A Work Project, presented as part of the requirements for the Award of a Master's degree in Finance from the Nova School of Business and Economics.

Exploring the Impact of Portuguese Football Players in the Top 5 Leagues: A Transfer Market Analysis

Moritz Kuhn

54530

Work project carried out under the supervision of:

Pedro Brinca

16/01/2024

Abstract

This work project aims to analyze the impact of Portuguese football players in the Top 5 leagues. This impact is analyzed from four different perspectives: Performance, Brand, Transfer Market and Wages. Quantitative and qualitative analyses along with comparisons with two benchmark groups were applied to assess the Portuguese impact in absolute and relative terms. The findings indicate that Portuguese players have a more significant impact compared to players from the Netherlands and Belgium. In addition, offensive and technical players from Portugal command the highest perception.

Keywords: Portugal, Football, Impact, Performance, Brand, Transfer, Wage

Acknowledgements

The authors would like to express their sincere gratitude to Professor Pedro Brinca for his assistance and patient guidance. Thanks are also due to Federação Portuguesa de Futebol, with whom this work project was carried out in collaboration.

This work used infrastructure and resources funded by Fundação para a Ciência e a Tecnologia (UID/ECO/00124/2013, UID/ECO/00124/2019 and Social Sciences DataLab, Project 22209), POR Lisboa (LISBOA-01-0145-FEDER-007722 and Social Sciences DataLab, Project 22209) and POR Norte (Social Sciences DataLab, Project 22209).

Table of Contents

1. Introduction **4**

2. Background **5**

2.1 History and Development of Portuguese Football **5**

2.2 The Top 5 Leagues **8**

3. Literature Review **10**

3.1 Development of Portuguese Football Presence in Top 5 Leagues **10**

3.2 Performance Perspective **13**

3.3 Brand Perspective **16**

3.4 Financial Perspective **17**

3.4.1 Transfer Market Perspective 17

3.4.2 Wages Perspective 21

4. Methodology **24**

4.1 Development of Portuguese Players in the Top 5 Leagues **24**

4.2 Performance Perspective **26**

4.3 Brand Perspective **28**

4.4 Financial Perspective **30**

4.4.1 Transfer Market Perspective 30

4.4.2 Wages Perspective 32

5. Exploring the impact of Portuguese Football Players in the Top 5 Leagues: A Transfer Market Analysis **35**

5.1 Development of the Transfer Market with Focus on Portuguese Player **35**

5.2 Transfer Fee Premium Analysis **36**

5.2.1 Explanation of Transfer Fee Premium **36**

5.2.2 Transfer Fee Premium Results **37**

5.2.2.1 Total Transfer Premium 37

5.2.2.2 Transfer Fee Premium of Portuguese Clubs 38

5.2.2.3 Impact of European Championship Title on Transfer Fee Premium 39

5.2.2.4 Position-related Transfer Fee Premium 40

5.2.2.5 Transfer Fee Premium of different Age Groups 42

5.2.3 Propensity Score Matching **43**

5.3 Evaluation of Portuguese Transfers' Success **44**

5.4 Discussion on Portuguese Impact in Top 5 Leagues **46**

5.4.1 Players' Impact Analyses **46**

5.4.2 Application on the Example of João Félix **48**

5.5 Conclusion **49**

6. Limitations **50**

6.1 Development Perspective **50**

6.2 Performance Perspective **50**

6.3 Brand Perspective **51**

6.4 Financial Perspective **51**

6.4.1 Transfer Market Perspective 52

6.4.2 Wages Perspective 52

7. Conclusion **53**
References **56**

1. Introduction

Portugal has a long history of football enthusiasm (Coelho and Tiesler 2007). Nevertheless, until during the early 1990s, Portugal's football landscape was essentially mediocre, with its national team failing to qualify for the European Championships of 1988 and 1992, as well as for the 1990 and 1994 World Cups (Transfermarkt n.d.). Furthermore, Portugal was ranked 20th in the FIFA World Ranking. 30 years and one European Championship title later, the situation has changed, and Portugal has consistently secured a position within the top decile of the FIFA World Ranking for a duration exceeding nine years (FIFA n.d.). While only five Portuguese players were active in one of the Top 5 leagues in the 1993/94 season, this figure has increased more than tenfold in the 2023/24 season. Apart from the countries in the five major European leagues, only Brazil and Argentina have more players under contract in these leagues than players from Portugal in the 2023/24 season (Transfermarkt n.d.). The increasing influence of Portuguese players in the Top 5 leagues in combination with detailed data availability in football therefore provides a valuable opportunity for academic analyses.

This work project on the impact of Portuguese players in the Top 5 leagues was carried out in collaboration with the Portuguese Football Federation (FPF). Throughout the thesis, Portuguese footballers' impact was analyzed from various perspectives, enabling the Portuguese Football Federation to identify development drivers and trends. The insights gained can be used for targeted sponsorship initiatives, collaboration with other institutions, and enhancing the international competitiveness of Portuguese players. The hypothesis being examined in this work project posits that: "*due to the noteworthy surge in the impact of Portuguese footballers, this impact exceeds the impact of players from comparable countries such as Belgium and the Netherlands while not being able to match the impact of players from top leading nations in football*".

For a comprehensive and in-depth assessment of the hypotheses presented, the impact of Portuguese players in the Top 5 leagues was analyzed from four different perspectives: Performance perspective, Brand perspective, Transfer Market perspective and Wages perspective. The analysis of the Portuguese brand image in the Top 5 leagues involved a qualitative survey, while the other three areas examined focused on quantitative analyses due to the detailed data availability. Although these methodologies are based on existing studies in the literature, this work stands out due to its focus on the impact of players from one nationality. Therefore, this work can provide a valuable contribution to existing literature.

Following this introduction, the thesis provides a chapter on the Background of the Top 5 leagues and the development of Portuguese football. Chapters 3 and 4 present, respectively, the Literature Reviews and Methodologies for the various analyses carried out in this work. Chapters 5 to 8 elucidate these analyses and their results in relation to the impact of Portuguese players from the respective perspectives. Chapter 9 provides limitations for the analyses conducted and Chapter 10 summarizes the various findings in a conclusion and discusses recommendations for future research.

2. Background

2.1 History and Development of Portuguese Football

In Portugal, football indisputably holds the status of being the most popular sport. Prior to the COVID-19 pandemic, it accounted for 32.5% of the total sports participants in the country (Instituto Nacional de Estatistica 2023), and as of the end of 2022/23 season, the FPF recorded a total of 178,285 federated athletes. In terms of popularity, 71% of Portugal's population demonstrated interest in football (Agência Lusa 2021), with the closest sport only having 47% of the population's interest.

The rich history of football in Portugal began in 1875, and by the early 20th century, football was gaining popularity, with several regional competitions starting to take place (FPF 2022). In

1914, União Portuguesa de Futebol (UPF), the first version of the FPF, was founded, thus officially organizing a National Team. The 1928 Olympic Games marked the first major competition for Portugal and was considered a great success. However, the national team would not be able to repeat the prowess of the Olympics and failed in qualifying for any major international tournaments for the following 38 years (ZeroZero n.d.).

While the Portuguese squad struggled, Portuguese clubs and players started to thrive internationally. Sporting CP was invited to participate in the first ever edition of the UEFA European Cup, the predecessor of the UEFA Champions League, in 1955. SL Benfica would become the first Portuguese club to conquer the European Cup, during the 1960/61 season, and would repeat their win in the following year (1961/62). Eusébio, a Portuguese striker, and SL Benfica's star player, won the 1965 *Ballon d'Or*, becoming the first ever Portuguese footballer to be considered the best player in Europe[1] (Classic Football n.d.).

With the Portuguese clubs and players established internationally, the Portuguese National Team would return to major international tournaments in the 1966 FIFA World Cup, finishing the World Cup in 3rd place, still to this day the best Portuguese performance in the competition. However, the National Team would once more be unable to capitalize on its success, missing out on major international tournaments for 18 more years (FPF 2022).

Returning to relevance in the 80's, Portugal would qualify for back-to-back major tournaments for the first time ever, reaching the semi-finals in its UEFA European Championship debut, in 1984, before competing at the 1986 World Cup (FPF 2022). At club level, FC Porto was the second Portuguese club to succeed at the UEFA European Cup, in the 1986/87 season, followed by winning the UEFA SuperCup (UEFA n.d.) and Intercontinental Cup in 1987 (Transfermarkt n.d.). Meanwhile, the Portuguese "Golden Generation" was starting to form, as Portugal won

[1] Only European players from European leagues were eligible for the Ballon d'Or until 1994 (Classic Football n.d.)

the FIFA U-20 World Cup in both 1989 and 1991 (FPF 2022), while also winning the UEFA U-16 European Championship in 1989 (FPF n.d.). With them, in 1996, Portugal returned to the Euros. It's also important to highlight that the 1996 squad was the first time Portugal included players that played abroad in their final call-up (Barreto 2016).

The beginning of the 21st century was of major importance for Portuguese football. Starting with the 2000 European Championships, the National team, with now nine Top 5 league players, would reach the semi-finals, like in 1984 (Barreto 2016). That same year Luís Figo would become the second Portuguese player to win the *Ballon d'Or*, while playing at FC Barcelona (Classic Football n.d.). In 2002, Portugal would return to the FIFA World Cup, after 16 years. At club level, FC Porto would conquer the UEFA Cup in 2002/03 and the UEFA Champions League in 2003/04, also conquering the Intercontinental Cup in 2004 (FPF 2022).

The 2004 European Championships marked the first time Portugal ever hosted a major international tournament (FPF n.d.). For such, several infrastructures were built, with the main stadiums in the country getting rebuilt for the first time since the 50's (Barreto 2016). Youth academies were also built, supporting the continuous growth of Portuguese player talents, with continued success in youth competitions at both club and national team level (FPF n.d.). Currently, SL Benfica's academy is regarded as the most valuable globally (CIES 2023), with Sporting CP's and FC Porto's also listed as top 10 in Europe.

It was widely considered that the 2004 Euro was the aging Golden Generation's last chance to win a major trophy. Portugal would, for the first time in history, reach a major tournament final. However, Portugal would be upset by Greece, in a 1-0 defeat (FPF 2022).

With the fast rise of Cristiano Ronaldo, Portugal would qualify for the 2006 World Cup, the first consecutive participation in the tournament, ending in 4th place, with 14 of the 23 selected players playing in a Top 5 league (Barreto 2016). Now past the Golden Generation, Portugal would also compete in the 2008 Euros and the 2010 World Cup (FPF n.d.). In between, Cristiano

Ronaldo would win his first *Ballon d'Or*, becoming the third Portuguese player to do so (Classic Football n.d.).

The past decade was a period of definitive affirmation for Portugal at the international level. Starting by the 2010/11 UEFA Europa League, where an unprecedented European final between Portuguese teams took place, as FC Porto beat SC Braga to win the cup (FPF 2022). This European performance catapulted the Portuguese League from 9th to 6th, achieving the status of one of the best five leagues in 2012, which it held on to for 5 years (UEFA n.d.).

At an individual level, Cristiano Ronaldo, became the first Portuguese footballer to achieve more than one *Ballon d'Or*, winning the trophy in 2013, 2016 and 2017, establishing himself as one of the greatest footballers of all time (Classic Football n.d.).

The National Team would find its biggest success in history in the 2016 European Championship. After a group stage with no wins, Portugal would make its way into the finals, where an extra-time goal by unsung hero Éder, would give Portugal its first ever major international trophy, 60 years after the first participation in the World Cup (FPF 2022). Portugal would then go on to win the inaugural UEFA Nations League, in 2019. (FPF n.d.).

2.2 The Top 5 Leagues

Football having the status of the world's biggest sport is uncontested, as "football's extraordinary reach into countries and cultures around the world makes it unequalled among sports" (Lovett 2018). Professional football has grown to be a multibillion dollar industry, particularly in Europe, drawing in millions of fans, powerful sponsors, global media, and affluent investors (Dimitropoulos, Leventis and Dedoulis 2015) Here, the Top 5 professional football leagues (English Premier League, Ligue 1, Bundesliga, Serie A and LaLiga) are responsible for the functioning of the most significant event-related entrepreneurial ecosystem globally (Wagner, Preuss and Könecke 2021). In total, they are the dominant force in football worldwide, generating more income and resources than any other collection of leagues. For

example, in the 2020/21 season, the Top 5 leagues' market sizes (€17.2 billion) exceeded the combined total of all other football leagues in Europe. However, the English Premier League significantly outpaces its counterparts in revenue within the Top 5. Most of the €6.6 billion being contributed by broadcasting rights, “where companies from across the world compete with one another for the right to show live games” (Statista 2023). According to Sachedo (2022), the Bundesliga and LaLiga are in an interesting contest to claim the second place. Also driven by broadcast revenue, Serie A clubs experienced the greatest percentage growth in 2020/21, leaving last place Ligue 1 further behind as their nearest rival. In general, every league has successfully mastered its most challenging period with COVID-19 and is looking to expand even further in the following years (Sachdeo 2022).

Remarkably, minimal effort has been invested in quantifying the disparities in quality among the Top 5 leagues. The only official reference point on this matter is UEFA and its coefficient system, a metric established in 1979 (Barker 2021). In this system, football associations earn points for successes in the Champions League, Europa League, and Conference League. Following Spain's statistical dominance from 2012 onwards, England successfully surpassed them in the 2020/21 season and has since maintained its lead. Since France secured the fifth position from Portugal after 2015, the third to fifth spots have constantly been shared between France, Germany, and Italy. While collectively labelled as the "Top 5 leagues", each of these football leagues possesses unique features that contribute to their individual allure and make them captivating to watch. The English Premier League, renowned for its intense competition and extensive global fan base, stands as the wealthiest among the Top 5, along with fierce and tight title races between historic teams (Forster 2023). LaLiga, Spain's top tier, boasts a technical and possession-based style of play, optimized by legendary clubs like FC Barcelona and Real Madrid CF in the past (Cruz 2023). In the Serie A, teams exhibit defensive solidity and tactical prowess, with clubs often excelling in playing different systems with disciplined

strategies (Kurak, Büyükçelebi, and Açak 2021). The German Bundesliga is celebrated for its vibrant atmosphere in stadiums with the world's highest average attendance of 43,000 during the 2022/23 season (Ewing 2023). Having invested heavily in youth development since 2002, the league prioritizes nurturing both German and foreign emerging talents (Chhajta 2023). Ligue 1 in France is marked by flair and creativity that originates from the league serving as a hotbed for young talent across the last decade (Furniss 2021). These diverse attributes collectively make each league appealing to foreign players aspiring to advance their careers and find unique opportunities for growth and success on the international football stage.

3. Literature Review

The field of sports is particularly attractive for labor market analysis due to the comprehensive and detailed data sets available for each player, in comparison to other industries (Kahn 2000). Consequently, literature has observed a notable surge in studies of the sports sector considering that it is a relatively new field of study (de la Cruz Del Rio-Rama et al. 2017). Despite an increasing denationalization of sports, the international matches organized by FIFA draw attention to national distinctions and cultural oppositions in football (Poli 2007). Thus, countries with major football leagues, England, Spain, Italy, Germany and France, all differ in terms of these stereotypical differences (Crolley and Hand 2002). Inferring that nations may differ in terms of the quantitative and qualitative contribution of players in the world's major football leagues (Poli, Ravenel and Besson 2016), it can be argued that players from different countries have different impacts in football. Regarding studies on the impact of players from one nation in football, a distinct research gap is apparent, as the topic has not been examined comprehensively from different perspectives.

3.1 Development of Portuguese Football Presence in Top 5 Leagues

Relevant literature concerning the development and performance assessment of Portuguese football players in the Top 5 leagues extends across multiple dimensions. First, to precisely

understand and correctly classify the respective number of foreign players in these leagues, critically examining the factors that drive players to pursue careers abroad in the Top 5 leagues is essential.

According to Poli, Ravenel, and Besson (2016), the proportion of international players in professional football teams has consistently increased over the past three decades, marking them as significant components of teams, especially in European Leagues. As a reference, Sever et al. (2023) report that the percentage of foreign players in the Top 5 leagues remained below 10% until 1985. The historical gain of around 20% between 1995/96 and 2000/01 can be accredited to the Bosman ruling implemented at the end of 1995 (Gardiner and Welch 2011). More precisely, the new rule allowed an unrestricted number of foreign players from all EU member states to play for every club in the EU and players to be signed without a transfer fee after their contracts expired (Schmidt 2007). On the contrary, reintroduced player quotas such as the home-grown player rule[2] (UEFA), the 6+5 rule[3] (FIFA), and many more league-specific squad rules have tried to contain the adverse effects of the autonomy of foreign player movement (Álvarez et al. 2011). These implemented measures warrant further assessment of their role in maintaining a competitive balance and potentially restricting clubs from engaging in the transfer of foreign players.

A significant body of research highlights the pivotal role that economic incentives play in players' decisions to move to top leagues. The potential for higher wages, lucrative transfer fees, and endorsement deals in these leagues compared to lower-level leagues, such as Liga Portugal, has been widely studied and documented (Kuethe and Motamed 2010; Kesenne 2007). Ribeiro and Lima (2013) underline these findings by stating that "moving from an

[2] Home-grown players rule: The UEFA mandates participating clubs in the Champions League and Europa League to include a certain number of home-grown players in their squads. Players qualify as home-grown if they are aged 15-21 and have been developed by their club or another club within the same national association for a period of three years or more (Gardiner and Welch 2011).

[3] 6+5 player rule: a rule requiring that six players participating in a match must be eligible to play in the national team of the club's respective league (Sever et al. 2023).

inferior league to a higher league (UP) renders an average wage increase of more than 45%". However, this perspective regards players as economic entities, potentially oversimplifying the complexity of influencing player migration. This inquiry would be enriched by scrutinizing how individual ambitions and the pursuit of professional achievement also contribute to these choices.

Extensive research has been carried out on how broader globalization trends in football affect player migration. Varmus, Kubina, and Adámik (2019) imply that increasing numbers of foreign players are closely related to globalization and thus bring a new perspective and culture to the football environment. According to Stead and Maguire (2000), "an increasing number of elite professionals, primarily male, athletes from many sports are now selling their labor outside their home countries," with football being the sport where labor migration is most noticeable. Maguire and Pearton (2000) corroborate these findings, viewing this development as intertwined with the commodification of sports within the capitalist world. Additionally, the authors suggest that Europe's top clubs often recruit from countries with historical connections and linguistic traits. While these aspects are acknowledged, Velema (2020) addresses the gap in research focusing on the movement of players between teams rather than the composition of players within teams using social network analysis. Still, there is a lack of detailed exploration into how these cultural exchanges influence team dynamics and player adaptation.

Therefore, recruitment strategies and scouting networks of the Top 5 league clubs are also integral to the migration process. Literature suggests that the extensive scouting of players by foreign clubs and the involvement of player managers are influential factors. In addition, Watson (2020) mentions that top clubs have become proficient in facilitating the transition to a different culture, perhaps with a different climate and foreign language.

