

ERASMUS UNIVERSITY ROTTERDAM

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Master Thesis Strategy Economics

# **Expert leader influence in Dutch football**

## **Investigating the effects of prior worker experience on later management practices**

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### **Abstract**

This study investigates the theory of expert leadership in the Netherlands from 2004 until 2019, using the context of professional football. The football industry is characterised as one where data on performance is accurate and high in quantity, and therefore highly applicable for this research. The analyses in this paper are divided in two parts: a sports performance model and a financial performance model. The sports performance model uses data on match level to perform ordinary least squares (OLS) regressions. The financial performance model uses seasonal data in fixed effects regressions. Both models separately incorporate prior football experience and football success as the main independent variable in the analyses. The results of this paper give strong support for the importance of leader's industry experience according to the theory of expert leadership. Alternatively, the results indicate that non-expert leaders have better managerial performance compared to expert leaders. Leaders' prior successes may be an important consideration when appointing a new manager, yet becomes unimportant when including the players capabilities as a determinant of performance. Leaders' experience and success are not related with financial performance of the concerning clubs.

**Keywords:** expert leadership, manager experience, performance, football

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## 1. INTRODUCTION

*“A good horse does not make a good rider”*

- Co Adriaanse (VI, 2008)

Football clubs' coaches in professional leagues regularly are former football players. Of those former football players, some have experienced great successes in their professional careers whereas others have not. The statement by Adriaanse, a former professional football player and football coach, was given after a tumultuous period in which Adriaanse ended at the top of the table and yet got laid off as head coach of Ajax. With this statement, Adriaanse expressed his concerns with Marco van Basten being appointed as head coach of Ajax 2 in 2002. Van Basten had a very successful career as a striker. He won multiple national titles and European cups with Ajax and AC Milan and even won the 1988 UEFA European championship with the Dutch national team (Transfermarkt, 2021). Despite having had a lot of success as a player, van Basten did not have any relevant coaching experience prior to its appointment at Ajax, according to Adriaanse. Eventually, the statement made by Adriaanse was justified after van Basten ended his career as a professional football coach when he did not live up to the expectations at Ajax, Heerenveen, AZ Alkmaar and the Dutch national team (Verweij, 2014).

Now, coaches do not have to be former successful football players, nor football players at all, to become (successful) football coaches. To become a professional football coach in the Netherlands, one must run through the professional football trainer programme of the Royal Dutch Football Association (KNVB) and subsequently must be appointed by the board of a football club. After being appointed, coaches will then start to implement their view of what the performance of the team should look like.

In general, the influence of a leader on the firm's performance is of crucial importance. Dawson and Dobson (2002) identify two ways in which a manager's influence is observable in team performance in English Association football. A direct way, in which the manager uses the set of skills of the team to reach the desired short-term outcome as well as an indirect way, in which the coach maximizes the players capabilities and fosters development of new skills during practice throughout the season. Following Dewan and Myatt (2008), the influence of a leader leans on his or her specific set of skills. Few of these skills are that leaders must show a sense of direction and must be clear in their communication which leads to a general comprehension of the message.

What distinguishes successful leaders from less successful leaders? A sense of direction

and clear communication will only be few of many determinants of firm performance. Existent research has mostly focussed on the characteristics of companies, industries, and markets to describe managerial practices. However, little research is performed to investigate how different managerial characteristics can affect performance outputs. Hambrick and Mason (1984) touch upon multiple managerial characteristics such as age, education, and economic background. Age seems to be negatively related with corporate growth, imposing that a younger managers would take more risk and could possibly face higher growth. Hambrick and Mason (1984) also pose that a manager's education represents its set of capabilities and expertise and that a manager originating from lower socioeconomic categories would go after acquisition and diversification strategies, which in turn could lead to firms facing high growth values.

Though, not all good horses make good riders according to Adriaanse (VI, 2008). Others may have different reasons to believe the opposite. This perception can be explained through the theory of expert leadership described by Goodall (2012). Goodall describes this as the principle that firms will perform most fruitful when firms are led by leaders who have “*inherent knowledge of the core-business activity, combined with extensive industry experience*” (Goodall, 2012, p5). This theory leads to a framework in which the expert leadership is a function of inherent knowledge, industry experience and leadership capabilities. In this framework, leaders are not perceived to be all-round leaders, rather leaders who are at the top of an organization. Thus, leaders who perform well are those who have a set of accumulated experience and knowledge and therefore are perceived as experts. In addition, research has shown that leaders have idiosyncratic sets of skills and experience and therefore could leave unique marks on the organizations in which they operate (Bertrand & Schoar, 2003). With this in mind, I investigate the following research question:

*Does the theory of expert leadership hold for football clubs in the Dutch Eredivisie?*

In this research, the influence of leaders' characteristics on performance will be investigated to answer the proposed research question. Match data and seasonal data from the Eredivisie from 2004 up to 2019 will be used to test whether club performance can be related to managers' expertise. Because the football industry is one of high skill and where data on performance is accurate and high in quantity, it then makes the findings suitable to consider in other industries. While previous literature mostly has investigated that leadership and expertise is important, this research focusses on how expert leadership influences firm performance and therefore will contribute to the existing literature.

## **2. LITERATURE REVIEW**

### **2.1. The Eredivisie in short**

From 1888 and onwards, football teams in the Netherlands competed for the Dutch championship, however football was not yet seen as a professional sport and profession. In 1956, the so-called ‘Dutch champions competition’ was turned into one national league, called the Eredivisie (Eredivisie, n.d.). Simultaneously, football was turned into a professional sport with corresponding player wages. The Eredivisie now contains 18 clubs which all play twice against each other throughout the season, one home game and one away game. Matches are mostly played during the weekend and last ninety minutes with a fifteen-minute break halfway the match. Match outcomes can result in a win, a draw or a loss which are rewarded with three, one and zero points respectively.

After having played 34 matches, the club at the top of the table can officially claim the title of national champion. In the years of interest, 2004 up to 2019, the rules regarding the playoffs comprised the following: The champion of the league earns a direct ticket to compete in the Champions League tournament. Clubs ranked second until fifth compete in playoffs to distribute the remaining tickets to compete in the Champions League and the Europa League (former UEFA Cup). The club ending at the bottom of the table is relegated to the second football league, currently known as the ‘Keuken Kampioen Divisie’. Clubs ranked 17<sup>th</sup> and 16<sup>th</sup> will have to compete in playoffs to remain their place in the Eredivisie They will face the top clubs of the ‘Keuken Kampioen Divisie’. Lastly, the Eredivisie is not part of the ‘traditional big four’ leagues (England, Spain, Italy & Germany) (UEFA, n.d.), yet the Eredivisie has delivered various famous football players (Turner, 2012).

### **2.2. The theory of expert leadership**

Organizations can experience successes and failures which could be directed to the managerial practices of the corresponding organizations. The theory of expert leadership (Goodall, 2012) provides a clear description on how the interaction between intrinsic knowledge, industry experience and leadership skills contribute to the forming of the so-called expert leader. The intrinsic knowledge of a leader is idiosyncratic and is a result of the leader’s educational history and practice in the fundamental business. The fundamental business is what is observed as the main activity of the organization, which is the football industry in this study. Industry experience of the leader is then noted as the cumulative time spent in the fundamental business. The last component of the theory of expert leadership (Goodall, 2012) narrows on the

individual leadership skills. The leader must have acquired a set of management skills through previous experience and/or schooling. Goodall (2012) states that the three components of the theory could be positively correlated with organizational performance. Additionally, the underlying business is the main determinant of leadership contestants. Finally, one could argue that the aforementioned components are connected in a circular manner, such that leadership contestants with much intrinsic knowledge would be hired sooner. This way the leader could acquire industry experience and obtain leadership capabilities which in turn contribute to the practical know-how of the fundamental business.

