ERASMUS UNIVERSITY ROTTERDAM

Erasmus School of Economics

Bachelor Thesis IBEB

Impact of Mid-Season Managerial Changes on Team Performance in Europe's Top Five Football Countries Second Divisions: A 2023/2024 Analysis

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Date of Final Version: 04/08/2024

Abstract

This paper investigates the effect of mid-season managerial change on average points of clubs within the 2023-2024 season across the second divisions of the top 5 footballing leagues in Europe. The data utilized for this paper is collected from the sports website Transfermarkt and a two way fixed effects difference in difference model is utilized to perform the analysis. Majority of the findings derived in this paper lacked statistical significance with the exception of those from the English Championship that found that changing managers had a positive effect on teams average points collection. As this was the only statistically significant finding we can determine that changing managers during the season has an overall small or nonexistent effect on teams performance.

Introduction

The topic of mid-season managerial change in football is something that has drawn constant attention from fans, researchers and pundits alike. Football managers hold arguably some of the most unstable jobs in the world with even the slightest downturn in form often coming with the immediate possibility of being replaced. In Europe's most competitive leagues it is not uncommon for 50% or more of clubs to experience at least one managerial change during the season. An example of this was seen in the Premier League during the 2020/2021 season where 10 of the leagues 20 clubs opted to change their managers (Transfermarkt, 2021). The Premier League as well as the other top flight leagues across Europe are the center of most academic focus in regards to managerial change on team performance, but what about the second divisions? The most competitive second divisions in Europe are the English Championship, Spanish LaLiga 2, French Ligue 2, German 2. Bundesliga, and the Italian Serie B. Over the past five seasons the Championship has averaged approximately 18 managerial changes per season across 14 clubs, sporting larger numbers than the Premier League. Across the rest of the second divisions previously mentioned, starting from the LaLiga 2, there were approximately 23 managerial changes across 15 clubs, 12 across 9, 14 across 10, and 27 across 15 respectively (Transfermarkt, 2024). These numbers indicate the immense amount of managerial upheaval seen in both the top flight and amongst the scarcely researched second divisions across Europe. The question remains then: does this constant change actually help?

Analyzing these effects stems from beyond the scope of managerial change just in football. The general role of managers and CEOs on firm performance provides the foundation for the theory of interest within this investigation. Bertrand and Schoar (2003) analyzes if CEOs have a discernable effect on corporate decision making by tracking executives across several firms that they have worked at and

determining how policies change once they arrive. The paper finds that managers have an important influence on a range of policies and CEOs with higher performance fixed effects are more likely to be found in firms with stronger corporate governance. Several potential mechanisms drive these performance outcomes from CEOs include strategic vision and policy implementation. The unique strategic vision of individual CEOs can have significant effects on the overall performance of firms. Additionally Schein (2010) and Hambrick and Mason (1984) analyze the effects of organizational culture and risk management respectively of CEOs which they find to have widespread effects across the firm. For these reasons and many more it is essential for firms to find CEOs that fit their philosophies. This paper aims to explore these theoretical applications and mechanisms in the world of football.

As previously mentioned mid-season managerial change and its effect on performance in football is a topic of significant prior research. Audas et al (2002) investigates the English Premier League and finds that mid-season managerial change has temporary improvements for performance, however, effects are negligible in the long run. Flint et al (2014) finds similar findings in the Premier League with short term boosts seen after managerial change but no significant outcomes in the long run. Bell et al (2013) builds on these findings as it investigates the role of skill versus luck in managerial performance in the Premier League. The paper finds that although some managers persistently outperform expectations a large amount of performance variation is attributed to luck or random occurrence. Both of these papers highlight the difficulty in concluding performance variation in football solely to the effects of managerial change.

By analyzing the 2023/2024 season outcomes in the LaLiga 2, 2. Bundesliga, EFL Championship, Serie B, and Ligue 2, this paper aims to answer the crucial research question:

"What are the effects of mid-season managerial change on team performance, specifically in regards to average points per game?"

This research question brings upon the following hypotheses:

H1: "In the short run, mid-season managerial change will have a positive effect on team performance in respect to average points attainment."

H2: "The magnitude and sign of the effect of managerial change on team performance will vary significantly across the five leagues of interest."

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The findings of past literature such as Audas et al (2002) and Flint et al (2014) indicate that managerial change can provide short run boosts in performance. As this paper is focused solely on the 2023/2024 season these findings provides the foundation for hypothesis 1. Hypothesis 2 is attributed to the contrasting environments across the five leagues of focus. Managers will likely have heterogeneous roles across leagues with different kinds of resources made available to them. Therefore the effect of managerial change on team performance is likely to vary across the different leagues of interest.

Majority of managerial changes occur with the hope of reversing poor form but truly how effective these changes are is still a topic of much debate. Socially, understanding these outcomes is significant for investors and shareholders who benefit from the insights of this paper to see the potential risks or rewards that can come from changing one's manager across these leagues. These groups of people require robust evidence in order to make the difficult decision of taking the club in a new direction. When new managers are brought in they bring with them their own identities, philosophies, styles of play and often their own transfers as well. The significant changes new managers introduce are often difficult to quickly reverse, making the choice of manager extremely important.

In regards to scientific relevance this paper builds on the existing literature on the effects of managerial change on team performance. Despite the topic being heavily researched within top flight leagues there is a lack of focus on the lower divisions of European football. This paper examines the effects of managerial change in the second divisions of Europe's top five footballing leagues in order to determine how the findings compare to the pre existing literature on top-flight divisions. Second-tier leagues often operate under significantly different financial constraints, media attention and fan pressure compared to top flight leagues. Managers will need to employ different stragegic choices and generally operate with much more limited resources. Furthermore the increased promotion and relegation pressures in these leagues can potentially make managerial changes more impactful as the margin for error is much finer. These factors provide a new environment to investigate how managerial change affects team performance. Additionally this paper, unlike the majority of past papers, looks across multiple divisions within the same season to determine if the effects are localized based on the division or are general across second division football. By examining the effects of managerial change in these lower divisions this paper aims to bridge the gap in the current literature and provide a more comprehensive view of football management across different competitive environments.

In terms of methodology this paper employs a two way fixed effects difference in difference approach to perform the analysis. This model controls for both common time trends and time invariant characteristics of the teams. This allows for a more precise estimation of the effect managerial change has on average points collection. This method compares the performance of clubs that experienced a managerial change with those that did not, before and after the change occurred. The data utilized in this

paper is retrieved from the sports statistics website Transfermarkt through a method called web scraping. Web Scraping is a method where Python code is used to efficiently gather information stored in websites. The data for the 2023/2024 season is aggregated at the "match block" level or every five consecutive games for every team across the five leagues. By breaking the season into these blocks the analysis is able to capture the short term effect of managerial change on average points per game.

