



Master thesis Strategy Economics

Empty grandstands, empty pockets:

What is the effect of the Covid-19 pandemic on professional football club debt?

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Date: 11-08-2022

Abstract

Since the first ball was kicked, football has changed from a simple game to the largest sport in the world. The industry has grown to one in which talking in millions is considered very normal. This research uses fixed effects models to find out what the effect is of the Covid-19 pandemic on the debt of professional football clubs. Furthermore, the Gini coefficient is used to find out how equal the debt is distributed. A significant decrease in both matchday and commercial revenue is found, which is believed to be the main cause of an increase in debt, for which also a significant result is found. Furthermore larger clubs are found to have a larger share in this debt increase. Nonetheless, the aid of the government as well as solidarity of other parties means that, for now, no clubs are hit by major financial problems.

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Acknowledgements

I would like to thank Thomas Peeters for his guidance and feedback during the process of writing this thesis. Second, I would like to thank Jan van Ours for taking the time to be the second assessor of this thesis. Finally, I would like to thank my family for supporting me throughout my time at the Erasmus University.

1. Introduction

Association Football, more commonly known as just football (or soccer in the United States) is the most popular sport worldwide (Giulianotti, 2012). Not only in terms of active players, but also in terms of viewership. Over time the sport has become more and more money driven. The 1980's saw sponsors claiming their spot on the kits of professional football teams and together with the rise of live television this led to the industry becoming one in which million dollar contracts are seen as nothing out of the ordinary. Usually the clubs with the most money perform the best (Rohde & Breuer, 2016). Although this money can come from various sources, club revenue depends quite heavily on the viewership numbers, by means of TV-income, matchday ticket sales, or both. Matchday ticket sales are affected by club-specific factors, such as stadium capacity and a club's performances and socioeconomic factors, such as the unemployment rate and other forms of recreation (van Ours, 2021). Therefore the Covid-19 pandemic and the subsequent lockdowns are expected to have had a major impact on the financial situation of professional football clubs. During the first period of lockdowns in the first half of 2020, some leagues decided to cancel the games in the remaining part of the 2019-2020 season. Which means clubs were potentially left out of both TV and matchday income. Later periods of Covid restrictions meant more games without or with a fewer amount of fans allowed to visit games. Although, as of yet, no club in the top European football leagues has gone bankrupt as a result of this, these losses in income will likely have had an effect on the debts of these clubs and potential insolvency issues and bankruptcies in the future. Therefore the aim is to answer the following research question:

What is the effect of the Covid-19 pandemic on professional football club debt?

Statements made by football clubs themselves over the past two years have led to the expectation that they will likely struggle (more) financially because of the pandemic as a result of an increase in debt. The idea behind this is fairly simple: When determining their budget for the 2019-2020 season, clubs did not expect the pandemic, therefore income was lower than expected which would have led to potential financial losses. Budgets for the 2020-2021 season were likely made without the second period of lockdowns in mind. Thus, the first point of interest in answering this research question is to see how the pandemic affected the revenue of clubs, as it is expected that a decrease in revenue is the main driver for the potential increase in debt. Finally, it might be interesting to see how the debt distribution changed because of the revenue loss due to the pandemic and compare the two situations.

The relevance of this subject mostly lies in three main factors. Two of those factors are related. The first of which is the novelty of the covid-19 pandemic or pandemics affecting sports on a global scale in general. This has not happened in the past and is thus useful to look at for better understanding of the

current situation and to gain knowledge for potential similar situations in the future. The second point of relevance is that this was an unexpected shock that heavily affected the industry on a global scale. In some cases, this was the first time since the second world war that a season was cancelled. Although unexpected shocks like these are very rare, football clubs might want to learn from it to be better prepared if or when a new one occurs. The third and most important reason is the importance of professional football on society and the economy. PricewaterhouseCoopers (PwC) (2021) reported that almost half of the Dutch population is involved in professional football in a way. This ranges from sometimes watching a game on TV to the people who go to the stadium every week. On average, these people spend 26% of their free time on activities related to professional football and 65 percent argues professional football has a positive contribution on their social life. In terms of economics, the direct contribution of professional football on Dutch GDP is more than 2 billion euro, which was 60 percent higher than just six years earlier. In total, there are more than 12000 business and (social) organisations which are directly or indirectly involved in Dutch professional football. Thus, financial problems at the top cloud hurt all those mentioned in the PwC report.

This paper will be structured as follows. It starts with a theoretical framework in which the structures of the leagues of countries mentioned in this paper will briefly be discussed. After that, previous literature on the subjects of football and the impact of the pandemic will be discussed. This is followed by a short overview of the different types of costs and revenues of football clubs. Then, the hypotheses will be stated and briefly discussed. The next section is the data section. Here, the data and its sources are as well as the setting of the research are described. Some numbers are provided to give an idea how it can differ between different countries. The data section is followed by the methodology section, in which it is shown how the research question and hypothesis will be tested. In the next section, the results and analysis, the results of these tests are provided and discussed. Finally, the paper ends with a conclusion of the results. In this final section it is also discussed what some limitations of this research are. Moreover, suggestions for future research are provided.

2. Theoretical Framework

2.1. League Structures

In this paper multiple professional football leagues will be discussed. Although the empirical focus will be on the Dutch two top tiers, other leagues will be mentioned and/or discussed. To make clear which league name corresponds to which tier and which country, an overview of the leagues in all countries that are mentioned in this paper is given in this section. England has four professional football leagues, in which also some Welsh clubs are present. The highest tier is the English Premier League (EPL), followed by the second tier, the EFL Championship and then the EFL League 1 and EFL League 2. Scottish football has a very similar system with four leagues: The Scottish Professional Football League (SPFL) Premiership, SPFL Championship, SPFL League 1 and SPFL League 2. German professional football consists of three leagues: The 1. (or first) Bundesliga, the 2. (second) Bundesliga and the 3. (third) Liga. The Italian systems also consists of three leagues, but the third tier, the Serie C, is made up of three regional divisions. The first and second tier are nationwide and are called the Serie A and Serie B respectively. The Netherlands and Belgium only have two tiers of professional football with the names of the leagues being commonly known as Eredivisie and Eerste Divisie (Netherlands) and Pro League and Eerste Klasse B (Belgium).

Table 1. Overview of European football leagues.

Country	Tier 1	Tier 2	Tier 3	Tier 4
England	English Premier League	EFL Championship	EFL League 1	EFL League 2
Germany	1. Bundesliga	2. Bundesliga	3. Liga	-
Italy	Serie A	Serie B	Serie C	-
Scotland	SPFL Premiership	SPFL Championship	SPFL League 1	SPFL League 2
Netherlands	Eredivisie	Eerste Divisie	-	-
Belgium	Pro League	Eerste Klasse B	-	-

2.2. Literature Review

The broader topic of football in general and football (club) finance has been covered quite extensively in current literature, especially in the last two decades. This research ranges from the transfer market (Ruijg & van Ophem 2015; Carmichael & Thomas 1993) and the effect of the of the Bosman ruling on it (Simmons, 1997) to club performance (Samagaio, Couto & Caiado, 2009) and Financial Fair Play (FFP) regulation (Peeters & Szymanski, 2014). Work by Dobson & Goddard (2001) includes almost all aspects of economics in football, including historic developments. Although it was written over 20 years ago, a lot of the theory still applies today. They explain the base for success of football clubs, arguing that financial and sporting success go hand in hand and that success in one area, often leads to success in the other and vice versa. Furthermore, they explain that fans are attracted to uncertainty in the outcome of both games and the overall winner of the competition, which is still the case to this day (van Ours, 2021).