Not to be neglected is how the presence of players in foreign leagues affects the performance of the respective national teams. Different studies investigated the benefits of national players

playing for clubs outside their domestic league (Berlinschi, Schokkaert, and Swinnen 2013; Yakamura 2009; Gelage and Dobson 2007; Allan and Moffat 2014). This experience in higher-caliber leagues provides players with exposure to superior training and tactical methods, ultimately enhancing the overall performance of their respective national teams (Royuela and Gasquez 2018). In contrast, Frick (2009) finds that players' migration to the financially more lucrative leagues does not lead to an improvement in national team performance. This discrepancy demands more recent research on understanding the impact of international experience on national team success.

3.2 Performance Perspective

The analysis of the performance of football players offers various aspects within the existing literature that merit exploration. Next to examining the temporal development of performance analysis (PA) and prevailing data collection methods, it is essential to critically evaluate the advancements in PA in football with the creation of metrics that try to evaluate the players performance as accurately as possible.

The ground-breaking initiatives of PA in sports took place in the United States around 1960 with American Football and Basketball (Mackenzie and Cushion, 2012). The authors report that over the past forty years, football has experienced an increase in the use of PA along with advancements in PA systems and research within the topic (Mackenzie and Cushion, 2012).

As club identification and the win/lose phenomenon exert the most significant influence on spectator satisfaction, the determinants of winning or losing have become increasingly relevant for football clubs (Zambom-Ferraresi, Ríos, and Lera-López 2018). Hence, performance analysis has become integral to modern coaching, witnessing a surge in dedicated research efforts (Lago 2009). Especially the incorporation of video and computer technology in football has advanced the perception that performance analysis constitutes a valuable contribution to the feedback process (Drust 2010). This trend enabled a more profound and detailed analysis

of player performance through statistics/metrics, technology-based tracking, and video analysis. The sports analytics company Opta Sports has been a leading entity in the realm of sports data collection and distribution for more than twenty years, providing statistical information and player performance metrics across major sports leagues globally, with the help of their data collection video software (Arastey 2018). While these technological advancements in PA are well-documented, they also present potential biases and limitations such as data accuracy and interpretation challenges. Incorporating the collected raw data in their analysis, academic authors have explored several different approaches for the evaluation of team and individual player performance. A great body of literature, dedicated to the prediction of team performance, has concentrated on important performance metrics such as possession and passing patterns before goals (Cintia et al. 2015; James, Jones, & Mellalieu 2004) as well as statistical analyses of goal scoring probabilities (Armatas, Yiannakos, & Sileloglou 2007). Even though most of these studies yielded significant results, this research has not fully captured the complexity of the situation. Carling et al. (2013) comment that defining key performance indicators for teams is challenging due to the relative and globally diverse nature of match performance and coaches often relying on instinct and philosophy in selecting indicators.

Regarding individual performance, earlier research has mostly focused on the physical or a combination of physical and few technical parameters (Bloomfield, Polman, and O'Donoghue 2004). Liu et al. (2015) question the significance of this research and suggest that technical actions in football often serve as more reliable predictors of success than purely physical parameters. Moreover, creating technical performance profiles becomes crucial in uncovering emerging trends in football performance. Multiple studies have followed this approach and evaluated multiple technical determinants of match performance in different competitions (Yi et al. 2020). With regards to that, more recent studies have tried to further increase their accuracy by highlighting the importance of incorporating position specific analysis. Michael

Hughes et al. (2012) have laid the groundwork by defining seven player positions and categorizing them into five classifications. Even though the framework was developed in a subjective matter (group discussion), it serves as an initial step towards the creation of techno-tactical profiles subject to the players position and provides a basis for further evaluations (Arastey 2018). Richau et al. (2019) supports these findings as their article mentions that a detailed analysis necessitates differentiation based on playing position as each position encounters individual requirements in the game. A slightly different approach by Poli et al. (2017) incorporates a several stage analyses arguing that "individual performance of players in a collective sport such as football must always be understood within the specific context within which it is produced.". This emphasises that individual performance, while somewhat less influenced than team performance, is not solely dependent on the player but also impacted by situational factors. Yi et al. (2020) stress that match performance of players cannot be generalized in all contexts and "introducing situational variables into performance profiles can make it more comprehensive and systematic". To offer a perspective, the authors name match location, team quality, quality of opposition and match outcome as the most influential situational factors which have already been investigated by several contributors (Liu et al.2015; Zhang et al. 2017). Thus, these developments—enabling to design performance profiles for various playing positions in various competitive scenarios—will be applied in the subsequent examination of this thesis.

Continued research worked on the complex task of developing models to rate players as accurately as possible. The plus-minus rating, as outlined by Kharrat, McHale, and Peña (2020), traditionally employed and extensively used in basketball and ice hockey, has recently been introduced to the realm of soccer. In a broad sense, the plus-minus rating tries to capture the total contribution of a player on the pitch and answer the simple question of: 'how does a team perform with a player compared to without a player?'. In the pioneering study on plus-minus

ratings in football, Hvattum and Sæbø (2015) analyze transfer fees by using the objective regression-based player ratings as a variable to identify potential inefficiencies in the transfer market. On one hand, the first alternative incorporated expected goals, forming an *expected goals plus-minus rating*. The *expected points plus minus rating*, on the other hand, leverages in-play probabilities of match outcome (Kharrat et al. 2017). Even though these metrics are already incorporated in multiple football databases, the reliability and comprehensiveness of this rating in capturing a player's total contribution need further validation in the context of football's dynamic and fluid nature and will therefore not be in the scope of this analysis.

3.3 Brand Perspective

Sports marketing is still a developing field of study (Shekhar and Shah 2023). Shekhar and Shah (2023) showcase that literature developed following Parkhouse and Ulrich (1979), having since exponentially expanded through different branches. Sports branding was first discussed and explored by Aaker (1991) and Aaker and Keller (1993), after Mullin (1983) had established the importance of marketing in sports, highlighting fan interest as the primary area of sports marketing (Manoli 2018).

Through Kotler and Keller (2006), a product is more than a tangible offering, actually, it encompasses everything that may be provided to the market to meet a need, including physical products, services, events, experiences, people, properties, organizations, information and concepts. A brand, as defined by the American Marketing Association, and widely accepted by scholars such as Kotler and Keller, is a term, name, symbol, sign, or combination of these that is employed to identify and set one seller's or group of sellers' products and services apart from those of competitors. Thus, it can be defined that Portuguese football players can be viewed as the product of Portuguese Football Federation brand. While footballers offer their services to clubs, a sports club's most important customers are its fans (Furuholt and Skutle 2007). Per Kotler and Keller (2006), a brand can also be defined as a perceptual entity that while rooted,

reflects consumers perceptions and behaviours, thus inducing the importance of fan perception on sports brands, aligning with Mullin (1983).

Existing literature on sports branding through consumers' perception is rather limited, and focused on brand equity, with only eight of those studies on football (Miranda et al. 2021). Most of the existing work is based on brand equity models developed by Aaker (1991) and Keller (1993), as established above, and also Berry (2000) (Miranda et al., 2021). Brand loyalty literature in sports is usually related with loyalty to a club or league, usually tied to fans, with works such as Gladden and Funk (2001) and supported in sports brand equity models based on Aaker (1991). Nonetheless, brand loyalty has been proved to show a significant positive relationship with sports performance (Pashaie et al. 2022). Wilson and Ying (2003) formulated a theoretical model predicting that consumer, co-worker, or owner preferences for certain nationalities may lead to an under or over hiring of individuals based on their nationality. Therefore, it can be induced that since fans' perception of player performance may affect the club's decision to employ Portuguese players, whether they perceive these players as impactful is an indicator of clubs' brand loyalty towards footballers from Portugal.

Social media is another factor that plays a significant function in branding. Social media influencers can be defined as persons who have built a large social follower base, and are trusted in regard to at least one, or nich (De Veirman, Cauberghe and Hudders 2017). Furthermore, social media influencers impact and help form brand perceptions (Gautam and Jaitly 2021). As such, footballers social influence may affect the perception of the Portuguese footballers' brand.

3.4 Financial Perspective

3.4.1 Transfer Market Perspective

One of the pivotal research papers in professional sports economics literature is "The baseball player's labour market" by Rottenberg (1956). Using baseball as a framework, Rottenberg scrutinises the labour market for professional footballers and demonstrates that the choice of

whether to retain or sell a player by each team is reliant on the comparative return that such a decision yields for the team. The team possessing a player under contract exclusively holds the right to avail the player's services. This integral right includes provisions which curtail the player's ability to negotiate with other teams; instead, the prospective teams must negotiate with the player's existing employer. With this focus on the sports labour market, this study by Rottenberg (1956) is considered as the beginning of the development of the economics of sports. The Signaling Theory, a concept introduced and analyzed by Spence (1973) during the 1970s, reveals the approach adopted by interested clubs to examine the quality and the services of the player. The theory demonstrates that players in a market engage in signaling to improve their perception due to information asymmetry. Interested clubs, on the other hand, must interpret and evaluate these signals according to Spence's Signaling Theory. Carmichael and Thomas (1993) show, using Nash Bargaining Theory, that buyers and sellers are not symmetrically divided, considering bargaining power. The seller's bargaining strength is primarily linked to player characteristics in terms of ability, club status and crowd-pulling power. In contrast, on the buyer's side, club playing success and fan attendance are positively correlated with transfer fees. Therefore, they exert a negative impact on the buyer's bargaining strength. The bargaining power of the buyer is often increased by the broad range of alternative players available combined with a low risk aversion. However, the search for alternative players becomes more difficult, when successful players are being targeted, resulting in a greater imbalance. As a result, clubs are willing to pay differing fees for players depending on their success (Rottenberg 1956; Carmichael and Thomas 1993). In general, a player's transfer fee ought to reflect the present value of future rents that the receiving club expects to receive from the player's services throughout the contract’s duration (Carmichael and Thomas 1993). Both Signaling Theory and Nash Bargaining Theory illustrate the intricacies involved in strategic negotiations in the sport labor market for players as well as interested clubs. The attractiveness

of analyzing the sports industry has motivated several studies to develop models for estimating transfer fees of football players (e.g., Carmichael, Forrest, and Simmons 1999; Dobson and Gerrard 1999). McHale and Holmes (2023) take their analysis a step further and demonstrate, using machine learning and advanced performance metrics, that the median transfer fee from the buying club has the largest positive impact on transfer fees followed by contract length and the median transfer fee of the selling club. McHale and Holmes (2023) also identify the remaining contract length as a positive factor. Feess, Frick, and Muehlheusser (2004) indicate that contract length is not included in most empirical analyses of transfer fees despite having a significant impact on transfer fees. Franceschi et al. (2023) examined 29 selected papers and their empirical models two decades after Feess et al.'s publication and classified all variables used in the literature to value players in transfer market analysis into six categories. Time, Labor, Performance, Clubs Characteristics, Player Characteristics and Popularity. The authors provide additional details on the effect of specific variables and show that variables such as the age of players at the time of transfer can have different impacts on the valuation depending on their level. For the variable “age”, the authors reveal an inverted-U-shape relation, positively affecting transfer fees at the beginning of a player's career and negatively affecting after some turning point. This finding is consistent with Carmichael and Thomas’s (1993) finding to consider the high-value potential of young talents through a longer-term perspective. A reliable benchmark to predict transfer fees are the market values from the German website Transfermarkt.de (McHale and Holmes 2023; Herm, Callsen-Bracker, and Kreis 2014). Market values are defined as the fee a club would be willing to pay to sign a football player, regardless of real transactions (Herm et al. 2014). Herm et al. (2014) show that crowd-sourced valuations of Transfermarkt can be explained with an econometric model consisting of variables directly related to the talent of the player as well as variables resulting from the valuation of external sources. Furthermore, crowd-sourced market values have market power in the real labor market

for footballers, as they are utilized in both transactions and wage negotiations (Herm et al. 2014). Nevertheless, an empirical analysis by Coates and Parshakow (2022) proves that crowd-sourced values slightly underestimate the actual transfer fee. The actual fee rises by £550,000 to £800,000 per year of contract. Depken and Globan (2020) examine the relationship between market values and transfer fees, demonstrating through linear regression that the transfer fee premium of English clubs surpasses that of clubs in other top leagues. A transfer fee premium is specified as the difference between both examined values. The authors attribute the introduction of the Premier League Television Contract in 2012 as the causal reason for this premium (Depken and Globan 2020). Similar evidence was also found by Depken and Frei (2023), who empirically showed that in addition to the league, the nationality of the player affects the transfer fee and associated transfer fee premium. Furthermore, the authors propose to examine the success of players in the national team for the influence of transfer fees and the premium (Depken and Frei 2023). Countries with high transfer fees tend to have a higher quality of football (Andras 2003; Andras and Havran 2014). This connection was also found by UEFA in a study at club level, analyzing the correlation between sport success, measured by national league ranking, and spending on personnel (UEFA 2009). The results of Andras and Havran (2014), classified in a Szabados-Reich matrix, depict Portugal alongside France and the Netherlands as "trader". These countries show a positive transfer balance coupled with a high transfer volume. This positive balance distinguishes the "trader" countries from other top nations with top leagues: Germany, England, Spain, and Italy. These countries with a negative transfer balance and high transfer volume are classified as "purchasers". The authors highlight that countries can progress into different classifications, as evidenced by the example of Italy, which was previously classified as a "trader" (Andras and Havran 2014). The literature on transfer sums has traditionally focused on models for determining transfer sums. However, crucial factors such as a player's contract length were frequently omitted from many models

and there was little focus on a transfer premium. Depken and Globan's (2020) study was the first to examine the transfer premium at league level. While an initial study on transfer premium of different nationalities (Depken and Frei 2023) has been conducted, it lacks a more comprehensive analysis.

3.4.2 Wages Perspective

Rottenberg (1956) in his paper "The Baseball Player's Labour Market", noted that in a labor market without limits on the amount of money a team can spend in salaries or reserve clauses, players will receive wages according to their contribution to the team's revenue. Additionally, this compensation is determined by other variables, such as age, experience, player's skills or player's ability to attract fans. Nonetheless, clubs vary in their capacity to attract fans and generate revenue, and consequently, in their financial capability to compensate players (Frick 2011). When it comes to differences in wages across nationalities, some researchers have explored the impact of players' nationalities on their earnings in football. Frick (2006) conducted a study about salary determination in the German Bundesliga. The study found that Eastern Europe players' wages are 15% higher than German players' wages, Western Europe players' salaries are 30% higher and South America players experienced a significant 50% salary premium. Likewise, Pedace (2008) found that South Americans were more likely to be overpaid in the English Premier League. In 2014, *This is Money* released an article about the ten highest paid footballers in Europe in season 2013/14. The article's findings indicate that foreign players earned higher salaries than domestic ones. In fact, according to This is Money (2014), nine out of the ten best-paid players did not play in leagues from their countries of origin. Regarding the Italian professional football, Bryson, Rossi, and Simmons (2014) conducted an extensive study, examining players in Italian first and second divisions – Serie A and Serie B, respectively. Their research about the "migrant wage premium" phenomenon revealed that foreign players had a wage advantage when compared to their domestic

counterparts. Moreover, Della Torre et al. (2018) to examine the impact of Italian Serie A player's origin on the pay-performance, discovered there was a pay disparity between domestic and foreign players in 2012/13 and 2013/14. Specifically, they found that pay disparities can simultaneously benefit and discriminate non-Italian players, wherein those with lower performance received higher salaries than their domestic counterparts, while highly performing foreign players receive lower wages than similarly high-performing players. Their study illustrates that other authors' belief regarding nationality discrimination in salaries is not so straightforward and simple. While nationality is considered by many researchers as a key determinant of players' wages, other factors are also taken into account in wage analysis. According to Lehmann and Schulze (2008), salaries are predominantly influenced by performance, in the sense that athletes who perform better being associated with higher earnings (Rosen and Sanderson 2001). Celik and Ince-Yenilmez (2017), in a study aimed to analyze how different factors could influence the wages of players in the American Major League Soccer (MLS), used different metrics to measure performance and concluded that that performance, measured as number of goals scored and assists made by a player are among the most influential factors in the determination of wages. Additionally, a player's salary is positively impacted by performance, as determined by the number of games in which they started in, but their earnings are negatively impacted by starting as a substitute. Lee and Harris (2012), to measure the relationship between player performance and salary, not only used goals, assists and the number of games, but also incorporated the minutes played as a measure of performance. Their study revealed that goals, assists and minutes of play positively influence players' wages, while games played, and games started have a negative effect on it. Della Torre et al. (2018) argue that, besides goals and assists, performance of players can also be measured with other in-game statistics, such as shots, passes, dribbles, tackles and defenses. On the other hand, some studies utilized player ratings as a key indicator to measure performance. According to these studies,

football players' ratings have a positive influence on players' salaries (Swift 2017; Ribeiro et al. 2021; Trhane 2019; Feess, Fick, and Muehlheusser 2004; Giangreco et al. 2021). Several other investigations incorporated a players' position in their attempt to explain which factors influence wages of football players and established that there are disparities in renumeration based on players' position. Garcia-del-Barrio and Pujol (2007) demonstrated a positive effect on salaries for attackers and midfielders playing in the Spanish LaLiga, while defenders experienced a negative effect. Frick (2007) explained that goalkeepers are limited to their specific role, since they can only perform this function and therefore earn lower salaries, whereas midfielders can play outside their usual position, thus earning higher salaries. Feess, Frick, and Muehlheusser (2004), based on salary information from the German Bundesliga, concluded that there is only a positive effect on salaries in midfielders and attackers compared to goalkeepers. Celik and Ince-Yenilmez (2017), concluded that attackers and midfielders earn higher salaries than defenders and goalkeepers in the MLS.

The age of a players has also been seen as a determinant of players' wages. Researchers tried to quantify the relationship between age and salaries, yielding diverse results. Some investigations, such as those by Della Torre et. al. (2018); Ribeiro et. al. (2021); Battré, Deutscher, and Frick (2009), have found a concave relationship between age and players' salaries, suggesting a decline in earnings as players get older. In contrast, Kuethe and Motamed (2010), in their analysis of salary determinants in the American MLS, identified a convex relationship. This implies that, in the context of the MLS, player salaries tend to increase with age. Nevertheless, the authors attribute this phenomenon to the MLS's status as a less established league for top players, so it chooses to sign ending-career players, offering them salaries above the average. Another variable utilized in explaining the wages of football players is the players' presence in their respective national teams. According to Frick (2007) and Garcia-del-Barrio and Pujol (2007), being chosen to represent a country's national team

significantly influences players' salaries. Celik and Ince-Yenilmez (2017) concluded that players who are called to their respective national team earn more than those who are not selected. Kuethe and Motamed (2010) found that a player with more international appearances is associated with higher wages.