Research has given scientific evidence for the theory of expert leadership, as posed by Goodall (2012), in multiple areas. Firstly, a study on publicly traded companies in China examined the relationship between expert leadership and the innovative behaviour of the company and found a positive relationship, meaning that expert leadership could increase corporate innovations (Zicheng et al., 2019). Secondly, studies on US hospitals have shown that hospitals which are led by physicians have higher quality rankings than hospitals which are not led by physicians (Goodall, 2011; Tasi et al., 2019). Finally, scientific support for the expert leadership theory comes to light in various sports industries. In US professional basketball, team coaches' successes as a basketball player appear to be positively correlated with the performance of the same person as a coach later (Goodall et al., 2011). Also, team directors who have been former drivers or mechanics in the Formula One show a positive relationship with claiming podium positions with the team they direct (Goodall & Progrebna, 2015).

### **2.3. Managerial influence**

Now, the managerial influence on organizational performance is not solely based on the subject's expertise. Bertrand and Schoar (2003) found some manager characteristics to be correlated with manager fixed effects in corporate performance and elaborated multiple interpretations of the observed effects. One interpretation is that leaders implement their unique style into the firm and a second interpretation focusses on the variation of relative capabilities of managers and that organizations ultimately pick the managers who are the best fit for their demands. The former implicates that different leadership styles can have influence on organizational performance. Then, research has proven that a relationship between leadership styles and performance incentive is existent among football players (Soyer et al., 2014). The latter, finding a suitable leader for a football club, seems to be prone to inefficiencies. Peeters et al. (2021) found that football clubs in England often hire experienced managers with lower

skills rather than talented market newcomers. These hiring inefficiencies could be due to “the credibility effect” of expert leadership, as described by Goodall (2012). This effect denotes that expert leaders enforce more regard as they have had a significant amount of experience and success.

How do managers then influence team performance in the football industry? It appears that the performance of football teams in the UK is not solely based on the skill of the team, yet also on the skill of the manager (Bell et al., 2013). When examining the managerial influence, Dawson and Dobson (2002) distinguish two effects, a direct one and an indirect one. The direct effect is formed by the manager’s tactic skills and his/her capability to stimulate players, which is needed before and during a match. The manager must select the best players of his team to form the starting eleven and must determine the team’s setup and strategy. Managers need to enhance team performance to ensure the desired match outcome (win, draw or loss, depending on strategy) using the players abilities. The indirect effect is observed by the extent to which a manager is able to maximize the abilities of the players throughout the season. This depends on the manager’s potency to improve players’ skills. Thus, manager quality is perceived as an important factor on team performance, which has been proven by Frick and Simmons (2005). Their result concludes that football clubs that appoint greater coaches could experience higher performance. When investigating specific managerial characteristics, sense of direction and clear communication have been proven to contribute to the leaders’ influence (Dewan & Myatt, 2008).

In the football industry, managers’ inputs and team performance are easily observable as stadiums are filled with spectators and matches are broadcasted worldwide. Also, when teams underperform for a subsequent period, the manager is held accountable and risks the possibility to get laid off (Audas et al., 1999). Manager turnover therefore is high relative to other industries. The effects of managerial turnover on team performance are investigated widely. In a study by Van Ours and Van Tuijl (2014), performance improved after managerial turnover. However, comparing the results to a control group it seemed that performance was better before managerial turnover. This implicates that there is no sign of performance improvement after managerial turnover. Same conclusions can be drawn from other research, meaning that no significant performance improvements were observed from managerial turnover (Ter Weel, 2011).

## **2.4. Team performance**

Meanwhile, when manager-team combinations perform well match to match, it does not infer that it is purely dependent on a manager's influence. The main driver of a football team's performance would be the team itself. The team consists of a combined set of skills and talents of all players, and it is the manager's task to maximize these inputs. Clubs select talented players from their own youth academy and are active on the transfer market. The transfer market is a competitive market in which players can be bought or hired from other football clubs.

A considerable literature has investigated the relationship between performance and compensation (Galariotis et al., 2018; Hall et al., 2002; Szymanski & Smith, 1997). One of the main findings was that in English football, a strong correlation from payroll to performance is observed. Consequently, this correlation implies that success is for sale in football. Rich football clubs can easily buy players compared to football clubs which have more financial constraints. Therefore, financially constrained clubs are limited in their options in the transfer market and ideally have to set up a successful youth academy given their financial situation. A good transfer market strategy and a professional youth academy then is beneficial for clubs to maximize team and financial performance in the short and long run.

## **2.5. Hypotheses**

Extant research has confirmed the existence of the theory of expert leadership in various sectors. Additionally, in the football industry, multiple studies have been performed to investigate the contributions of leaders to the performance of football clubs (Bell et al., 2013; Frick & Simmons, 2008; Muehlheusser et al., 2018). Now, is this theory applicable and externally valid in other industries and sectors? Therefore, I propose the following research question:

*Does the theory of expert leadership hold for football clubs in the Dutch Eredivisie?*

In the football industry, performance is dependent on the club's financial position and on the players' abilities. In the study by Goodall et al. (2011), players' excellence appeared to show correlation with the team performance of that person as a coach multiple years later. In other research, team directors with experience in the fundamental business showed a positive relationship with organizational success of the team they direct (Goodall & Progrebna, 2015). The following hypotheses have been formed to investigate the proposed research question.



*H1: Leaders who have had more experience in their careers as player are associated with higher probabilities of the team it manages to win a match.*

*H2: Leaders who have had more successes in their careers as player are associated with higher probabilities of the team it manages to win a match.*

*H3: Leaders who have had more experience in their careers as player are associated with a higher financial performance of the club they manage.*

*H4: Leaders who have had more successes in their careers as players are associated with a higher financial performance of the club they manage.*

### **3. Methodology**

#### **3.1. Data collection**

The goal of this research is to investigate whether the theory of expert leadership applies for football clubs in the Dutch league. This study will focus on the component of industry experience in the theory of expert leadership. The data in this research is twofold, one dataset comprises match data on performance and the other comprises seasonal data on performance. Hypotheses 1 and 2 will be tested using the dataset on match level, whereas Hypotheses 3 and 4 will be tested using the seasonal data. The timespan of this research runs from August 2004 up to May 2019, covering 15 seasons of Eredivisie football. Appendix A shows a list of the clubs and the number of seasons which they have been active in the Eredivisie from 2004 up to 2019.

The dataset on match level has been constructed the following: match data from seasons 2004/2005 until 2018/2019 is retrieved from [football-data.co.uk](http://football-data.co.uk) and merged into one single file. This dataset contains information on the date of the match, playing home team, playing away team, fulltime and halftime goals for both teams, and it contains betting odds from various bookmakers. This dataset covers 18 clubs playing 34 matches every season for 15 years. Match data is duplicated to the point of view of the visiting team and manager, since matches are played by two teams, and both have unique managers and teams. This results in 9,180 match observations.

