ERASMUS UNIVERSITY ROTTERDAM

Erasmus School of Economics

Bachelor Thesis Economics and Business Economics

The Effect of Within-Season Manager Turnover on Performance in the Short Run in the English Premier League.

Abstract

This thesis examines within-season manager changes and their effect on performance in the short run. For the analysis, data from the English Premier League during 18 consecutive seasons is exploited. A naive OLS regression shows that performance improves after a manager change. However, manager changes do not have a significant effect on performance when using a counterfactual. The control group with manager changes that did not happen does have a significant positive effect on performance. This suggests that not replacing a manager is better for performance when a team is not performing as expected.

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1. Introduction

Football managers often get replaced during the season. For example, when a team is in the relegation zone with a few matches left or when a team is performing below expectations for a while, the manager is the first one out. A club will not fire the whole team since they cannot buy replacements outside the transfer windows. Therefore the manager will be the first one who gets dismissed. Often it is expected that the new manager improves performance in the short run. Therefore, this paper examines whether within-season manager turnover will positively affect performance in the short run in the English Premier League during 18 consecutive seasons starting from 2000-2001 to 2017-2018. The expectation is to find a positive effect of manager turnover since a new manager mostly is the beginning of a new start, which could help teams in a performance dip.

At first, I estimate a naive model using OLS which shows whether performance is affected after a manager change and after manager dismissals only. These estimations do not give information about the causal effect of manager turnover. Therefore, I replicate the method of Van Ours and Van Tuijl (2016) to obtain a counterfactual. This is done with matching, resulting in a treatment group with the actual manager changes and a counterfactual with manager changes that did not happen. The latter are instances with a similar dip in performance as the actual changes but the manager did not get replaced. Estimating the model for these two groups and comparing the results show if a manager change really does improve performance.

There have been a lot of contributions on the effect of managers on firm performance in general as well as on the effect of sports managers on team performance. Most research suggests a positive effect of manager turnover at first. However, research that uses methods for examining causal relationships mostly finds no significant effect of within-season manager turnover. Some research even suggests that not replacing a manager would improve performance faster. This research contributes to the existing literature by estimating another causal model which gives evidence of whether or not manager turnover affects performance. Together with previous and future research on this topic, this paper will help boards in the decision of replacing a manager.

This thesis is organized as follows. First, I discuss previous research on the effect of managers on performance, determinants of dismissals and why sports data is useful in examining this effect. Then, the data is presented along with the methods of the analysis. Afterwards, the results are discussed and finally some concluding remarks.

2. Literature Review

A lot of research has been devoted to the effect managers have on the performance of a firm. Bertrand and Schoar (2003) focus on corporate behaviour and performance. They find that managers have a significant impact on several practices of a firm. Similarly, Davis, Bell, Payne and Kreiser (2010) investigate the behaviour of managers and their relation with performance. They suggest that managers have a positive effect on firm performance and that the effect differs among managers, dependent on certain characteristics. Moreover, Smith, Smith and Verner (2006) study the effect of female managers on firm performance. They find a more significant positive effect on performance measures related to the markup than on other measures. Nevertheless, they suggest there is an effect of managers on performance.

Lieberson and O'Connor (1972) suggest that other factors have a bigger impact on performance than leadership, but leadership still affects performance. However, Hambrick and Mason (1984) argue that this study is not appropriate for testing the effect of different types of CEOs. In their paper, they present previous literature and based on this literature they state that the background characteristics of managers have an effect on strategy, performance and organisational outcomes. Day and Lord (1988) also review academic literature on leadership and conclude that executive leaders significantly affect organizational performance. They suggest that leadership succession impacts performance. According to Beatty and Zajac (1987), CEOs influence the long-term strategy of their firm and CEO successors have a significant impact on production and investment decisions, which are determinants of firm performance. Thus, they suggest that changing CEOs will affect firm performance. Berns and Klarner (2017) review previous literature on CEO succession. They find that most literature suggests that CEOs affect firm performance. This effect can be either positive or negative, depending on the characteristics of the firm and the successor. Using different measures for contextual factors than previous research, Hambrick and Quigley (2013) show that the effect of a CEO on performance is larger than the effects found in earlier work. They suggest that CEOs explain 10 to 20 per cent of the variance in the firm's profitability. Moreover, Huson, Malatesta and Parrino (2004) conclude that CEO turnover affects performance positively. Their research also suggests that the increase in performance due to a manager became larger over time. Similarly, Mackey (2008) suggests that CEOs have a significant effect on performance. The results of this research are in the 10 to 20 per cent range, similar to the research of Hambrick and Quigley (2013).