Integrating these previously discussed aspects, this study aims to provide an understanding of how mid season managerial changes influence club performance in contexts sparsely researched upon. The findings not only build upon the previous academic literature but will provide significant context to investors, stakeholders and all those directly involved in the team's success.

With the two way fixed effects difference in difference model this paper finds that overall managerial change has a marginal positive effect on subsequent team performance. This indicates that changing managers during a poor run of form can provide teams with a slight boost in their performance in the short run after the change. However, the findings regarding the general effect were not deemed statistically significant. In regards to the effect within the specific leagues of interest, managerial change in the English Championship had a positive statistically significant effect on average points. Ligue 1 and Serie B also had positive coefficients for managerial change while the 2. Bundesliga and LaLiga 2 had negative outcomes. However, the results for these four leagues were also statistically insignificant.

Related Literature

The effects of mid-season managerial changes on football team performance is a topic that has received considerable past research. One of the first notable papers on the topic, however, originated in the world of baseball in Grusky (1963). The paper examines managerial change on organizational performance and finds that managerial change generally disrupts stability and effectiveness, especially if change occurs frequently. The study concludes that stable leadership tends to promote better performance and overall organizational health top to bottom.

These findings inspired several other similar papers in American sports such as Giambatista (2004) in the NBA. The paper investigates managerial tenure and performance in regards to NBA game results. The study finds that leadership changes initially can increase performance but these effects significantly diminish over time, highlighting the importance of stability for the long term. Rowe et al (2005) further builds on these studies in America in the National Hockey League. The paper finds evidence of three theoretical perspectives on changing managers. These include first that changing leadership brings increased performance, second that changing managers is symbolic and a form of scapegoating and finally that frequent managerial change is a vicious cycle of further reduced form. These

findings highlight the complex nature of managerial change and that their effects can vary wildly. Sakano and Lewin (1999) elaborate further on the scapegoat theory suggesting that leadership change is often the result of appearances to indicate some form of change from previous poor performance. The study further highlights the significance of understanding specific cultural and organizational factors when considering leadership change. Wagg (2005) and Wagg (2007) additionally elaborates on managers acting more as figure heads in teams arguing that too much expectation is placed on them. The 2005 book and 2007 paper argue that teams performances depend on much more than their managers while all blame for poor form generally falls on the manager.

The most dramatic growth in research in the field occurred within the last twenty years due to increased globalization and focus on the financial gains to be made in sports. This shift in focus was particularly evident in the English Premier League, which is the most researched league in football. Morrow and Howieson (2014) further explore this trend by analyzing the changes in managerial roles driven by increased media rights deals. The paper finds that a shift has occurred in what are considered important skills for football managers with a much larger focus being placed on professionalization and business practices in the sport. This increased focus on the financial and performance based factors in football led to increased research on the role of managers across Europe's leading divisions, starting in the English Premier League. Ogbonna and Harris (2014) investigates how Premier League teams attempt to change club cultures. The paper finds that strong cultural ideals are slow to change when attempted by managers, speaking to the general ineffectiveness of managerial change. Flint et al (2014) builds on these findings as it investigates how changes in management impact team performance in metrics such as match outcomes and league standings. The paper finds that managerial change generally does not produce short term improvements in performance and at times has harmful effects. The study alternatively concludes that stability is crucial for long-term success. Audas et al (2002) finds similar results in its analyses of the previous format of the Premier League, the English Football League from 1972 to 1993. The study concludes that managerial change usually occurs after a poor run of form and generally does not improve team performance in the short term but rather harms performances. Bell et al (2013) expands on these findings as the paper researches if the performance of managers are dictated mainly by skill or luck. The analyses is conducted by utilizing a model that separates influence of managerial skill and decision making from team resources such as wage bills, transfer policies, injuries and much more. The study finds that although several managers illustrate high levels of skills, a significant number of managers' performances are determined by what the researchers consider luck. These findings yet again illustrate the complexity of evaluating managerial performance and that some decisions to replace or stick with certain managers are not always solely based on significant performance metrics. Although studies on the

Premier League show mixed outcomes from managerial changes, the general consensus in the literature suggests that such changes often lead to a downturn in results.

Frick and Simmons (2008) investigates how the quality of manager affects team performance in the German Bundesliga. The paper utilizes a form of panel data that produces a production function to estimate the impact of managerial quality. The study concludes that managerial quality has significant effects on team performance. Therefore in the event of poor form changing managers can have an increase in team performance if a suitable replacement is found. Kowitz (2018) builds on these findings through its analysis of managerial decisions on team performance over 11 seasons in the Bundesliga. The paper finds that managers have a significant effect on team success through tactical decisions and their individual philosophies. Hentschel et al (2012) investigates how managerial changes affect team performance depending on team heterogeneity and concludes that managerial changes have positive effects on performance. This effect is greater within teams where players are more homogenous in regards to ability and background. Contrary to the past literature within the Premier League in the Bundesliga the general findings indicate that generally managerial change can lead to increases in team performance.

Gonzalez-Gomez et al (2011) analyzes the effect of mid-season managerial change on team performance in Spain's La Liga. The study compares performance of teams that experienced a mid-season change to those that did not. The paper finds that although improved performances can follow a mid-season change it does not lead to performance levels as high as those of teams that did not change managers. De Dios Tena and Forrest (2007) investigates the causes and effects of managerial dismissals in La Liga. The paper finds that poor performance is the leading cause for firing a manager and the overall effect on team performance is often minimal. The general findings of the effect of managerial change on team performance in La Liga is that there may be general positive effects of changing a teams manager. However, the effects are minimal or overshadowed by teams that opt to stay with their current leadership.

De Paola and Scoppa (2012) examine the consequences of mid-season managerial change on team performance in the Italian Serie B using match level data to see how performances change once a manager has been fired. The paper finds that although managerial changes can have short term improvements these effects often disappear over time with no long term benefit being seen. Building on these findings Cantilena (2022) also analyzes the effects of managerial turnover on team performance, however, utilizing a multiple linear regression model the study finds that managerial change can have a significant positive effect on team performance. Detotto et al (2018) yet again indicates the significant impact that managerial characteristics have on team performance in the Serie B. The paper finds that managerial skills, experience and empathy have a significant effect on teams overall performance both home and away. Despite mixed findings regarding the magnitude of the effects of managerial turnover as

well as questions regarding its longevity the general findings point to positive outcomes after managerial change in the Serie B.