The seasonal dataset originally contains 18 clubs playing 15 seasons in the Eredivisie, thus initially equals 270 observations. For both datasets, data of the managers' professional playing career and coaching career have been collected and have been added to both datasets. The managers corresponding for each club throughout the season have been retrieved from [transfermarkt.nl](http://transfermarkt.nl), [voetbal.com](http://voetbal.com), and yearly reports of the clubs. Managers' personal information such as age and nationality and characteristics of their professional football career have been

retrieved from ransfermarkt.nl and voetbal.com. Characteristics of the managers' professional football career concern matches played, positions, prizes won, clubs played for, career start, and career end. Manager's characteristics have been cross-checked with the use of vi.nl and official club websites.

Financial data and seasonal football performance data is provided by Dr. Peeters. The corresponding financial statements have been made available as well and were initially derived from the Chamber of Commerce (Kamer van Koophandel). This financial data contains data from the income statements, the balance sheets, and statements of cash flows, where available. However, not all financial statements have been available as some were not published and financial data therefore does contain several gaps. The football performance data contains the teams' performance information at the end of the season. Which contains total wins, losses, goals made and received, total points, and rank at the end of the season.

## 3.2. Research Design

### 3.2.1. Sports performance model

In this study, the component of industry experience will be examined out of the expert leadership theory. The other components, intrinsic knowledge and leadership skills are of great importance, yet they can be subjective and less suitable for quantitative research. In the first model, match data of the 15 seasons is used. Both Hypotheses 1 and 2 will be tested by performing an OLS regression and the models used are depicted in Equations 1 and 2 respectively. In Equation 1, the model wishes to explain a club  $i$ 's performance under manager  $j$ 's characteristics for match  $t$ . Moreover, nation fixed effects will be controlled for, and the error term is depicted as  $\mu_{ijt}$ . The model variables will be specified in section 3.3.

$$ScoreDiff_{ijt} = \alpha + \beta_1 Ln(Matches)_j + \beta_2 Ln(Wages)_i + \beta_3 Position_j + \beta_4 Abroad_j + \beta_5 Clubs_j + \beta_6 Age_j + \beta_7 CoachExp_j + \beta_8 Age_j^2 + \beta_9 Exp_j^2 + \delta_t Nation_j + \mu_{ijt} \quad (1)$$

The model in Equation 2 has the same goal as the model in Equation 1, however has a different independent variable namely *Prizes*.

$$ScoreDiff_{ijt} = \alpha + \beta_1 Ln(Prizes)_j + \beta_2 Ln(Wages)_i + \beta_3 Position_j + \beta_4 Abroad_j + \beta_5 Clubs_j + \beta_6 Age_j + \beta_7 CoachExp_j + \beta_8 Age_j^2 + \beta_9 Exp_j^2 + \delta_t Nation_j + \mu_{ijt} \quad (2)$$

Descriptive statistics of the variables used in Equations 1 and 2 can be found in Table 1 and Table 2. The tables are organised in time-variant and time-invariant variables. The correlation matrix for the sports performance model can be found in Appendix D.

**Table 1.** Descriptive statistics of time-variant variables in sports performance model.

VARIABLES	Obs	Mean	Std. Dev	Min	Max
<i>ScoreDiff</i>	9180	0	2.089	-10	10
<i>Wages</i>	8772	14561901.05	12537709.9	1144459	92172000
<i>Age</i>	9180	47.773	5.982	35	72
<i>Coach Exp</i>	9180	8.035	6.841	0	33
<i>Age</i> <sup>2</sup>	9180	2318.014	608.73	1225	5184
<i>Exp</i> <sup>2</sup>	9180	551.457	42166.029	0	4040100

**Table 2.** Descriptive statistics of time-invariant managerial variables in sports performance model.

VARIABLES	Obs	Mean	Std. Dev	Min	Max
Matches	118	292.610	186.525	0	843
Prizes	118	1.890	3.486	0	15
Abroad	118	0.169	0.377	0	1
Clubs	118	3.720	2.393	0	10

### 3.2.2. Financial performance model

The second part of this study wishes to investigate the relationship between leader prior experience and the off-field financial performance for a given club. To test Hypotheses 3 and 4 the models are set up in Equations 3 and 4 respectively. In these analyses, panel data on seasonal level is used, and a fixed effects regression is performed. Equation 3 displays the model used to investigate the relationship of a club  $i$ 's financial performance under manager  $j$ 's characteristics for  $t$  season. Additionally, season and nation fixed effects are accounted for in the model and the error term is describes as  $\mu_{ijt}$ . In football, it is not unusual that managers get laid off and that temporary acting managers take over the lead. To avoid any disturbance, only managers active for 34 games, thus a full season, are considered. Descriptive statistics of the panel data can be found in Table 3.

$$\begin{aligned} \ln(\text{Revenues})_{ijt} = & \alpha + \beta_1 \ln(\text{Matches})_j + \beta_2 \text{Promoted}_i + \beta_3 \text{Position}_j + \\ & \beta_4 \ln(\text{CareerEnd})_j + \beta_5 \text{Abroad}_j + \beta_6 \text{Clubs}_j + \beta_7 \text{Age}_j + \beta_8 \text{CoachExp}_j + \beta_9 \text{Age}_j^2 + \\ & \beta_{10} \text{Exp}_j^2 + \delta_t \text{Nation}_j + \delta_t \text{Season} + \mu_{ijt} \end{aligned} \quad (3)$$

The model in Equation 4 wishes to investigate the same relationship as in Equation 3. Yet in Equation 4, the dependent variable for success is *Prizes*. A correlation matrix for the variables of the financial performance model can be found in Appendix E.

$$\begin{aligned} \ln(\text{Revenues})_{ijt} = & \alpha + \beta_1 \ln(\text{Prizes})_j + \beta_2 \text{Promoted}_i + \beta_3 \text{Position}_j + \\ & \beta_4 \ln(\text{CareerEnd})_j + \beta_5 \text{Abroad}_j + \beta_6 \text{Clubs}_j + \beta_7 \text{Age}_j + \beta_8 \text{CoachExp}_j + \beta_9 \text{Age}_j^2 + \\ & \beta_{10} \text{Exp}_j^2 + \delta_t \text{Nation}_j + \delta_t \text{Season} + \mu_{ijt} \end{aligned} \quad (4)$$