4. Methodology

To critically examine the impact of Portuguese players, this paper analyses three key perspectives: Performance, Brand and Financial impact. The financial evaluation is categorized into Transfer Market and Wages. As the impact of Portuguese players must be evaluated not only in absolute but also in relative terms, two benchmark groups were defined for the various analyses. Benchmark Group 1 (Belgium, Netherlands) consists of countries with a domestic league level akin to that of the Portuguese league and a national team of comparable strength to the Portuguese (UEFA 2023; FIFA 2023). Benchmark Group 2 (Argentina, Brazil, Germany, England, France, Italy, Spain) represents the leading nations in world football that have a large proportion of high-level players alongside strong domestic leagues and national teams. The selection of the benchmark groups is based on clear criteria, such as the FIFA world rankings and UEFA league coefficient rankings, along with market values from the crowd-sourced website Transfermarkt.com Accordingly, 30 of the 50 most valuable players in world football as of 31st October 2023 originate from Benchmark Group 2 countries (Transfermarkt 2023). For the multi-layered impact analysis, countries from these benchmark Groups were chosen depending on their relevance and significance.

4.1 Development of Portuguese Players in the Top 5 Leagues

The methodology employed in this part aims to provide a comprehensive descriptive analysis to answer the research question: *How has the share and significance of Portuguese players in*

the top 5 football leagues evolved over the past decade, and what factors contribute to their changing role and impact within these elite competitions?

The data used in this analysis was manually obtained from the public-accessed football statistics website "transfermarkt.com" (www.transfermarkt.com), the platform with the most widely used public datasets (Stanojevic and Gyarmati 2016). The collection process extends to the extraction of data on the total number of players and the total number of foreign players in each league after the end of every season (2013/14 – 2022/23), providing a dynamic view of league compositions. Due to insufficient seasonal information, the analysis didn't include the 2023/24 season. Furthermore, the number of players from Portugal and each benchmark country that participating in each league were recorded. To delve into the contribution of Portuguese players, season statistics of each Portuguese player in the Top 5 leagues was gathered, resulting in an extensive dataset comprising 621 individual records, ensuring a comprehensive assessment. To enhance the depth of the analysis and gain insights into the significance of individual players within their respective teams, a systematic categorization process was employed. The creation of distinct variables enabled a clear assessment of each player's role in the squad. The following criteria were established to categorize players based on their participation in season games:

Category	Definition
Regular Starters	Players who started in more than 50% of matches.
Impact Substitutes	Players who played in more than 66% of matches but started in less than 50%.
Squad Contributors	Players who played in more than 33% of matches but didn't fall into first two categories.
Bench/Reserve Players	Players who played in less than 33% of matches.

Table 1. Player Categorization

For this research, a hybrid research design combining cross-sectional and time series analyses will be employed to investigate the share of Portuguese players in the Top 5 football leagues compared to players from other foreign nations over the past decade. The cross-sectional aspect involves capturing a snapshot of the current distribution of players across different leagues at specific points in time within the 10-year period. Simultaneously, the time series component allows for the examination of how this distribution has evolved and identifying trends over the

specified duration. Concerning the calculations employed in the data analysis process, the foreign player percentage share for each league was calculated for each season to discern the general development of the foreign player presence. Additionally, the percentage share for each benchmark nation out of the total foreign players was computed for every league. This calculation aims to quantify the magnitude of influence each nation exerts on the composition of foreign players within the leagues.

To refine the classification of players, the proportions of each category were calculated by dividing the numbers in each subgroup by the overall total. This method provides a clear insight into the distribution of players across different categories. Furthermore, an average of each category for both the first five seasons and the last five seasons was computed to effectively evaluate whether there has been a significant shift in the players' performance trends over time.

4.2 Performance Perspective

This section of the research conducts a comprehensive analysis that will address the following two research questions: (1) *How does the performance of Portuguese football players within the Top 5 European leagues compare to that of the players of the benchmark groups? (2) "Which* factors *that may contribute to Portuguese players' prominence at the top levels of football?"*

Match data from the 2022/23 season from the Top 5 leagues were gathered from the public-accessed football statistics website FBref (https://fbref.com/en/) that specifically provides data in relation to player performance (Jishnu 2022). The underlying data is sourced from the sports analytics company OPTA (London, UK), the leading data provider in the football industry. Liu et al. 2013 tested the inter-operator reliability of OPTA Client System and confirmed a high reliability and accuracy. To ensure an evaluation that accounts for the situational effects of performance variability against different opponents, the selection criteria for players in this study were meticulously based on their playtime, quantified as the number of minutes played

divided by 90 in the respective season. Portuguese players were considered eligible for inclusion if they accumulated a total score of 10 or more in this metric, while their foreign counterparts were required to have a score of 15 or higher. This deliberate discrepancy in the selection threshold was implemented to enlarge the sample size of Portuguese players, thereby enhancing the robustness and reliability of the statistical analyses conducted. The resulting players were divided into five position-specific subgroups (Liu et al. 2013; Bush et al. 2015): centre-back, fullback, defensive midfielder, offensive midfielder/winger, and striker. Wingers and Offensive midfielder were combined due to sample sizes. Due to the specificity of the position as well as limited data for foreign goalkeepers, the position was excluded from the sample. Following the implementation of the selection criteria and categorization process, the final dataset consisted of 241 players. These players are categorized based on their positions and grouped accordingly, as depicted in Table 2.

Position	Portugal	Benchmark Group 1	Benchmark Group 2	Total
Centre Backs	6	13	42	61
Fullbacks	11	6	31	48
Defensive Midfielders	9	11	30	50
Offensive Midfielder/Winger	8	8	37	53
Strikers	5	6	18	29

Table 2. Player Allocation

The analysis was carried out by assigning specific performance metrics to each position, reflecting different aspects of the game. These metrics were normalized to a per 90-minute basis for comparability. Complete details and a glossary of terms are available in appendix R1. Furthermore, to examine the possible impact of team success on individual performance, each player was assigned a number from 1 to 4, corresponding to the quartile of their team's final standing in the 2022/23 season[4]. Additionally, the dataset includes each player's seasonal average Sofascore rating, offering a quantitative measure of their overall performance.

[4] For the analysis involving the Bundesliga, which consists of only 18 teams as opposed to the usual 20 in other leagues, the fourth quartile includes the six teams that finished last.

The data analysis uses Welch's t-test, chosen for its suitability in handling unequal variances between the smaller Portuguese player group and the larger benchmark groups, and focuses on comparing the means of the metrics for both groups (Statology 2019). This approach is particularly relevant considering the data sets almost represent the entire population of players in their respective categories. The analysis is performed using Excel and SPSS, with a level of significance set at 10%. This significance level accounts for the small sample sizes and the near-population nature of the data, aiming to mitigate the risk of Type II errors. The findings are set to highlight key differences in performance, contributing to a broader understanding of Portuguese player characteristics on each position at the highest level of football.

4.3 Brand Perspective

The brand analysis aims at answering the following research question: "*How are Portuguese footballers, and their impact, perceived by Top 5 league fans?*"

As such, in order to understand fans' perception of Portuguese players impact in the Top 5 leagues, a survey was launched, to gather, mostly, qualitative data on which traits were associated with player impact, and to observe whether Portuguese football players were associated with those characteristics, essentially understanding the fans brand knowledge of the FPF brand. Brand knowledge relates to the representation of a brand in a consumer's mind (Keller 2003) and is a fundamental part of branding. If usually refers to brand awareness and brand image (Chandon 2004). Both are tested in the survey. Brand awareness relates to the accessibility of a brand in a person's memory and can be measured through brand recall, which measures a customer's capacity to recall a brand when presented with the product's category (Chandon 2004). This is done by asking respondents which nations they associate with their selected impact traits. Brand image, the brand perceptions as reflected via associations held with consumers' memory (Chandon 2004), is also tested by projective techniques, when its asked directly to respondents which traits do they associate with Portuguese football players.

Overall, the survey is split into three main sections, with a fourth one for demographic information of the participant. In the first section – "Ability to recall impact section" – respondents are asked about the knowledge and viewership habits of their favorite clubs, to understand how connected they are with football and their club, therefore measuring how capable are they of relating impact to players.

The second section – "General impact and perception section" – aims to understand which nations do the respondents associate with talent and which traits do they connect with impactful players, testing if Portuguese players are their primary associations with such characteristics.

In the third section – "Impact and perception of Portuguese players section" – all questions are directly tied to Portuguese players, to comprehend which traits are associated with them, and whether they match with those indicated in the previous section, even if they are not the respondent's primary nation association. How the impact of these players in their favorite club and league affected their perception of Portuguese players is also tested in this section. The survey was open to answers between November 8th and November 25th, and achieved a total of 114 full responses, 107 of which were deemed valid. To support, and further understand how Top 5 league fans perceive the impact of Portuguese footballers, an analysis on the players social influence was also conducted. To measure the players social influence, Instagram follower data was chosen as the measuring metric, as according to Football Benchmark (2023), an in-depth and purpose-built digital analytics platform on the business of football (Football Benchmark n.d.), Instagram is football's leading social network, even described as dominant among football players, taking into account that almost two thirds of the total followers of the top 10 most popular players are coming from the social media app. As such, data from Portuguese National Team players was taken and compared with the same data from National Team players in Benchmark Group 1. The data was taken on two different dates, and therefore squads, to broaden the scope of analysis. In this context, the first data sample was taken on

08/09/2023 and second data sample was taken on 18/11/2023, reflecting the squads for both September and November international games.

4.4 Financial Perspective

The third perspective, crucial for evaluating the impact of Portuguese players in the Top 5 leagues, is the financial perspective. To assess both the impact from a Transfer Market perspective as well as from a Wage perspective, various quantitative analyses were conducted. Quantitative analysis proves to be appropriate when investigating transfer fees and wages for football players, as the data available on these is very detailed with prior studies in literature referring to a range of quantitative models (Kahn 2000; Dobson and Gerrard 1999).

4.4.1 Transfer Market Perspective

The analysis of transfer market aims to answer two key questions: (1) "*Do clubs pay a premium over market value for players with Portuguese nationality and if yes, for which kind of player and how does the premium differ from the premium of other nationalities?"* (2) "*How successful are transfers of Portuguese players, considering both sporting and financial factors*?"

To address key question (1), both a T-test and Propensity Score Matching were employed. For the one-sided T-test assuming unequal variances, the variables "transfer fee" and "market value" at the time of transfer of the Portuguese players were considered. The aim was to establish the significance of the differences and the average extent of these differences. The relevant data was obtained from Transfermarkt.com. To understand the factors influencing the market values, an interview with the Head of International of Transfermarkt.de, Christian Schwarz, was conducted as part of the financial analysis (refer to Appendix B). The most important factors include age, future prospects, league standing, performance potential and sporting achievements at club and national team level (refer to Appendix A for a comprehensive list). Firstly, an analysis was conducted on all transfers involving Portuguese players with a transfer

fee of minimum €5 million. The sample population was then reduced to the top 100 transfers in the Top 5 leagues. Additionally, only transfers from the 2005/06 season onwards were considered for the t-test, as market value data from Transfermarkt was only available sporadically for previous seasons. Since the results regarding a possible premium can only be relevant when compared with players from other nations, further t-tests were carried out with top 100 transfers of players from all Benchmark Group 1 and 2 countries. To validate the results on the premium for Portuguese players, a Propensity Score Matching model was developed. For this purpose, Propensity Scores were determined based on six variables for the 100 most expensive transfers to the Top 5 leagues for Portuguese players as well as from each benchmark countries. The calculation of the Propensity Scores was performed in Python. The variables chosen are based on Francesci et al. (2023), who identified six categories describing factors influencing transfer fees after an examination of 29 papers.

Category	**Variable**
Time	Transfer after season 2017/2018? (Dummy Variable)
Labor	Remaining Contract Length
Performance	Average player rating in previous season
Clubs Characteristics	Club in Premier League (Dummy Variable)
Player Characteristics	Distance from Age of 40
Player Characteristics	Offensive Position (Dummy Variable)

Table 3. Propensity Score Matching Variable Selection

For the Propensity Scores, variables were selected that are associated with impact on transfer fees and premiums, as in the case of the Premier League club dummy, that has already been proven in the literature to increase a transfer premium (Francesci et al. 2023; Depken and Globan 2020). Data on the various variables was primarily sourced from Transfermarkt, while player ratings in the season before the transfer were taken from sofascore.com. Due to the unavailability of player ratings before the season 2015/16, the population was reduced to transfers from the 2016/17 season onwards. The category of popularity was omitted as the exponential inflation of the internet prevents a representative comparison of results from several years ago with current results. Instead of Popularity, another variable of the category player

characteristics was included. Significance was tested with the Chi-square test assuming no association between variables.

To address key question (2), information gathered from the transfers of Portuguese players in the Top 5 leagues of the first key question was analyzed. To assess the success, but also the risks, of transfers of Portuguese players, the sample was divided into two groups: a) players who are still under contract with the club or who left the club on a free transfer at the end of their contract, and b) players who left the club for a transfer fee. Both groups were subjected to a Quadrant Comparison Analysis, which combined the financial factors for a) market value development and b) transfer fee generated with a sports factor. The study computed a sports factor for every considered player. This factor was determined as the average rating per game in the league throughout the duration of their time for the buyer club. The computation was based on the average number of games played per season. If a player participated in fewer than 30 games, his rating was reduced by 0.1. If played fewer than 20 games, the reduction was 0.2 and for those who played on average fewer than 10 games, the rating was reduced by 0.3. As player ratings from SofaScore were used in this analysis, the sample was limited to transfers made from the 2015/16 season onwards. Transfers for the 2023/24 season were excluded as their success cannot be determined yet. The analysis focused on the evaluation of the four quadrants depicted on the graph which combined both factors.

4.4.2 Wages Perspective

The analysis of wages of Portuguese players aims to address two questions: *(1) "Are clubs from the Top 5 European leagues willing to pay higher wages to Portuguese players? How does that differ from other nationalities?" (2) "If clubs from the Top 5 European leagues pay superior wages to Portuguese players, which factors have an impact in the determination of such wages?"*

In order to answer question (1), a simple analysis of the Portuguese players' average wages in each of the Top 5 leagues was undertaken. According to OEDC Statistics (n.d.), the average wages in an economy are determined by dividing the aggregate wage expenditure by the number of employees in the economy. In this case, calculating the average wage of Portuguese players per year in the analysis period involved summing the individual Portuguese players' wages and dividing by the total number of Portuguese players playing in that specific league and year. This procedure was carried out initially from an individual league perspective, to address if which leagues are willing to pay higher wages to Portuguese players and then from the broader perspective of the Top 5 leagues as a single entity. Players' wages were obtained from Capology (capology.com), a website specialized in providing data on player salaries and club financial statements in various football leagues around the world (Capology n.d.). According to Capology (2020), 30% of the total salaries within 16 leagues are directly verified through clubs, player agencies and journalists, while the remaining wages are estimated by algorithms based on official payroll data and that have an "error rate of less than 5%" (Capology 2020). In a study regarding salary determination of goalkeepers, Berri et al. (2023) used data from Capology and, by making comparisons with information from the Italian newspaper *Gazzetta dello Sport*, the German magazine *Kicker* and other studies, they found evidence on Capology's reliability and credibility. The dataset to address question (1) includes salaries of 152 Portuguese players, 147 Dutch players and 102 Belgian players. Throughout the eleven seasons comprising the 2013/14-2023/24 period, more players from the three nationalities have played in the Top 5 leagues. However, salary information for 36 Portuguese, 25 Dutch and 35 Belgian was not available in Capology. Moreover, wages are in gross terms, excluding taxes and performance-related components, such as incentives or bonuses, and are represented in euros. It should also be noted that the wages have as a reference date the beginning of each season, corresponding to August. Thus, salaries of the season 2023/24 refer to August 2023.

To address question (2), a multiple regression model was conducted. This approach, previously utilized by other researchers to identify the key determinants of professional football wages (Ribeiro et al. 2021; Thrane 2019; Celik and Ince-Yenilmez 2017), involves analyzing the relationship between a dependent variable and multiple independent variables (Moore et al. 2006). The wage equation used was the following:

$$\text{Wages} = \beta 0 + \beta 1\ Performance + \beta 2\ Position + \beta 3\ Age + \beta 4\ NationalTeam$$

Equation 1. Wage Regression Equation

The dependent variable, Wages, as previously mentioned, was taken from the website Capology. The independent variables were selected based on a combination of previous literature and data availability. Player Position, Age and National Team data were obtained from Transfermarkt, while Performance, representing the average ratings of the players in the previous season, was taken from Sofascore.com. It is important to mention, that Sofascore only provides players' average ratings from the season 2015/16 onward, resulting in the absence of average ratings for the 2013/14 and 2014/15 seasons. Consequently, the dataset was reduced to wages from the 2016/17 season onward.

Dependent Variable			
Characteristic	Variables	Source	Description
Wages	Wages	Capology	Gross Salary of each player
Independent Variables			
Performance	Rating from previous season	SofaScore	Performance rating in previous season. Varies from 0 to 10.
Position	Attacker	Transfermarkt	Dummy variable: 1 if player is an attacker, 0 otherwise
	Midfielder	Transfermarkt	Dummy variable: 1 if player is a midfielder, 0 otherwise
	Defender	Transfermarkt	Dummy variable: 1 if player is a defender, 0 otherwise
Age	Age	Transfermarkt	Age of the players in years
National Team	National Team	Transfermarkt	Dummy variable: 1 if the player was selected to the National Team, 0 otherwise

Table 4 Wages Perspective - Study Variables

5. Exploring the impact of Portuguese Football Players in the Top 5 Leagues: A Transfer Market Analysis

5.1 Development of the Transfer Market with Focus on Portuguese Player

Over the past decades, there has been a substantial upswing in transfer fees paid by football clubs for players under contract with other clubs. As of the season 2023/24, the highest fee paid to obtain the exclusive right to use the services of a player, as defined by Rottenberg in 1956, is €222 million for the Brazilian Neymar Jr. from the 2017/18 season (Transfermarkt n.d.). In recent years, the transfer market has grown, not only at the top but also on a broad scale (refer to Appendix F). Over the last decade, leading up to the 2022/23 season, this transfer fee inflation in the entire transfer market averaged 9% p.a. and even 13.8% p.a. excluding the COVID-19 pandemic (Poli, Ravenel, and Besson 2023). With Neymar's' transfer from FC Barcelona to Paris SG, along with Philippe Coutinho and Ousmane Dembélé's transfers to FC Barcelona for €135 million each, the 2017/18 season represents the peak of this development to date. It documents three of football's four all-time most expensive transfers (Transfermarkt n.d.).

Out of the 100 most expensive transfers in the history of football, ten involved Portuguese players, almost all of whom joined football clubs in the Top 5 leagues. The exception is winger Otávio who transferred from FC Porto to Al-Nassr in Saudi Arabia in the 2023/24 season. In the international context, only Brazil and France have more players in the Top 100 than Portugal (Transfermarkt n.d.). The most expensive transfer for a Portuguese player is the one of João Félix, who joined Atletico Madrid in Spain at the age of 19 for a transfer fee of €127.2 million (refer to Appendix G for a table detailing the most expensive Portuguese transfers in the Top 5 leagues). The example of João Félix is referred again in the following analysis. Alongside the record transfer, the average inflation rate for the five most expensive Portuguese transfers in the entire market over the last 10 years up to the 2023/24 season was 13.2%. Another indicator of

the rise in transfer fees for Portuguese players is the 60% increase in the number of double-digit million transfers compared to the average of the previous five years.