Arrondel et al (2022) explores the impact of mid-season managerial change in the French Ligue 1 and the paper finds that overall the effects of managerial change on team performance are insignificant. However, the effects are positive and statistically significant in the short term but fade and become insignificant in the long run. Contrarily Narita et al (2020) finds that the impact of managerial change is generally negative going against the previous findings of Arrondel et al (2022). Llorca and Scelles (2016) adds to these mixed effects as the paper finds significant variation in performance across teams following a managerial change. The study concludes that while some teams experience short term improvements the effects are not uniformly positive or negative and vary widely depending on the circumstance of the team. The literature regarding the French Ligue 1 indicates extreme variation in the results with no clear general effect of managerial upheaval on team performance.

The extensive research done in the top flights of European football provide strong background research that this paper will build upon in its analyses of the respective second divisions. Although the literature provides some contradiction across the leagues and certain sports the general findings allow us to make our first hypothesis:

H1: "In the short run mid-season managerial change will have a positive effect on team performance in respect to average points attainment"

The past literature has indicated that in the long run the effects of managerial change generally became negligible if not non-existent, however, in the short run significant effects have been concluded and the direction of these effects tend to sway positively. Hypothesis 1 (H1) applies to the overall effect of managerial change on team performance across the entirety of the data where all leagues are combined into a single regression rather than division specific effects. H1 predicts that the short run general effect will be positive, however, when considering the effects within the individual leagues past papers illustrate the effects may not be constant, bringing us to the second hypothesis:

H2: "The magnitude and sign of the effect of managerial change on team performance will vary significantly across the five leagues of interest"

The previously discussed research papers across Europe's top footballing leagues showcase that the effect of managerial change on team performance has some significant variance across and even within the same

league. Therefore, it is expected that the findings for each league will not be uniform but will instead show mixed effects.

Data

The data utilized in this paper is retrieved from football data collection website Transfermarkt for the 2023/2024 season for the five leagues of focus including performance metrics for all teams. These metrics include wins, draws, loses, average points per match block, games played per match block, goals scored and conceded, goal difference as well as if and when the team experienced a managerial change. The sample in this study consists of 798 observations. These observations are collected by splitting the performance data of all teams into specific match blocks. Each observation corresponds to a team's performance within a designated 5-match block period. Breaking up the season in such a fashion allows for more detailed analysis to be conducted for specific segments of the season and determine the immediate effects of managerial change within the next match block.

Due to the nature of the research question, data collection was a significant and time consuming task as pre-existing databases did not exist, therefore a process called web scraping was used. Web scraping involves using automated scripts and code to extract information from websites efficiently. The first step in web scraping is to find the target website. Transfermarkt is a website that provides extensive football statistics on all the necessary leagues required, including match results, managerial changes and several team performance measurements. Once the target website was found Python libraries such as 'BeautifulSoup' and 'requests' were used to scrape the data. These libraries allow for navigating and extracting content which makes it possible to retrieve specific data points from the website without having to manually go from page to page.

The extraction focused on team names, match results, goals scored and conceded, managerial changes and the timing of these changes. Once this data was collected a code was used to separate the season in each league of interest into blocks of five match days each until the end of the season. Once the scrape was complete and the data downloaded as an Excel sheet additional code was run in order to organize the data as needed. This began with grouping all match blocks for the same team together then subsequently numerically ordering the blocks for each team. As the different leagues varied in the number of games played in each season certain leagues included more match blocks as seen for example in the English Championship that plays 46 games in comparison to the standard 38 seen in most other leagues. Therefore adjusted blocks were created at the end of the season when necessary if they did not fit evenly in the five block system, for example the final match block for the Championship spans from matchday 41-46 to fit the additional games. The seasons were broken into 5 match day blocks in order to reduce the

level of aggregation and allow for clear pre and post managerial change periods to be created to evaluate the effects of the change of manager on subsequent match block average points.

Table 1

Definitions and measures of all most significant variables

| Variable Name	Definition	Measures
Average_Points	The average points a team accumulated per game in a match block	Number of points accumulated in a match block divided by the number of games played
Match_Block	The match block variable divides the season into 5-match intervals, allowing for precise analysis of team performance before and after managerial changes	Blocks generally included five match days with exception of final block that was adjusted if needed adding left over games
Managerial_Change	Dummy variable which is 1 in all period after a managerial change (also 1 during the period of change) and 0 in all previous periods or if no managerial change occurs	Match blocks at club level where a managerial change has occurred

Note: All data is sourced from Transfermarkt for the 2023/2024 season. Additional variables are included in the data set but are self explanatory including wins, loses, club, league, games played, goals scored and conceded, and season.

Table 1 provides all key variable names, definitions and what these variables intend to measure. The key dependent variable that will be used to represent team performance is average points or the points teams accumulate per game within each match block. Additionally, the treatment variable of interest is Managerial_Change.

As previously stated, the data included 798 observations once all the relevant team data was collected from Transfermarkt and separated into their respective match blocks. Teams played on average

5.21 games in each match block with some match blocks containing a maximum of 8 games and the minimum of 4 depending on the size of the different leagues, with some requiring modified match blocks at the end of the season. Teams won on average 1.89 games within their match blocks and accumulated on average 1.36 points per game. Interestingly 49% of the teams in the sample went through a managerial change which is almost identical to the figures discussed earlier in the top flight leagues in Europe, specifically the Premier League in the 2020/2021 season where 50% of teams experienced at least one managerial change.