Nonetheless, there are still subjects related to the topic that can be expanded upon. Kennedy & Kennedy (2012) mention that spiralling debts and bankruptcy threats are, among other problems, a reality for many clubs, but they are not apparent. Furthermore, they mention that 32 percent of top division clubs in Europe have debts that are higher than their assets. Szymanski (2017) argues that this is because of the hypercompetitive environment these clubs operate in. This means clubs are rarely profitable and are close to insolvency more often than not. A decrease in spending is often related to a decrease in performance, which in turn lead to a further decrease in income, which means costs need to be lower again etcetera, as was explained by Dobson & Goddard (2001). This means clubs need to spend certain amounts to remain competitive. To counteract this financial instability, the European football's government body UEFA introduced Financial Fair Play (FFP). Part of these FFP rules was the introduction of a break-even rule, meaning that a club is not allowed to spent more than it earns (to a certain degree). Furthermore, rules to reduce insolvencies were introduced. However, it has not been clear that these rules have had a positive impact in actually reducing the number of insolvency cases (Peeters & Szymanski, 2014). Plumley, Serbera & Wilson (2020) find that despite the FFP rules, financial health of English football clubs is still poor, especially of those in the English Championship, the second tier. They suggest a redistribution of broadcasting revenue between the four professional English football leagues. In reality this means that a larger percentage of broadcasting revenue from the English Premier League would be redistributed to the lower leagues. Since this wouldn't necessarily reduce the financial problems of Championship clubs because they could just spend more as a result of the increased revenue, Plumley et al. (2020) suggest a fixed salary cap at an actual value rather than as a percentage of turnover. Thirdly, they suggest UEFA to revise the FFP regulations as they argue the current regulations are not sufficient to prevent poor financial health in English football. Despite their poor financial health, clubs rarely cease to exists. Of all teams in professional English football in 1923,

97% still existed in 2012 (Kuper & Szymanski, 2018). Moreover, they state that most clubs that become insolvent or go into administration play in the lower tiers of the football pyramid or do so because of a relegation, which leads to a sudden decrease in revenue. The fact that clubs rarely cease to exist differs between countries though. In Italy for example, five of the twenty clubs playing in the 2021-2022 Serie A, the Italian top-flight, have gone bankrupt and subsequently been re-founded since the turn of the millennium. Although these clubs still exist, they are not the same entities as the previous clubs but, because they have the fanbase of the original club, they are often seen as the same club. Since these clubs have 'risen from the ashes', they are referred to as 'phoenix clubs'. Then there are also clubs that are a 'spiritual successor' of another club. A good example of this is the English club AFC Wimbledon. In the early 2000's, Wimbledon FC was relocated to Milton Keynes and subsequently renamed MK (Milton Keynes) Dons. Angry Wimbledon fans then founded AFC Wimbledon as the successor of the original Wimbledon FC. So, although MK Dons was the same entity as Wimbledon FC, AFC Wimbledon is seen as the successor of Wimbledon FC, mostly because AFC is supported by a large part of the original fanbase. As mentioned previously, Kuper & Szymanski (2018) stated that most clubs that go into administration play in the lower leagues. This does not mean that no large clubs have gone or will go bankrupt. Georgievski & Zeger (2016) write about a potential financial crisis in English football, because of deteriorating profits despite increasing revenues. They look at the effects of the bankruptcy of Glasgow Rangers, one of the largest Scottish football clubs, in 2012 on the Scottish Football League to see what effects a bankruptcy of a large club could have in English football. They argue that no English club has as much of an impact on the league than Rangers had on the Scottish league. In the Rangers' case the club contributed to 35% of the league's revenue which is equal to the contribution of three large English Premier League (EPL) clubs. The bankruptcy of Glasgow Rangers did show that no club is 'too big to fail', which is supported by the findings of Plumley et al. (2020). In contrast to this belief Franck & Lang (2014) argue a 'too big to fail' phenomenon does exist because it would always be beneficial to bail such a club out if its market size is large enough. Their paper is about 'sugar daddies' in football and their effect on risk taking in football clubs. They find that when a sugar daddy is present at a club the investment strategy becomes riskier. Furthermore, they find that the more a sugar daddy commits to the football club the riskier the investment strategy becomes.

That financial struggles remain part of the world of football became clear during the Covid-19 pandemic, as besides the abovementioned literature, there is also research available that directly looks at the impact of the pandemic on the football industry. For example, Bond, Cockayne, Ludvigsen, Maguire, Parnell, Plumley, Widdop & Wilson (2020) looked at the financial impact of the lack matchday ticket sales on English football clubs with the aim of convincing the government to let fans attend matches again in the winter of 2020/2021. They argue that, especially for smaller clubs and clubs in lower leagues, insolvency becomes a realistic threat if fans were not allowed to return, which is in line with research by Szymanski (2017) that small clubs are found to be more vulnerable to negative financial shocks than large clubs.

Since the paper of Bond et al. (2020), two English football clubs went into administration, one of which was eventually expelled from the professional football system. However, for both of them the lack of fans was not mentioned as a reason for the financial problems.

Other research on the effects of the pandemic on football such as that of Mohr, Nassis, Brito, Randers, Castagna, Parnell & Krusturp (2020), looked at what the challenges to resume/finish the postponed competitions were. Most of this was related to physical aspects but what is interesting is that, because of this, the substitution rules were loosened to reduce potential injuries and those rules still apply to this day in most leagues. The ability to use more players might have had a positive effect on the transfer revenue of clubs, since more players were able to show their abilities and potentially less players are injured. In the end most leagues were continued, but without spectators. This opened up a unique opportunity to research the effect of home-spectators on football matches, which is exactly what Wunderlich, Weigelt, Rein & Memmert (2021) did. They found that the lack of home-crowds did not directly affect the matches in the sense that no significant decrease in home advantage was found as a result of a lack of spectators. This finding shows that clubs which generally performed better at home did not have an unfair disadvantage because of the lack of spectators during the pandemic. The absence of spectators did have a small indirect effect on the matches since it affected decision making of referees, who were less biased towards the home team. Bryson, Dolton, Reade, Schreyer & Singleton (2021) also researched this topic. The results they find are similar. No direct effect on the lack of supporters on the final score line is found, but referee decisions in terms of cards are affected significantly. On the other hand, a third research on the topic by McCarrick, Bilalic, Neave & Wolfson (2021) did find a significant reduction in home advantage due to a lack of crowds, mainly due to a reduction in the creation of scoring opportunities, which they argue is because of a lack of support from the stands. Regarding referee decisions, the findings are in line with the findings of Bryson et al. (2021) and Wunderlich et al. (2021).

Hammerschmidt, Durst, Kraus, & Puumalainen (2021) look at the responses of professional football clubs to the pandemic. They find that the pandemic could result in 'existence-threatening' liquidity problems as football clubs tend to operate on only a small profit margin, meaning the lack of income in some areas, for example matchday ticket sales, could quickly result in financial difficulties. Furthermore, they find that professional football clubs rarely have a structure in place to deal with crises. They suggest clubs to be partly owned by sponsors or organisations that operate in economies that are countercyclical to the sports economy. In that case, when crisis occur that financially hurt football clubs, these major stakeholders have more money which can partly be invested in the football clubs. Another suggestion they give is for clubs to enhance the loyalty of sponsors, so that they are less inclined to leave or can financially support clubs during difficult periods. Long-term sponsor Philips renewed its partnership with Dutch side PSV Eindhoven during the pandemic, which was, perhaps unsurprisingly, well received by the latter. Since PSV was originally founded as the sports club of Philips, it is no

surprise that the latter remains loyal. Still, it shows that having a loyal sponsor could pay off during difficult times.