Football clubs may tend to focus on players of one nationality due to various factors in the transfer market (Wilson and Ying 2003). During this millennium, two Premier League clubs, Wolverhampton Wanderers (€277.29 million) and Manchester City (€248.60 million), are the top two spenders on Portuguese players. While Manchester City's sum is made up of just six new signings, Wolverhampton Wanderers made 38 transfers. In addition, among the 50 biggest buying clubs of Portuguese players, there are only three clubs from the Top 5 leagues with a double-digit million positive transfer balance, whereas the balance of the top Portuguese clubs is in the mid three-digit million range (Appendix H). This finding confirms Portugal's classification as a "trader" country in the Szabados-Reich matrix by Andras and Havran (2014).

5.2 Transfer Fee Premium Analysis

5.2.1 Explanation of Transfer Fee Premium

The presented first key question was: "*Do clubs pay a premium over market value for players with Portuguese nationality and if yes, for which kind of player and how does the premium differ from the premium of other nationalities?"*

According to Depken and Globan (2020), a transfer premium is the difference between the market value and the transfer fee of a player. As described in section 3.4.1, the crowd-sourced market values of Transfermarkt.com not only have a substantial influence on academic papers that conduct empirical analyses of transfer fees, but also play an important role in real transfer and salary negotiations (McHale and Holmes 2023). The market values are calculated by various pricing models and extensive community involvement. Corresponding to an anticipated transfer fee value, they are an integral component of the market (Transfermarkt n.d.). With regard to Depken and Globan's finding (2020) of a transfer premium for English clubs, long-time Arsenal FC manager Arsène Wenger said already back in 2016: "I have told you before

the criteria for the price of a player, but you could add one more: the identity of the buyer. When the buyer is English, it is true that it multiplies the transfer by two or three or sometimes by 10. If an English club does not come in, he is worth £5 million but, if an English club comes for the same player, he is worth £35 million or 40 or 50"(The Telegraph 2016). The analysis carried out in this paper adapts this approach to another criterion: the player's nationality.

5.2.2 Transfer Fee Premium Results

5.2.2.1 Total Transfer Premium

The analysis of a sample comprising all 155 transfers involving Portuguese players with a transfer fee of at least €5 million since the season 2005/06 reveals a significant transfer premium. This premium is on average €4.05 million and statistically significant at the 90% and 95% level, with a p-value of 2.24%. Table 15 shows that no significant premium was found in the countries belonging to Benchmark Group 1 with similar strengths of domestic leagues and national teams. In Benchmark Group 2, the average premium was only higher for transfers of English than for Portuguese players. However, all countries within Benchmark Group 2 possess a larger sample size, resulting in an increased clustering of transfers at the lower end of transfer fees and thus reducing the significance of the absolute average difference. A total of 2774 transfers were analyzed for all countries, with an average of 150 transfers exceeding €5 million for countries in Benchmark Group 1 and 332 transfers for countries in Benchmark Group 2. Focusing on transfers to clubs in the Top 5 leagues reveals comparable patterns. While no significant transfer premium is evident for the 100 most expensive Belgian and Dutch transfers to Top 5 league clubs, significant premiums were found for all countries except Germany in Benchmark Group 2. The transfer fee premium for transfers of Portuguese players is significant at the 90% and 95% level and is with €4.69 million on average high even compared to Benchmark Group 2 countries. It exceeds the average premium paid by clubs from the Top 5 leagues for players from Spain, Italy and Argentina and is only outperformed by Benchmark

countries France, England and Brazil.

		Benchmark-Group 1		Benchmark-Group 2						
Transfer Premium	Portugal	Belgium	Netherlands	Argentina	Brazil	England	France	Germany	Italy	Spain
All Transfers over €5 million	4.05 ** (2.24%)	2.31 (17.74%)	1.40 (15.16%)	2.16 ** (1.28%)	2.99*** (0.04%)	5.11*** (0.00%)	2.39 ** (2.69%)	-0.05 (48.49%)	1.65*** (0.69%)	1.37 * (7.28%)
Top 100 transfers in Top 5 leagues	4.69 ** (4.55%)	2.83 (16.85%)	2.56 (11.74%)	4.63 ** (1.67%)	9.40*** (0.14%)	9.62*** (0.00%)	7.12 ** (2.12%)	-0.21 (45.81%)	2.99 ** (1.96%)	3.30 ** (4.37%)

Standard Errors are reported in parentheses.
*,**,*** indicate significance at the 90%, 95% and 99% level, respectively

Table 15. Total Transfer Premium of all examined countries in € million

The findings reveal the impact that Portuguese players have on the transfer market, with clubs willing to pay a premium to sign a player of Portuguese nationality. Despite a weaker domestic league and historically less successful national teams compared to Benchmark 2, Portugal ranks among these leading countries, indicating the attractiveness of Portuguese players for clubs in the Top 5 leagues. In the subsequent sections, an in-depth analysis of this premium is provided.

5.2.2.2 Transfer Fee Premium of Portuguese Clubs

The Portuguese football clubs FC Porto, Sporting CP and SL Benfica are strongly associated with the high transfer fees and transfer premium paid for Portuguese players. Among the previously analyzed sample of the top 100 most expensive transfers of Portuguese players to the Top 5 leagues, 46 players were sold by one of these three clubs (Transfermarkt n.d.). This sportive platform is internationally recognized and has led to an increase in demand from clubs in the top leagues for players from these clubs in recent years (CNN 2022; The Football Faithful 2020). Due to this growing demand, the three clubs have secured high transfer fees and premiums for players, many of whom are yet to establish themselves in the Top 5 leagues. The transfers of James Rodríguez (from FC Porto to AS Monaco for €45 million, with a market value of €23 million), Manuel Ugarte (from Sporting CP to Paris SG for €60 million, with a market value of €50 million) and João Félix (from SL Benfica to Atletico Madrid for €127.2 million, with a market value of €70 million) exemplify these large transfer figures. The examination of the 100 most expensive transfers to the Top 5 leagues of these three clubs, results

in a transfer premium significantly at the 99% level (p-value 0.43%), averaging €6.49 million. By reducing the sample size to sales involving Portuguese players by the three clubs, the average premium is even higher at €7.41 million (p-value 3.31%). Again, Portugal surpasses the benchmark countries of the Netherlands and Belgium in terms of transfer premium as well as top transfer fees. Neither the Dutch sales of the top clubs in the Eredivisie (Ajax Amsterdam, PSV Eindhoven and AZ Alkmaar) nor the Belgian sales of the top clubs in the Jupiler Pro League (RSC Anderlecht, Club Brugge, KRC Genk and Standard Liège) show a significant transfer premium. Although these clubs are recognized for developing and selling young football players (The Guardian 2019; Gallwey 2019; Deloitte 2019), the results suggest that the transfer fees for both nationalities in their domestic leagues are orientated towards market values. However, a premium is imposed to Portuguese players from Liga Portugal.

	Liga Portugal (POR)		Eredivisie (NLD)		Jupiler Pro League (BEL)	
	All Nationalities	Portugal	All Nationalities	Netherlands	All Nationalities	Belgium
Sales of Top Clubs	6.49 ***	7.41 **	1.91	0.78	1.78 **	1.90
	(0.43%)	(3.31%)	(19.90%)	(40.53%)	(1.95%)	(12.33%)

Standard Errors are reported in parentheses.
*,**,*** indicate significance at the 90%, 95% and 99% level, respectively

Table 16. Transfer Fee Premium of Top Clubs in Portugal and Benchmark Group 1 in € million

These findings prove that the reputation of Portuguese top clubs as top talents suppliers amplifies the value of Portuguese players on the transfer market. Although Christoph Schwarz, Head of International at Transfermarkt.de, confirmed in an interview conducted for this study that the international standing of these three Portuguese clubs is acknowledged in market value determinations, the results suggest that their premium is still underestimated.

5.2.2.3 Impact of European Championship Title on Transfer Fee Premium

International success of national teams not only raises awareness, but also enhances the attractiveness of players from that nation on the transfer market. This can be evidenced by the Spanish club Real Madrid, who signed players after each of the last World Cups that garnered positive attention during the tournament. Notably, the young German stars Mesut Özil and Sami

Khedira were signed after the 2010 World Cup. After the World Cup in 2014, Real Madrid signed World Cups' top scorer James Rodríguez from Colombia and in the 2018 World Cup season, Thibaut Courtois, who was named the tournament's best goalkeeper (Transfermarkt n.d.; FIFA 2022). In 2016, Portugal won its first international title by winning the European Championship and the players raised attention from top clubs. In the European Championship summer transfer window alone, five players from the starting line-up for the final against France, as well as substitute goal scorer Éder, transferred for a total of €114 million (with a total market value of €86 million), including three players from a non-top 5 league to a Top 5 league. An analysis of the Portuguese transfer premium before and after this international success shows that a significant transfer premium only became apparent after the title win and has since totaled almost €6 million, with a p-value of 4.78% (refer to Appendix I.7). Winning the European Championship has led to a significant rise in interest for Portuguese players on the transfer market of the Top 5 leagues and is a key event in the new era of Portuguese football in terms of financial impact.

5.2.2.4 Position-related Transfer Fee Premium

A player who has particularly influenced the impact of Portuguese players on the transfer market and made its move to Manchester United in the Premier League at the age of 18 is Cristiano Ronaldo. After 4 years in the Premier League, Cristiano Ronaldo finished on the podium for the *Ballon d'Or*, the award for the world's best footballer of the year (L'Equipe 2017). From this point on at the latest, Ronaldo's performances not only had a sporting impact, but also an impact on the transfer market for Portuguese players. Reducing the top 100 Portuguese transfer sample to transfers from the 2008/09 season, the season after Ronaldo reached the podium, there is a significant transfer premium for offensive players, while no significant premium is evident for defensive players. To classify players' positions, goalkeepers, defenders, as well as defensive and central midfielders were classified as 'defensive' and the

rest as 'offensive'. Although international transfer market's focus on Portuguese players was already focused on offensive players before, Cristiano Ronaldo's impact amplified that effect on the transfer market. For the period before the 2008/09 season, there is not a large enough sample for a significant result due to the limitation of the available market values from the 2005/06 season onwards. However, regarding all ten transfers of Portuguese attacking players, with a transfer fee of at least 1 million, not focusing on the league the difference between the average transfer fee and market value was only €0.85 million. A similar phenomenon to the Portuguese transfers can also be seen in the transfers of Argentinian players (Benchmark Group 2). Like Cristiano Ronaldo, Lionel Messi was also nominated in the top three of the *Ballon d'Or* in 2007. Comparing the transfer premiums of offensive and defensive players for Argentina from that date onwards reveals there is likewise only a significant premium for offensive Argentine players, which at €6.10 million is lower than the €7.74 million for Portuguese offensive players. The premium for Cristiano Ronaldo's winger position is even higher in the sample, at €9.46 million; however, because of the small sample size, the premium is only significant at the 90% level (p-value 8.39%). The example of Italy (Benchmark Group 2) contradicts the assumption that a transfer premium for offensive players is generally higher than for defensive players. For the Benchmark country Italy, which stands for defensive-oriented football (Bosca, Liern, Martinez and Sala 2009), a significant transfer premium for defensive players only is €4.44 million.

		Benchmark-Group 1		Benchmark-Group 2	
Transfer Premium	Portugal	Belgium	Netherlands	Argentina	Italy
Offensive Player	7.74 *	4.18	-1.33	6.10 **	1.72
	(6.94%)	(23.41%)	(29.77%)	(2.68%)	(10.01%)
Defensive Player	3.12	1.98	4.92 *	3.61	4.41 **
	(14.91%)	(19.63%)	(7.52%)	(16.72%)	(5.00%)

Standard Errors are reported in parentheses.
*,**,*** indicate significance at the 90%, 95% and 99% level, respectively

Table 17. Transfer Premium Differences between Offensive and Defensive Players in € million

A similar pattern can also be observed in Benchmark Group 1, in which a significant premium was not found for Belgian transfers for either defensive or offensive players, but in the

Benchmark country Netherlands a premium for defensive players was significantly at the 90% level (p-value 7.52%).

The statistical test shows that the financial impact of Portuguese players is particularly concentrated in offensive positions, and that this effect has been amplified by Cristiano Ronaldo's rise to international stardom.

5.2.2.5 Transfer Fee Premium of different Age Groups

Following previous results, that revealed a premium specifically for offensive Portuguese players enhanced by European Championship title events and the rise of Cristiano Ronaldo, the transfer premium for different age groups is now presented. According to Francesci et al. (2023), age has a u-inverse shape relation to transfer fees. Regarding the transfer premium of Portuguese players, this relationship could not be found. Rather, the premium is negatively correlated with age, even if factors such as future prospects are part of market value determination (Appendix A). Neither for the age groups 24-30 years ("seasoned players") nor for the age group from 31 years on ("experienced players") could a significant premium be found in the sample of the 100 most expensive transfers to the Top 5 leagues. In the age group up to 23 years ("young talents"), the premium is significant at the 99% level (p-value 0.45%) and averages 9.43 million. If this age group is further divided into the 30 youngest players from the sample (age 17-21), the premium is even higher at €11.10 million than for the further 30 youngest transfers (age 22-24) with a premium of an average of €8.02 million. These figures demonstrate the exceptional standing of Portuguese talents in international football and their impact on the transfer market. Because of their education and the opportunity to gain national and international experience with Portuguese clubs at a very young age, clubs from the Top 5 leagues are prepared to spend large fees on very young players. Among the 100 most expensive transfers of players aged 23 or under, only France (15 transfers) accounted for more players than Portugal (11 transfers).

5.2.3 Propensity Score Matching

To validate the results concerning a transfer fee premium for Portuguese players, Propensity Score Matching was carried out in accordance with the criteria enhancing high transfer fees and premium, explained in 4.4.1 (Francesci et al. 2023; Depken and Globan 2020). In addition to the variables suggested by Francesci et al. (2023), the choice of criteria also focused on criteria enhancing the probability of a transfer premium such as the move to the English Premier League, which has a transfer premium at club level (Depken and Globan 2020).

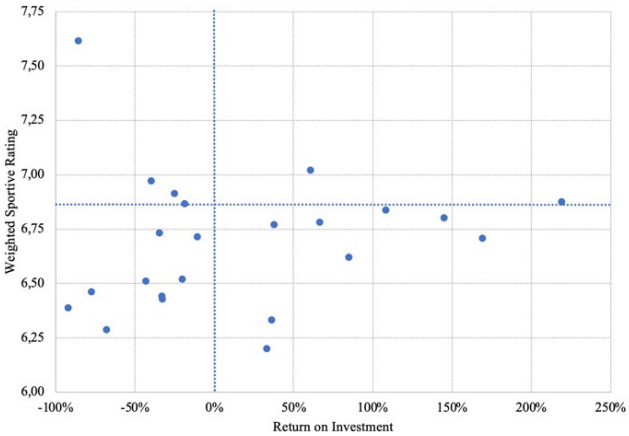
By applying a variation of Radius Caliper Matching and filtering the results by one standard deviation distance in each category for every transfer before matching the propensity scores, two comparison groups were created. Those groups consisted of 68 matched pairs of different transfers that have the most similar possible prerequisites for a transfer premium based on 4669 manually collected data points and 667 transfers in the total sample. Although the results indicate a slightly more frequent premium for Portuguese transfers in comparison with Benchmark Group 2 transfers, this distinction is not significant according to the Chi-Square test (p-value 71.05%). In propensity score matching with Benchmark Group 1 transfers, however, there is a significant difference at the 90% level, with a p-value of 7.53% (Appendix K.1). While a transfer premium for Portuguese players was evident 48 times in the 68 transfers compared, the transfers of Belgian and Dutch players only resulted in 38 transfer premiums despite the basic requirements for a premium being as similar as possible. Additionally, the average amount of the 48 respectively 38 transfer premiums differ by €2.85 million. Annex J contains a detailed table with the matched pairs of the two benchmark groups. The validation of the transfer premium proves that there is a significant bias in the transfer market for Portuguese nationality compared to Benchmark Group 1 nationalities. Accordingly, clubs from Top 5 leagues are willing to pay a significant transfer premium for Portuguese players that not only occurs more frequently than for player transfers from comparable countries (Benchmark

Group 1) but is also higher in absolute terms. Benchmark Group 2 comprising the leading nations in world football cannot be outperformed by Portuguese players, but Portugal is not surpassed by these countries either, rather is on the same level. This is a strong indicator of the impact that Portuguese players have on the transfer market of the Top 5 leagues.

5.3 Evaluation of Portuguese Transfers' Success

The second key question presented as part of the analysis of transfer fees was: "*How successful are transfers of Portuguese players, considering both sporting and financial factors?"*

The transfers examined based on both sporting and financial factors according to 4.4.1 are shown in figures 7 and 8. There are four quadrants, with the 1st quadrant ("Success Impact") showing transfers with a very positive overall impact for the buying club, both from a sporting and financial perspective. On the other hand, transfers of players from the 3rd quadrant ("Failure Impact") are classified as not having an impact, with the players neither having sporting nor financial success for the buying club. The financial quadrant cut was drawn at a financial impact of 0% change in both cases, while the average global SofaScore cut of 6.86 was used for the weighted Sporting Rating (SofaScore 2019).



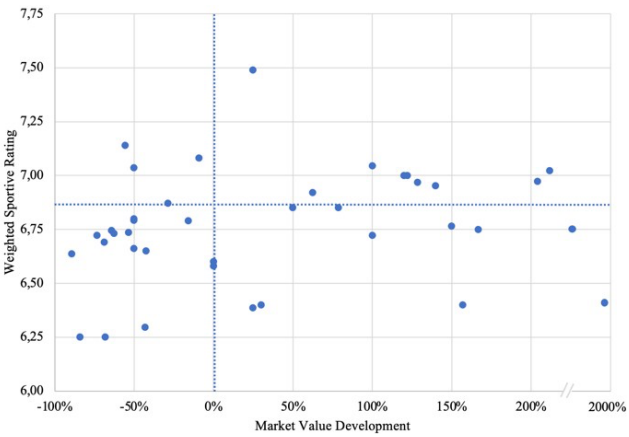


Figure 7. Quadrant Analysis of players that already left the buying club (left)
Figure 8. Quadrant Analysis of players that are still active in their club/left for a free transfer (right)

Quadrant Comparison Analysis a), that analyzes transfers of players who have already left the buying club for a transfer fee, shows that the largest number of players are placed in the 3rd quadrant.

A closer look at the individual cases (Table 18) reveals that most of these players are aged between 18 and 23 and made their big move directly from a non-top 5 league - often the Portuguese clubs mentioned above - to top international clubs in the top leagues. These players were unable to establish themselves at these clubs and were sold again for a smaller fee.