A lot of studies have been devoted to the effects of a manager on the performance of business firms. However, the outcomes turned out to be dependent on the way performance gets measured (Ter Weel, 2011). The performance of large firms on the stock market can be measured more easily than for smaller firms or firms that are not on the stock market. Boards will assess their managers based on

performance expectations. This way of assessing a manager comes with endogeneity issues according to Pieper, Nüesh and Franck (2014). They state that previous studies mostly use one-year forecasts, but top managers are able to affect these forecasts, which in the end could have a significant impact on the performance of a firm through the stock market. In short, the literature on the effect of managers on firm performance is subject to multiple issues.

Most of these issues can be addressed using match-level data of different sports about managers, results, financial details and more. First of all, sports data is used for examining manager effects because football managers and managers of business firms have similar characteristics (Pieper, Nüesh & Franck, 2014). Both types of managers are around the age of 50 at the moment of placement. They are stress-resistant since they were able to become managers in a competitive labour market. And finally, they are held accountable for performance by multiple stakeholders. However, they are not completely identical, managers of business firms usually are more educated than football managers. Football managers have mostly gained their knowledge through experience. Besides, football managers are much closer to the frontline workers, the players, than CEOs are. CEOs delegate more tasks, creating a distance between them and the frontline workers. Moreover, business managers have more strategic options, while the options for football managers are limited because of the many rules in a football match. Football managers are also subject to more uncertainty than business managers. It is more likely that players get injured or sold at the last moment of a transfer window than assets of similar importance to business managers are. Because of these differences, suggestions about equal effects should be made carefully.

Secondly, the performance of business firms is most often measured yearly, while the performance of sports teams can be measured weekly. Examining the effect of a manager on performance using yearly measurements could result in the loss of the most interesting data because most managers get replaced in the middle of the year (Ter Weel, 2011). Due to the data on weekly basis in sports, it is easier to estimate the effect of replacement. Besides, the performance measures themselves are more clearly defined. A sports team wins, draws or loses a match and gets points assigned according to that result. Business firms however can measure their performance in several ways, meaning performance can appear to be different under different ways of measurement. Finally, sports teams are relatively homogeneous, therefore they are easier to compare.

There are different reasons for replacing a manager, with poor performance as the most important reason. In sports, recent results are a determinant of the replacement of a manager (Frick, Barros & Prinz, 2010). If recent performance is low the chances of a manager getting replaced will grow. Similarly, Tena and Forrest (2007) suggest that being in the relegation zone is a significant reason for

replacing a manager in the hope to get better results in the short term. Moreover, Audas, Dobson and Goddard (1999) find that the current position compared to the position of the team when the manager started is an important factor in the replacement decision. They also consider the percentage of wins in the totality of the manager's time at the club as a determinant. After reviewing previous work, Van Ours and Van Tuijl (2016) add the manager's characteristics and the timing in the competition for explaining replacement. Besides, they use bookmakers' odds to measure expectations and the difference between these expectations with actual performance, which is an important determinant of manager dismissals too. Another determinant of manager replacement according to Barros, Frick and Passos (2009) is the total payroll of a team. The higher the payroll the higher the expectations and the higher the chances of getting fired when performance is not as expected. Koning (2003) suggests something else, namely that pressure from the fans and media could play a role in the decision of replacing a manager. Boards who decide the future of the manager at the club can be under a lot of pressure from other stakeholders and sometimes scapegoating the manager is the best option in their opinion.

Nevertheless, it remains the question of whether or not replacing a manager makes a difference. Tena and Forrest (2007) did find a positive effect of manager turnover in the short term, but this improvement is derived entirely from home matches. They suggest that firing a manager could please the fans, causing them to support the team better than before, which leads to improved home results. Flores, Forrest and Tena (2012) agree with Tena and Forrest (2007) and Koning (2003) that pleasing fans could be a reason for replacing a manager. However, Flores et al. (2012) do not find a positive effect of home matches, they find a less negative effect, compared to away matches. They find a small negative overall effect of manager replacement. Similarly, Audas, Dobson and Goddard (2002) find that performance was worse for teams that replaced their manager than teams that did not. They suggest that teams would be better off not replacing their manager when performance is low.