Looking at English clubs, literature on their costs and revenues brings interesting facts to light. Maguire (2021) shows that in the EPL broadcasting revenues can be up to almost 90 percent of total revenue for some clubs. Furthermore, they show that the wage costs in the premier league are relatively low at 59 percent of a club's revenue on average, whereas in the English Championship, the second tier, wages are higher on average than the revenue of clubs. This would be problematic anyway as this means clubs operate at a loss which is in line with the idea of Szymanski (2017) that clubs are rarely profitable because of the hypercompetitive environment they are in. Evans, Walters & Hamil (2021) found that, although running at a loss is deemed irrational, it is found to be the most effective way to be successful and gain promotion to the EPL, a much more attractive competition in both a financial as well as a sporting aspect. Cox (2012) found that the different sources of revenue of football clubs can be related to each other. More specifically, watching on TV is found to be a substitute to attending the match in person, meaning there is a small negative relationship between matchday revenue and broadcasting revenue. This effect is larger for clubs which perform worse. This is no surprise, since supporters would like to see their team winning and if the chances of this are low, they might opt to watch the game at much lower costs at home. In the past, some clubs would only broadcast their matches when the stadium sold out to try to maximise profit. Nowadays, contracts with broadcasters makes this kind of strategy impossible. Horky (2021) takes a different approach by arguing that the continuation of the German Bundesliga showed that professional football is played for the media rather than for real spectators and that matchday ticket sales only account for a small amount of club revenue. The idea behind their reasoning is that, where football was once played for people inside the stadium, it is now played mostly for people watching television, because that is where most revenue comes from. What Horky (2021) fails to mention is that this strongly depends on the league. Although the second tier of German football attracts more spectators than the EPL, the revenue from this source is much lower as ticket prices are much lower in Germany (Nufer & Fischer, 2013).

2.3. Football club revenues and costs

As mentioned previously, football club revenue comes from various sources. Like in the rest of this paper, the focus will be on professional football clubs rather than amateur football clubs, which have different sources of income. Both Maguire (2021) as well as Dima (2015) state that football clubs have three main revenue sources which account for 95 percent of annual income, excluding transfer income. These are matchday revenue, broadcasting or media revenue and commercial revenue. Matchday revenue is mostly made up of matchday ticket sales. Broadcasting or media revenue is made up of

broadcasting revenues from various competitions, such as the national championship, the national cup and international tournaments like the UEFA Champions League. The last of the three revenue sources mentioned by Maguire (2021), commercial revenue, mostly consists of sponsorship deals like shirt sponsorship or stadium naming rights and selling merchandise. More information on these revenues and what their share is in total revenue is discussed in section 3.1.

The costs of professional football clubs consist of three main types: Operating costs, wage costs and transfer costs. The first two of these are inevitable, especially in the short run. In the long run clubs are able to reduce these costs, but not to avoid them completely. Transfer costs can be completely avoided in both the short and long run. Even though contracting new players often means a transfer fee needs to be paid, a club could always opt to only sign players that are transfer free (not under contract at a club). Furthermore, operating and wage costs are continuous over a season whereas the transfer costs only occurs during the transfer window.

2.4. Hypotheses

First, the covid-19 pandemic is expected to have affected some types of revenue more, or in a different way, than others. The lack of spectators at most matches played during the pandemic as described by Wunderlich et al. (2021), Bryson et al. (2021), McCarrick et al. (2021) and Hammerschmidt et al. (2021) resulted in a decrease in matchday ticket sales. Thus, it is expected to see a decrease in matchday revenue. The effect of the pandemic on commercial revenue is less clear. However, it is expected that the lack of spectators in stadiums and the lockdown periods could have reduced merchandise sales. Furthermore, although some sponsors, like Philips, announced a new deal during the pandemic, it is more likely to have negatively affected commercial revenue, if at all. Regarding broadcasting revenue, clubs in the Netherlands did not complete the 2019-2020 season, thereby not fulfilling the contractual obligations to the broadcaster. Therefore, it is expected that clubs in the two professional Dutch leagues saw a decrease in broadcasting revenue over that season. The next season was played in its entirety, thus a reduction in broadcasting revenue is only expected in the 2019-2020 season. Lastly, transfer revenue is expected to have decreased as it is expected that clubs were less eager to buy players because of the aforementioned revenue decreases and the unpredictable situation the clubs were in. This reduced demand which would result in lower transfer fees and thus revenue.

Hypothesis 1: *Revenue is negatively affected by the Covid-19 pandemic.*

Hypothesis 1.1: *Matchday revenue decreased, on average, as a result of the Covid-19 pandemic.*

Hypothesis 1.2: *Commercial revenue decreased, on average, as a result the Covid-19 pandemic.*

Hypothesis 1.3: *Broadcasting revenue is only affected by the covid-19 pandemic in the 2019-2020 season, when not all matches were played.*

Hypothesis 1.4: *Transfer revenue decreased, as a result of the Covid-19 pandemic.*

As was made clear by Hammerschmidt et al. (2021) and Bond et al. (2020), and was hypothesised above, the corona crisis may have resulted in a revenue decrease for football clubs. Since most expenses, such as salaries, travel costs and maintenance costs remain at a similar level to that of before the pandemic because they are necessary or contractually bounded, it is expected that, on average, the debt of professional football clubs has increased.

Hypothesis 2: *The Covid-19 pandemic caused an increase in professional football club debt.*

The clubs most dependent on broadcasting revenue in the Eredivisie depend on it for 25 percent of their total revenue. But within one country, revenue distributions can be very different, because some clubs had access to prize money from European competitions or other types of income whereas other did not. This means that for the clubs with the aforementioned additional revenues, matchday revenue, which is expected to have been heavily reduced over the two covid affected seasons, might be relatively less important. Thus, the expectation is that the debt increased as was expected in hypothesis 2, is not equally distributed between clubs.

Hypothesis 3: *The debt increase is not equally distributed between clubs*

3. Data and Setting

3.1. Description of data

The data of this proposed research comes from the Erasmus Centre for Applied Sports Economics (ECASE) and consists of financial data of clubs from various European football leagues from the past 20 years. This data is retrieved from financial reports published by football clubs themselves. The data consists of general information of the clubs as well as data on revenue and costs. The original dataset will be expanded by adding new or additional information from these financial statements directly. This includes data for the year 2021, which had not been fully completed yet, as well as the debts of professional football clubs. How detailed these numbers are (i.e. if revenue is split between different sources of revenue) differs between countries and is dependent on whether clubs report this in their financial reports. The clubs that will be focussed on in this research are those playing in the Netherlands. The primary reason for the choice for this country is the good availability of the data, as data on the 2020-2021 season is required for the analysis in this research. The period that is focussed on is 2011-2021, because 2011 is the first year that our variables of interest are widely available and 2020 and 2021 are affected by the Covid-19 pandemic. Table 2 Shows the variables used in this research and its definition. Table 3 shows the descriptive statistics of these variables. What stands out most in Table 3 are the minima for transfer income and long-term debt. A negative transfer income is only reported twice in total, both by Tilburg side Willem II, and is due to negotiation fees and depreciation. A long-term debt of 0 is reported 9 times in total, twice by Feyenoord, three times by FC Emmen and four times by VVV Venlo. In all years where these clubs did not report any long-term debt, they did have short-term debts, therefore no total debt of 0 is reported. Lastly, it should be noted that all maxima are accounted for by Ajax, although PSV sometimes has the second or third highest value attributed to them.