Name	Selling Club	Buying Club	Transfer Fee	Age	Avg. Rating	Avg. Games	Resale Amount
André Silva	FC Porto	AC Milan	38	21	6.69	8	3
André Gomes	FC Valencia	FC Barcelona	37	22	6.63	15	25
Nélson Semedo	Sporting CP	FC Barcelona	35.7	23	6.81	27	32
Trincão	SC Braga	FC Barcelona	35	18	6.71	11	20
Renato Sanches	SL Benfica	Bayern Munich	30.94	20	6.66	9	7
Rui Patrício	Sporting CP	Wolverhampton	18	30	6.73	37	11.8
Bruma	Galatasaray	RB Leipzig	15	22	6.72	14	12
Rúben Semedo	Sporting CP	FC Villareal	14	23	6.59	8	4.5
Éder	SC Braga	Swansea City	6.7	27	6.64	13	4.5

Table 18 Characteristics of resold Portuguese Players categorized into Quadrant 3

In addition to many young, talented players who have not yet been able to justify the high investments, the analysis of Quadrant Analysis b) also includes older players. In addition to the decrease in market value - as confirmed by the u-inverse shape relation determined by Francesci et al. (2023) - the sporting impact has decreased with increasing age. Interestingly, players from the 3rd quadrant in Analysis a) rarely transition to a different quadrant in their new clubs, highlighting potential long-term career setbacks for those moving to top clubs early. Notable exceptions include André Silva's success at Eintracht Frankfurt and Renato Sanches' stint at LOSC Lille. The 2nd quadrant ("Sportive Sustainable Impact") consists of players who have made a good sporting impression at their new club but have failed to increase their market value in financial terms or have been sold at a loss. Among them are experienced players such as Cristiano Ronaldo and José Fonte, who had an above-average positive sportive impact despite their advanced age, and players such as João Cancelo and João Félix, whose sporting impact were not enough to justify their high market values and transfer fees. Quadrant 4 ("Financial Sustainable Impact") shows in both graphs mainly Portuguese players who are not yet at the level of impactful performers in terms of sporting impact but were still in demand and trusted on the market at the time of the sale or market value measurement. Also included are players

who required a certain period to get up to speed at their new club, but subsequently became performers with a sporting impact and ultimately a positive financial impact. An example of this argument is Diogo Dalot, signed by Manchester United from FC Porto at the age of 19. In his first two years, Dalot managed only 20 Premier League appearances with an average rating of 6.75. This led to a decline in his market value, placing him in the “failure impact” quadrant at that time. However, following a subsequent loan to AC Milan, Dalot was able to establish himself at Manchester United and significantly increase his market value, which justifies his classification in the 4th quadrant. In the long run, Dalot's transfer could even turn into a "successful impact” transfer for Manchester United if his performances continue.

Overall, there are very few transfers of players who are a success for the buying club in both financial and sporting terms. However, the impact of these players is significant. All the six most valuable Portuguese players are in the 1st quadrant ("Success Impact"). Apart from Nuno Mendes from Paris SG, none of these players are still at the talent stage but have successfully made the transition from a talented player with great potential to a top performer with a high impact. One notable pattern is that despite the high demand and the transfer premiums for offensive players identified, of the eleven players categorized in the 1st quadrant in analyses a) and b), the majority is defensive-oriented with seven players. This is an indication that although attacking Portuguese players are more attractive on the transfer market, they are also associated with more risk and are less likely to be an absolute transfer success than defensive players.

5.4 Discussion on Portuguese Impact in Top 5 Leagues

5.4.1 Players’ Impact Analyses

The analysis of the transfer premium highlights the impact that Portuguese players in the Top 5 leagues have on the transfer market. A bias is discernible within the transfer market, as evidenced by a transfer premium associated with players from Portugal. The statistical significance of this premium underscores the heightened attractiveness of these players to clubs

and is thus increasing the bargaining power of the selling club (Carmichael and Thomas 1993). This bargaining power was particularly evident in relation to Portuguese transfers from the three top Portuguese clubs SL Benfica, Sporting CP, and FC Porto. As analyzed, Portugal's transfer premium is higher than that of the countries in Benchmark Group 1 and a part of Benchmark Group 2. However, the €4.69 million premium cannot be fully explained by the findings of Coates and Parshakow (2022). In their study, both authors examined the influence of the remaining contract length, a variable that is neither considered in market values nor in most transfer fee estimation models, on transfer fees (Coates and Parshakow 2022; Fees et al. 2004). Similarly, McHale and Holmes (2023) argue that the predictability of transfer market valuations decreases with decreasing contract length. For the top 100 transfers of Portuguese players to the Top 5 leagues, the average remaining contract length was 2.94 years. Coates and Parshakow (2022) showed an average increase in transfer fee of £0.55-0.80 million per year remaining on the contract. Assuming the mean value of £0.675 million, converting the sum at a rate of 1.15 EUR/GBP and multiplying the value by the average remaining contract length of 2.94 years indicates a value of €2.28 million of the 4.69 million transfer premium that can be explained by the contract length. Accordingly, more than half of the premium is not explained by this variable. It should be noted that the premium for Portuguese players is limited to attacking players, while there were other countries with a premium only being significant for defensive players. Key events that have significantly increased interest in Portuguese players include Cristiano Ronaldo's rise to global stardom and the European Championship win in 2016, in which Cristiano Ronaldo also played a key role as captain. The comparison with the development of the Argentinian transfer premium following the rise of Lionel Messi shows that clubs from the Top 5 leagues are in this context on the lookout for young, attacking talents to follow this path due to the impact of Cristiano Ronaldo and Lionel Messi. That finding confirms how Cristiano Ronaldo has changed the perception of Portuguese football (Wagg 2010).

Following that, several Portuguese offensive talents such as Gonçalo Guedes and João Félix have been dubbed "the new Ronaldo" in recent years (ESPN 2017; ESPN 2019). While this burden has paid off financially for the selling club and strengthened their bargaining power, the players have not always been able to withstand the pressure in sporting terms.

5.4.2 Application on the Example of João Félix

João Félix became the most expensive Portuguese footballer at the age of 19, joining Atletico Madrid for €127.2 million – 82% above its market value. His performances in the second half of the season 2018/19, including a hat-trick in the Europe League, drove this record fee. The premium paid reflects the findings of this work. João Félix comes from SL Benfica, a club known for selling young talents for high transfer fees and transfer premiums. The young age of 19 serves as another indicator of the premium, as showcased in section 7.2.2.5. Additionally, the Portuguese's offensive orientation boosts the transfer premium. Propensity Score Matching compares the transfer of João Félix with the transfer of Donyell Malen to Borussia Dortmund (Benchmark Group 1) and Ferran Torres to FC Barcelona (Benchmark Group 2). Based on the assumptions made, all three players have similar prerequisites for a transfer premium and only differ in their nationality. While João Félix's transfer premium was €57.2 million in absolute and 82% in relative terms, there was no transfer premium paid by Borussia Dortmund for Donyell Malen and a premium of €10 million (22%) by FC Barcelona for Ferran Torres.

Name	João Félix (POR)	Donyell Malen (NET)	Ferran Torres (ESP)
Selling Club	SL Benfica	PSV Eindhoven	Manchester City
Buying Club	Atletico Madrid	Borussia Dortmund	FC Barcelona
Transfer after 2017/18 season?	Yes	Yes	Yes
Remaining Contract Length	4 years	3 years	3.5 years
Average Rating in previous season	7.48	7.43	7.23
Club in Premier League?	No	No	No
Distance from Age of 40	21	19	19
Offensive Position?	Yes	Yes	Yes
Transfer Premium?	**Yes**	**No**	**Yes**

Table 19. Transfer Premium Prerequisites Propensity Score Matching of Joao Felix

players may fail to live up to expectations at top clubs. João Félix is almost categorized as “Failure Impact” yet is ultimately positioned within the domain of “Sportive Sustainable

Impact". His market value has declined by 29% since his transfer. While his sporting impact is slightly above average, it fails to substantiate the high transfer fee invested by Atletico Madrid. As a result, João Félix was loaned to Chelsea FC in the Premier League for the second half of the 2022/23 season. At Chelsea FC, João Félix also failed to impress and only managed a SofaScore rating of 6.73 in 16 appearances.

Even though João Félix will only be 24 years old in 2023 and could have a great, successful career ahead of him, all the findings that were compiled in the Transfer Market Analysis can be applied to his transfer to Atletico Madrid. While labeled as the "new" Ronaldo, Félix transferred at a young age from SL Benfica for a high transfer fee and premium above market value. But his move is also associated with an impact in the Top 5 leagues that fell short of expectations.

5.5 Conclusion

The first key question about a possible transfer premium for footballers from Portugal in the Top 5 leagues has been corroborated. This premium is especially related to young, offensive orientated players and increases significantly if the player comes from one of Portugal's top clubs. As to the main hypothesis of this work project, the hypothesis can only be verified in terms of comparable countries (Benchmark Group 1). Regarding financial impact, Portuguese players exceed those from Belgium and the Netherlands. The transfer premium of Portuguese players falls into Benchmark Group 2 among the leading football nations, contradicting the second part of the hypothesis. Accordingly, the findings of Depken and Frei (2023) about transfer premium of different nationalities can be confirmed. When assessing the success of transfers of Portuguese players, the pattern of young players moving straight to top international clubs at a young age, not becoming performers and thus jeopardizing their careers is striking. Contrary to transfer premium, the most successful transfers of Portuguese players in the Top 5 leagues are not necessarily wingers, but mainly defenders and central playing midfielders.

6. Limitations

6.1 Development Perspective

The data used in this analysis was straightforward, implying minimal issues with the data collection. Minor constraints in the analysis were identified in instances of player transfers and loans during the season. This resulted in these players being listed in the statistics of both leagues they participated in. Additionally, injuries could potentially lead to misrepresentations of the importance of players. Injured players, had they been fit, might have accumulated more games as a starter or substitute, thereby altering their game statistics and falling into a different category. Lastly, low numbers of players in, for example the Bundesliga, lead to over exemplified percentages in the classification, warranting careful interpretations.

6.2 Performance Perspective

Throughout the examination of the performance of Portuguese players in the Top 5 leagues, several significant limitations were identified and are important to acknowledge. The primary constraint of the study was sampling from a significantly small population, affecting various aspects of the research. First, it limited the generalizability of the results, raising questions about the statistical significance. Additionally, the assumption of normality in data distribution was often violated, potentially affecting the reliability of the findings. While the study did compare Portuguese players with other groups of nations, a detailed comparison with every nation for each position was not feasible. This was due to the risk of producing highly insignificant results from such specific comparisons, which could skew the overall understanding of player performance. Due to the same reason, the study did not allow and therefore not account for league-specific characteristics, which are substantial in understanding player performance given the varying styles and competitiveness across different leagues. Finally, integrating situational factors like match score and team strength into the analysis of individual

performance, which Yi et al. (2019) demonstrated to be impactful, presented significant challenges. Although the implemented variable "Team Strength" successfully demonstrated the impact of players' teams on certain metrics, the extent of this influence on each group was mostly insignificant and could therefore only be estimated. Finally, the limited sample period (2022/23 season) restricts identifying long-term performance trends and leads to the neglection of season-specific factors such as team strategies and a recency bias.

6.3 Brand Perspective

One of the major limitations of the brand analysis is the survey sample demographics. The sample is predominately male, and the vast majority of answers come from a small age gap of 18 to 24 years old, showcasing a lack of diversity within the sample.

When it comes to the nationality of the survey respondents, while there is a balance between Portuguese (National) fans and international fans, German fans consist of 41% of the foreign sample, whereas a more balanced distribution of international fans would've been ideal.

Furthermore, there is a very high shortage of French Ligue 1 representation in the sample, with only 1 answer, which is less than ideal when trying to equally analyze the impact in all Top 5 European leagues. Regarding the social influence analysis, a larger sample of social media analytics would have allowed for a more comprehensive analysis and discussion, instead of focusing just on the current picture of the Portuguese and Benchmark Group 1 National Teams.

6.4 Financial Perspective

In the financial analysis various limitations arise due to the availability of data. 70% of salaries on Capology are an estimation (Capology 2020) and market values on Transfermarkt are not official but crowd-sourced values (Herm et al. 2014). Although this data is highly accurate, its informative value is limited. In addition to the limitation in accuracy, there is also a limitation in the temporal availability of data. Particularly, both financial perspectives used the average

ratings, which were only available on SofaScore from season 2015/16 onwards, thus reducing the period of both analyses. In addition, players' average ratings from the previous season were not consistently available across all leagues. In some cases, it was necessary to rely on data from alternative competitions outside the respective leagues. In addition, values on contract lengths and wages were not available for some players, reducing the dataset of each perspective.

6.4.1 Transfer Market Perspective

There are various reasons why transfer fees may differ, including buy-out clauses or loans with purchase options or obligations, which affect the final transfer fee. Another reason may be performance-related add-ons, which are anchored in many contracts. Additionally, the focus on expensive transfers alters the way the results are interpreted. As Carmichael and Thomas (1993) showed, the choice of alternative players is reduced for players of a higher individual class and the bargaining strength of the selling club is strengthened. The premium cannot therefore be easily applied to transfers with low transfer fees. It should also be mentioned that some findings are only significant at the 90% level. For Propensity Score Matching there are further limitations as the "popularity" category could not be used for a comprehensive interpretation due to inflation of the internet. As a result, a category that would have provided a more precise determination of the prerequisites for a high propensity score was dropped from the model. For players without contract length data available, the sample average was assumed. While matching Propensity Scores, the filtering assumption also had to be relaxed by more than one standard deviation in individual cases, particularly for Benchmark Group 1 due to the sample size, to create a matching. For example, there was no comparable transfer of a player to Cristiano Ronaldo's transfer to Juventus FC who had an average rating anywhere near as high as Ronaldo's, at the age of over 30. In the detailed table of matched transfers, assumption relaxations were marked. The quadrant analysis for evaluating the success of transfers is a simplified analysis. On the one hand, there are various financial factors like jersey sales and

advertising deals that could not be included due to the lack of data. Secondly, the analysis of the sportive impact includes more variables than the average rating and number of appearances. As the performance impact is analyzed separately in this study, a simplified version of performance measurement was chosen for the Quadrant Analysis. Furthermore, the focus on league matches limits informative value, as matches at international level and title wins have a significant influence on a player's performance evaluation.

6.4.2 Wages Perspective

When analyzing the factors that could explain differences in wages among Portuguese players across the Top 5 leagues, certain players' wages - such those of Cristiano Ronaldo, Bernardo Silva, Bruno Fernandes, and others- were excluded from the dataset, since these were considered outliers. However, it is essential to acknowledge that, in doing so, the analysis omits consideration of some of the best Portuguese players. Moreover, in the end, the selected variables – Average Rating, Position, Age, and presence in the National Team- do not significantly explain the differences in Portuguese players' wages. This implies that additional explanatory variables could have been considered for a more comprehensive analysis.

7. Conclusion

The aim of this work was to analyze the impact of Portuguese football players in the Top 5 leagues, from four different perspectives: Development and Performance; Brand; Transfer Market and Wages. By exploring the main research question, this work concludes that Portuguese players have an impact across the Top 5 leagues.

In terms of Development and Performance, Portuguese players, particularly in the Premier League and Ligue 1, have experienced a remarkable surge in both representation and influence over the last decade. Notably, the adoption of nationality recruitment strategies by English and French clubs– such as Wolverhampton, AS Monaco and LOSC Lille – underscores the strategic

importance placed on Portuguese talent. Examining Brand impact, Portuguese players are recognized as impactful by fans of the Top 5 European leagues. According to fans, the perceived profile of a Portuguese football player - described as Technical, with strong Mental and Tactical strengths - closely aligns with that of an impactful player, showcasing the positive perceptions surrounding football players. In the Transfer Market realm, the transfer premiums, particularly focused on young attacking players, underscore the growing attractiveness of Portuguese talent. However, the evaluation of transfer success reveals challenges, with a notable pattern of Portuguese talents transferring to international top clubs at a young age but struggling to establish themselves. Therefore, only a few transfers can be considered a success from both a sportive and financial perspective. Contrarily to what the Transfer Premium suggests, these success transfers are more defensive oriented than offensive. From a Wage perspective, Portuguese players' earnings have increased over time. Notably, clubs exhibit a willingness to pay higher wages for better-performing midfielders and older Portuguese players selected for the National Team.

While addressing impact through different perspectives, several synergies and common findings are noticeable. Portugal's impact on football has been consistently growing through all metrics, as a larger representation of Portuguese players in the Top 5 leagues has been accompanied by higher transfer premiums and higher wages. The perceived traits of Portuguese footballers are also heavily aligned with the finding in other perspectives. Portuguese players perform above average in offensive metrics, when it comes to Fullbacks and Wingers, particularly in ball control and progressive actions, which directly ties with "Technique" and "Dribbling", the two most common traits that fans used to describe Portuguese Players. Furthermore, a transfer premium was found on offensive players, even if those transfers could not be evaluated as a success in both financial and sporting terms. Wage-wise, midfielders were found to receive the highest wages, aligning with the findings that midfielders were one of the

most successful positions in terms of sporting and financial transfer success. This can also be linked with “Passing” was being one of the most common attributes associated with Portuguese players. Cristiano Ronaldo’s influence in changing the perception of Portuguese footballers is also evident within several perspectives, as the search for the “New Cristiano Ronaldo” was found to be a driver in the transfer premium associated with offensive players, and the perception of Portuguese players in the leagues where he performed at his prime, Premier League and LaLiga, was superior to those of the other Top 5 leagues.

Overall, Portuguese players consistently outperform players from Benchmark Group 1 (the Netherlands and Belgium), and can are often close or amidst players from Benchmark Group 2 (Argentina, Brazil, Germany, England, France, Italy, and Spain), showcasing a clear growing impact of Portuguese footballers through the Top 5 leagues.

The project on the impact of Portuguese players in the Top 5 leagues provides recommendations and approaches for future work. As this work focused on measuring impact from four selected perspectives, future works could extend it by analyzing impact from further dimensions. As many young talents are currently active in the Top 5 leagues and due to the surge of representation Portuguese players in Top 5 leagues, a future analysis of their impact would be particularly interesting. In this context, it will be interesting to not only provide an absolute evaluation but also to compare the results with those of this study. The same applies to an analysis of Cristiano Ronaldo's career after its end. The work project has shown that the Portuguese superstar has had a significant influence on other players, particularly from a financial perspective. Therefore, analyzing the impact of Portuguese players after Ronaldo's career offers interesting opportunities to confirm trends discovered in this study. Although detailed data was available, various assumptions had to be made in several analyses, impacting sample sizes and results. Future work will have even larger data sets and presumably more metrics available to measure impact. This could provide even more accurate results.

References

"Capology." N.d. "About". *LinkedIn*. Retrieved November 2, 2023, from https://www.linkedin.com/company/capology/.

Aaker, David A. 1991. *Managing Brand Equity*. New York: Free Press.

Aaker, David A., and Kevin Lane Keller. 1993. "Interpreting Cross-Cultural Replications of Brand Extension Research." *International Journal of Research in Marketing* 10 (1): 55–59. doi:10.1016/0167-8116(93)90033-u.

Agência Lusa. 2021. "Atletismo é o segundo desporto preferido em Portugal." Observador, November 5, 2021. https://observador.pt/2021/11/05/atletismo-e-o-segundo-desporto-preferido-em-portugal/.

Allan, Grant, and John Moffat. 2014. "Muscle drain versus brain gain in association football: technology transfer through player emigration and manager immigration." *Applied Economics Letters* 21 (7) : 490–93. https://doi.org/10.1080/13504851.2013.870641.