Other research leads to different suggestions on the effect of manager turnover. Koning (2003) finds that the simple approach of only looking at goals scored is not sufficient. After controlling for differences in quality between teams, Koning (2003) finds that sometimes performance improves and sometimes it deteriorates. Suggesting that managers get fired too often in the Dutch competition since there is no clear evidence of improved performance. Likewise, Ter Weel (2011) did not find a significant effect of manager turnover in the Dutch competition. De Paola and Scoppa (2012) only find a positive effect on the number of goals scored, while controlling for team-season fixed effects. Other performance measures did not significantly improve. They also used matching on basis of the performance in the last couple of matches, but could not find a significant effect on performance. Bruinshoofd and Ter Weel (2003) find that performance improves after a change of manager in the

Dutch competition, as opposed to the findings of Koning (2003) and Ter Weel (2011). However, after using a control group, Bruinshoofd and Ter Weel (2003) find teams who did not fire their manager, experienced an improved performance more rapidly. Suggesting that replacing a manager during a performance dip is ineffective and inefficient, just as Audas, Dobson and Goddard (2002) suggested.

Previous research did not always consider the possibility that performance could be subject to the reversion to the mean phenomenon. This means that results, in time, will go back to the team's average results. Thus, after a performance dip, teams would improve their performance regardless of a manager replacement. Besides, the moment of replacement is not random. As discussed before, managers mostly get replaced when performance is not as good as expected. If reversion to the mean holds and the timing of replacement is not random then it should not matter whether a manager gets replaced or not. This could explain the different results in earlier work.

To consider the possibility of reversion to the mean, I follow the method of Van Ours and Van Tuijl (2016). They studied the effect of manager changes in the Dutch league. They find an improvement in performance after manager turnover, but performance also improved in the control group of manager turnovers that did not happen. By using a control group of managers that did not get replaced while in a similar performance dip, they can find results that take the reversion to the mean possibility into account. These results are similar to the results of Bruinshoofd and Ter Weel (2003). However, Van Ours and Van Tuijl (2016) do not find that performance improved more rapidly for the control group than for the teams that actually replaced their manager. For examining the effect on performance in the English Premier League, Besters, Van Ours and Van Tuijl (2016) use the same method as Van Ours and Van Tuijl (2016). Besters et al. (2016) find no significant effect on average of manager changes on performance. Using case studies, they find successful manager changes depend on unpredictable circumstances.

3. Data & Methods

This research uses data from the highest football league in England, the English Premier League. The data contains 18 consecutive seasons from 2000/2001 to 2017/2018. Every season consists of 20 teams playing against each other in a home and an away match, with 380 matches every season and 6,840 matches in total. Every match in the dataset is accompanied by the result, the date, the managers of both teams and financial information about the teams. The data also contains information about manager dismissals and quits and bookmakers' odds on the match's final result, which is of high interest to this research.

Table 1

Manager Changes by Season in the English Premier League;

2000/2001-2017/2018

Season	Total changes	Dismissals	Quits
2000/2001	6	5	1
2001/2002	7	6	1
2002/2003	5	4	1
2003/2004	4	2	2
2004/2005	7	3	4
2005/2006	3	3	0
2006/2007	5	3	2
2007/2008	8	7	1
2008/2009	9	4	5
2009/2010	5	4	1
2010/2011	5	5	0
2011/2012	4	4	0
2012/2013	5	5	0
2013/2014	10	10	0
2014/2015	6	5	1
2015/2016	7	5	2
2016/2017	6	6	0
2017/2018	9	9	0
Total	**111**	**90**	**21**

Note: Only within-season changes are considered.

Table 1 shows the dismissals, quits and total manager turnovers per season. The number of within-season manager dismissals per season ranges from only 2 in 2003/2004 up to 10 in 2013/2014, with an average of 5 manager dismissals per season. Quits are less common in these seasons, on average only 1 per season, with the season of 2004/2005 and 2008/2009 as extreme cases in this sample with 4 and 5 quits respectively. The quits and dismissals combined make a total of 111 total manager changes, with an average of over 6 changes per season. Making the Premier League a useful field to research the effect of manager replacements. The numbers do not include caretakers who take over for a short period to give the club time to find a replacement after a manager quits or gets dismissed.