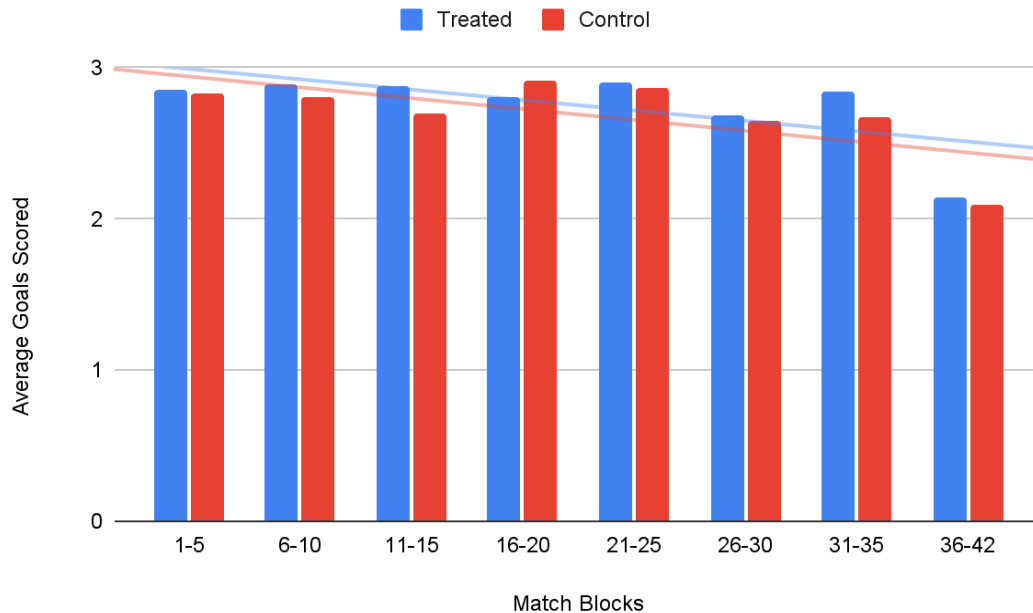**Figure 1:** *Average Points Per Game Over Match Blocks (Treated vs. Control)*
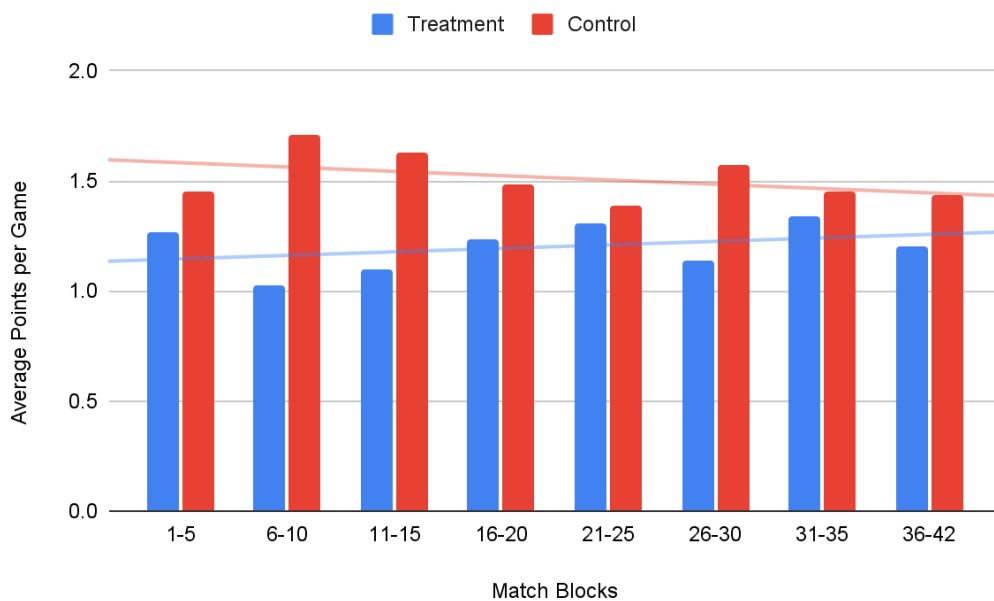
Note: Provides comparison of treated vs control group average points per game in each match block across the 2023/2024 season for all leagues of interest. Average points per game is given for each match block with 3 points being awarded to match winners, 1 for all draws, and 0 for losers. Matchblock 36-42 is slightly larger to account for the English Championship which includes 42 games as the largest league.

Figure 1 illustrates the average points per game for all teams in the data set across the season split up into match blocks and separated between the treatment and control group. The control group across all match blocks generally boasts higher average points per game, however, in the later match blocks has a slight negative trend. Treatment teams experience fluctuations but maintain a stable trend with a slight increase towards later match blocks. In early match blocks 6-10 and 11-15 the control group has a significant advantage in average points but this gap narrows in the majority of subsequent blocks, especially 31-35. Such trends may indicate that teams that change their managers need time throughout

the season to experience these slight performance increases to close the gap to their control group counterparts.
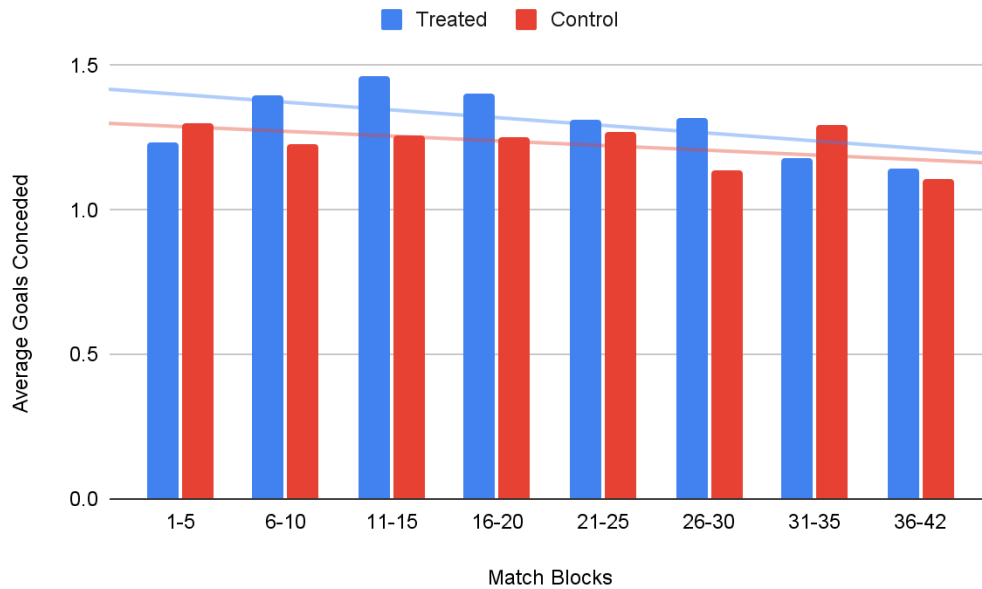
Figure 2: *Average Goals Scored Per Game Over Match Blocks (Treated vs. Control)*

Note: Provides comparison of treated vs control group average goals per game in each match block across the 2023/2024 season for all leagues of interest. Matchblock 36-42 is slightly larger to account for the English Championship which includes 42 games as the largest league.

Figure 2 portrays an alternate measure of team performance in average goals scored throughout the match blocks. Both the treatment and control group teams experience negative trends throughout the season in regards to their goals scored per game. Although the difference between both groups is marginal the treatment group consistently outscores the control group with the exception of match block 16-20. Match block 36-42 has a significant drop for both the treatment and control groups in regards to their goal scoring records. This drop as well as the general trend for both groups indicates that goal scoring has a boost in early matches in the season but when stakes increase and final positions are up for grabs goal scoring slows.