Table 2. Definition of the variables.

Variable	Definition
<i>comrev</i>	Commercial revenue in euros (€)
<i>matchrev</i>	Matchday revenue in euros (€)
<i>mediarev</i>	Media/Broadcasting revenue in euros (€)
<i>transinc</i>	Transfer income in euros (€)
<i>totrev</i>	Total revenue (excluding revenue from UEFA competitions) in euros (€)
<i>wage</i>	Total wage cost (incl social security and tax) in euros (€)
<i>opcost</i>	Operating cost in euros (€)
<i>stdebt</i>	Short-term (< 1 year) debt in euros (€)
<i>ltdebt</i>	Long-term (> 1 year) debt in euros (€)
<i>totaldebt</i>	Total (short-term + long term) debt in euros (€)
<i>division 2</i>	Dummy. Whether a club plays in the first (0) or second (1) division
<i>covid</i>	Dummy. 1 for the seasons 2019-2020 and 2020-2021, 0 otherwise
<i>19/20</i>	Dummy. 1 for the season 2019-2020, 0 otherwise
<i>20/21</i>	Dummy. 1 for the season 2020-2021, 0 otherwise

Table 3. Descriptive statistics.

Variable	Obs.	Mean	Std. dev.	Min	Max
<i>comrev</i>	129	10829403	12826967	607345	55572000
<i>matchrev</i>	129	7402593	10679492	230000	53173000
<i>mediarev</i>	131	3998124	4078379	287000	20704000
<i>transinc</i>	233	5853868	12065886	-366636	86067000
<i>totrev</i>	119	29798485	32604301	2592541	156563594
<i>wage</i>	273	11992191	14215359	956649	94729000
<i>opcost</i>	273	23332349	30382624	1850538	218816000
<i>stdebt</i>	231	11998753	18441065	564000	121744000
<i>ltdebt</i>	231	8231032	21203955	0	193294000
<i>totaldebt</i>	231	20229785	36188664	754000	281419000

3.2. Football club revenues and costs

In this subsection we will go a bit more in depth on the different types of revenues described in section 2.3 and the distribution of them. We make a comparison between Dutch and English leagues for a better understanding of how this can differ between different countries and leagues.

In the 2018-2019 season, the last season before the pandemic, 14 percent of total income of clubs in the English Premier League was accounted for by matchday income, on average. In the second tier of English football this percentage was higher at an average of 28 percent of total income. In the third and fourth tier this data is not available, but Maguire (2021) expects it to be somewhere between 35 and 40 percent. In the Dutch Eredivisie, this number was around 30 percent, which is closer to the English lower leagues than to the EPL. This has to do with the second source of revenue for football clubs, the broadcasting or media revenues. In the EPL, 10 clubs have a revenue that is for 75% accounted for by broadcasting revenue, with a high of 88% (Maguire, 2021). This is no surprise as the total annual value of the broadcasting deal that expired in 2022 was around three billion pounds. This was much higher than the roughly 600 million pounds per year between 2010 and 2013 (Cox 2012). In the Eredivisie, the clubs most dependent on broadcasting revenues only depended on it for 25 percent. Another good example of the sheer size of the EPL broadcasting deal can be seen in the fact that the broadcasting rights of all three English Football Leagues (EFL) are worth only 5 percent of that of the EPL. Furthermore, this money has to be split up between 138 clubs compared to only 20 clubs in the top flight.

Another important source of income for clubs is transfer revenue. This differs massively between clubs and leagues. In the Dutch Eredivisie the average transfer revenue in 2019 was 11.3 million euros. Without taking Ajax, the biggest club, into account, this number decreases to 'only' 6.9 million. In the EPL this was around 28.5 million euros. Despite the lower number, Dutch clubs are often more dependent on the transfer revenues to survive compared to clubs in the EPL. Clubs in the Eredivisie averaged a 3.8 million euro transfer profit in 2019, whereas clubs in the EPL averaged a massive 56 million euro transfer loss that year, with no club reporting a net transfer profit. Figure 1 shows the average net transfer results for the EPL and the Eredivisie from 2015 until 2019. In the EPL, a negative transfer result can be observed for every year, whereas for the Eredivisie a net profit is not unusual. The most important thing to take from this figure is that clubs in the EPL are on average net spenders, whereas this is not the case for clubs in the Eredivisie. In the Eredivisie there are also clubs who do not spend anything at all. However, these are relatively small clubs.

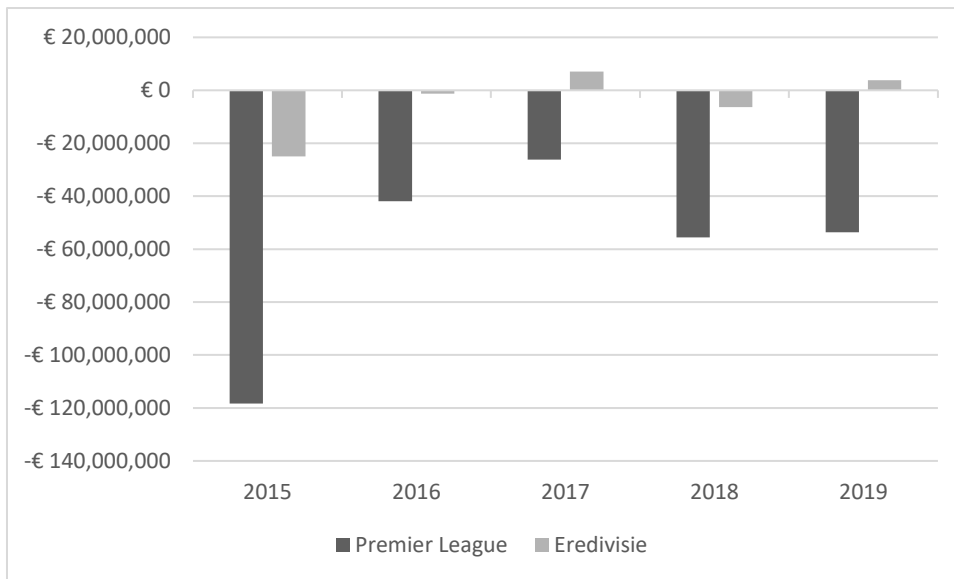


Figure 1. Average net transfer result for the EPL and the Eredivisie from 2015-2019.

3.3. Setting of the Research

In the first few months of 2020 the coronavirus reached the European continent. As a result, countries implemented new rules and restrictions to try to lower the infection rate. In this subsection the impact of these rules on professional football will be discussed.

In March 2020, most European competitions decided to suspend the league. The EPL continued mid-June that year, with matches behind closed doors. The Italian Serie A was suspended a bit earlier due to the outbreak reaching Italy earlier than the UK but the first matches after the suspension were played mid-June as well, also behind closed doors. The Belgian Pro League and the Dutch Eredivisie were terminated early, without teams relegating. In Belgium Club Brugge was awarded the title whereas the Eredivisie did not crown a champion that year. As a result of the suspension of the 2019-2020 season, the next season started later than usual. In the Netherlands, almost the entire season was played behind closed doors, with the exception of the first few rounds and a pilot on matchday 31. Because no teams relegated the previous season, the Belgian Pro League now consisted of 18 teams instead of 16, which meant the league format was slightly changed to incorporate this. The Belgian league did start in August, as usual. Because it started earlier than the other leagues mentioned, relatively more matches were played with supporters (albeit at reduced capacity), but still the majority of matches was played behind closed doors. Clubs in Italy and England also had to play almost all of their matches that year behind closed doors. Due to the introduction of vaccines, the start of the 2021-2022 season was better supporter-wise. In all four leagues, fans were allowed back in the stadium, although sometimes at reduced capacity. However, this season falls outside of the timeframe of this research.