All of the dependent and independent variables used in the analysis are shown in Table 2. The performance is indicated in several ways to examine potential differences in the effect of within-season manager turnover on the different performance measures. De Paola and Scoppa (2012) only found an effect on the number of goals scored in their research, but not on goals conceded and points. Suggesting that using multiple indications of performance could lead to different results, which is why multiple indications are included in this analysis. Firstly, points per match are used in the analysis, with a value of 3 for a win, 1 for a draw and 0 for a loss. This indicator does not take the quality of an opponent into account. However, winning points is considered as most important for a football club. If a club is winning more points it will be seen as a good performance, even though it might be against weaker opponents than before. The second indicator is wins, which is 1 if a match has been won and 0 otherwise. Similar to the points per match, this indicator does not consider the quality of the opponent. However, winning a match is crucial in keeping the stakeholders satisfied. Stakeholders are most likely to see this as performing well despite possible quality differences. Besides, the stakeholders might not be completely rational in assessing the results, they might not care if the opponents are of lower quality. Finally, the goal difference of a match indicates performance. This indicator shows the difference between goals scored and the goals scored by the opponent. It can take the value of every whole number. Winning with a bigger goal difference is seen as better than winning by just one goal and the other way around. This indicator is interesting because when a manager gets replaced and the team still does not significantly win more matches or get more points, they might concede fewer goals or score more. This can also be seen as an improvement in performance and is therefore used as the third indicator.

Table 2 also presents the mean, maximum and minimum of all the variables used in the analysis. By definition, the maximum amount of points is 3 and the minimum is 0 points. On average 1.37 points were obtained per match. Logically, the maximum for wins is 1 and the minimum is 0. The percentage of matches won is 37 and 26 per cent of the matches ended in a draw. The biggest difference in goals scored is 8 and the mean is zero since every goal is added to the goals scored for one team and

subtracted for the other team. Home takes the value 1 if a match is played at home and 0 if played away. Logically, the mean of Home is 0.50, half of the matches are played at home and the other half away. Home is used as a control variable because it is likely that playing at home positively affects performance. Relative wage presents the value of the team's total payroll divided by the opponent's team payroll. Players of higher quality mostly get paid more than other players, meaning that teams with a higher payroll are likely to have players of higher quality. At most a team had a 7.77 times larger payroll than the opponent, suggesting a relatively big quality difference between the two teams in favour of the team of interest. On the contrary, the minimum is 0.13, meaning that the opponent had a much larger payroll. Logically, this minimum is recorded in the same match as the maximum but with the other team as the team of interest. The mean of relative wage is 1.27, meaning that on average the team of interest had a payroll that is 27 per cent larger than their opponent's.

Table 2

Summary of the Variables Used in the Analysis;

2000/2001-2017/2018

Variables	Mean	Minimum	Maximum
Points	1.37	0.00	3.00
Wins	0.37	0.00	1.00
Goal difference	0.00	- 8.00	8.00
Home	0.50	0.00	1.00
Relative wage	1.27	0.13	7.77
Match surprise	0.01	- 2.36	2.56
Cumulative surprise	0.25	- 23.33	28.79

Notes: All 6,840 matches are included; Missing values for the relative wage variable are removed from the summary.

The analysis is about the short-term effect of within-season manager turnover on performance. Exclusively, the 8 matches before and after a manager gets replaced are taken into account. Only the manager changes after the 7th and prior to the 31st match are used in the estimation. The sample of 8 matches before and after manager turnover is chosen because this sample represents the short-term, without losing many manager changes.

The short-term effect of within-season manager turnover on performance is estimated using OLS in which the different performance indicators depend on whether the match is played at home, the

relative wage and a dummy variable which is 1 when a manager change has taken place. The model is estimated for all manager changes and for manager dismissals only. The following model is used:

$$\textbf{(1)} \quad y_{ijk} = \beta_0 + \delta d_{ijk} + \alpha h_{ijk} + \rho w_{ijk} + \varepsilon_{ijk}$$

In this model y_{ijk} denotes one of the three performance indicators, points, wins or goal difference for club i, match j and season k. The constant term is denoted by β_0, d_{ijk} indicates the dummy variable for a within-season manager change, which has the value 1 if a manager change took place. Playing at home is a potential determinant of performance and is denoted by h_{ijk}. Another potential determinant denoted by w_{ijk}, is the relative payroll. The parameters of variables Home and Relative wage are estimated by α and ρ respectively and ε_{ijk} represents the error term. Finally, δ is the parameter of interest, it indicates whether manager turnover affects performance. Estimating this model does not give a causal effect even if δ significantly differs from zero. To be able to estimate a causal effect, a control and treatment group are constructed. A causal effect can only be estimated if there is an effect for the treatment group and no effect for the control group. This makes sure there is no reversion to the mean effect, which implies that results would change nonetheless, also without the replacement of the manager.