Figure 3: *Average Goals Conceded Per Game Over Match Blocks (Treated vs. Control)*

Note: Provides comparison of treated vs control group average goals conceded per game in each match block across the 2023/2024 season for all leagues of interest. Matchblock 36-42 is slightly larger to account for the English Championship which includes 42 games as the largest league.

Figure 3 showcases the average number of goals conceded for the treatment and control group. Both groups experience a negative trend throughout the season, however, due to a rise in the early blocks the treated group generally experiences a higher number of goals conceded. Although both teams experience decreases in the number of goals conceded the treatment group has a sharper decrease. This yet again provides evidence that as the season progresses teams that changed their manager experienced performance metric boosts.

When conducting an analysis ideally the treatment and control groups prior to treatment being applied are as similar as possible. As average points per game is our main variable of interest in order to reduce bias the value before managerial change occurs for both treatment and control groups should be as close as possible. However, the average points per game before treatment has occurred for the treated clubs is 1.20 whereas for the control clubs who experienced no managerial change is 1.52. Although the difference is not extremely large this still indicates that clubs likely opt to change their manager due to poor performance, making treated clubs inherently different to control clubs. Although this introduces potential biases, understanding whether managerial change has a positive effect on already struggling teams can provide crucial insights for club management.

Throughout the season the most popular match blocks where managerial change occurred was around the beginning of the season peaking in match block 11-15 with 14 managerial changes occurring. Blocks 6-10 and 16-20 boasted similar numbers with 12 and 11 respectively. Towards the end of the season fewer managerial changes occurred with the minimum being seen in block 31-34 with only a single change being made. In regards to the mean values of these changes across the match blocks, before a managerial change the average points per game for the entire data set is 1.20 and is the exact same after the managerial change. These identical values provide evidence that descriptively managerial change did not have a drastic effect on team performance across the data set in the short term.

Methodology

As previously mentioned, the data utilized in this paper originates from the 2023/2024 season from all the second divisions across Europe's top five footballing leagues: LaLiga 2 in Spain, the 2. Bundesliga in Germany, the EFL Championship in England, Serie B in Italy and Ligue 2 in France. The 2023/2024 season was utilized as it is the most recent data available as well as providing the opportunity to expand on past literature that focused on previous seasons.

In an ideal scenario analysis would occur on exogenous managerial change as a result of some random shock in the team. Exogenous shocks are events external to teams performance and management that lead to a change in the manager. Examples of such shocks include health issues or personal reasons unrelated to team performance. Utilizing exogenous shocks to analyze managerial change is ideal as it reduces the bias in estimating the true effect of managerial change on team performance. In the event that managerial changes are endogenous or influenced by the teams performance it can become difficult to distinguish if the change in performance is due to managerial change itself or the pre-existing trend. Exogenous shocks create a form of natural experiment allowing for more accurate estimations to be made. Bertrand and Schoar (2003) takes advantage of shocks in its analysis on CEO change on firm performance. The paper tracks executives across multiple firms over time utilizing instances where CEO change occurred due to exogenous reasons to isolate the effect on firm performance. Although this would be the ideal method such data on the scale necessary is not available, therefore this paper employs a two way fixed effects difference in difference model to conduct the analysis.

In order to analyze the impact of managerial change on teams average points collection a two way fixed effects difference in difference (TWFE DiD) model is used. This method suits the research question of this paper as it accounts for both time and team specific effects. A two way fixed effects model controls for unobserved heterogeneity by including fixed effects for each match block and each team. Therefore any team specific characteristics and any time specific effects such as seasonal factors or league wide

trends are controlled for in the model. Utilizing this DiD method enables the analysis of changes in performance before and after managerial changes, using clubs that did not experience managerial changes during the same period as a control group. With this method the TWFE DiD model identifies the average treatment effect on the treated which is the effect of a managerial change on the average points attained by a team.

For this method to estimate causal effects several assumptions must hold, the first of which being the parallel trends assumption. This assumption states that in the absence of treatment, the treated and control groups will follow parallel trends over time. With this assumption holding all differences in trends between the groups after treatment has occurred must have come from the treatment. Maintaining that treated and control groups will follow parallel trends if no managerial change occurs is very difficult in this context. Widespread differences in team quality, finances and several other variables can have significant effects on performance trends. The second assumption that must hold to infer causality is there can be no anticipation effect. If teams begin to perform differently because they expect a managerial change will occur this will bias the results. In the context of this paper it is difficult to determine if this assumption holds. In modern day football it is not uncommon for media speculation about upcoming managerial change to become public knowledge before the change actually happens. This could potentially affect players' performance either positively or negatively. Negatively for example due to their expectation of change or positively in an attempt to save their manager. The final assumption that must hold is the exogeneity of treatment timing. This assumption states that the timing of a managerial change occurring should be exogenous, therefore is not influenced by factors that also affect team performance. This is a strong assumption that is likely not to hold in this case as one of the main reasons teams change their manager is because of poor performances. Although several of these assumptions are unlikely to hold in this paper the TWFE DiD still provides a robust model to evaluate the impact of managerial change as it controls for several confounding factors. This method introduces the following regression equation:

$$Average\ Points_{it} = \ \beta_0 + \beta_1 Managerial\_Change_{it}\ + \alpha_i + \delta_t + \epsilon_{it}$$

Where Average Points is the average points per game in the specific match block for team i in match block t and Managerial_Change is a dummy variable that takes the value 1 after a managerial change has occurred including the block where the change first occurred and 0 otherwise. Additionally α_i represents the team fixed effects δ_t the match block fixed effects and finally ϵ_{it} is the error term.

Results and Discussion

Table 2

Two-way fixed effects DiD Regression on Average Points for Entire Data Set

	Average_Points
Managerial_Change	0.013
	(0.066)
Constant	1.36***
	(0.021)
Observations	798

Note: * Indicates p<0.10, ** p<0.05, *** p<0.01 and no * means the value is not significant. The numbers inside the brackets are the standard errors of the estimators. Managerial_Change is expressed in points where three points are collected for a win, one point for a draw and zero points for a loss

       Table 2 above provides the two way fixed effects DiD regression output for the entire data set. In other words for all five leagues in the sample in order to determine the overall effect of managerial change on teams average points collection. The coefficient for Managerial_Change is 0.013 indicating a small positive effect on average points after a managerial change occurs. Therefore teams experience an increase of 0.013 points per match after going through a managerial change. These findings support hypothesis 1 that the overall effect of managerial change on team performance will be positive in the short run. However, the coefficient is not significant at any of the standard levels meaning that we do not have sufficient evidence to conclude if there is a real effect or not and can therefore make no conclusions regarding hypothesis 1. The inability to make clear conclusions regarding the overall effect of managerial change on average points per match is consistent with some of the previous studies such as Flint et al (2014) that found that simply changing ones manager does not automatically result in improved performances, further highlighting the complex nature of the decisions to change managers.