**Table 3.** Descriptive statistics of panel data variables.

Variable		Mean	Std. Dev.	Min	Max	Observations	
Revenues	overall	2.62*10 <sup>7</sup>	2.74*10 <sup>7</sup>	3.71*10 <sup>6</sup>	1.99*10 <sup>8</sup>	N=	194
	between		2.29*10 <sup>7</sup>	5.98*10 <sup>6</sup>	1.01*10 <sup>8</sup>	n=	24
	within		1.11*10 <sup>7</sup>	-9.52*10 <sup>6</sup>	1.25*10 <sup>8</sup>	T-bar=	8.083
Matches	overall	340.232	162.282	0	843	N=	207
	between		114.279	0	545.833	n=	26
	within		135.161	-44.99	763.649	T-bar=	7.961
Prizes	overall	2.256	3.827	0	15	N=	207
	between		2.155	0	7.909	n=	26
	within		3.005	-5.653	14	T-bar=	7.961
Prom	overall	0.125	0.332	0	1	N=	207
	between		0.383	0	1	n=	26
	within		0.237	-0.374	1.042	T-bar=	7.961
Age	overall	47.603	5.729	35	71	N=	207
	between		2.906	44	55	n=	26
	within		5.124	35.937	69.318	T-bar=	7.961
Coach Exp	overall	7.768	6.512	0	33	N=	207
	between		3.349	0	15	n=	26
	within		5.963	-2.686	30.768	T-bar=	7.961
Career End	overall	14.048	7.297	0	50	N=	207
	between		5.310	8.500	29	n=	26
	within		6.125	1.648	43.763	T-bar=	7.961
Abroad	overall	0.565	0.497	0	1	N=	207
	between		0.334	0	1	n=	26
	within		0.413	-0.363	1.399	T-bar=	7.961
Clubs	overall	4.29	2.111	0	10	N=	207
	between		1.605	1	8	n=	26
	within		1.822	-0.821	8.540	T-bar=	7.961
Age <sup>2</sup>	overall	2298.744	583.701	1225	5184	N=	207
	between		286.494	1958.5	3025	n=	26
	within		525.053	1153.744	4899.601	T-bar=	7.961
Exp <sup>2</sup>	overall	102.551	171.416	0	1089	N=	207
	between		64.653	0	225	n=	26
	within		161.143	-100.631	996.122	T-bar=	7.961

### 3.3. Variable specification

The dependent variable *ScoreDiff* is the measure for team performance and it represents the difference in goals corresponding with the match outcome. *ScoreDiff* can take any value negative, zero or positive, and is focussed towards one team of the two playing teams. However, the range will be limited as matches with over 10 goals scored rarely occur.

A measure for the industry experience is the independent variable *Matches*. This variable is the number of matches the manager has played in his career as professional football

player. This value combines both starting positions and substitutions. This variable takes positive values and can take value zero, stating that the manager did not play any match in the Eredivisie. The natural logarithm of *Matches* will be incorporated in the model.

The measure for industry success is the independent variable *Prizes*. This variable is the construction of different prizes won as a football player. It combines the winning of national championships, league cups, the Champions League, the Europa League, and the European Championship. The natural logarithm of *Prizes* is used here to test the effect on sports performance. Lots of prizes, and thus success, can be viewed as a result of experience. Having a lot of experience does not cause success in the form of winning prizes, however winning many prizes requires to have played many matches.

The variable *Wages* is used as a measure to control for the specific sets of skill of the teams' players, thus the performance of the football team *Wages* accounts for the total wage bill of the club in the corresponding season. Unfortunately, wage specifications of the clubs' football players only were not available and some observations of *Wages* are missing.

*Position* is a categorical variable that indicates which position the leader has played the most throughout his football career. *Position* can take values Goalkeeper, Defender, Midfielder, Attacker and No Expert. The value No Expert represents the leaders who did not have any prior affairs with professional football.

Additionally, various control variables will be used in the analyses. *Age* is the age of the manager in question. Managers', just as any other humans, age over the year, yet the exact birth data of all managers was unavailable. Therefore, the managers' age at the start of the season is the age used throughout the season. *Promoted* is a dummy variable which takes value 1 if the club was promoted into the Eredivisie that season and takes value 0 if not. *CoachExp* is the experience in years the manager has as a professional football manager until the start of the corresponding season. The first year of experience is set as the first season the manager managed any football club in a country's primary league. The variable *CareerEnd* depicts the time in years of which the manager has ended his football career. *Abroad* is a dummy variable which takes value 1 if the manager has played in any foreign primary league in his football career. It takes value 0 if the manager did not play in foreign football leagues. *Clubs* is a variable which indicates the number of primary league professional football clubs the manager has played for.  $Age^2$  and  $Exp^2$  both are the squared values of the variables *Age* and *Coach Exp* respectively. Both are introduced to investigate whether the higher the age or the longer the experience has associations with performance.

Additionally, some fixed effects will be included in the analyses. *Nation* indicates the

manager's nationality and is defined as either Dutch or non-Dutch in this study. *Season* accounts for the seasonal fixed effects.

## 4. Results

### 4.1. Sports performance analysis

The first model used in this paper is the ordinary least squares (OLS) model to test the relationship between player experience and match performance from 2004 until 2019. During this period, 118 unique coaches were active in the Eredivisie compared to 270 one-season vacancies. Tenures in football mostly are multi-season contracts and coaches regularly move from one club to another. Of all 118 leaders, just 15 leaders did not have a history of playing in professional football and the positions played can be found in Appendix B. Also, robustness checks by means of an ordered probit model are performed and can be found in Appendix F and G.

#### 4.1.1. Experience

The regression results to test leaders' experience in the first hypothesis (H1) can be found in Table 4. It shows the OLS results from the competing teams' difference in goals at the end of the match. In Table 4, six models are shown as leader-specific characteristics, club payroll and fixed effects have been added sequentially to the model. The first model (1) only includes the leader's experience. The second model (2) also includes the club's payroll. The third, fourth and fifth model (3) (4) (5) have incorporated more leader-specific characteristics. The last model (6) includes all leader-specific characteristics in the model but does not include the club's payroll.

The results displays that the variable for industry experience, *Matches*, is significant in all 6 models at the 1% significant level. The coefficients for *Matches* ranges from 0.051 up to 0.237. Transforming the linear-log model then translates to a range of a 0.0005 up to 0.00237 increase in *ScoreDiff* for every one percent increase of *Matches*.

Controlling for the players' qualities, by including *Wages*, shows significance in models 2-5 at the 1% significance level. The coefficients for *Wages* are about 0.9 in models 2-5. This then corresponds with an increase of *ScoreDiff* of about 0.009 for every one percent increase of *Wages*, *ceteris paribus*.

All coefficients for *Position* take on significant negative values. This indicates that leaders who played at any position have lower values for *ScoreDiff* compared to leaders who

are ‘No Expert’, ceteris paribus. Coefficients are significant at the 5% level in models 3-5 and significant at the 1% level in model 6.

Given the positive coefficients from *Matches* and the negative coefficients from *Position*, a certain interaction between these variables is present. A non-expert leader has not played any matches and has a higher position effect compared to the other positions. Solving this mathematically leads to the finding that an attacker with approximately 360 or more matches played is preferred over a non-expert leader through models 3-6, ceteris paribus. The interaction of the other played positions would give relatively results, as the coefficients are close to similar.