In order to construct the control- and treatment group I follow the method of Van Ours and Van Tuijl (2016). Before the groups can be constructed, the match surprises of every match must be calculated. The match surprise represents the difference between the expectations according to bookmakers' data and the actual performance. Bookmakers' data show the odds, i.e. expectations, for a club to win, draw and lose a match. For seven different bookmakers, the average odds are calculated and adjusted for bookmaker margins. The adjusted odds are multiplied by the corresponding points of that result. After adding them up over all possible outcomes, it gives the expected points for that match. The match surprise is then calculated by subtracting the expected points from the actual points, resulting in a positive or negative surprise. Table 2 shows that the match surprise has a mean of 0.01, meaning that bookmakers almost perfectly predict match outcomes on average. However, bookmakers could also be completely wrong as shown by the minimum of -2.36 and the maximum of 2.56. The cumulative match surprise is simply all the match surprises of the current season accumulated. Every new season the cumulative surprise gets reset. The mean of the cumulative surprise is 0.25, as presented in Table 2. This small positive mean shows that on average the teams perform slightly above expectations. The biggest surprise in a negative sense was in the 2007-2008 season for Derby County with a cumulative surprise of -23.33. The biggest positive surprise was in the 2015-2016 season for Leicester City with a cumulative surprise of 28.79.
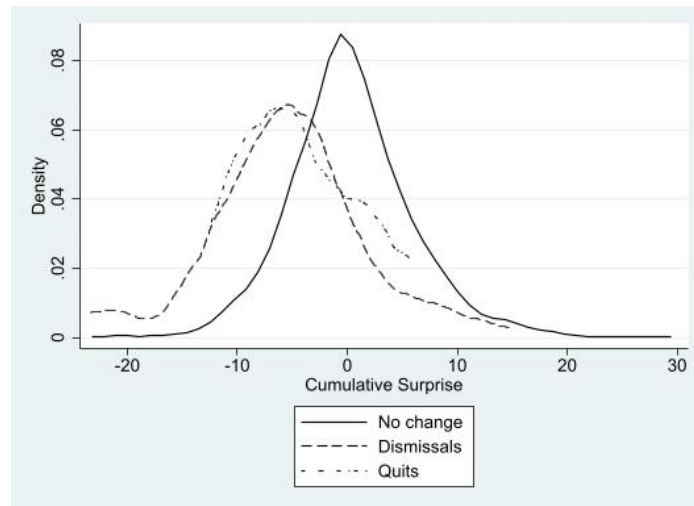
Figure 1. Kernel Densities for the Cumulative Surprise for Different Types of Manager Changes; Last Match of the Season

Figure 1 shows the kernel density for the cumulative surprise at the last match of the season for seasons with a manager dismissal, quit and seasons without a change. Seasons with manager changes have a more negative cumulative surprise at the end of the season than seasons without manager changes. Seasons with manager dismissals and quits are similar to each other. A reason for this difference could be that manager changes mostly happen when a team is experiencing a dip in their performance. Even if the new manager does perform better than his predecessor, he might not be able to turn the negative cumulative surprise around in time. Besides, if the new manager is performing as expected, the cumulative surprise would not change a lot, therefore the negative surprise would remain. Moreover, the new manager often makes changes in order to perform better in the long term, which could mean that performance would not improve immediately since it takes time for these changes to be implemented. Therefore the cumulative surprise would not increase in time for the end of the season.

The cumulative surprise of the last match before a manager replacement is used in determining the counterfactual. The matching is based on the nearest neighbour. Every manager replacement is matched to a match of the same club in another season with a cumulative surprise as close as possible to the cumulative surprise in the last match before replacement, with a maximum difference of 0.5. Using this, I exclude some extreme cases that could cause noise in the results. However, it is possible that not all of the extreme cases, and thus the noise, get excluded. The time in the season gets considered in case of multiple potential matches, by doing this both the control- and treatment group have a similar period of time to develop after treatment. Matching within the same club controls for unobserved club heterogeneity. This method excludes clubs that only have been in the English Premier

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League for one season or clubs that have not had a within-season manager turnover. Matches were only made if the replacement was after the 7th match or before the 31st match. Resulting in 51 actual manager changes and 49 manager changes that did not happen, 44 actual manager dismissals and 43 manager dismissals that did not happen.