Table 3

Two-way fixed effects DiD Regression on Average points for Each Individual League of Interest

	Average Points				
	Serie B	La Liga 2	2. Bundesliga	Championship	Ligue 2
	(1)	(2)	(3)	(4)	(5)
Managerial_Change	0.089	-0.30	-0.15	0.26*	0.13
	(0.17)	(0.18)	(0.11)	(0.15)	(0.17)
Constant	1.30***	1.46***	1.44***	1.28***	1.32***
	(0.074)	(0.042)	(0.039)	(0.039)	(0.046)
Observations	140	126	216	176	140

Note: * Indicates p<0.10, ** p<0.05, *** p<0.01 and no * means the value is not significant. The numbers inside the brackets are the standard errors of the estimators. Managerial_Change coefficient is expressed in average points per game where three points are collected for a win, one point for a draw and zero points for a loss.

Table 3 provides the effect of Managerial_Change on each individual league of interest, beginning with the Italian Serie B in column 1. The Managerial_Change coefficient is 0.089 indicating a minimal effect on team performance. However it is larger than the marginal positive effect seen for the entire data set. Additionally the constant of 1.30 is statistically significant to three stars and indicates the average points for teams in the Serie B that did not change managers. Although the past literature pertaining to the Serie B provided some mixed outcomes such as those seen in De Paola and Scoppa (2012), the positive coefficient of managerial change on team performance matches the overall trend seen in past research. However, as previously seen in the output of Table 3 the coefficient is yet again insignificant for the Serie B at all standard levels therefore we yet again lack sufficient evidence to conclude the true effect. Therefore it is imperative when making managerial choices in the Serie B that suitable candidates are found that match the team's philosophy in order to try and take advantage of the chance for positive performance increases that are not certain to come.

Column 2 provides the output for the Spanish La Liga 2 and sees the first negative coefficient for the Managerial_Change variable at -0.30. This indicates that a managerial change results in subsequent

downturn of form. This coefficient portrays the largest effect of managerial change compared to all other outputs in table 3. The constant or average points for teams that did not change their manager is 1.46 and is statistically significant to three stars. This average for teams that did not change managers is the highest amongst all constant coefficients in table 3. This provides more evidence that perhaps teams in LaLiga 2 should refrain from changing their managers. This negative coefficient for Managerial_Change goes against the average findings in the past literature that showcased that in the short run in LaLiga managerial change is accompanied with increase in team performance. This unexpected finding does on the other hand align with suggestions in Audas et al (2002) that changing managers mid season can be disruptive to teams momentum and lead to further instability. Additionally this also corroborates the claims made in De Dios Tena and Forrest (2007) stating that the effects seen in teams that did change their managers were overshadowed by those that opted instead for leadership stability. However, like previous outputs the coefficient of interest for LaLiga 2 is also insignificant hindering any true conclusions from being made.

Column 3 provides the output for the German 2. Bundesliga and provides the second negative coefficient for the Managerial_Change variable with -0.15. This indicates again that managerial change harms subsequent team performance in regards to average points attainment. The constant is 1.44 and is statistically significant at all three stars. The output for Managerial_Change goes against the findings in the past literature seen in the top flight in Germany, the Bundesliga. Here past research indicated that managerial change resulted in increased team performance. This may be explained, however, by the statements made in Hentschel et al (2012) that finds managerial changes were more effective in improving results within teams that were more homogenous in regards to play ability and background. Perhaps managerial changes that happened in 2023/2024 in the 2. Bundesliga occurred within teams with significant heterogeneity causing the changes to harm rather than help performance. Additionally like previous outputs this coefficient is also statistically insignificant.

Column 4 provides the analysis for the English Championship and provides the largest positive coefficient for the Managerial_Change at 0.26. Additionally it has the lowest average points for teams that did not change managers at 1.28 which is significant at three stars. This provides additional evidence of the benefit of changing managers in the Championship. Therefore, team owners in struggling positions in the Championship should potentially consider changing their manager to boost performance. This comes as a surprise considering past literature on the English Premier League generally pointed to managerial change having a negative effect on team performance due to the instability that generally follows. These surprising results may be explained by the findings in Bell et al (2013) that illustrated that a significant portion of managerial success in the Premier League was attributed to luck. It is therefore possible that

teams in the Championship that changed their managers and did better than expected were experiencing higher levels of luck. Furthermore the Championship is one of the most competitive second divisions in the world including 24 teams instead of the standard 20 who are all competing for only 3 promotion spots to the Premier League. It is possible that due to this increased competitiveness and intensity managers are able to have a more immediate positive effect. Additionally column 4 provides the first statistically significant coefficient for Managerial_Change at the 0.1 level allowing for more relevant conclusions to be made regarding its findings.

Finally column 5 provides the output for the French Ligue 2 providing a coefficient of 0.13 for Managerial_Change. The average of teams that did not change management is 1.32 and is statistically significant at all three stars. The past findings for Ligue 1 provided significant fluctuation in the findings as seen in Arrondel et al (2022). This potentially explains why as with most of the previous outputs the Managerial_Change coefficient for Ligue 2 is not statistically significant. Llorca and Scelles (2016) builds on this extreme variation in the findings claiming that the performance of new managers is heavily based on the circumstance of the change and that no concrete positive or negative effect can often be made. The varying sign and magnitude of the coefficients in table 3 across the five leagues corroborates hypothesis 2. The contrasting environments and complex effects of managerial change in the different leagues likely played an important role in the large fluctuation in coefficients for Managerial_Change.

Robustness Checks

Average points per game is likely the most significant measure of performance given that it determines the final positioning of teams at the end of the season. However, there are several other ways to measure performance in football. Running the same TWFE DiD on different dependent variables helps determine if the effect of managerial change is constant within each league across multiple performance metrics. To test the robustness of our findings on the impact of managerial change on team performance, additional regressions are run on goals scored and goals conceded.

Table 4 below provides the output for the same five leagues of interest but now examining the effect of managerial change on the number of goals scored per match block. Column 1 provides the output for the Italian Serie B where the coefficient for Managerial_Change is given as 2.87 the largest of all columns in table 4, however, it is not statistically significant. The coefficient for the constant is 12.37 and is significant to three stars. The constant in this table indicates the average number of goals scored per match block for teams that did not change their manager. This positive coefficient indicates that after a managerial change occurs teams on average score 2.87 more goals in a match block. This positive

performance outcome matches that found in table 3 for the Serie B where managerial change resulted in a marginal increase in average points per game of 0.089.