Regarding Dutch clubs in particular, where this research is focussed on, some additional information will be provided. First of all, an agreement was made to reduce salaries of club personnel, in which the salaries of those who earn more are reduced relatively more and in which was agreed that bonuses would be reduced. It was estimated that this could save up to 35 million euros in costs. Furthermore, the Dutch government aided clubs with a total of 82 million euro's, 70 million of which was meant to pay the wages and 12 million to pay the fixed costs (Sports Economics and Research Centre, 2022). Finally, ESPN (the broadcaster of the Dutch first and second tier) decided to pay for the remaining matches of the 2019-2020 season even though they were not played.

4. Methodology

This research will be based on financial statements of football clubs and will rely on graphical illustrations, regressions and the Gini coefficient. To test the first hypothesis and the four sub-hypothesis a fixed effects regression model is used, with the fixed effects used being at club level and the division clubs play is as a control. Club fixed effects are introduced to control for unobservable club characteristics. The dependent variables here are the different types of revenues. The independent variable in all cases will be the *covid, 19/20* and *20/21* variables explained in the data section. To test the second hypothesis the same method is used. The only difference is that now the dependent variables are the different types of debt. These models will be as follows:

$$y_{it} = \beta_1 * Covid_t + \beta_2 * 19/20_t + \beta_3 * 20/21_t + \beta_4 * Division_{it} + \varepsilon_{it}$$

For the third hypothesis, the Gini coefficient is used to measure the inequality in the distribution of (the increase in) debt between clubs, as it is, based on theory, expected that some clubs suffered more from the pandemic than others. Usually, the Gini is used to measure income or wealth inequality, but in this paper it is used to measure the inequality in debt. The value of the Gini coefficient lies somewhere between 0 and 1, with 0 being a completely equal distribution and vice versa. Because the data contains information from before and during the pandemic, we can also compare the two situations and explain the potential differences, assuming that these are partly, if not mostly, due to the pandemic.

To create the figures in the analysis section, a selection of clubs was used instead of all clubs, because some clubs had incomplete data which would make the graphs inconsistent. Table 4 below shows all clubs that are used in the analysis, as well as which clubs are used to create each figure.

Table 4. Clubs used in the analysis and to create the different figures.

Club	Analysis	Figure 2	Figure 3	Figure 4-5	Figure 6
ADO Den Haag	✓		✓	✓	✓
Ajax	✓	✓	✓	✓	✓
AZ	✓	✓	✓	✓	✓
Cambuur	✓	✓	✓	✓	✓
De Graafschap	✓			✓	
FC Emmen	✓			✓	
Excelsior	✓		✓	✓	
FC Dordrecht	✓				
Feyenoord	✓	✓	✓	✓	✓
Fortuna Sittard	✓			✓	
Go Ahead Eagles	✓				✓
FC Groningen	✓	✓	✓	✓	✓
SC Heerenveen	✓			✓	✓
Heracles Almelo	✓			✓	✓
NAC Breda	✓	✓	✓	✓	✓
NEC	✓			✓	✓
PEC Zwolle	✓	✓	✓	✓	✓
PSV Eindhoven	✓	✓	✓	✓	✓
RKC Waalwijk	✓			✓	✓
Roda JC	✓		✓	✓	✓
Sparta Rotterdam	✓		✓	✓	✓
FC Twente	✓	✓		✓	✓
FC Utrecht	✓			✓	✓
Vitesse	✓			✓	✓
FC Volendam	✓			✓	✓
VVV Venlo	✓			✓	
Willem II	✓	✓		✓	✓

5. Results and Analysis

5.1. Revenues

In the first part of this section we will go over the different types of revenue to look how they were affected by the pandemic. Total revenue is discussed first. After that the individual components will be discussed one by one. Total revenue is expected to have decreased because of the pandemic. In figure 2, the development of the mean of different types of revenues is shown. Looking at the total revenue, it generally shows an upward trend. For the 2020-2021 season however, it shows a large decrease.

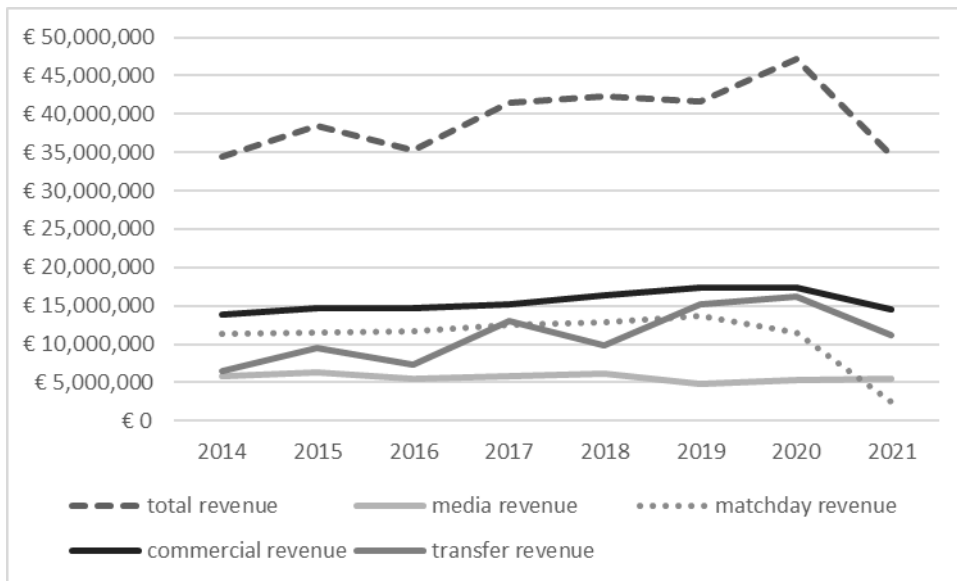


Figure 2. Development of the mean of different types of revenues for Dutch clubs over the period 2014-2021.

The matchday revenue of Dutch clubs is shown as well. This type of revenue was also expected to have decreased. It can be seen in Figure 2 that there has been a massive decrease in matchday income in 2021 because of the matches played without spectators. In 2020, when the final eight or nine matches were cancelled, a smaller decrease in matchday revenue can be observed. This unexpected revenue loss might even be a bigger problem than it looks on first glance, because there was an upward trend before 2020, meaning that clubs likely expected higher matchday revenues than the year before. In 2020, the total revenue from matchday ticket sales was only 83 percent of that in 2019. In 2021, clubs did, on average, not even earn eighteen percent of revenue from matchday ticket sales compared to what they earned in 2019.

Next, let's look at commercial revenue (i.e. from sponsorships, merchandise etc.). This was also expected to have decreased as a result of the pandemic, however not by as massive of an amount as the matchday ticket sales. The reason for this is that the majority of commercial activities could continue. As can be seen in figure 2, commercial revenue didn't change much in 2020. It then decreased a bit in 2021 but by much less than revenue from matchday income.

Third, there is the revenue from media, excluding UEFA competitions. This was expected to be negatively affected by the pandemic, but only in the 2019-2020 season. The reason for this is that in the 2020-2021 season, all matches were completed, whereas they were not in 2019-2020, as discussed previously. Interestingly, the media revenue seems unaffected. The biggest drop occurred in 2019. Part of this can be explained by the relegation of FC Twente following a troubling 2017-2018 campaign. The years prior to the relegation, FC Twente earned a high share of TV revenue due to good performances.