**Table 4.** OLS regression results Hypothesis 1.

VARIABLES	(1)	(2)	(3)	(4)	(5)	(6)
Ln(Matches)	0.130*** (0.013)	0.051*** (0.014)	0.123*** (0.034)	0.129*** (0.036)	0.121*** (0.037)	0.237*** (0.033)
Ln(Wages)		0.901*** (0.029)	0.902*** (0.032)	0.900*** (0.032)	0.901*** (0.032)	
Attacker			-0.445** (0.194)	-0.460** (0.202)	-0.435** (0.203)	-0.874*** (0.192)
Defender			-0.446** (0.186)	-0.470** (0.196)	-0.433** (0.197)	-0.706*** (0.186)
Goalkeeper			-0.472** (0.220)	-0.529** (0.226)	-0.459** (0.231)	-0.912*** (0.233)
Midfielder			-0.464** (0.183)	-0.483** (0.192)	-0.451** (0.193)	-0.739** (0.181)
Abroad			-0.026 (0.062)	-0.018 (0.061)	-0.026 (0.062)	0.623*** (0.061)
Clubs			-0.006 (0.013)	-0.008 (0.013)	-0.005 (0.013)	-0.030** (0.013)
Age			0.002 (0.006)	0.004 (0.041)	0.012 (0.041)	-0.030 (0.042)
Coach Exp			0.001 (0.005)	0.001 (0.005)	0.001 (0.005)	0.008* (0.005)
Age <sup>2</sup>				-0.000 (0.000)	-0.000 (0.000)	0.000 (0.000)
Exp <sup>2</sup>				-0.000*** (0.000)	-0.000*** (0.000)	-0.000*** (0.000)
Constant	-0.695*** (0.074)	-14.833*** (0.465)	-14.985*** (0.560)	-14.899*** (1.148)	-15.6226*** (1.176)	-0.051 (1.054)
Observations	9,180	8,772	8,772	8,772	8,772	9,180
R-squared	0.010	0.106	0.107	0.107	0.108	0.027
Nation Fixed Effects	No	No	Yes	No	Yes	Yes

Robust standard errors in parentheses.

\*\*\* p<0.01, \*\* p<0.05, \* p<0.1

In the last model (6), when excluding the club's payroll, leader-specific characteristics then show significant coefficients. Having played abroad indicates a higher score difference in the advantage of the leader's team, which is significant at the 1% significance level. The amount of clubs played for here shows a small negative relationship with the score difference in model 6, significant at the 5% level. *Age* and *Age*<sup>2</sup> do not show significant values across the models. *Coach Exp* only shows a small and positive value in model 6 and *Exp*<sup>2</sup> shows negative and very small but significant values in models 3-6.

When looking at models 1 and 2 in Table 4, it is clear that the effect of *Matches* on *ScoreDiff* is smaller when controlling for the club payroll instead of solely controlling for the leader's match experience. Additionally, when including more leader-specific characteristics in models 5 and 6 the same is observed that the effect of match experience is smaller when including *Wages*.

At first sight, the table's results would give evidence supporting Hypothesis 1 as *Matches* takes on positive values through models 1 until 6. It is then difficult to support the hypothesis when taking the results for *Position* into account. These results portray that leaders who have played at any position have a lower difference in match outcome compared to leaders who do not have experience as a football player. This is contrary to the theory of expert leadership and thus the results of this part are inconclusive. Comparing the model with the robustness checks in Appendix F, the outcomes do not vary much except for the size of the coefficients.

#### **4.1.2. Success**

The second part of the analysis of the sports performance analyses dataset concerns the testing of Hypothesis 2. The results in Table 5 show the difference in goals between the competing teams, with *Prizes* as a measure of football success of the team's leader. The setup of the models in the OLS regression is similar to the one used to test Hypothesis 1, such that leader-specific characteristics, club payroll and fixed effects are added sequentially to the regression. Yet, in this model *Prizes* is used as the independent variable.

In Table 5, the coefficients for *Prizes* in models 1 and 6 give coefficients 0.329 and 0.239 respectively which are significant at the 1% significance level. These coefficients then correspond with a 0.003 and a 0.002 increase in score difference for a one percent increase of prizes won.

*Wages* shows coefficients significant at the 1% level in models 2-5 and approximately similar to the coefficients in Table 2. *Position* takes on positive significant coefficients in model



six for the categories Attacker, Defender, and Midfielder. The positive coefficients portray that leader who played as an attacker, a defender or a midfielder take on higher values in score difference compared to leaders who where no expert football players. *Abroad* also shows to be positively related with *ScoreDiff* at the 1% significance level in Model 6. *Coach Exp* takes a small positive, but significant at 10%, value in model 6 and *Exp<sup>2</sup>* takes values negative and almost zero in models 3-6 all significant at the 1% significance level.

**Table 5.** OLS regression results Hypothesis 2.

VARIABLES	(1)	(2)	(3)	(4)	(5)	(6)
Ln (Prizes)	0.329*** (0.024)	0.039 (0.025)	0.044 (0.031)	0.036 (0.032)	0.036 (0.032)	0.239*** (0.032)
Ln(Wages)		0.902*** (0.031)	0.905*** (0.032)	0.904*** (0.032)	0.904*** (0.032)	
Attacker			0.123 (0.116)	0.127 (0.116)	0.127 (0.116)	0.214* (0.117)
Defender			0.125 (0.097)	0.126 (0.098)	0.126 (0.098)	0.356*** (0.097)
Goalkeeper			0.065 (0.162)	0.023 (0.160)	0.023 (0.160)	0.148 (0.170)
Midfielder			0.084 (0.101)	0.084 (0.101)	0.084 (0.101)	0.253** (0.101)
Abroad			-0.062 (0.073)	-0.044 (0.072)	-0.044 (0.072)	0.344*** (0.074)
Clubs			0.011 (0.012)	0.011 (0.012)	0.011 (0.012)	0.000 (0.012)
Age			0.005 (0.006)	0.049 (0.038)	0.049 (0.038)	0.033 (0.039)
Coach Exp			-0.003 (0.005)	-0.001 (0.005)	-0.001 (0.005)	0.010* (0.005)
Age <sup>2</sup>				-0.000 (0.000)	-0.000 (0.000)	-0.000 (0.000)
Exp <sup>2</sup>				-0.000*** (0.000)	-0.000*** (0.000)	-0.000*** (0.000)
Constant	-0.216*** (0.027)	-14.598*** (0.497)	-15.099*** (0.572)	-16.081*** (1.086)	-16.081*** (1.086)	-1.600 (0.986)
Observations	9,180	8,772	8,772	8,772	8,772	9,180
R-squared	0.020	0.105	0.106	0.106	0.106	0.027
Nation Fixed Effects	No	No	Yes	No	Yes	Yes

Robust standard errors in parentheses

\*\*\* p<0.01, \*\* p<0.05, \* p<0.1

Lastly, Table 5 shows that the amount of football success does have a significant effect on team performance when controlling for club payroll and including more leader-specific characteristics. However, the last model (6) shows that the leader's football success has a

positive association with the score outcome when all available leader-specific characteristics are included, and no club payroll is included in the analysis. Thus, giving little support for Hypothesis 2. The robustness checks in Appendix G does not give relatively different results compared to Table 5. Only that the size of the coefficients is smaller and that the *Prizes* shows significance at 10% in model 2.

## **4.2. Financial performance analysis**

The following section describes the results of the financial performance model. The data is in panel format. Fixed effects regressions are used to estimate the effects of leaders' experience and success on the financial performance of the club. In the researched period 86 different leaders have been active in the Eredivisie for 34 consecutive games. The positions played by the 86 managers of this analysis can be found in Appendix C.

### **4.2.1. Experience**

The results from testing leaders' experience and the financial performance of current club coached (H3) can be found in Table 6. The regression results consist of 6 models in which leadership characteristics, club promotion and fixed effects have been added sequentially. The first model (1) only accounts for the football experience of the leader. The second model (2) introduces the variable *Promoted*, which indicates if the club was promoted into the Eredivisie this season. The other models (3) (4) (5) (6) include more leader-specific characteristics into the model but either with or without the fixed effect for nationality.