The following model is estimated after the control- and treatment group are constructed:

$$y_{ijk} = \beta_0 + \delta d_{ijk} + \varphi c_{ijk} + \alpha h_{ijk} + \rho w_{ijk} + \varepsilon_{ijk}$$

Equation 2 estimates the same parameters as Equation 1, except c_{ijk}, the dummy for manager changes that did not happen, is added to the model. Now, δ and φ are the parameters of interest. An F-test for equality of δ and φ shows whether or not within-season manager turnover affects performance in the short run. The model and F-test are estimated for all manager changes and for dismissals.

4. Results

In analysing the effects of manager turnover on performance in the short run I estimate a naive regression. The naive regression shows if performance changes after a manager get replaced. However, nothing can be said about the causal effect of this change in performance. The naive regression could still give some interesting insights. Firstly, a model including both manager dismissals and quits is estimated on the three performance indicators, points, wins and goal difference. Followed by the model with manager dismissals only. Table 3 presents the parameter estimates of both models. In short, it shows that manager changes have a significant positive effect on all of the performance indicators. The control variables Home and Relative wage also have a significant positive effect on the performance indicators. In the model for all manager changes 1,376 matches are taken into account with 86 manager changes and in the model with manager dismissals, 1,136 matches are considered with 71 manager dismissals.

Table 3

Naive Parameter Estimates Effects of Manager Change on Team Performance in

the English Premier League;

2000/2001−2017/2018

	Points	Win	Goal difference
	(1)	(2)	(3)
All manager changes			
Home	0.51 (8.2)**	0.16 (7.4)**	0.74 (8.6)**
Relative payroll	0.34 (8.0)**	0.10 (6.1)**	0.56 (9.6)**
Manager change	0.20 (3.2)**	0.07 (3.3)**	0.21 (2.5)**
N		1,376	
n		86	
Manager dismissals			
Home	0.52 (7.8)**	0.17 (7.2)**	0.74 (7.9)**
Relative payroll	0.36 (7.9)**	0.11 (6.1)**	0.58 (9.4)**
Manager change	0.21 (3.2)**	0.08 (3.2)**	0.19 (2.1)**
N		1,136	
n		71	

Notes: All estimates contain club-fixed effects; N = the number of matches taken into

account; n = the number of manager changes; the absolute t-statistics in parentheses are

based on robust standard errors.

 *** indicates significance at 5%; * indicates significance at 10%*

The parameter estimates of the naive linear regression are presented in Table 3. The top half of the table shows the parameter estimates for all manager changes and the bottom half presents manager dismissals. All parameter estimates are significantly different from zero at a 5 per cent significance level. For the model with all manager changes, teams that play at home obtain 0.51 points, have a 16 per cent higher chance of winning and see an increase in goal difference of 0.74. Every time the Relative payroll variable increases by 1, the team wins 0.34 points, has an increased chance of winning of 10 per cent and increases the goal difference by 0.56. The manager change itself increases the points by 0.20 and the winning chances by 7 per cent. The goal difference increases by 0.21 after a manager replacement. The parameter estimates for manager dismissals are very similar as shown in Table 3. The effects cannot be interpreted as causal since the analysis just looks at the changes in performance after a manager change. As mentioned above, a model with a counterfactual has to be estimated to find causal effects. The results presented in Table 3 are in line with most previous research. Performance increases after a manager change, which mostly happens after a dip in the performance of the team. The second model clarifies if this improvement comes from the manager change or if it could be due to other factors.

The parameter estimates after introducing a counterfactual are presented in Table 4. Again, the top half of the table presents all manager changes and the bottom half the manager dismissals. Row a. and c. show the results obtained using the naive method for manager change on performance as presented in Table 3. The rows starting from rows b. and d. show the parameter estimates after matching. The number of matches taken into account for all manager changes is 1,600 with 51 actual manager changes of which 49 could be matched to a counterfactual. For manager dismissals, 1,392 matches are considered with 44 actual manager dismissals and 43 dismissals that did not happen. Table 4 presents that none of the parameter estimates of the treatment group is significantly different from zero, while all of the parameter estimates for the counterfactual are significantly different from zero at a 5 per cent significance level. The insignificance of the treatment group may be due to the reduction of the sample. In the naive regression for all manager changes, 35 more changes are included than in the matched sample and for the dismissals, 27 more changes are included. Most of these differences are due to a club only having within-season manager changes in one season or in every season they were in the English Premier League, which made matching impossible with the method used in this analysis. Another reason could be that there were not at least the same number of seasons without manager changes as there were with manager changes, so not all changes could be matched. Finally, manager changes could be matched more easily when the cumulative surprise was not too negative, therefore it could be that manager changes when the dip in performance was not that bad are relatively more included in the matching sample, leading to insignificant results.