Finally, transfer revenue was expected to decrease as a result of the Covid-19 pandemic. Figure 2 above shows the development of transfer revenue. Although the pandemic started in early 2020, the revenues for the 2019-2020 season were not affected because the final transfer period of that season was finished before the pandemic hit Europe. Therefore, we only expect to see a drop in revenues for 2021, which is clearly visible. Transfer revenues decreased by just under 35 percent from 2020 to 2021. The low number that can be observed for 2016 is mainly due to an particularly low transfer revenue for Ajax that year, which is the main contributor to the total transfer revenue and therefore the average transfer revenue.

To test the abovementioned statistically and to take into account relegations such as that of FC Twente a regression is performed. The regression includes club fixed effects to control for unobservable club characteristics. Furthermore, there are three specifications of Covid-19. The first one *Covid* looks at both the 2019-2020 and the 2020-2021 seasons, which were both affected by the pandemic. The second one, simply called *19/20* looks at just that season. The third variable *20/21* looks at just that season. This was the only season was affected by the pandemic in its entirety. The dependent variables are the different types of revenues mentioned above. The results are shown in table 5 below.

Table 5. Regression results of the models with different types of revenues as the dependent variable.

	<i>Dependent variable:</i>														
	ln(totrev)	ln(matchrev)	ln(comrev)	ln(mediarev)	ln(transinc)	ln(totrev)	ln(matchrev)	ln(comrev)	ln(mediarev)	ln(transinc)	ln(totrev)	ln(matchrev)	ln(comrev)	ln(mediarev)	ln(transinc)
	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)	(11)	(12)	(13)	(14)	(15)
<i>Covid</i>	-0.049 (0.055)	-0.648*** (0.105)	-0.058 (0.037)	0.100 (0.060)	-0.078 (0.608)										
<i>19/20</i>						0.119* (0.068)	0.238 (0.155)	0.091* (0.048)	0.062 (0.078)	0.565 (0.793)					
<i>20/21</i>											-0.208*** (0.068)	-1.307*** (0.093)	-0.187*** (0.045)	0.104 (0.079)	-0.776 (0.835)
<i>Division 2</i>	-0.366*** (0.071)	-0.393*** (0.125)	-0.389*** (0.044)	-1.002*** (0.071)	0.503 (0.752)	-0.375*** (0.070)	-0.408*** (0.143)	-0.391*** (0.044)	-1.002*** (0.072)	0.471 (0.748)	-0.355*** (0.068)	-0.393*** (0.086)	-0.389*** (0.042)	-1.004*** (0.072)	0.556 (0.749)
Club FE	YES	YES	YES	YES	YES	YES	YES	YES	YES	YES	YES	YES	YES	YES	YES
Observations	119	129	129	131	233	119	129	129	131	233	119	129	129	131	233
R ²	0.228	0.313	0.428	0.650	0.002	0.245	0.088	0.434	0.643	0.005	0.290	0.672	0.496	0.647	0.006
Adjusted R ²	0.061	0.178	0.316	0.579	-0.118	0.081	-0.091	0.323	0.571	-0.116	0.136	0.608	0.398	0.575	-0.114
F Statistic	14.305***	24.368***	40.061***	100.318***	0.226	15.726***	5.171***	41.100***	97.418***	0.473	19.784***	109.771***	52.737***	98.947***	0.651

Note:

*p<0.1; **p<0.05; ***p<0.01

Only matchday revenue is significantly affected by covid when looking at both seasons together (models 1-5). It decreased, on average, by 47.7 percent ($100\% * (e^{-0.648} - 1) = -47.7\%$) as a result of the covid pandemic, all else equal. If we look at just the 2019-2020 season (6-10), total revenue and commercial show a significant increase at the 10 percent level, increasing by 12.9 and 9.5 percent respectively, all else equal. Given that the majority of the season was not affected by Covid, this is no big surprise as there was an upward trend until the pandemic happened. Over the 2020-2021 season, total revenue, commercial revenue as well matchday revenue significantly decreased. All else equal, total revenue (6) decreased by 18.8 percent, matchday revenue (7) by a massive 72.9 percent and commercial revenue (8) by 17.1 percent.

In most cases, clubs earn significantly lower revenues on average when playing in the second division, which is to be expected. Media revenue is in all three cases not significantly affected by the pandemic. For the situation with both years and just 2020-2021, this was in line with the expectation. For 2019-2020 on the other hand, a negative effect was expected because not all matches had been played that year. However, as was mentioned, ESPN (the broadcaster) decided to continue the payment for the remaining matches that year even though they were not played. For transfer revenue, no significant results were found. All in all, the results of the regression largely confirm what was expected and are largely in line with the data shown in figure 2. In no cases a significant effect opposite to what is shown in the figure is found.

5.2. Debt

The second part of this section focusses on the debt of professional football clubs. It will be structured like the previous subsection. Thus, it starts by going over some figures to give a general idea about the development and levels of debt of the clubs. After that, the results of the regressions will be shown.

There is a distinction between two types of debt: short term debt and long term debt. If the debt needs to be paid off within one year, it is referred to as short term debt. If clubs have more than one year to pay off the debt, it is referred to as long term debt. In Figure 3 below, the mean of the short-term-, long term- and total (short term + long term) debt of a selection of Dutch football clubs can be observed. Once again this selection is based on data availability and consistency and can be found in Table 4 in the Data section. The average short term debt seems to fluctuate a bit but comparing the short term debt in 2012 to that ten years later, the difference is quite small. The long term debt has increased massively from 2012 to 2021, especially in 2020 and 2021, the years that were affected by the covid-19 pandemic. The ratio has changed as well. In 2012, long term debt accounted for 26 percent of total debt. This increased to 38 percent in 2019 and then jumped to 58 and 62 percent in 2020 and 2021 respectively.

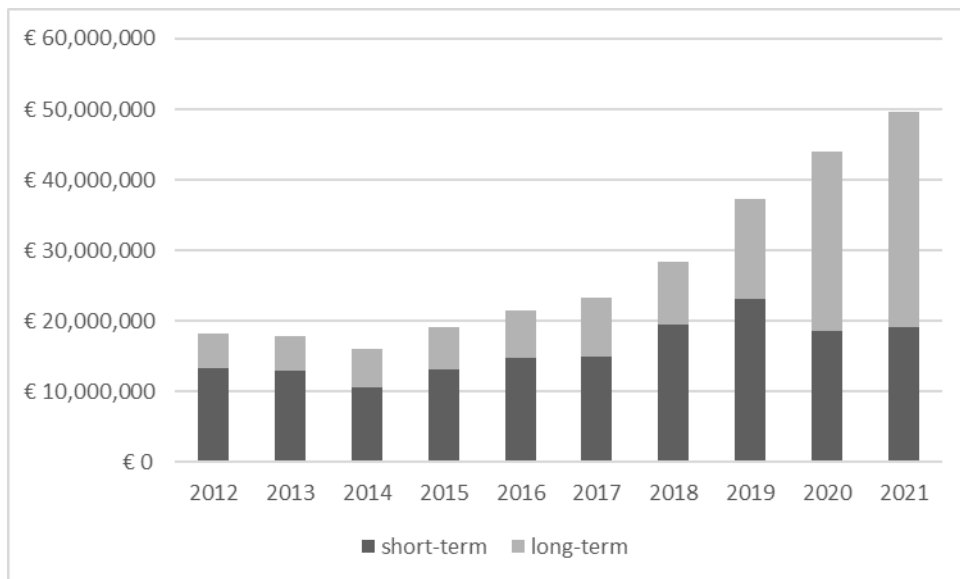


Figure 3. Average short-term, long-term and total debt of Dutch clubs over the period 2012-2021.