Table 6 only shows a significant coefficient for *Matches* in model 5 and takes on value -0.045. This means that a one percent increase of *Matches* leads to a 0.045% decrease in club revenues, significant at the 10% significance level. This effect is only visible when ignoring the leader's nationality and is not significant when including nationality in model 6.

In models 2-6, *Promoted* put on negative values significant at the 1% significance level. Transforming the coefficients of the log-linear then indicates that clubs which have been promoted recently have revenues lower ranging from 14.8% up to 17.7% compared to incumbents in the Eredivisie. *Coach Exp* does not show significant values in this table, yet  $Exp^2$  shows two very small positive coefficients significant at the 5% and 10% significance levels. This implies that the more experience a leader has as a football player, the financial performance of the club coached improves. This effect is stronger when coaching experience is larger. All other variables do not show significant coefficients in Table 6. When looking at the R-Squared of the models, values increase as the models include more variables. Still, the

number of observations in this analysis is relatively low.

The result for *Matches* in model 5 is negative and therefore in conflict with Hypothesis 3. Also, this is the only significant result for *Matches* and therefore strong evidence for the hypothesis is lacking.

**Table 6.** Fixed effects regression results Hypothesis 3.

VARIABLES	(1)	(2)	(3)	(4)	(5)	(6)
Ln(Matches)	-0.013 (0.013)	-0.014 (0.012)	-0.036 (0.030)	-0.031 (0.029)	-0.045* (0.026)	-0.035 (0.028)
Promoted		-0.195*** (0.040)	-0.175*** (0.046)	-0.195*** (0.046)	-0.160*** (0.048)	-0.180*** (0.049)
Attacker			0.080 (0.196)	0.042 (0.201)	0.115 (0.144)	0.060 (0.170)
Defender			0.096 (0.202)	0.050 (0.213)	0.138 (0.141)	0.072 (0.177)
Goalkeeper			0.356 (0.234)	0.266 (0.215)	0.393 (0.255)	0.290 (0.232)
Midfielder			0.067 (0.183)	0.028 (0.191)	0.097 (0.134)	0.040 (0.161)
Ln(Career End)			-0.020 (0.039)	-0.020 (0.043)	-0.010 (0.041)	-0.010 (0.045)
Abroad			0.050 (0.077)	0.035 (0.078)	0.060 (0.079)	0.046 (0.080)
Clubs			0.015 (0.013)	0.013 (0.012)	0.020 (0.015)	0.017 (0.015)
Age			-0.006 (0.007)	-0.006 (0.007)	0.044 (0.044)	0.029 (0.041)
Coach Exp			0.006 (0.005)	0.006 (0.005)	-0.006 (0.006)	-0.004 (0.006)
Age <sup>2</sup>					-0.001 (0.000)	-0.000 (0.000)
Exp <sup>2</sup>					0.001** (0.000)	0.000* (0.000)
Constant	-27.541* (15.626)	-29.342* (15.530)	-24.660 (14.571)	-23.304 (14.702)	-23.913 (15.176)	-22.877 (15.145)
Observations	194	194	194	194	194	194
R-squared	0.169	0.208	0.262	0.277	0.275	0.286
Number of clubs	24	24	24	24	24	24
Nation Fixed Effects	No	No	No	Yes	No	Yes
Season Fixed Effects	Yes	Yes	Yes	Yes	Yes	Yes

Robust standard errors in parentheses

\*\*\* p<0.01, \*\* p<0.05, \* p<0.1

### 4.2.2. Success

The last part of this paper's results is depicted in Table 7. This table depicts the financial performance of the club, with *Prizes* as a measure for prior football success of the team's leader. The setup of the models is almost identical to the model which tested Hypothesis 3. The model in Table 7 on the other hand incorporated football success as independent variable.

**Table 7.** Fixed effects regression results Hypothesis 4.

VARIABLES	(1)	(2)	(3)	(4)	(5)	(6)
Ln (Prizes)	0.005 (0.024)	-0.001 (0.025)	-0.003 (0.021)	-0.003 (0.023)	-0.006 (0.019)	-0.004 (0.021)
Promoted		-0.193*** (0.041)	-0.182*** (0.046)	-0.202*** (0.045)	-0.168*** (0.048)	-0.188*** (0.049)
Attacker			-0.084 (0.104)	-0.101 (0.109)	-0.086 (0.114)	-0.102 (0.120)
Defender			-0.077 (0.106)	-0.101 (0.116)	-0.079 (0.110)	-0.103 (0.121)
Goalkeeper			0.207 (0.220)	0.133 (0.191)	0.202 (0.237)	0.130 (0.208)
Midfielder			-0.093 (0.110)	-0.111 (0.116)	-0.104 (0.116)	-0.122 (0.123)
Ln(Career End)			-0.021 (0.040)	-0.021 (0.044)	-0.008 (0.044)	-0.009 (0.049)
Abroad			0.041 (0.070)	0.026 (0.071)	0.054 (0.070)	0.039 (0.073)
Clubs			0.010 (0.013)	0.009 (0.012)	0.012 (0.014)	0.011 (0.014)
Age			-0.007 (0.007)	-0.007 (0.007)	0.022 (0.039)	0.010 (0.035)
Coach Exp			0.007 (0.006)	0.007 (0.005)	-0.004 (0.007)	-0.003 (0.007)
Age <sup>2</sup>					-0.000 (0.000)	-0.000 (0.000)
Exp <sup>2</sup>					0.001* (0.000)	0.000 (0.000)
Constant	-27.806* (16.209)	-30.148* (16.068)	-26.273 (15.612)	-24.592 (15.840)	-25.844 (15.913)	-24.177 (16.009)
Observations	194	194	194	194	194	194
R-squared	0.165	0.202	0.254	0.271	0.266	0.280
Number of clubs	24	24	24	24	24	24
Nation Fixed Effects	No	No	No	Yes	No	Yes
Season Fixed Effects	Yes	Yes	Yes	Yes	Yes	Yes

Robust standard errors in parentheses

\*\*\* p<0.01, \*\* p<0.05, \* p<0.1

The variable *Prizes* does not show significant coefficients in models 1-6 and therefore gives no supporting evidence of Hypothesis 4. Some control variables do show significance. *Promoted* takes on negative coefficients in models 2-6, all significant at the 1% level. These values imply that clubs which just promoted to the Eredivisie have revenues lower between 15.5% and 18.3% compared to incumbents. Additionally, *Exp<sup>2</sup>* takes a very small positive value significant at 10% in model 5. This analysis uses the same dataset as in Section 4.2.1 and thus has a low explanatory power due to the low number of observations.

## **5. Discussion and concluding remarks**

### **5.1. Discussion**

This paper investigated the theory of expert leadership in the Netherlands. By using data of football matches, the relationship between leaders' prior experience and success on on-field performance and off-field financial performance was tested. Data is used in two different formats, the sports performance analysis used weekly match data and the financial performance analysis used data on a yearly basis.