Table 4

Effects of Manager Changes on Team Performance in the English Premier League − Treatment

and Control Groups;

2000/2001−2017/2018

	Points	Win	Goal difference		
	(1)	(2)	(3)	*N*	*n*
All manager changes					
a. Actual changes	0.20 (3.2)**	0.07 (3.3)**	0.21 (2.5)**	1,376	86
b. Home	0.58 (9.9)**	0.19 (8.8)**	0.84 (10.3)**	1,600	100
Relative payroll	0.45 (9.5)**	0.14 (7.5)**	0.71 (10.7)**		100
Matched−−treatment	0.06 (0.8)	0.02 (0.9)	0.04 (0.4)		51
Matched−−control	0.32 (4.4)**	0.12 (4.4)**	0.39 (4.0)**		49
F-test equality of parameters	10.79**	10.38**	10.24**		
Manager dismissals					
c. Actual changes	0.21 (3.2)**	0.08 (3.2)**	0.19 (2.1)**	1,136	71
d. Home	0.59 (9.5)**	0.19 (8.6)**	0.85 (9.8)**	1,392	87
Relative payroll	0.45 (9.1)**	0.13 (7.1)**	0.72 (10.3)**		87
Matched−−treatment	0.10 (1.4)	0.04 (1.5)	0.09 (0.8)		44
Matched−−control	0.37 (4.7)**	0.13 (4.8)**	0.45 (4.3)**		43
F-test equality of parameters	9.35**	9.12**	9.04**		

Notes: All estimates contain club fixed effects; N = the number of matches; n = the number of total

manager changes; absolute t-statistics in parentheses based on robust standard errors.

*** indicates significance at 5%; * indicates significance at 10%*

The parameter estimates for Home in the sample with all manager changes show that playing at home increases the points by 0.58, the goal difference by 0.84 and the chances of winning a match are 0.19 per cent higher. An increase of 1 in the relative payroll variable leads to an increase in points of 0.45, a 0.14 per cent higher chance of winning and a bigger difference in goals of 0.71. These results are similar to the results of the parameter estimates of the dismissal sample. All of these estimates are significantly different from zero at a 5 per cent significance level. The estimates of Home and Relative wage of the matched samples are similar to those of the naive regression.

The F-test for equality of the control- and treatment group shows that the parameter estimates of being in the control- or treatment group are significantly different from each other. After a manager change that did not happen points increase by 0.32 and they have a 12 per cent higher chance of

winning a match. The difference in goals increases by 0.39 goals. Again, the estimates of manager dismissals that did not happen are very similar. Nothing can be said about the parameter estimates of the manager changes that actually happened because these estimates are not significantly different from zero. These results suggest that manager replacement does not affect performance in the short run. It even implies that keeping a manager is significantly better for performance than changing a manager. This can be concluded from the fact that the parameter estimates of the counterfactual for all changes and for dismissals only are statistically different from zero and the estimates for the actual changes and dismissals are not.

These suggestions are similar to the finding of Audas, Dobson and Goddard (2002) and Bruinshoofd and Ter Weel (2003). Van Ours and Van Tuijl (2016) also conclude that manager dismissals do not affect performance, however they do not suggest that keeping a manager would improve performance more. They find that the estimates of manager changes that did not happen as well as actual manager changes are statistically different from zero and that these estimates are not significantly different from each other, as opposed to what is found in this analysis as presented in Table 4. Besters, Van Ours and Van Tuijl (2016) also used the same method as Van Ours and Van Tuijl (2016). The hypothesis that the parameter estimates of actual manager changes and the estimates of the counterfactuals are the same could also not be rejected by Bester et al. (2016). Therefore, they concluded that manager changes do not affect performance, but keeping a manager also does not improve performance.