Table 6 shows the results of the regressions with debt as the independent variables. Both the short-term debt and the long-term debt are not significantly affected by the pandemic according to these results. The combination of the two (the total debt) on the other hand significantly increased in the period affected by the pandemic. Following these results, the total debt of Dutch football clubs increased by 28.7 percent over the two seasons affected by the pandemic, all else equal. Over the 2020-2021 season, the total debt increased by 38.4 percent, all else equal. In the cases of short-term debt and total-debt, we can see that teams, when playing in the ‘Eerste Divisie’ (division 2), on average have lower debts. This does not say anything about the financial situation of these teams necessarily. It could be the case that teams when playing in a lower division have lower debt but even lower revenues, meaning the debt would be more difficult to be paid off than for if they were playing in the Eredivisie (division 1).

Table 6. Results of the regressions with different types of debt as the independent variable

	<i>Dependent variable:</i>								
	ln(stdebt)	ln(ltdebt)	ln(totaldebt)	ln(stdebt)	ln(ltdebt)	ln(totaldebt)	ln(stdebt)	ln(ltdebt)	ln(totaldebt)
	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)
covid	0.093 (0.065)	0.543 (0.402)	0.252*** (0.067)						
covid20				0.104 (0.085)	0.211 (0.533)	0.114 (0.092)			
covid21							0.058 (0.086)	0.736 (0.531)	0.325*** (0.089)
division2	-0.513*** (0.078)	0.134 (0.485)	-0.458*** (0.081)	-0.514*** (0.078)	0.118 (0.487)	-0.465*** (0.084)	-0.515*** (0.078)	0.127 (0.485)	-0.461*** (0.081)
Observations	231	231	231	231	231	231	231	231	231
R ²	0.184	0.009	0.187	0.182	0.001	0.138	0.178	0.010	0.185
Adjusted R ²	0.080	-0.117	0.084	0.077	-0.126	0.028	0.073	-0.117	0.081
F Statistic	23.008***	0.940	23.529***	22.648***	0.105	16.368***	22.030***	0.989	23.134***

Note:

*p<0.1; **p<0.05; ***p<0.01

5.3. Distribution of debt increase

The previous subsection showed that the total debt of Dutch professional football clubs increased, on average, due to the covid-19 pandemic. In this subsection how this increase in debt was distributed among clubs will be analysed. Figure 4 below shows the Lorenz curve of the debt distribution. A small share of clubs with the highest debt increase are responsible for almost the entire overall increase in debt. The fact that the Lorenz curve is far from the line of equality shows that the increase in debt is very unequally distributed amongst the Dutch professional football clubs.

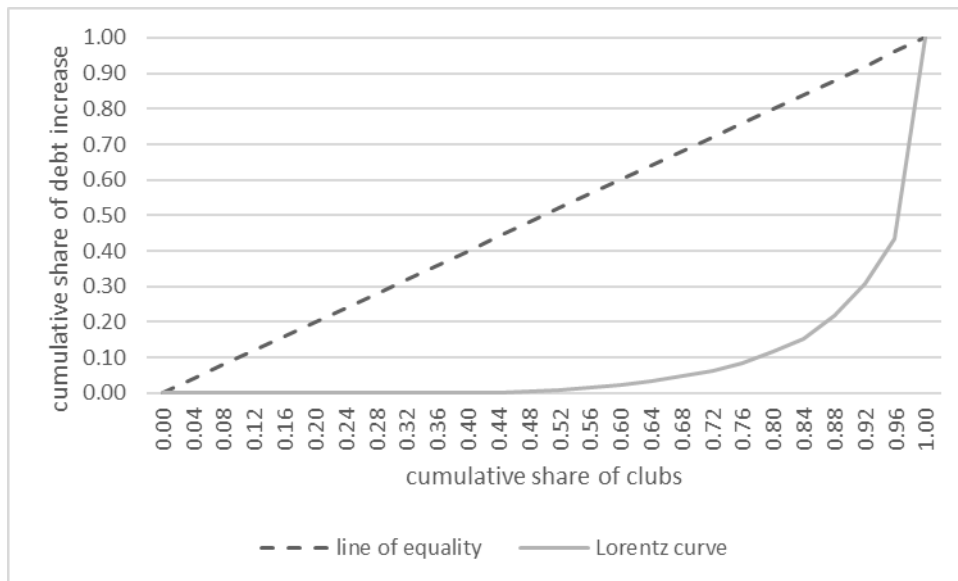


Figure 4. Lorenz curve of the debt increase of Dutch clubs.

As mentioned previously, this inequality can also be measured by looking at the Gini coefficient. If this coefficient is close to 0, there is perfect equality. If the coefficient is close to 1, there is perfect inequality (i.e. the entire debt increase was due to one club). The Gini-coefficient for the Dutch clubs is 0.838, meaning that the increase in debt is very unequally distributed. This is true, as more than 50% of the debt increase is caused by Ajax alone. An overview of share of debt increase per club can be found in Table 7. Overall, larger clubs seem to have had a higher increase in debt than smaller clubs.

Table 7. Share of debt increase of Dutch clubs.

Club	Increase in debt	Share increase in debt
Ajax	€ 104,269,000	56.40%
PSV	€ 23,338,000	12.62%
Utrecht	€ 17,306,493	9.36%
AZ	€ 11,404,000	6.17%
Feyenoord	€ 6,713,000	3.63%
Fortuna Sittard	€ 6,278,000	3.40%
Other	€ 15,570,680	8.42%
Total	€ 184,879,173	100%

Finally, performing a similar analysis as above, the inequality before and after the pandemic are compared. This way, one can get a good idea of how this changed because of the pandemic and how the situation might have been had the pandemic not happened. In Figure 5 below, it can be seen that the Lorenz curve of 2021 is further from the line of equality than the Lorenz curve of 2019. In other words, the equality in debt has increased over the two years affected by the pandemic. Like before, the Gini coefficient is calculated, this time for both the situation pre-covid (2019) and the situation post-covid (2021). The results can be found in Table 8. In this table, we see that the coefficient for the post-covid situation is 0.042 higher than the coefficient for the pre-covid situation. This again confirms that the equality in debt has decreased (the inequality in debt has increased).

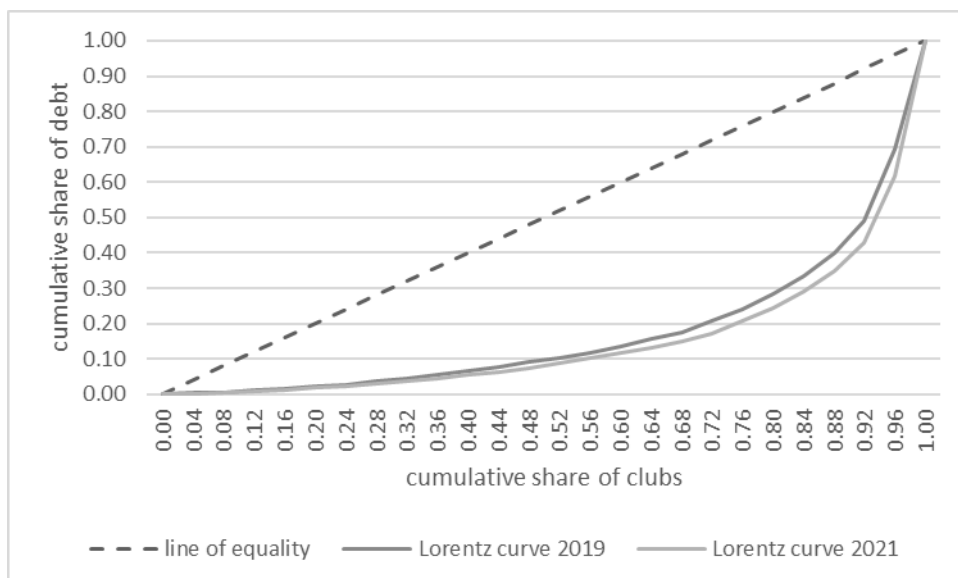


Figure 5. Lorenz curve of the debt of Dutch clubs in 2019 (pre-Covid) and 2021 (post-Covid).