Álvarez, Jaime, Dk Forrest, Ismael Sanz, and Juan De Dios Tena. 2011. "Impact of importing foreign talent on performance levels of local co-workers." *Labour Economics* 18 (3) : 287–96. https://doi.org/10.1016/j.labeco.2010.11.003.

Andras, Krisztina, and Zsolt Havran. 2014. "Regional Export Efficiency in the Market of Football Players." *"Club of Economics in Miskolc"* , TMP Vol. 10. (Nr. 2., pp. 3–15).

Andras, Krisztina. 2003. "Business elements in sports, through example of football". *Budapest University of Economics*. http://phd.lib.uni-corvinus.hu/150/2/andras_krisztina_en.pdf

Arastey, Guillermo Martinez. 2018. "Performance Indicators in football | Sport Performance Analysis." Sport Performance Analysis. June 19, 2018. https://www.sportperformanceanalysis.com/article/performance-indicators-in-football.

Armatas, Vasilis, A. Yiannakos, and P. Sileloglou. 2007. "Relationship between time and goal scoring in soccer games: Analysis of three World Cups." *International Journal of Performance Analysis in Sport* 7 (2) : 48–58.

https://doi.org/10.1080/24748668.2007.11868396.

Barker, Alex. 2021. “The statistical ranking of Europe’s top 5 leagues.” Breaking the Lines. June 29, 2021. https://breakingthelines.com/statistical-analysis/the-statistical-ranking-of-europes-top-5-leagues/.

Barreto, Edir. 2016. "Estádios do Euro 2004." Knoow, June 21, 2016. https://knoow.net/desporto/futebol/estadios-do-euro-2004/

Barreto, Edir. 2016. “Selecção Portuguesa de Futebol.” Knoow. July 30, 2016. https://knoow.net/desporto/futebol/seleccao-portuguesa-futebol/.

Berlinschi, Ruxanda, Jeroen Schokkaert, and Johan Swinnen. 2013. “When drains and gains coincide: Migration and international football performance.” *Labour Economics* 21 (April) : 1–14. https://doi.org/10.1016/j.labeco.2012.12.006.

Berri, David, David Butler, Giambattista Rossi, Rob Simmons, and Conor Tordoff. 2023. z“Salary Determination in Professional Football: Empirical Evidence from Goalkeepers.” *European Sport Management Quarterly*, 1–17. doi:10.1080/16184742.2023.2169319.

Berry, Leonard L. 2000. “Cultivating Service Brand Equity.” *Journal of the Academy of Marketing Science* 28 (1): 128–37. doi:10.1177/0092070300281012.

Bloomfield, Jonathan, Remco Polman, and Peter O’Donoghue. 2004. “The ‘Bloomfield Movement Classification’: Motion analysis of individual players in dynamic movement sports.” *International Journal of Performance Analysis in Sport* 4 (2) : 20–31. https://doi.org/10.1080/24748668.2004.11868300.

Brandsen Sports. 2023. “Gonçalo Ramos: A Rising Star’s Journey to Paris SG on Loan from Benfica.” *LinkedIn*. https://www.linkedin.com/pulse/gon%C3%A7alo-ramos-rising-stars-journey-paris-sg-loan-from/.

Bush, Michael D., Chris Barnes, David Archer, Bob Hogg, and Paul S. Bradley. 2015. “Evolution of match performance parameters for various playing positions in the English Premier League.” HumanMovement Science 39 (February) :1–11.

https://doi.org/10.1016/j.humov.2014.10.003.

Bryson, Alex, Giambattista Rossi, and Rob Simmons. 2014. "The Migrant Wage Premium in Professional Football: A Superstar Effect?" *Kyklos* 67 (1): 12–28. doi:10.1111/kykl.12041.

Carling, Christopher, Craig Wright, Lee Nelson, and Paul S. Bradley. 2013. "Comment on 'Performance analysis in football: A critical review and implications for future research.'" *Journal of Sports Sciences* 32 (1) : 2–7. https://doi.org/10.1080/02640414.2013.807352.

Carmichael, Fiona, and Dennis Thomas. 1993. "Bargaining in the Transfer Market: Theory and Evidence." *Applied Economics* 25 (12): 1467- 76. https://doi.org/10.1080/00036849300000150

Carmichael, Fiona, David Forrest, and Robert Simmons. 1999. "The Labour Market in Association Football: Who Gets Transferred and for How Much?" *Bulletin of Economic Research* 51 (2): 125–50. https://doi.org/10.1111/1467-8586.00075.https://doi.org/10.1111/1467-8586.00075.

Celik, Onur B., and Meltem Ince-Yenilmez. 2017. "Salary Differences under the Salary Cap in Major League Soccer." *International Journal of Sports Science & Coaching* 12 (5): 623–34. doi:10.1177/1747954117727809.

Chandon, Pierre. 2004. "Note on Brand Audit: How to Measure Brand Awareness, Brand Image, Brand Equity, and Brand Value."

Chhajta, Rajat. 2023. "Why Bundesliga is better at developing talent than Premier League?" *Khel Now*, August 27, 2023. https://khelnow.com/football/2023-08-world-football-why-bundesliga-better-developing-talent-premier-league.

CIES Football Observatory. 2023. "Golden Factories: Top Academies Worldwide." February 15, 2023. https://football-observatory.com/Golden-factories-top-academies-worldwide-3019.

Cintia, Paolo, Fosca Giannotti, Luca Pappalardo, Pedreschi Dino, and Marco Malvaldi. 2015. "The harsh rule of the goals: Data-driven performance indicators for football teams." IEEE Conference Publication | IEEE Xplore. October 1, 2015. https://ieeexplore.ieee.org/abstract/document/7344823.

Classic Football. n.d. "Ballon d'Or Award Winners." Accessed November 24, 2023.

CNN. 2022. "Inside the Benfica Campus, One of the World's Greatest Football Talent Factories." *CNN*, July 15, 2022. Accessed November 10, 2023. https://edition.cnn.com/2022/07/15/football/inside-benfica-campus-talent-factory-spt-intl/index.html .

Coates, Dennis & Parshakov Petr. 2022. "The Wisdom of Crowds and Transfer Market Values." *Ideas.Repec.Org*. https://ideas.repec.org/a/eee/ejores/v301y2022i2p523-5 34.html.

Coelho, Joao & Tiesler, Nina. 2007. "The Paradox of the Portuguese Game: The Omnipresence of Football and the Absence of Spectators at matches. *Soccer and Society 8 (4):578-600.* doi: 10.1080/14660970701440931

Crolley, Liz and David Hand. 2002. "Football, Europe and the Press." April 1, 2002. https://www.routledge.com/Football-Europe-and-the-Press/Crolley-Hand/p/book/9780714680170.2002.

Cruz Del Río-Rama, María de, Amador Durán-Sánchez, Marta Peris-Ortiz, and José Álvarez-García. 2017. "Sport Management Analysis of Scientific Production in Academic Journals." *Sports Management as an Emerging Economic Activity*, 1–18. doi:10.1007/978-3-319-63907-9_1.

Cruz, Carlos. 2023. "Premier League vs La Liga: A Tale of Two Football Powerhouses." *Medium*, August 6, 2023. https://medium.com/@blogcarloscruz/premier-league-vs-la-liga-a-tale-of-two-football-powerhouses-f29a512f5ec.

Della Torre, Edoardo, Antonio Giangreco, William Legeais, and Jacob Vakkayil. 201. "Do

Italians Really Do It Better? Evidence of Migrant Pay Disparities in the Top Italian Football League." *European Management Review* 15 (1): 121–36. doi:10.1111/emre.12136.

Deloitte. 2023. "Deloitte Football Money League 2023." *Deloitte United Kingdom*. Accessed November 17, 2023. https://www2.deloitte.com/uk/en/pages/sports-business-group/articles/deloitte-football-money-league.html.

Deloitte. 2019. "Socio-Economic Impact Study of the Pro League on the Belgian Economy." Deloitte. Accessed November 17, 2023. https://www2.deloitte.com/content/dam/Deloitte/be/Documents/be_pro-league-2023_report_en.pdf

Depken, Craig A., and Alexander Frei. 2023. "Player Nationality and Transfer Fee Premiums in Association Football." *Social Science Research Network*, J a nuary. https://doi.org/10.2139/ssrn.4335733.

.

Depken, Craig A., and Tomislav Globan. 2020. "Football Transfer Fee Premiums and Europe's Big Five." *Southern Economic Journal* 87 (3): 889–908. https://doi.org/10.1002/soej.12471.

De Veirman, Marijke, Veroline Cauberghe, and Liselot Hudders. 2017. "Marketing through Instagram Influencers: The Impact of Number of Followers and Product Divergence on Brand Attitude." *International Journal of Advertising*36 (5): 798–828. doi:10.1080/02650487.2017.1348035.

Dimitropoulos, Panagiotis, Stergios Leventis, and Emmanouil Dedoulis. 2016. "Managing the European football industry: UEFA's regulatory intervention and the impact on accounting quality." *European Sport Management Quarterly* 16 (4) : 459–86. https://doi.org/10.1080/16184742.2016.1164213.

Dobson, Stephen, and Bill Gerrard. 1999. "The Determination of Player Transfer Fees in English Professional Soccer." *Journal of Sport Management* 13 (4): 259–79.

doi:10.1123/jsm.13.4.259.

Drust, Barry. 2010. “Performance analysis research: Meeting the challenge.” *Journal of Sports Sciences* 28 (9) : 921–22. https://doi.org/10.1080/02640411003740769.

ESPN. 2017. “Goncalo Guedes Five Things about ‘new Ronaldo’ PSG and Man United Keen - ESPN.” *ESPN.Com*, January 23, 2017. Accessed November 1, 2023. https://www.espn.co.uk/football/story/_/id/37465943/goncalo-guedes-five-things-new-ronaldo-psg-man-united-keen .

ESPN. 2019. “Conheça João Félix, o ‘novo Cristiano Ronaldo’ de meio bilhão de reais que vai substituir Griezmann no Atlético de Madrid - ESPN.” *ESPN.com*, July 26, 2019. Accessed October 20, 2023. https://www.espn.com.br/futebol/artigo/_/id/5877674/conheca-joao-felix-o-novo-cristiano-ronaldo-de-meio-bilhao-de-reais-que-vai-substituir-griezmann-no-atletico-de-madrid.

Esposito, Manuel. 2023. “Why are there so many Portugal players in Wolverhampton.” SoccerFeed. July 3, 2023. https://soccerfeed.net/why-are-there-so-many-portugal-players-in-wolverhampton/.

Ewing, Harry. 2023. “Bundesliga top global league of attendance figures, Premier League second.” Inside World Football. July 14, 2023. https://www.insideworldfootball.com/2023/07/14/bundesliga-top-global-league-attendance-figures-premier-league-second/.

FPF. 2022. "História FPF." Federação Portuguesa de Futebol. Accessed November 7, 2023. https://www.fpf.pt/pt/Institucional/Sobre-a-FPF/Hist%C3%B3ria-FPF.

Feess, Eberhard, Bernd Frick and Gerd Muehlheusser. 2004. “Legal Restrictions on Buyout Fees : Theory and Evidence from German Soccer.” June, 2004. http://hdl.handle.net/10419/20420.

FIFA. 2022. “Thibaut Courtois | Golden Glove Award | 2018 FIFA World Cup Russia™.”

August 25, 2022. Accessed December 3, 2023. https://www.fifa.com/fifaplus/en/watch/7eGENc20rang40nTMMiuXy.https://www.fifa.com/fifaplus/en/watch/7eGENc20rang40nTMMiuXy.

FIFA. N.d.. "FIFA-Weltrangliste (Männer)." 2023. Accessed October 10, 2023. https://www.fifa.com/de/fifa-world-ranking/men. https://www.fifa.com/de/fifa-world-ranking/men.

Football Benchmark. 2023. "Football Benchmark Social Media Roundup." https://www.footballbenchmark.com/library/football_benchmark_social_media_round up

Football Benchmark.n.d.."Introduction". https://www.footballbenchmark.com/football_benchmark_introduction

Forster, Richard. 2023. "Don't mistake a three-way title race for a competitive Premier League." The Guardian, February 22, 2023. https://www.theguardian.com/football/2023/feb/22/premier-league-three-way-title-race-premier-league-unequal-as-ever .

Franceschi, Maxence, Jean-François Brocard, Florian Follert, and Jean-Jacques Gouguet. 2023. "Determinants of Football Players' Valuation: A Systematic Review." *Journal of Economic Surveys*, February. https://doi.org/10.1111/joes.12552.

Frick, Bernd. 2006. "Salary determination and the pay-performance relationship in professional soccer: evidence from Germany.". In P. Rodriguez, S. Kesenne and J. Garcia (eds), Sports Economics After Fifty Years: Essays in Honour of Simon Rottenberg. Oviedo: Ediciones de la Universidad de Oviedo, pp. 125–46.

Frick, Bernd. 2007. "The Football Players' Labor Market: Empirical Evidence from the Major European Leagues." *Scottish Journal of Political Economy* 54 (3): 422–46. doi:10.1111/j.1467-9485.2007.00423.x.

Frick, Bernd. 2009. "Globalization and factor mobility." *Journal of Sports Economics* 10 (1) : 88–106. https://doi.org/10.1177/1527002508327399.

Frick, Bernd. 2011. "Performance, Salaries and Contract Lenght: Empirical Evidence from German Soccer." International Journal of Sport Finance 6: 87-118. https://www.researchgate.net/publication/227450873_Performance_Salaries_and_Contract_Length_Empirical_Evidence_from_German_Soccer

Furniss, Matt. 2021. "Ligue 1 season preview: The home of young talent." The Analyst. August 4, 2021. https://theanalyst.com/eu/2021/08/ligue-1-season-preview-2021/.

Furuholt, Bjørn, and Nils Georg Skutle. 2007. "Strategic Use of Customer Relationship Management (CRM) in Sports: The Rosenborg Case." *Advances in Information Systems Development*, 123–33. doi:10.1007/978-0-387-70761-7_11.

Gallwey, Michael. 2019. "How a Development Model of Promoting and Selling Early Is Keeping Ajax, PSV and Dortmund at the Business End of the Game." These Football Times. February 5, 2019. Accessed November 30, 2023.

Garcia-del-Barrio, Pedro, and Francesc Pujol. 2007. "Hidden Monopsony Rents in winner-take-All Markets—Sport and Economic Contribution of Spanish Soccer Players." *Managerial and Decision Economics* 28 (1): 57–70. doi:10.1002/mde.1313.

Gardiner, Simon, and Roger Welch. 2011. "Nationality and protectionism in football: why are FIFA's '6+5 rule' and UEFA's 'home-grown player rule' on the agenda?" *Soccer & Society* 12 (6) : 774–87. https://doi.org/10.1080/14660970.2011.609679.

Gelade, Garry A., and Paul Dobson. 2007. "Predicting the comparative strengths of national football teams*." *Social Science Quarterly* 88 (1) : 244–58. https://doi.org/10.1111/j.1540-6237.2007.00456.x.

Giangreco, Antonio, Barbara Slavich, Alessandro Piazza, Fabrizio Castellucci, and Cyrus Mohadjer. 2021. "The Role of Celebrity and Status in the Performance–Pay Relationship: Evidence from the 'Big Five' European Football Leagues." *M@n@gement*, 1–16. doi:10.37725/mgmt.v24i1.4511.

Herm, Steffen, Hans-Markus Callsen-Bracker, and Henning Kreis. 2014. "When the Crowd

Evaluates Soccer Players' Market Values: Accuracy and Evaluation Attributes of an Online Community." *Sport Management Review* 17 (4): 484–92. https://doi.org/10.1016/j.smr.2013.12.006.

Hughes, Michael, Tim Caudrelier, Nic James, Athalie Redwood-Brown, Ian Donnelly, Anthony Kirkbridge, and Christophe Duschense. 2012. "Moneyball and soccer - an analysis of the key performance indicators of elite male soccer players by position." *Dialnet* 7 (2). https://dialnet.unirioja.es/servlet/articulo?codigo=4512391.

Hvattum, Lars Magnus, and Olav Drivenes Sæbø. 2015. "Evaluating the efficiency of the association football transfer market using regression based player ratings." *ResearchGate*, January. https://www.researchgate.net/publication/283320847_Evaluating_the_efficiency_of_the_association_football_transfer_market_using_regression_based_player_ratings.

Instituto Nacional de Estatística. 2023. "Desporto em Números 2022." https://www.ine.pt/ine_novidades/DENum2021/index.html

Jones, Phil, Nic James, and Stephen D. Mellalieu. 2004. "Possession as a performance indicator in soccer." *International Journal of Performance Analysis in Sport* 4 (1) : 98–102. https://doi.org/10.1080/24748668.2004.11868295.

Jishnu, V B, P V Hari Narayanan, Surya Aanand, and Preetha Theresa Joy. 2022. "Football player transfer value prediction using advanced statistics and FIFA 22 data." *2022 IEEE 19th India Council International Conference (INDICON)*, November. https://doi.org/10.1109/indicon56171.2022.10040117.

Kahn, Lawrence M. 2000. "The Sports Business as a Labor Market Laboratory." *Journal of Economic Perspectives*14 (3): 75–94. https://doi.org/10.1257/jep.14.3.75.

Keller, Kevin Lane. 2003. "Brand Synthesis: The Multidimensionality of Brand Knowledge." *Journal of Consumer Research* 29 (4): 595–600. doi:10.1086/346254.

Kesenne, Stefan. 2007. "THE PECULIAR INTERNATIONAL ECONOMICS OF

PROFESSIONAL FOOTBALL IN EUROPE." 2007. https://econpapers.repec.org/article/blascotjp/v_3a54_3ay_3a2007_3ai_3a3_3ap_3a388-399.htm.

Kharrat, Tarak, Ian G. McHale, and Javier López Peña. 2020. "Plus–minus player ratings for soccer." *European Journal of Operational Research* 283 (2) : 726–36. https://doi.org/10.1016/j.ejor.2019.11.026.

Kotler, Philip, and Keller, Kevin. 2006. Marketing Management. 12th Edition. Prentice Hall, Upper Saddle River.

Kuethe, Todd H., and Mesbah Motamed. 2010. "Returns to Stardom: Evidence from U.S. Major League Soccer." *Journal of Sports Economics* 11 (5): 567–79. doi:10.1177/1527002509354268.

Kundert, Tom. 2019. "Conheça João Félix, o 'Novo Cristiano Ronaldo' de Meio Bilhão de Reais Que Vai Substituir Griezmann No Atlético de Madrid." *ESPN.Com*. ESPN. July 26. https://www.espn.com.br/futebol/artigo/_/id/5877674/conheca-joao-felix-o-novo-cristiano-ronaldo-de-meio-bilhao-de-reais-que-vai-substituir-griezmann-no-atletico-de-madrid.

Kurak, Kemal, Hakan Büyükçelebi, and Mahmut Açak. 2021. "ANALYSIS OF THE ITALIAN FOOTBALL IN THE 2016 EUROPEAN FOOTBALL CHAMPIONSHIP." *European Journal of Physical Education and Sport Science* 6 (12). https://doi.org/10.46827/ejpe.v6i12.3684.