Table 4

Two-way fixed effects DiD Regression on Goals Scored for Each Individual League of Interest

	Goals Scored				
	Serie B	La Liga 2	2. Bundesliga	Championship	Ligue 2
	(1)	(2)	(3)	(4)	(5)
Managerial_Change	2.87	1.98	0.54	0.22	-2.83**
	(1.76)	(2.73)	(1.18)	(1.06)	(1.14)
Constant	12.37***	13.54***	13.54***	13.90***	14.66***
	(0.77)	(0.65)	(0.43)	(0.28)	(0.32)
Observations	140	126	216	176	140

Note: * Indicates p<0.10, ** p<0.05, *** p<0.01 and no * means the value is not significant. The numbers inside the brackets are the standard errors of the estimators. The Managerial_Change coefficient is expressed in goals scored per match block of each respective league of interest.

The Championship is the only other league where the output in table 4 is consistent with the performance effect of managerial change seen in table 3. The coefficient of 0.22 is the smallest seen in table 3 and is also statistically insignificant while the constant is 13.90 and is significant to all three stars. Although the sign of the Managerial_Change coefficient matches that seen in table 3 of 0.26 it has now become statistically insignificant while also portraying a minimal positive effect.

La Liga 2, the 2. Bundesliga, and Ligue 2 all have contrasting signs in table 4 to those seen in table 3. This indicates potential limitations in robustness as the effect of managerial change on different performance metrics are contrasting within the specific leagues. Ligue 2 provides the only negative coefficient in Table 4 at -2.83 as well as the only statistically significant coefficient for Managerial_Change with two stars. Additionally the constant is 14.66 which is significant to all three stars.

Table 5

Two-way fixed effects DiD Regression on Goals Conceded for Each Individual League of Interest

	Goals Conceded				
	Serie B	La Liga 2	2. Bundesliga	Championship	Ligue 2
	(1)	(2)	(3)	(4)	(5)
Managerial_Change	-0.59	0.88	0.31	-1.54**	-0.10
	(0.79)	(0.69)	(0.67)	(0.64)	(0.59)
Constant	7.10***	7.31***	6.74***	6.31***	6.70***
	(0.35)	(0.17)	(0.24)	(0.17)	(0.16)
Observations	140	126	216	176	140

Note: * Indicates p<0.10, ** p<0.05, *** p<0.01 and no * means the value is not significant. The numbers inside the brackets are the standard errors of the estimators. Managerial_Change coefficient is expressed in goals conceded per match block.

Table 5 illustrates the output of the next performance metric of interest, goals conceded. In this table a positive coefficient of Managerial_Change indicates a negative performance outcome as it refers to more goals conceded. Therefore in order for the output in table 5 to be considered consistent with the performance effect of managerial change seen on average points the coefficients must be the opposite sign of those in table 3. When this comparison is done the output for every league in regards to goals conceded is consistent with the performance effects seen in table 3.

Serie B in column 1 has a coefficient of -0.59 which implies when a managerial change occurs teams in the Serie B on average conceded 0.59 less goals per match block. Although the coefficient is statistically insignificant this would imply a performance increase after a managerial change, matching the findings in table 3. This is due to managerial change having a marginal 0.089 boost on average points per game in the Serie B. La Liga 2 has a coefficient of 0.88 which is not statistically significant and a constant of 7.31 which is significant to three stars. This negative performance outcome matches that in table 3 where managerial change had a -0.30 effect on average points per game in La Liga 2. The Championship in column 4 provides the largest effect on goals conceded with -1.54 while also being the only statistically significant outcome to two stars. The positive 0.26 performance outcome of managerial

change on average points per game in the Championship matches the positive reduction in goals conceded in table 5.

Although the consistency in performance outcomes between table 5 and table 3 provides some evidence of robust findings, due to the general lack of statistically significant outcomes in both tables the findings can not be considered robust. Additionally the inconsistent performance outcomes in table 4 for La Liga 2, the 2. Bundesliga, and Ligue 2 add to the potential lack of robustness in the results.

Limitations

Although this paper provides interesting and valuable insights on average points per game, goals scored, and goals conceded following managerial changes it does come with several limitations. The first of which being the scope of the data utilized in this paper. The findings face external validity threats as analysis was limited to only the 2023/2024 season. This means that any long term trends or accompanying variations impacting managerial change over different periods are not captured. It is possible that the managerial effects in the 2023/2024 season were anomalies or that any form of outside influences could have affected the findings in any particular league or for the data set as whole. Furthermore focusing solely on a single season limits the effects of managerial to only take place within the one season. It is likely that managerial change effects take longer than one season to take effect. Utilizing one season provides a snapshot into the potential outcomes of managerial change but perhaps does not provide the complete picture. Additionally due to only one season being used this also limits the sample size utilized within the analysis resulting in less reliable estimates. This issue can be addressed by incorporating additional past seasons for the current number of leagues or alternatively adding more leagues of interest to the data set. A larger sample size comes with many benefits including increased statistical power as with larger sample sizes it increases the ability to detect true effects if one exists. Additionally it increases generalizability helping address the external validity issues.

A further limitation of this paper is that the pre and post managerial change periods are based on match blocks rather than individual match day data. This means that the immediate effects of a managerial change are possibly not being considered in the data as the change is only recorded in minimum blocks of 5. It is possible that the exact timing and context of the managerial change are significant for performance which are not currently being evaluated. Although one could still analyze the dynamics of the effect across these match blocks, this granularity might cover important short-term fluctuations immediately following a managerial change

Unobserved factors are another potential limitation to this paper as it is very likely that there are variables not included in this analyses that are impacting team performance. For example team morale

that can affect how teams play while also being a potential trigger to change managers if prior leadership was unable to remedy the situation. Additionally financial strength can affect how well your team performs while also determining if a team goes through with changing managers which is generally an expensive decision. These are just some of the potential factors that may be influencing the teams performance that are not accounted for in this paper. These unobserved factors can inflate or deflate the coefficient magnitudes making the effects of managerial change on performance deceptive in the outputs shown in the paper.

Another limitation is the differing influence within the teams that certain managers have compared to others. Depending on the club or the manager's experience and skills it is likely that certain managers are given more freedom and power over certain actions in the club compared to their counterparts across the leagues. This means that certain managerial changes allow for more opportunity to implement their own ideologies compared to others allowing for more significant effects on the teams performance.