Table 8. Gini coefficients for the situation pre-Covid, post-Covid and the debt increase.

Gini pre-covid	Gini post-covid	Δ Gini	Gini debt increase	Clubs included
0.656	0.698	0.042	0.838	25

5.4. Costs

In the previous sections it was assumed that the increase in debt was due to a decrease in revenue rather than an increase in costs. Figure 6 below shows the development of the average wage and operating costs over the period 2014-2021. Although there might be a slight upward trend, the costs fluctuate a bit but seem unaffected by the pandemic. If anything, they decreased on average in 2021. This supports the theory that the increase in debt is due to a decrease in revenue rather than an increase in costs.

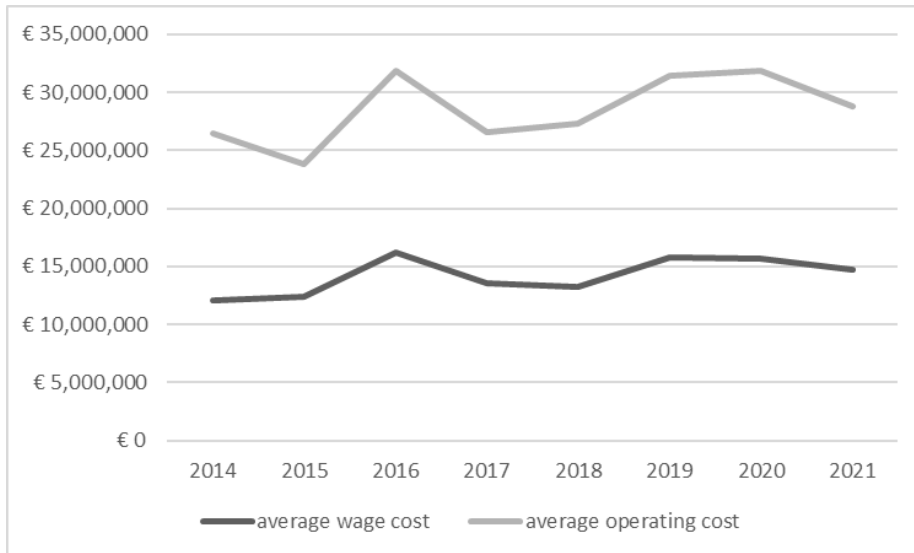


Figure 6. Development of the mean of different types of costs for Dutch clubs over the period 2014-2021.

6. Conclusion

From the analysis, the following can be concluded: The results are mostly in line with the hypotheses. Total revenue was found to be significantly affected by the pandemic, confirming hypothesis 1. Hypothesis 1.1 and 1.2, stating that matchday and commercial revenue decreased as a result of the Covid-19 pandemic respectively, are found to be true. Matchday revenue was found to be negatively affected in both the 2019-2020 and 2020-2021 seasons, whereas commercial revenue was only affected in the 2020-2021 season, the seasons that was impacted by Covid in its entirety. Hypothesis 1.3 stated that media revenue was only expected to have decreased over the 2019-2020 season. Because the broadcaster continued payment even though no matches were played, no decrease was found. Hypothesis 1.4 stated that transfer revenue was expected to have decreased as a result of the pandemic. Although transfer revenue had decreased in the 2020-2021 season, it was found to be insignificant. An explanation for this is that transfer revenue fluctuates quite heavily anyway, because it can depend on one big player sale that year.

The next hypothesis, hypothesis 2, stated that football club debt was expected to increase during the pandemic. A distinction was made between short-term debt, long-term debt and total debt. Only the last of these three was found to have increased significantly. The difficulty with the first two is that long-term debt becomes short-term debt at one point, therefore total debt gives a clearer idea. Still, the increase in total debt was largely due to an increase in long-term debt, showing that the financial impact of the pandemic could remain visible over the next couple of years.

Hypothesis 3 stated that the increase in debt would not be distributed equally. Using the Gini coefficient to calculate this, a very unequal distribution was found. It seemed that mostly the larger clubs, and especially Ajax, the largest clubs, seem to be responsible for the increase in debt. Although Ajax is currently financially stable because of its sporting success, especially in European competitions, this should not be overlooked since no club is too big to fail, as was mentioned by Georgievski & Zeger (2016) and their example of the Glasgow Rangers in Scottish football. Ajax has around as much of a contribution to the Eredivisie as Rangers did to the Scottish Premier League. However, a scenario such as that of the Rangers seems very unlikely to happen in the short term in the Netherlands.

To answer to the question '*What is the effect of the Covid-19 pandemic on professional football club debt?*' is, according to this paper, that the Covid-19 pandemic caused an increase in professional football club debt. Furthermore, this increase in debt is not equally distributed, resulting in an overall less equal distribution of debt between Dutch football clubs after the pandemic, compared to the season before the pandemic. This increase in debt is argued to be mostly due to a decrease in revenues, especially matchday revenue and for a smaller part commercial revenue. Luckily, agreements made by the clubs, government support and solidarity of the broadcaster resulted in a much more bearable situation than it

could otherwise have been. As of yet, no football club reported major financial trouble as a direct consequence of the pandemic. However, because the increase in debt was mostly long-term, financial problems could still be on the horizon. In the end, the fact that the period without games was relatively short might have been the right decision, despite some protest. Because this way, broadcasting and transfer revenue was sustained and the decrease in commercial revenue was limited.

6.1. Limitations and Suggestions

There are some limitations to this research. First of all, clubs in only one country are used. Because different countries have had different Covid restrictions and the revenue structure of leagues can differ quite a lot, the external validity is fairly low. Making comparisons between countries or leagues could have helped to get a better idea of the impact of the pandemic on football club debt.

A second limitation is the fact that it is unclear how the situation would have been without the pandemic and the subsequent restrictions. Although it is likely that the increase in debt is due to these restrictions and the revenue decrease, to say with absolute certainty that this is the case is not possible, because of the lack of a counterfactual. A suggestion for future research would be to look for countries with less severe or even no restrictions to professional football over between 2020 and 2021 and to see if the effect differs there. It would be especially interesting to see if a situation can be found where the trend in both revenue and debt was similar to that of another league, be it the Dutch league or a league in a different country, but where no Covid restrictions were imposed. A difference in post Covid situations could then give a more accurate effect than the one found in this research. Nonetheless, this might prove very difficult as most countries had at least some restrictions. A second suggestion is more focussed towards the consequences of this increase in terms of debt. It would be interesting to compare the current debt situation to past situations or situations in different countries and to see how that turned out in terms of financial problems for clubs or even bankruptcies. Finally, something that is partly a limitation of this research and would also be a suggestion for future research is the depth to which the revenues and debts are examined. For example, instead of just taking these numbers as a given, one could go deeper into the financial reports and find the cause of debt or revenue increases or decreases. This could also help to determine what the exact causes of these are and what the implications for the future might be.

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