The results of the sports performance analyses display the following: football experience has a small positive relationship with the current performance of the team coached. This effect is notably smaller when controlling for club payroll, which can have multiple explanations. An explanation could be that the effect of expert leadership is moderated due to the importance of the inclusion of payroll. A football team cannot perform merely based on the manager's expertise, it is the team that must perform given their skills and give their best for 90 minutes. Alternatively, the results feed the idea of a certain selection effect in the hiring process of football managers. Former top players could be coaching high payroll teams more often than former mediocre players. This then could partially explain the observed effect.

The relationship of experience and match outcome is in line with the theory of expert leadership (Goodall, 2012) and therefore supports Hypothesis 1 of this research. However, these results do not stand alone as the results from the played position give the contradictory insight that leaders who played professional football have lower match outcomes compared to leaders who did not play professional football. This is not in line with the expectations made following the expert leadership theory, yet is in line with findings in the German Bundesliga (Muehlheusser et al., 2018). This in turn is evidence to reject Hypothesis 1 and therefore makes the results inconclusive. A straightforward explanation could be one of statistical kind. Football managers are mostly former football players (see Appendix B & C), and non-experts are just a

small part of the manager sample. Thus, the performance of non-expert would be much more volatile compared to those of expert and could therefore end up higher. Interpreting these results can go multiple directions. The hiring process could be prone to biased decision-making, overrating successful former players over other potential non-expert managers. On the other hand, it could be possible that non-experts have to be substantially better coaches to achieve a managing job in any primary league. Non-expert leaders must start their career in lower divisions and make their way up. When appointed in a high league or a top team, the leader has proven to hold certain managing skills whereas expert leaders often are hired directly to a top team, for example Mark van Bommel (PSV). This could also be explained by the aforementioned selection effect.

When testing the relationship between leaders' football success and match performance, a significant positive relationship was found in models 1 and 6 (Table 5), thus giving little evidence for the support of Hypothesis 2. Though, this only appeared in the models which ignores the club's payroll. The models which include club payroll do not show significant values for the independent variable *Prizes* and *Wages* does show consistent significant values here. This then gives strong support that a leader's football success is irrelevant when introducing the club payroll, i.e., the players skills. In other words, these results support the ideology that good football players do not necessarily become good managers as stated by Adriaanse (VI, 2008).

The financial performance analyses never had any significant results for *Matches* or *Prizes* except for one model when testing the leaders' experience. This result shows a negative relationship with club revenues which was not expected and not in line with Hypothesis 3. Nevertheless, this finding was only significant at the 10% level and was the only significant value out of the 6 models presented in that analysis. Other researchers found significant relationships between business performance and financial performance (Galariotis et al., 2018; Hall et al., 2002) but mostly in a way that financial performance influences sports performance which is the opposite direction of this research. Additionally, the financial performance analyses lack explanatory power as the amount of observations is relatively low and I therefore have no strong evidence to either accept or reject Hypothesis 3.

## **5.2. Limitations**

Inevitably, this research suffers from several limitations. At first, in the sports performance analyses the difference in score between the two playing teams was taken as dependent variable and a measure to control for the capabilities of the home team was introduced. The matches

then were duplicated in a sense that the away team then was taken as the team of interest with corresponding managerial characteristics and club payroll. The analysis is then only focussed on the influence of one team on the match outcome and the skills and managerial characteristics of the other team are not considered, only in a different observation. The results then might be biased towards the team of interest while two teams play a match and compete for the win. A suggestion for future research, when using match data, then would be to account for both teams' characteristics in a single model instead of focussing on one-part and duplicating the data.

Secondly, the proxy for the team's quality and skills was defined as the variable *Wages* and accounts for all the wage costs of the club employees due to unavailability of specific player wages for multiple years. Thus, *Wages* also include the costs of all non-player employees of the club and therefore might give disturbed results as clubs most likely have different amounts of non-players employed at unknown salaries. For future research it then would be better to have more specific data on the player wages of the teams, as the proxy for the teams' skills then would be more precise.

Thirdly, the case of multicollinearity could be causing disturbance in the regressions results of all four analyses. Variables such as *Age* and  $Age^2$  as well as *CoachExp* and  $Exp^2$  will be perfectly collinear as these variables are square of the initial variables. Furthermore, the variables *Matches* and *Clubs* are related in a way that players who have played for many clubs often have played many matches and vice versa. These variables are correlated (Appendix D & E) and therefore are susceptible to multicollinearity.

Lastly, the results of the financial performance models mainly are insignificant which has two obvious reasons. Initially, the effect of managers on financial performance should be considered as an indirect effect. Leaders influence and motivate their teams to maximize performance week in week out. It is the teams result of good performance which will lead to higher ticket sales as a result of consistent good play. This might lead to a higher ranking at the end of the season which in turn may lead to participation in European competitions which are accompanied by extra commercial revenues. Besides that, a football manager might have minor influence on the club's transfer activities, yet he is not responsible for the club's financial actions and is handled by the board. A second reason could be that the amount of observations (n=194) is very low and that therefore the explanatory power of this analysis is small. The initial number of observations would be small all along with 18 teams playing 15 seasons. Unfortunately, some data was missing, and some observations were dropped to avoid disturbances caused by high manager turnover.

### **5.3. Suggestions for future research**

If this research would be replicated in any way, then I would suggest minding the following few points. At first, the dataset is relatively biased towards expert leaders, in a way that managers rarely have no professional football experience. A suggestion then would be to construct a dataset in which experts and no experts are more evenly distributed. Then one could arguably draw better conclusions comparing expert leaders and non-expert leaders.

Secondly, to acquire supporting evidence for the financial performance analyses a higher number of observations would be necessary by collecting more data from the Netherlands or by combining data from multiple countries. If the analysis still yields no significant value, then an instrumental approach would be recommended to capture the indirect effect.

Another suggestion would be to investigate whether nationality plays a role in the theory of expert leadership. It is widely known that the football industry is extremely diverse, but in some competitions preferably native managers are hired compared to non-natives. Frick & Simmons (2008) describe the case of German clubs generally hiring only managers with a German sports degree. In the Netherlands, native coaches are also the predominantly appointed coaches. It would therefore be interesting for future research to investigate the cultural differences in expert leadership and investigate the thoughts behind the hiring strategies among competitions.

### **5.4. Conclusion**

This research tests the theory of expert leadership in the Netherlands utilizing the conditions of professional football, wherein performance and managerial experience are closely documented. The results show that managers with a long experience as a football player tend to obtain better on match outcomes. In terms of the theory of expert leadership, industry experience thus is proven to be related with performance. This finding could then be applicable to other industries as well. On the other hand, managers with no football experience outperform manager with much experience, i.e., expert leaders. A manager's football success shows to have a positive influence on match outcome, yet only when isolating managerial characteristics. These results give support for the biased appointing of managers in football and confirm that former football success is no guarantee for future managing success. The managerial influence on financial performance is not proven in this research and additional research is suggested.