Future Research

In regards to potential future research on the topic one possible extension would be addressing some of the previously discussed limitations to bolster the reliability of the findings. Incorporating multiple seasons per league would provide significant insights into the long term effects of managerial change and help identify any general trends over time. This would provide a more robust understanding of the effects and increase statistical power. Additionally, incorporating detailed information on the exact timing of managerial changes and utilizing matchday-level data would provide a more granular data set. This approach would enable the analysis of both immediate and long-term impacts of managerial changes, offering a more nuanced view of their effectiveness.

Furthermore, including qualitative data on managerial styles as well as team dynamics and managerial experience would add another interesting layer to the analyses. This would provide additional understanding on how the types of managers hired affect performance and to understand what sorts of managers should be sought out by specific clubs in order to best address their needs.

Another potentially interesting extension to this paper would be to analyze the effects of managerial change across different levels of competition. An example would be to collect data going down all the different tiers of for example the English Football pyramid. This would provide a new perspective on the effects of managerial change going down the different tiers. This paper began with this expansion by looking at all the second divisions but a comprehensive data set of all competitive levels of a certain league would provide novel understanding to the performance effects of this sort of change.

Although collecting broad sets of data across leagues and clubs provides valuable analysis another interesting extension would be to conduct an in-depth case study of specific teams that experienced significant performance changes both positive and negative following managerial shifts. Therefore the case study could highlight in detail the context and resources made available to each manager and determine what characteristics proved the most significant in regards to either upturns or downturns in form.

Conclusion

This study aims to evaluate the impact of mid-season managerial changes on team performance throughout the 2023/2024 season across all the second divisions of the top five European football leagues. This evaluation was conducted through a two-way fixed effects DiD model in order to determine if these changes in football leadership significantly affected teams average points per match.

The overall results indicated that managerial change did not have a statistically significant impact on average points per match. The only league with statistically significant output is in the English Championship where managerial change had a significant effect at the 10% level on average points attainment of 0.263. Therefore clubs in the Championship were generally able to turn around team performance by changing coaches in the 2023/2024 season. If suitable options are available for teams struggling to find form, hiring a new manager in the middle of the season according to the findings in Table 3 will improve their average points collection in subsequent match blocks by 0.263. Although it must be considered that the magnitude of the effect at 0.263 may not be considerable enough for the team to incur the additional costs and logistical burden that comes with changing managers. In order to help determine if this coefficient indicates a large enough outcome the average effect at the season level can be analyzed. As most managerial changes occur in match block 11-15 this averages to around the 13th match day. Therefore the average effect at the season level given the coefficient of 0.263 with on average 33 games remaining in the season after the change is 8.68 points per season. Given that the average points scored for all teams in the Championship for the 2023/2024 season was 63.63, this represents a 13.64% average increase in points scored in a season. This may not seem like much for a whole season but in the Championship the top 3 finishers were separated by seven points and the team in 22nd or the first relegation spot finished only nine points behind the team all the way in 13th. The fine margins in football, especially the Championship illustrates that this 0.263 average points per game difference after a managerial change is a large effect. However, as seen in all previous literature discussed, hiring a new manager and the results that follow is a complex and nuanced process that requires the team being able to find someone that suits the team's philosophies. Additionally several outside factors can hinder the

performance of new managers. This means that teams in an effort to improve form cannot simply remove their current manager and hire the first available one they find in the Championship and expect results to suddenly change.

Although the Championship provided the only statistically significant finding, the remaining outputs still provide interesting evidence. When analyzing the dataset as a whole, rather than each league individually, Table 2 illustrates that managerial change has a marginal positive effect on average points per game. This corroborates hypothesis 1 and indicates that despite the mixed performance outcomes between the leagues, overall clubs were able to slightly boost performance when changing managers. The Serie B and Ligue 2 experience some of this boost in average points after a managerial change with 0.089 and 0.13 respectively. These values translate to 2.23 and 3.25 respectively in regards to average points difference at the season level after a managerial change. These values provide valuable evidence at how teams generally were able to rectify poor form in the Serie B and Ligue 2 after changing managers. Although these values are lower than those seen in the Championship at the end of the season every point counts in football. Two or three points can be the difference between promotion or relegation in some seasons which holds significant financial and competitive implications. La Liga 2 and the 2. Bundesliga both provided negative effects of managerial change on average points per game at -0.30 and -0.15 respectively. This corresponds to -8.7 and -3.15 respectively in terms of average season points difference after a managerial change. These values again represent significant drops in form and can have a meaningful impact for teams and their season if and when they change their managers. The coefficient for La Liga 2 is the largest effect seen in Table 3 and indicates that clubs that changed their manager struggled to adjust in this league. Interestingly La Liga 2 also had the largest constant at 1.46 indicating that teams that refrained from making managerial changes performed the best compared to the other four leagues. The contradictory size and sign across the five leagues supports hypothesis 2 that results would vary between the leagues.

In order to evaluate the robustness of these findings, additional analysis was conducted on other football team performance measures including goals scored and goals conceded. The goals conceded analysis matched the performance outcomes that were seen in average points after a managerial change occurred for all five leagues of interest. Goals scored, however, was only consistent for the Serie B and the Championship that experienced positive outcomes in both average points per game and goals scored per match block after a managerial change. Although there is some potential evidence of robust findings as a result of these alternative measures, due to most coefficients being statistically insignificant the effect of managerial change on goals scored and goals conceded seems to be small or non-existent. Therefore the findings can also not be considered robust as a result of outputs of the robustness checks.

This paper provides valuable insights into the impact of managerial changes on average points per game, goals scored, and goals conceded, but it is important to acknowledge several limitations. As the analysis is limited to only the 2023/2024 season, this affects the studies external validity and does not allow long-term trends or variations to be captured. Additionally, the single-season focus results in a smaller sample size, reducing the reliability of the estimates. Furthermore, using match blocks instead of individual matchday data may overlook immediate effects of managerial changes while unobserved factors like team morale and financial strength might influence the findings.

For future research, addressing these limitations would enhance the reliability of findings. Incorporating data from multiple seasons and utilizing matchday-level data may provide a more comprehensive and granular analysis. Moreover, including qualitative data on managerial styles, team dynamics, and experience could offer deeper insights into the types of managers that best suit improving team performance. Furthermore, expanding the analysis of the effects of managerial changes across different levels of competition, such as the entire English Football pyramid, would provide a broader perspective. In addition, conducting in-depth case studies of specific teams with significant performance changes following managerial shifts could highlight critical factors influencing these outcomes.

Despite the interesting findings on the effects of managerial change on team performance metrics due to the overall conflicted findings and the general lack of significance seen across the models it can be concluded that managerial change within these second divisions teams in this context does not have a significant effect on performance.

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