L'Équipe. 2017. "En 2007, Kaka remportait le Ballon d'Or." *L'Équipe*, December 2, 2017. Accessed November 30, 2023. https://www.lequipe.fr/Football/Actualites/En-2007-kaka-remportait-le-ballon-d-or/855848

Lago, Carlos Manuel Gradín. 2009. "The influence of match location, quality of opposition, and match status on possession strategies in professional association football." *Journal of Sports Sciences* 27 (13) : 1463–69. https://doi.org/10.1080/02640410903131681.

Lee, Sangkwon, and John Harris. 2012. “Managing Excellence in USA Major League Soccer: An Analysis of the Relationship between Player Performance and Salary.” *Managing Leisure* 17 (2–3): 106–23. doi:10.1080/13606719.2012.674389.

Lehmann, Erik E, and Günther G Schulze. 2008. “What Does It Take to Be a Star? – The Role of Performance and the Media for German Soccer Players.” *Applied Economics Quarterly* 54 (1): 59–70. doi:10.3790/aeq.54.1.59.

Liu, Hongyou, Miguel–Ángel Gómez, Bruno Gonçalves, and Jaime Sampaio. 2015. “Technical performance and match-to-match variation in elite football teams.” *Journal of Sports Sciences* 34 (6) : 509–18. https://doi.org/10.1080/02640414.2015.1117121.

Liu, Hongyou, Will G. Hopkins, A. Gómez, and S. Javier Molinuevo. 2013. “Inter-operator reliability of live football match statistics from OPTA Sportsdata.” *International Journal of Performance Analysis in Sport* 13 (3) : 803–21. https://doi.org/10.1080/24748668.2013.11868690.

Mackenzie, Rob, and Chris Cushion. 2013. “Performance analysis in football: A critical review and implications for future research.” *Journal of Sports Sciences* 31 (6) : 639–76. https://doi.org/10.1080/02640414.2012.746720.

Maguire, Joseph, and Robert Pearton. 2000. “Global sport and the migration patterns of France ‘98 World Cup finals players: Some preliminary observations.” *Soccer & Society* 1 (1) : 175–89. https://doi.org/10.1080/14660970008721257.

Manoli, Argyro Elisavet. 2018. "Sport Marketing’s Past, Present and Future: An Introduction to the Special Issue on Contemporary Issues in Sports Marketing." Journal of Strategic Marketing, 26(1), 1-5. https://doi.org/10.1080/0965254X.2018.1389492

McHale, Ian G., and Benjamin Holmes. 2023. “Estimating Transfer Fees of Professional Footballers Using Advanced Performance Metrics and Machine Learning.” *European Journal of Operational Research* 306 (1): 389–99. https://doi.org/10.1016/j.ejor.2022.06.033.https://doi.org/10.1016/j.ejor.2022.06.033

Miranda, Yves, Marcos Antonio Barros Filho, Carlos Augusto Pedroso, Victor Henrique Rodrigues Silva, José Pedro Sarmento, Rui Biscaia, and Amélia Brandão. 2021. "O Valor Da Marca Das Equipes Esportivas Profissionais Na Perspectiva Do Consumidor: Uma Revisão Integrativa." *Movimento*. doi:10.22456/1982-8918.104762.

Moore, Andrew W., Brigham Anderson, Kaustav Das, and Weng-Keen Wong. 2006. "Combining Multiple Signals for Biosurveillance." *Handbook of Biosurveillance*, 235–42. doi:10.1016/b978-012369378-5/50017-x.

Mullin, Bernard James. 1983. Sport Marketing, Promotion and Public Relations. National Sport Management.

OECD. 2023. "Earnings and Wages - Average Wages - OECD Data." *theOECD*. Accessed December 10. https://data.oecd.org/earnwage/average-wages.htm.

Parkhouse, Bonnie & Ulrich, David. 1979. "Sport Management as a Potential Cross-Discipline: A Paradigm for Theoretical development, Scientigic inquiry, and Professional application. https://doi.org/10.1080/00336297.1979.10519943

Pashaie, Sajjad, Monika Piątkowska, Mir Davood Hoseini, Ali Dostimehr, and Iraj Jahanbakhsh. 2022. "Sociological Analysis of Branding of Professional Football League Players." *Physical Culture and Sport. Studies and Research*96 (1): 1–11. doi:10.2478/pcssr-2022-0014.

Pedace, Roberto. 2007. "Earnings, Performance, and Nationality Discrimination in a Highly Competitive Labor Market as an Analysis of the English Professional Soccer League." *Journal of Sports Economics* 9 (2): 115–40. doi:10.1177/1527002507301422.

Poli, Raffaele, Loïc Ravenel, and Roger Besson. 2016. "Foreign players in football teams." *CIES Football Observatory Monthly Report*, no. 12 (February). https://football-observatory.com/IMG/pdf/mr12_eng.pdf.

Poli, Raffaele. 2007. "The Denationalization of Sport: De-Ethnicization of the Nation and

Identity Deterritorialization." *Sport in Society* 10 (4): 646–61. https://doi.org/10.1080/17430430701388798.

Portugal Store FPF. 2022 "História do Futebol em Portugal." Accessed November 7, 2023. https://portugalstore.fpf.pt/pt/editorial/historia-do-futebol-em-portugal-portugal-store-fpf.

Ribeiro, António S., and Francisco Lima. 2013. "Labour mobility effects on wages: the professional football players' case." *ResearchGate*, January, 3. https://www.researchgate.net/publication/260369284_Labour_mobility_effects_on_wages_the_professional_football_players%27_case.

Ribeiro, António Sérgio, Francisco Lima, Sascha Kraus, and Ferran Calabuig. 2021. "Tournaments within Football Teams: Players' Performance and Wages." *Economic Research-Ekonomska Istraživanja* 35 (1): 4884–4901. doi:10.1080/1331677x.2021.2019595.

Richau, Lukas, Florian Follert, Monika Frenger, and Eike Emrich. 2019. "Performance indicators in football: The importance of actual performance for the market value of football..." *ResearchGate*, December. https://www.researchgate.net/publication/338007931_Performance_indicators_in_football_The_importance_of_actual_performance_for_the_market_value_of_football_players_in_Sciamus_-_Sport_und_Management_104_41-67.

Rottenberg, Simon. 1956. "The baseball players' labor market". *Journal of Political Economy Vol. 64, No. 3 (Jun., 1956), 242-258*. https://www.jstor.org/stable/1825886

Royuela, Vicente, and Roberto Gásquez. 2018. "On the Influence of Foreign Players on the Success of Football Clubs." *Journal of Sports Economics* 20 (5) : 718–41. https://doi.org/10.1177/1527002518807960.

Sachdeo, Prakhar. 2022. "The business of football — How Europe's 'big five' leagues stack up against each other." *CNBCTV18*, August 20, 2022. https://www.cnbctv18.com/sports/the-business-of-football--how-europes-big-five-

leagues-stack-up-against-each-other-14527592.htm.

Schmidt, Daniel. 2007. "The effects of the Bosman-case on the professional football leagues with special regard to the top-five leagues." Bachelor Thesis. University of Twente. 2007.

Sever, Ozan, Erdem Ciğerci, Melih Öztop, Gökhan İpekoğlu, Süleyman Gönülateş, Zeki Akyıldız, and Hadi Nobari. 2023. "How does the increase in foreign players affect football?" *BMC Sports Science, Medicine and Rehabilitation* 15 (1). https://doi.org/10.1186/s13102-023-00643-1.

Shekhar, Suraj Kushe, and Mohd Asif Shah. 2023. "Sports Marketing and Conceptual Evolution: A Bibliometric Analysis." *SAGE Open* 13 (3). doi:10.1177/21582440231192915.

Soccer Coach Theory. n.d. "What is a Defensive Midfielder (CDM) in Soccer? Best Defensive Midfielders Position Guide – Soccer Coach Theory." Soccer Coach Theory. https://soccercoachtheory.com/defensive-midfielder-in-soccer/.

Sofascore. 2019. "Sofascore Statistical Ratings." January 18, 2019. Accessed October 18, 2023. https://www.sofascore.com/news/sofascore-player-ratings/.

Spence, Michael. 1973. "Job Market Signaling." *The Quarterly Journal of Economics* 87 (3): 355. https://doi.org/10.2307/1882010.https://doi.org/10.2307/1882010.

Stanojević, Rade, and L Gyarmati. 2016. "Towards Data-Driven Football Player Assessment." *2016 IEEE 16th International Conference on Data Mining Workshops (ICDMW)*, December. https://doi.org/10.1109/icdmw.2016.0031.

Statista Research Department. 2023. "Big Five - statistics & facts." Statista. August 31, 2023. https://www.statista.com/topics/5909/-big-five/#topicOverview.

Statology. 2020. "Welch’s t-test: When to Use it + Examples." Statology. December 20, 2020. https://www.statology.org/welchs-t-test/.

Stead, David, and Joseph Maguire. 2000. "'Rite de passage' or passage to riches?" *Journal of*

Sport & Social Issues 24 (1) : 36–60. https://doi.org/10.1177/0193723500241004.

Swift, Matthew. 2017. "Testing for Nationality Discrimination in Major League Soccer." CMC Senior Theses, Claremont McKenna College. https://scholarship.claremont.edu/cmc_theses/1687

The Football Faithful. 2021. "Football's Best Talent Factories: Sporting Lisbon." The Football Faithful. February 16, 2021. Accessed December 3, 2023. https://thefootballfaithful.com/best-players-sporting-lisbon-academy-ronaldo/.

The Guardian. 2019. "The Dutch Model of Developing Young Footballers: Let Them Sink or Swim." *The Guardian*, August 27, 2019. Accessed December 2, 2023. https://www.theguardian.com/football/2019/aug/20/eredivisie-clubs-ajax-psv-az-utrecht-teams-dutch.

The Telegraph. 2016. "Arsene Wenger: English Clubs Are 'Suffocating' in the Transfer Market." *The Telegraph*, August 18, 2016. Accessed October 17, 2023. https://www.telegraph.co.uk/football/2016/08/18/arsene-wenger-english-clubs-are-suffocating-in-the-transfer-mark/.

Thrane, Christer. 2019. "Performance and Actual Pay in Norwegian Soccer." *Journal of Sports Economics* 20 (8): 1051–65. doi:10.1177/1527002519851146.

Transfermarkt. n.d. "Football Transfers, Rumours, Market Values and News." https://www.transfermarkt.com/.

UEFA. 2009. "The European Footballing Landscape." *Uefa.com*

UEFA. 2023. "Rankings do país | Coeficientes da UEFA | UEFA.com. Accessed October 10, 2023." *https://pt.uefa.com/nationalassociations/uefarankings/country/#/yr/2024*.

UEFA. n.d. "UEFA Champions League History." Accessed November 20, 2023. https://www.uefa.com/uefachampionsleague/history/

Varmus, Michal, Milan Kubina, and Roman Adámik. 2019. "Impact of the proportion of foreign players' appearances on the success of football clubs in domestic competitions and

European competitions in the context of new culture." *Sustainability* 12 (1) : 264. https://doi.org/10.3390/su12010264.

Velema, Thijs A. 2020. "Globalization and player recruitment: How teams from European top leagues broker migration flows of footballers in the global transfer network." *International Review for the Sociology of Sport* 56 (4) : 493–513. https://doi.org/10.1177/1012690220919676.

Wagg, Stephen. 2010. "Cristiano Meets Mr Spleen: Global Football Celebrity, Mythic Manchester and the Portuguese Diaspora." *Sport in Society* 13 (6): 919–34. https://doi.org/10.1080/17430437.2010.491263.

Wagner, Fabio, Holger Preuß, and Thomas Könecke. 2021. "A central element of Europe's football ecosystem: competitive intensity in the 'Big Five.'" *Sustainability* 13 (6) : 3097. https://doi.org/10.3390/su13063097.

Watson, Nick. 2020. "Recruiting Foreign Talent (footballers and investors) - OCO." OCO. August 28, 2020. https://www.ocoglobal.com/general/recruiting-foreign-talent-footballers-and-investors/.

Wilson, Dennis P., and Yung-Hsiang Ying. 2003. "Nationality Preferences for Labour in the International Football Industry." *Applied Economics* 35 (14): 1551–59. doi:10.1080/0003684032000010048.

Yamamura, Eiji. 2009. "Technology transfer and convergence of performance: an economic study of FIFA football ranking." *Applied Economics Letters* 16 (3) : 261–66. https://doi.org/10.1080/13504850601018361.

Yi, Qing, Miguel Ángel Gómez Ruano, Hongyou Liu, Shaoliang Zhang, Binghong Gao, Fabian Wunderlich, and Daniel Memmert. 2020. "Evaluation of the technical performance of football players in the UEFA Champions League." *International Journal of Environmental Research and Public Health* 17 (2) : 604. https://doi.org/10.3390/ijerph17020604.

Zambom-Ferraresi, Fabíola, Vicente Orts Ríos, and Fernando Lera-López. 2018. "Determinants

of sport performance in European football: What can we learn from the data?" *Decision Support Systems* 114 (October) : 18–28. https://doi.org/10.1016/j.dss.2018.08.006.

ZeroZero. n.d. "Amesterdão 1928: A estreia portuguesa." Accessed December 3, 2023. https://www.zerozero.pt/historia/amesterdao-1928-a-estreia-portuguesa/5202

Zhang, Shaoliang, Alberto Lorenzo, Miguel–Ángel Gómez, Hongyou Liu, Bruno Gonçalves, and Jaime Sampaio. 2017. "Players' technical and physical performance profiles and game-to-game variation in NBA." *International Journal of Performance Analysis in Sport* 17 (4) : 466–83. https://doi.org/10.1080/24748668.2017.1352432.

List of Tables

Table 1. Player Categorization 25
Table 2. Player Allocation 27
Table 3. Propensity Score Matching Variable Selection 31
Table 4 Wages Perspective - Study Variables 34
Table 15. Total Transfer Premium of all examined countries in € million 38
Table 16. Transfer Fee Premium of Top Clubs in Portugal and Benchmark Group 1 in € million 39
Table 17. Transfer Premium Differences between Offensive and Defensive Players in € million 41
Table 18 Characteristics of resold Portuguese Players categorized into Quadrant 3 45
Table 19. Transfer Premium Prerequisites Propensity Score Matching of Joao Felix 48

List of Figures

Figure 7. Quadrant Analysis of players that already left the buying club (left) 44
Figure 8. Quadrant Analysis of players that are still active in their club/left for a free transfer (right) 44

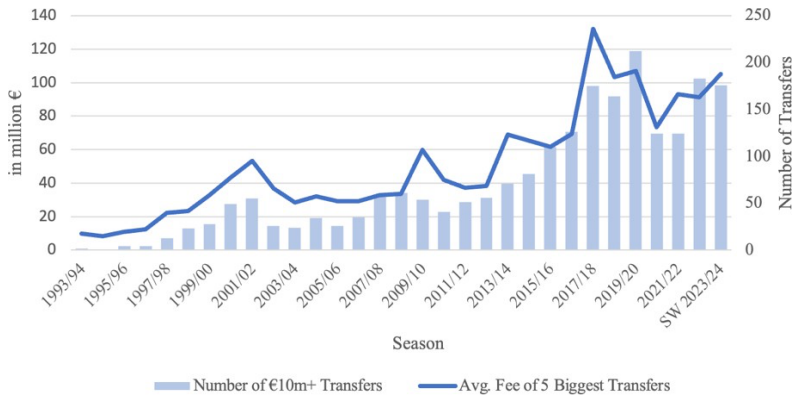
X. Appendix

Market Value Determination Factors
Most Important Factors: • Future prospects • Age • Athletic performance in club and national team • Level and importance of the league, both in terms of sports and finances • Reputation/Prestige/characteristics • Development potential • League-specific peculiarities • Marketing value • Number & reputation of interested parties • Performance potential • Experience • Susceptibility to injuries • Different financial conditions of clubs and leagues • General demand and market trends • External factors such as the COVID-19 pandemic and its consequences
Individual Transfer Terms: • Transfer with option/obligation to buy • Loan fee • Acquisition of only part of the transfer rights • Release clause • Buy-back option • Player exchange/offsetting • Contract length • Resale participation • Bonuses • Improvement of the financial balance
Situation Conditions: • Pressure situations such as competition, success, or financial pressure, etc. • Willingness/wish/interests of the player • Club does not sell to the highest bidder • Player goes on strike or similar • High salary • Club wants to offload the player

Appendix A: Factors determining Market Values (Transfermarkt n.d)

Authors	Christian Schwarz
My name is Moritz Kuhn, and I am currently a student at the NOVA School of Business and Economics. I am currently writing my master's thesis on the impact of Portuguese players in the top 5 leagues. As a finance student, I will particularly focus on the financial impact, analyzing the transfer fees paid for Portuguese players. I have a few questions regarding this matter.	Hi Moritz, we're delighted to assist, and I'll do my best to answer your questions. (…) feel free to send me more questions in writing. I've also attached our definition of market value, which hopefully clears up some uncertainties.
Firstly, I wanted to ask if Transfermarkt.de has a "success rate" in terms of how often the transfer fee matches the player's market value or falls within a range of x%/x million?	Internally, we do compare the deviations between the transfer fee and market value after each transfer phase. However, we don't disclose these data, and ultimately, it serves as a reference or insight into how the market is changing. It's crucial to note that, according to our definition, market value and transfer fee are two separate things that don't necessarily have to be equal.
I'm also curious if Transfermarkt.de's market values include a "Country Premium." I'm analyzing whether the transfer sum is higher when a player has nationality X compared to nationality Y. For empirical analysis, I'd like to know if this is already factored into Transfermarkt.de's market values.	Initially, we don't use an algorithm but believe in the collective intelligence of our users. Nationality does play a role in determining market values. We try to follow trends, for example, young French center-backs are currently in high demand, as are English youth players and Brazilians, where the trend has increased for them to sign contracts in Europe at an early age. This, combined with top clubs like FC Porto and Benfica Lisbon, known internationally for nurturing talents, certainly plays a role. However, this applies to non-Portuguese players as well, who show great talent and make a breakthrough at these clubs. This example illustrates how some of the various factors come together.
Thank you very much and kind regards!	Best regards.

