's role inside the team. The contracting behind team-based incentives varies between organizations. One organization purely relies to quantitative measures by defining certain bonuses of reaching specific thresholds *ex ante*. In contrast, also subjective evaluation is utilized to reward players *ex post*. The latter can be seen somewhat problematic from the player perspective since the realization of the rewards is fully depend on supervisor discretion.

Besides competitive labour markets and tense budget constraint, interviewees highlighted the incentives deriving from inside of the system. As described earlier, the salary levels between different leagues are significant. This forms an effective source of exogenous incentives based on career development, and partly reliefs the pressure for organizations to pursue often costly incentive systems to increase player effort through monetary rewards. Furthermore, the interviews emphasized that many times non-monetary benefits supporting career development, such as high-quality training centers, unlimited access for physical therapy or simply ability to

offer extensive coverage may be even attractive for players negotiating upcoming contracts than monetary incentives.

## **7 DISCUSSION**

Extensive amount of earlier literature facilitates a comprehensive analysis of the data available for this study. This final section provides key insights regarding current incentive pay policies in Liiga. Paying for performance based on individual performance seems to be only minor part of incentives, realizing mostly on contracts for young players with low market value and fewer previous merits from professional hockey. For the experienced true professionals, the greatest incentives appear to derive mostly from team success or through career development, of which the latter can be identified to be the strongest source of incentives. Relatively short contracts, very competitive labour markets for players with average skills and on the other hand incredibly high compensation level for top tier players compose an effective incentive system as a whole, being not dependent on the actions of the organizations.

To elaborate reasoning behind the absence of individual incentives, very competitive labour markets which forces organizations to compete for players fitting well into their strategy by raising base salaries in contract offer sheets. At the same time, budget constraint restricts capacity for providing incentives on top of the guaranteed compensation. However, high base salaries can be interpreted as prepayment for future performance. Since the contracts are relatively short, players must constantly signal their abilities to future employers for maintaining or improving current income level. From this perspective, player salaries are involving significant amount of expected level of performance. Advantageous for players, but in contrast, organization expose themselves in great risk in case player motivation decreases for any reason during the season.

Organizations tend to underestimate the feasibility of paying for performance during the season, while focusing mostly on subjective evaluation while pursuing to assess the market value for potential recruitments accurately. Organizations appear to be contented in relying on player monitoring to maximize their cost-efficiency regarding player output. This is somewhat conflicting, since earlier literature provides clear evidence that players with stronger incentives tend to perform better than players with higher guaranteed amount of compensation.

Consequently, this paper suggests organizations to consider incentive pay systems as an investment for athletic performance. In general, player output is very clearly identifiable compared to non-sports industries. So far applied evaluation metrics alone appear to be applicable for designing effective incentive pay systems. However, it is important to recognize that to prevent distorted incentives, it is crucial to balance the incentives by including both offensive and defensive metrics into the system, remember that “you get what you pay for”. Despite some players were sceptical towards more customized incentive pay plans, pointing out that league level statistics are poorly coordinated, nothing inhibits organizations for creating their own more suitable measures that are gathered diligently. Naturally, these metrics could be similar with the league-level statistics but adjusted properly to fit into the incentive pay plan considering the job design of individual players. Furthermore, decisions for eventual measures and measuring criteria should be decentralized to promote the reliability and fairness of the system. Hence, investing in designing appropriate performance evaluation metrics that match well in job design most likely would offer a competitive edge against rival organizations ignoring this perspective in their business strategy.

This paper has also several further suggestions for improving the design of existing incentive pay policies yet considering the current operational environment. First of all, to the extent incentive pay plans exist, linear rewarding structure should be preferable instead of prevailing lump-sum structure because linear plans offer constant marginal benefit of effort, which ensures that the chosen effort level is independent with past performance. In adverse scenarios, non-linear lump-sum plans may cause either zero or infinite incentives, which may encourage excessive risk taking or complete shirking. Furthermore, the implementation of incentives based on team performance appears to long for improvement in some organizations, since the rewards are not always defined ex ante in terms and conditions of contracts. Defining these rewards facilitates the trust towards the system and increases incentives since players can observe them while choosing their effort level.

This paper has offered explicit guidelines for designing and implementation of effective incentive pay systems by relying on extensive earlier literature. For future research, this paper suggests examining the effectiveness of these policies in more quantitative manner to disclose statistical effectiveness of incentive pay policies in the Finnish professional hockey.



## 8 LIST OF FIGURES

FIGURE 1: THREE COMPONENTS OF INCENTIVE PAY PLAN. ....	7
FIGURE 2: LUMP-SUM BONUS & LINEAR BONUS WITH FLOOR AND LIMIT.....	17

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