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## APPENDICES

**Appendix A.** Football clubs and the number of seasons active in the Eredivisie from 2004 up to 2019.

<b>Club</b>	<b>Seasons</b>
ADO Den Haag	14
AZ	15
AFC Ajax	15
SC Cambuur	3
FC Den Bosch	1
FC Dordrecht	1
FC Emmen	1
Excelsior	9
Feyenoord	15
Fortuna Sittard	1
Go Ahead Eagles	3
De Graafschap	7
FC Groningen	15
sc Heerenveen	15
Heracles Almelo	14
NAC Breda	13
N.E.C.	12
PSV	15
RBC Roosendaal	2
RKC Waalwijk	7
Roda JC	13
Sparta Rotterdam	7
FC Twente	14
FC Utrecht	15
VVV Venlo	7
Vitesse	15
FC Volendam	1
Willem II	13
PEC Zwolle	7

**Appendix B.** Former playing position of leaders in match-level model.

<b>Position</b>	<b>Frequency</b>	<b>Percent</b>
Attacker	14	11,86
Defender	41	34,75
Goalkeeper	4	3,39
Midfielder	44	37,29
No Expert	15	12,71
Total	118	100

**Appendix C.** Former playing positions of leaders in panel data model.

Position	Frequency	Percent
Attacker	12	13,95
Defender	32	37,21
Goalkeeper	3	3,49
Midfielder	31	36,05
No Expert	8	9,30
Total	86	100

**Appendix D.** Correlation matrix of match-level data

	ScoreDiff	Matches	Wage	Age	Coach Exp	Abroad	Clubs	Position	Nation	Prizes
Score Diff	1.00									
Matches	0.13***	1.00								
Wages	0.32***	0.29***	1.00							
Age	0.03**	0.20***	0.03**	1.00						
Coach Exp	0.02	-0.00	0.03**	0.76***	1.00					
Abroad	0.12***	0.25***	0.37***	-0.11***	-0.12***	1.00				
Clubs	0.05***	0.63***	0.08***	0.02	-0.03**	0.15***	1.00			
Position	0.03**	-0.05***	0.08***	-0.09***	-0.02*	-0.01	-0.18***	1.00		
Nation	0.01	0.05***	0.05***	0.04***	0.06***	0.05***	-0.07***	-0.05***	1.00	
Prizes	0.16***	0.42***	0.42***	-0.10***	-0.15***	0.66***	0.15***	0.07***	-0.01	1.00

\*  $p < 0.05$ , \*\*  $p < 0.01$ , \*\*\*  $p < 0.001$

**Appendix E.** Correlation matrix of seasonal-level data

	Revenues	Matches	Prizes	Age	Career End	Coach Exp	Abroad	Prom	Clubs	Nation	Position
Revenues	1.00										
Matches	0.34***	1.00									
Prizes	0.52***	0.44***	1.00								
Age	-0.05	0.15*	-0.11	1.00							
Career End	-0.13	-0.13	-0.21**	0.78***	1.00						
Coach Exp	-0.05	-0.03	-0.15*	0.75***	0.63***	1.00					
Abroad	0.23**	0.52***	0.35***	0.07	-0.13	-0.02	1.00				
Prom	-0.22**	-0.17*	-0.17*	-0.06	-0.02	-0.05	-0.26***	1.00			
Clubs	0.11	0.61***	0.15*	-0.02	-0.17*	-0.04	0.57***	-0.07	1.00		
Nation	0.09	0.08	0.04	0.00	0.04	0.01	-0.13	-0.04	-0.06	1.00	
Position	0.10	-0.07	0.07	-0.14*	-0.08	-0.05	-0.26***	0.09	-0.19***	-0.03	1.00

\*  $p < 0.05$ , \*\*  $p < 0.01$ , \*\*\*  $p < 0.001$

**Appendix F.** Ordered Probit regression results Hypothesis 1.

VARIABLES	(1)	(2)	(3)	(4)	(5)	(6)
Ln(Matches)	0.064*** (0.008)	0.027*** (0.009)	0.064*** (0.022)	0.056** (0.023)	0.056** (0.024)	0.112*** (0.021)
Ln(Wages)		0.471*** (0.020)	0.473*** (0.022)	0.474*** (0.022)	0.474*** (0.022)	
Attacker			-0.241* (0.125)	-0.208 (0.130)	-0.205 (0.130)	-0.419*** (0.119)
Defender			-0.248** (0.120)	-0.211* (0.126)	-0.207 (0.127)	-0.336*** (0.116)
Goalkeeper			-0.281* (0.146)	-0.243 (0.149)	-0.237 (0.153)	-0.462*** (0.147)
Midfielder			-0.222* (0.118)	-0.188 (0.123)	-0.185 (0.124)	-0.333*** (0.113)
Abroad			-0.019 (0.041)	-0.020 (0.041)	-0.021 (0.041)	0.300*** (0.038)
Clubs			-0.002 (0.008)	-0.000 (0.009)	0.000 (0.009)	-0.013 (0.008)
Age			0.000 (0.004)	0.025 (0.031)	0.026 (0.031)	-0.008 (0.030)
Coach Exp			-0.001 (0.003)	-0.000 (0.007)	-0.000 (0.007)	0.006 (0.006)
Age <sup>2</sup>				-0.000 (0.000)	-0.000 (0.000)	0.000 (0.000)
Exp <sup>2</sup>				-0.000 (0.000)	-0.000 (0.000)	-0.000 (0.000)
Constant	-0.051 (0.045)	-7.440*** (0.324)	-7.456*** (0.380)	-8.077*** (0.853)	-8.112*** (0.869)	0.146 (0.756)
Observations	9,180	8,772	8,772	8,772	8,772	9,180
Nation Fixed Effects	No	No	Yes	No	Yes	Yes

Robust standard errors in parentheses

\*\*\* p<0.01, \*\* p<0.05, \* p<0.1

**Appendix G.** Ordered Probit regression results Hypothesis 2.

VARIABLES	(1)	(2)	(3)	(4)	(5)	(6)
Ln(Prizes)	0.168*** (0.015)	0.028* (0.017)	0.028 (0.021)	0.023 (0.022)	0.023 (0.022)	0.123*** (0.021)
Ln(Wages)		0.468*** (0.021)	0.472*** (0.022)	0.473*** (0.022)	0.474*** (0.022)	
Attacker			0.055 (0.076)	0.047 (0.076)	0.044 (0.076)	0.091 (0.073)
Defender			0.048 (0.064)	0.046 (0.064)	0.046 (0.064)	0.161*** (0.060)
Goalkeeper			-0.001 (0.113)	-0.002 (0.112)	0.007 (0.113)	0.036 (0.112)
Midfielder			0.060 (0.066)	0.056 (0.066)	0.055 (0.066)	0.129** (0.062)
Abroad			-0.043 (0.049)	-0.038 (0.048)	-0.041 (0.049)	0.159*** (0.047)
Clubs			0.006 (0.008)	0.008 (0.008)	0.009 (0.008)	0.001 (0.008)
Age			0.001 (0.004)	0.040 (0.030)	0.042 (0.030)	0.012 (0.030)
Coach Exp			-0.002 (0.003)	0.000 (0.007)	0.000 (0.007)	0.010 (0.006)
Age <sup>2</sup>				-0.000 (0.000)	-0.000 (0.000)	-0.000 (0.000)
Exp <sup>2</sup>				-0.000 (0.000)	-0.000 (0.000)	-0.000 (0.000)
Constant	0.184*** (0.016)	-7.268*** (0.343)	-7.476*** (0.386)	-8.443*** (0.839)	-8.517*** (0.848)	-0.361 (0.733)
Observations	9,180	8,772	8,772	8,772	8,772	9,180
Nation Fixed Effects	No	No	Yes	No	Yes	Yes

Robust standard errors in parentheses

\*\*\* p<0.01, \*\* p<0.05, \* p<0.1