5. Conclusions

Managers get replaced for different reasons but mostly due to poor performance and performing below expectations (Frick, Barros & Prinz, 2010; Tena & Forrest, 2007; Audas, Dobson & Goddard, 1999; Van Ours & Van Tuijl 2016). This paper examines the effect of these within-season manager changes on performance in the short run. Most previous research suggests no significant effect of manager turnover (Koning, 2003; Ter Weel, 2011; De Paola & Scoppa, 2012; Bruinshoofd & Ter Weel 2003; Van Ours & Van Tuijl 2016; Besters, Van Ours & Van Tuijl 2016). The exploited data comes from the highest level of football in England, the English Premier League. All consecutive seasons from 2000-2001 to 2017-2018 are included in the analysis. In these seasons 111 within-season manager changes took place of which 90 are dismissals. Caretakers who took the manager position for just a few matches are not considered as a manager change. In the analysis three performance indicators are used, the number of points, wins and goal differences and the sample will contain the 8 matches before and after a manager change. The variable of interest is a dummy which takes the value one when a manager change took place and zero otherwise. The control variables are a dummy for whether or not the match is played at home and the relative wage variable, which is the total payroll of the team divided by the total payroll of the opponent's team.

The parameter estimates of the naive model presented that all three performance indicators improved after a manager change. However, this method does not allow conclusions about causality. To examine if manager turnover really affects performance the method of Van Ours and Van Tuijl (2016) is used. This method matches the actual manager changes to their counterfactual of manager changes that did not happen on basis of the cumulative surprise with nearest neighbour matching. The cumulative surprise is calculated by adding all the match surprises in a particular season up to the current match. The match surprise is the difference between the expected amount of points in a match according to bookmakers' odds and the points that are actually obtained. The parameter estimates now show that the actual manager changes have no significant effect. However, the estimates of the counterfactual do show a significant positive effect.

The parameter estimates suggest that manager turnover does not affect performance in the short run. Actually, it suggests that keeping the manager is better for performance. The differences in outcome between the naive regression and the regression with matching possibly arise because of the reduction of the sample. The relatively smaller performance dips may be included more in the sample because these are more likely to have a match, which could lead to the insignificant results of the treatment group estimates in the matching sample.

The suggestions are in line with the suggestions made by Audas, Dobson and Goddard (2002) and Bruinshoods and Ter Weel (2003). It is often assumed that boards only replace a manager to improve performance. However, it could be perfectly possible that other factors play a big role. For instance, the investors of the club could get annoyed when the team does not win enough and want the board to do something. Fans could also put pressure on the club when they are not performing well. To show these and other stakeholders that they, the board, are doing something about the bad performance, the obvious action is to replace the manager since they simply cannot replace players outside the transfer windows.

Even though this analysis is based on the same method as Van Ours and Van Tuijl (2016), the results differ slightly. Van Ours and Van Tuijl (2016) did not find a statistically significant difference between the actual manager changes and their counterfactual. Nevertheless, they also concluded that manager changes do not significantly affect performance in the short run. This means that they cannot suggest that keeping a manager would benefit the team more in terms of an increase in performance as is possible from the results of this analysis.

The implications of this analysis are as follows. First of all, boards should think twice before dismissing their manager when performance is low. The results show that changing the manager within the season will not significantly affect performance in the short run. It is better for the performance if they keep the current manager. However, boards could have other reasons for dismissals. For example, pressure from fans or other stakeholders, which brings us to the second implication. Home matches have a significant positive effect on performance, therefore clubs should make sure the fans keep giving support because they do make a difference.

This research also has some limitations. First of all, the data does not have a lot of observations for manager changes. The bigger the number of observations the more trustworthy the results. The analysis could also be biased since there could be unobserved variables affecting the dependent and independent variables. Moreover, it is questionable if the obtained results can be generalized to other football competitions, sports or maybe even to other businesses. The football business is a unique business that keeps changing at a high pace. Therefore, it is not perfectly comparable to other periods. Besides, this research only examines data from the English Premier League, which makes it difficult to generalize the results to other competitions, sports or businesses. Besides, CEOs are not identical to football managers, even though they have a lot in common. However, comparisons between those two could be biased due to the differences. Finally, the model with the counterfactual assumes that the effect of playing at home is the same for the control- and treatment group. It could be that teams

perform better after a manager replacement because the fans have renewed trust in the manager and support their team more than they did with the old manager. This could cause a different outcome.

The sports industry is a good area for research as explained by Pieper, Nüesh and Franck (2014) and Ter Weel (2011). The results obtained in this analysis could form a basis for future research in other football competitions, sports branches or completely different industries. Further research could show if these results also hold in different circumstances. Besides, the data used in this paper had limited observations. New research could replicate this method using bigger datasets to see if the results remain the same.

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