Appendix B: Translated email interview with Christian Schwarz, Head of International at Transfermarkt.de



Appendix C. Transfer Market Development since 2013/14 considering the Number of Transfers with a fee of at least €10 million per season and the average fee of the five biggest transfers of a season

Rank	Name	General Position	Detailed Positon	Age	Market Value	Season	Selling Club	League of Selling Club	Buying Club	League of Buying Club	Transfer Fee	From	Top 5 League
1	Joao Felix	Forward	Second Striker	19	70	19/20	SL Benfica	Liga Portugal	Atletico Madrid	La Liga	127,2	Non-Top 5 League	Top 5 League
2	Cristiano Ronaldo	Forward	Centre Forward	33	100	18/19	Real Madrid	La Liga	Juventus Turin	Serie A	117	Top 5 League	Top 5 League
3	Cristiano Ronaldo	Forward	Centre Forward	24	60	09/10	Manchester United	Premier League	Real Madrid	La Liga	94	Top 5 League	Top 5 League
4	Ruben Dias	Defender	Central Back	23	35	20/21	SL Benfica	Liga Portugal	Manchester City	Premier League	71,6	Non-Top 5 League	Top 5 League
5	Goncalo Ramos	Forward	Centre Forward	23	50	24/25	SL Benfica	Liga Portugal	Paris SG	Ligue 1	65	Non-Top 5 League	Top 5 League
6	Bruno Fernandes	Midfielder	Offensive Midfielder	25	60	19/20	Sporting CP	Liga Portugal	Manchester United	Premier League	65	Non-Top 5 League	Top 5 League
7	Joao Cancelo	Defender	Rigtht Back	25	55	19/20	Juventus Turin	Serie A	Manchester City	Premier League	65	Top 5 League	Top 5 League
8	Matheus Nunes	Midfielder	Central Midfielder	25	45	23/24	Wolverhampton	Premier League	Manchester City	Premier League	62	Top 5 League	Top 5 League
9	Otavio	Forward	Right Winger	28	35	23/24	FC Porto	Liga Portugal	Al-Nassr	Saudi Pro League	60	Non-Top 5 League	Non-Top 5 League
10	Luis Figo	Forward	Right Winger	27	-	00/01	FC Barcelona	La Liga	Real Madrid	La Liga	60	Top 5 League	Top 5 League
11	Ruben Neves	Midfielder	Defensive Midfielder	26	40	23/24	Wolverhampton	Premier League	Al-Hilal	Saudi Pro League	55	Top 5 League	Non-Top 5 League
12	Bernardo Silva	Midfielder	Offensive Midfielder	22	40	17/18	AS Monaco	Ligue 1	Manchester City	Premier League	50	Top 5 League	Top 5 League
13	Rafael Leao	Forward	Left Winger	20	15	19/20	LOSC Lille	Ligue 1	AC Mailand	Serie A	49,5	Top 5 League	Top 5 League
14	Matheus Nunes	Midfielder	Central Midfielder	23	35	22/23	Sporting CP	Liga Portugal	Wolverhampton	Premier League	45	Non-Top 5 League	Top 5 League
15	Joao Mario	Midfielder	Central Midfielder	23	30	16/17	Sporting CP	Liga Portugal	Inter	Serie A	44,78	Non-Top 5 League	Top 5 League
16	Diogo Jota	Forward	Left Winger	23	28	20/21	Wolverhampton	Premier League	FC Liverpool	Premier League	44,7	Top 5 League	Top 5 League
17	Vitinha	Midfielder	Central Midfielder	22	30	22/23	FC Porto	Liga Portugal	Paris SG	Ligue 1	41,5	Non-Top 5 League	Top 5 League
18	Rui Costa	Midfielder	Offensive Midfielder	29	-	01/02	AC Florenz	Serie A	AC Mailand	Serie A	41,32	Top 5 League	Top 5 League
19	Joao Cancelo	Defender	Rigtht Back	24	35	18/19	FC Valencia	La Liga	Juventus Turin	Serie A	40,4	Top 5 League	Top 5 League
20	Goncalo Guedes	Forward	Left Winger	21	40	18/19	Paris SG	Ligue 1	FC Valencia	La Liga	40	Top 5 League	Top 5 League
21	Fabio Silva	Forward	Centre Forward	18	12	20/21	FC Porto	Liga Portugal	Wolverhampton	Premier League	40	Non-Top 5 League	Top 5 League
22	Andre Silva	Forward	Centre Forward	21	22	17/18	FC Porto	Liga Portugal	AC Mailand	Serie A	38	Non-Top 5 League	Top 5 League
23	Nuno Mendes	Defender	Left Back	20	40	22/23	Sporting CP	Liga Portugal	Paris SG	Ligue 1	38	Non-Top 5 League	Top 5 League
24	Andre Gomes	Midfielder	Central Midfielder	22	30	16/17	FC Valencia	La Liga	FC Barcelona	La Liga	37	Top 5 League	Top 5 League
25	Nelson Semedo	Defender	Rigtht Back	23	20	17/18	SL Benfica	Liga Portugal	FC Barcelona	La Liga	35,7	Non-Top 5 League	Top 5 League
26	Renato Sanches	Midfielder	Central Midfielder	18	20	16/17	SL Benfica	Liga Portugal	Bayern Munich	Bundesliga	35	Non-Top 5 League	Top 5 League
27	Fabio Viera	Midfielder	Offensive Midfielder	22	25	22/23	FC Porto	Liga Portugal	Arsenal FC	Premier League	35	Non-Top 5 League	Top 5 League
28	Goncalo Guedes	Forward	Left Winger	25	40	22/23	FC Valencia	La Liga	Wolverhampton	Premier League	32,6	Top 5 League	Top 5 League
29	Nelson Semedo	Defender	Rigtht Back	26	40	20/21	FC Barcelona	La Liga	Wolverhampton	Premier League	32	Top 5 League	Top 5 League
30	Vitinha (2)	Forward	Centre Forward	22	15	22/23	SC Braga	Liga Portugal	Olympique Marseille	Ligue 1	32	Non-Top 5 League	Top 5 League
31	Trincao	Forward	Right Winger	20	16	20/21	SC Braga	Liga Portugal	FC Barcelona	La Liga	30,94	Non-Top 5 League	Top 5 League
32	Goncalo Guedes	Forward	Left Winger	20	9	16/17	SL Benfica	Liga Portugal	Paris SG	Ligue 1	30	Non-Top 5 League	Top 5 League
33	Fabio Coentrao	Defender	Left Back	23	24	11/12	SL Benfica	Liga Portugal	Real Madrid	La Liga	30	Non-Top 5 League	Top 5 League
34	Danny	Midfielder	Offensive Midfielder	25	7,75	08/09	Dynamo Moskau	Russian Premier League	Zenit St. Petersburg	Russian Premier League	30	Non-Top 5 League	Non-Top 5 League
35	Pepe	Defender	Central Back	24	30	07/08	FC Porto	Liga Portugal	Real Madrid	La Liga	30	Non-Top 5 League	Top 5 League
36	Ricardo Carvalho	Defender	Central Back	26	-	04/05	FC Porto	Liga Portugal	FC Chelsea	Premier League	30	Non-Top 5 League	Top 5 League
37	Gelson Martins	Forward	Right Winger	24	28	19/20	Atletico Madrid	La Liga	AS Monaco	Ligue 1	30	Top 5 League	Top 5 League
38	Jota	Forward	Left Winger	24	13	23/24	Celtic Glasgow	Scottish Premiership	Al-Ittihad Club	Saudi Pro League	29,1	Non-Top 5 League	Non-Top 5 League
39	Nani	Forward	Left Winger	20	25	07/08	Sporting CP	Liga Portugal	Manchester United	Premier League	25,5	Non-Top 5 League	Top 5 League
40	Joao Moutinho	Midfielder	Central Midfielder	26	30	13/14	FC Porto	Liga Portugal	AS Monaco	Ligue 1	25	Non-Top 5 League	Top 5 League
41	Andre Gmes	Midfielder	Central Midfielder	25	28	19/20	FC Barcelona	La Liga	FC Everton	Premier League	25	Top 5 League	Top 5 League
42	Rony Lopes	Forward	Right Winger	23	25	19/20	AS Monaco	Ligue 1	FC Sevilla	La Liga	25	Top 5 League	Top 5 League
43	Beto	Forward	Centre Forward	25	25	23/24	Udinese Calcio	Serie A	FC Everton	Premier League	25	Top 5 League	Top 5 League
44	Ricardo Quaresma	Forward	Right Winger	24	23	08/09	FC Porto	Liga Portugal	Inter	Serie A	24,6	Non-Top 5 League	Top 5 League
45	Andre Silva	Forward	Centre Forward	25	45	21/22	Eintracht Frankfurt	Bundesliga	RB Leipzig	Bundesliga	23	Top 5 League	Top 5 League
46	Bruno Alves	Defender	Central Back	28	18	10/11	FC Porto	Liga Portugal	Zenit St. Petersburg	Russian Premier League	22	Non-Top 5 League	Non-Top 5 League
47	Gelson Martins	Forward	Right Winger	23	35	18/19	Sporting CP	Liga Portugal	Atletico Madrid	La Liga	22	Non-Top 5 League	Top 5 League
48	Ricardo Pereira	Defender	Rigtht Back	24	20	18/19	FC Porto	Liga Portugal	Leicester City	Premier League	22	Non-Top 5 League	Top 5 League
49	Diogo Dalot	Defender	Rigtht Back	19	15	18/19	FC Porto	Liga Portugal	Manchester United	Premier League	22	Non-Top 5 League	Top 5 League
50	Deco	Midfielder	Offensive Midfielder	26	-	04/05	FC Porto	Liga Portugal	FC Barcelona	La Liga	21	Non-Top 5 League	Top 5 League

Rank	Name	General Position	Detailed Positon	Age	Market Value	Season	Selling Club	League of Selling Club	Buying Club	League of Buying Club	Transfer Fee	From	To
51	Joao Palinha	Midfielder	Defensive Midfielder	27	25	22/23	Sporting CP	Liga Portugal	FC Fulham	Premier League	21	Non-Top 5 League	Top 5 League
52	Adrien Silva	Midfielder	Central Midfielder	28	25	17/18	Sporting CP	Liga Portugal	Leicester City	Premier League	20,5	Non-Top 5 League	Top 5 League
53	Bosingwa	Defender	Rigtht Back	25	17	08/09	FC Porto	Liga Portugal	FC Chelsea	Premier League	20,5	Non-Top 5 League	Top 5 League
54	David Carmo	Defender	Central Back	22	15	22/23	SC Braga	Liga Portugal	FC Porto	Liga Portugal	20,28	Non-Top 5 League	Non-Top 5 League
55	Rafael Leao	Forward	Left Winger	19	6	18/19	Sporting CP	Liga Portugal	LOSC Lille	Ligue 1	20,2	Non-Top 5 League	Top 5 League
56	Andre Gomes	Midfielder	Central Midfielder	21	20	15/16	SL Benfica	Liga Portugal	FC Valencia	La Liga	20	Non-Top 5 League	Top 5 League
57	Simao	Forward	Left Winger	27	15	07/08	SL Benfica	Liga Portugal	Atletico Madrid	La Liga	20	Non-Top 5 League	Top 5 League
58	Paulo Ferreira	Defender	Rigtht Back	25	-	04/05	FC Porto	Liga Portugal	FC Chelsea	Premier League	20	Non-Top 5 League	Top 5 League
59	Renato Sanches	Midfielder	Central Midfielder	22	18	19/20	Bayern Munich	Bundesliga	LOSC Lille	Ligue 1	20	Top 5 League	Top 5 League
60	Daniel Podence	Forward	Left Winger	24	6	19/20	Olympique Piräus	Greek Super League 1	Wolverhampton	Premier League	19,6	Non-Top 5 League	Top 5 League
61	Cristiano Ronaldo	Forward	Centre Forward	18	-	03/04	Sporting CP	Liga Portugal	Manchester United	Premier League	19	Non-Top 5 League	Top 5 League
62	William Carvalho	Midfielder	Defensive Midfielder	26	25	18/19	Sporting CP	Liga Portugal	Betis Sevilla	La Liga	18,5	Non-Top 5 League	Top 5 League
63	Manuel Fernandes	Midfielder	Offensive Midfielder	21	8,5	07/08	SL Benfica	Liga Portugal	FC Valencia	La Liga	18	Non-Top 5 League	Top 5 League
64	Sergio Conceicao	Forward	Right Winger	26	-	01/02	AC Parma	Serie A	Inter	Serie A	18	Top 5 League	Top 5 League
65	Rui Patricio	Goalkeeper	Goalkeeper	30	16	18/19	Sporting CP	Liga Portugal	Wolverhampton	Premier League	18	Non-Top 5 League	Top 5 League
66	Ruben Neves	Midfielder	Defensive Midfielder	20	10	17/18	FC Porto	Liga Portugal	Wolverhampton	Championship	17,9	Non-Top 5 League	Non-Top 5 League
67	Pedro Neto	Forward	Right Winger	19	2,5	19/20	Lazio Rom	Serie A	Wolverhampton	Premier League	17,9	Top 5 League	Top 5 League
68	Nuno Gomes	Forward	Centre Forward	24	-	00/01	SL Benfica	Liga Portugal	AC Florenz	Serie A	17	Non-Top 5 League	Top 5 League
69	Sergio Conceiao	Forward	Right Winger	25	-	00/01	Lazio Rom	Serie A	AC Parma	Serie A	17	Top 5 League	Top 5 League
70	Cristiano Ronaldo	Forward	Centre Forward	36	45	21/22	Juventus Turin	Serie A	Manchester United	Premier League	17	Top 5 League	Top 5 League
71	Jota	Forward	Left Winger	23	7,5	22/23	SL Benfica	Liga Portugal	Celtic Glasgow	Scottish Premiership	16,2	Non-Top 5 League	Non-Top 5 League
72	Paulinho	Forward	Centre Forward	28	15	20/21	SC Braga	Liga Portugal	Sporting CP	Liga Portugal	16	Non-Top 5 League	Non-Top 5 League
73	Rafa	Forward	Left Winger	23	15	16/17	SC Braga	Liga Portugal	SL Benfica	Liga Portugal	16	Non-Top 5 League	Non-Top 5 League
74	Maniche	Midfielder	Central Midfielder	27	18	05/06	FC Porto	Liga Portugal	Dynamo Moskau	Russian Premier League	16	Non-Top 5 League	Non-Top 5 League
75	Danilo Pereira	Midfielder	Defensive Midfielder	29	20	21/22	FC Porto	Liga Portugal	Paris SG	Ligue 1	16	Non-Top 5 League	Top 5 League
76	Bernardo Silva	Midfielder	Offensive Midfielder	20	3,5	14/15	SL Benfica	Liga Portugal	AS Monaco	Ligue 1	15,75	Non-Top 5 League	Top 5 League
77	Joao Cancelo	Defender	Rigtht Back	21	5	15/16	SL Benfica	Liga Portugal	FC Valencia	La Liga	15	Non-Top 5 League	Top 5 League
78	Bruma	Forward	Left Winger	22	11	17/18	Galatasaray	Süper Lig	RB Leipzig	Bundesliga	15	Non-Top 5 League	Top 5 League
79	Joao Carvalho	Midfielder	Offensive Midfielder	21	2,5	18/19	SL Benfica	Liga Portugal	Nottingham Forest	Championship	15	Non-Top 5 League	Non-Top 5 League
80	Tiago Mendes	Midfielder	Central Midfielder	23	-	04/05	SL Benfica	Liga Portugal	FC Chelsea	Premier League	15	Non-Top 5 League	Top 5 League
81	Renato Sanches	Midfielder	Central Midfielder	24	28	22/23	LOSC Lille	Ligue 1	Paris SG	Ligue 1	15	Top 5 League	Top 5 League
82	Beto	Forward	Centre Forward	24	10	22/23	Portimonense	Liga Portugal	Udinese Calcio	Serie A	15	Non-Top 5 League	Top 5 League
83	Ruben Semedo	Defender	Central Back	23	9	17/18	Sporting CP	Liga Portugal	FC Villareal	La Liga	14	Non-Top 5 League	Top 5 League
84	Diogo Jota	Forward	Left Winger	21	12	18/19	Atletico Madrid	La Liga	Wolverhampton	Premier League	14	Top 5 League	Top 5 League
85	Simao	Forward	Left Winger	19	-	99/00	Sporting CP	Liga Portugal	FC Barcelona	La Liga	14	Non-Top 5 League	Top 5 League
86	Carlos Forbs	Forward	Left Winger	19	-10	23/24	Manchester City	Premier League	Ajax Amsterdam	Eredevise	14	Top 5 League	Non-Top 5 League
87	Pizzi	Midfielder	Offensive Midfielder	23	6	13/14	Atletico Madrid	La Liga	SL Benfica	Liga Portugal	14	Top 5 League	Non-Top 5 League
88	Pedro Goncalves	Forward	Left Winger	22	7	20/21	Famalicao	Liga Portugal	Sporting CP	Liga Portugal	13,5	Non-Top 5 League	Non-Top 5 League
89	Raul Meireles	Midfielder	Central Midfielder	28	16	11/12	FC Liverpool	Premier League	FC Chelsea	Premier League	13,5	Top 5 League	Top 5 League
90	Pizzi	Midfielder	Offensive Midfielder	22	7,5	11/12	SC Braga	Liga Portugal	Atletico Madrid	La Liga	13,5	Non-Top 5 League	Top 5 League
91	Bruma	Forward	Left Winger	18	2,5	13/14	Sporting CP	Liga Portugal	Galatasaray	Süper Lig	13	Non-Top 5 League	Non-Top 5 League
92	Raul Meireles	Midfielder	Central Midfielder	27	11	10/11	FC Porto	Liga Portugal	FC Liverpool	Premier League	13	Non-Top 5 League	Top 5 League
93	Tiago Mendes	Midfielder	Central Midfielder	26	15	07/08	Olympique Lyon	Ligue 1	Juventus Turin	Serie A	13	Top 5 League	Top 5 League
94	Jorge Andrade	Defender	Central Back	24	-	02/03	FC Porto	Liga Portugal	Dep. La Coruna	La Liga	13	Non-Top 5 League	Top 5 League
95	Simao	Forward	Left Winger	21	-	01/02	FC Barcelona	La Liga	SL Benfica	Liga Portugal	12,91	Top 5 League	Non-Top 5 League
96	Hugo Viana	Midfielder	Offensive Midfielder	19	-	02/03	Sporting CP	Liga Portugal	Newcastle United	Premier League	12,75	Non-Top 5 League	Top 5 League
97	Chermiti	Forward	Centre Forward	19	3	23/24	Sporting CP	Liga Portugal	FC Everton	Premier League	12,5	Non-Top 5 League	Top 5 League
98	Rony Lopes	Forward	Right Winger	19	4,5	15/16	Manchester City	Premier League	AS Monaco	Ligue 1	12	Top 5 League	Top 5 League
99	Raphael Guerreiro	Defender	Left Back	22	9	16/17	FC Lorient	Ligue 1	Borussia Dortmund	Bundesliga	12	Top 5 League	Top 5 League
100	Bruma	Forward	Left Winger	24	10	19/20	RB Leipzig	Bundesliga	PSV Eindhoven	Eredevise	12	Top 5 League	Non-Top 5 League

Appendix D. Detailed Overview of Top 100 Most Expensive Transfers of Portuguese Players

Rank	Club	League (assumed 1. Liga)	Expenditures	Purchases	Revenue	Sales	Balance
1	Wolverhampton Wanderers	Premier League	277,29	38	185,5	32	-91,79
2	Manchester City	Premier League	248,6	6	12	4	-236,6
3	Real Madrid	La Liga	222	7	118	7	-104
4	Atletico Madrid	La Liga	220,55	37	85,4	37	-135,15
5	Juventus Turin	Serie A	180,4	5	83	5	-97,4
6	Paris SG	Ligue 1	173	15	41	11	-132
7	Manchester United	Premier League	148,5	15	100,5	13	-48
8	FC Valencia	La Liga	143,32	33	120,85	31	-22,47
9	FC Barcelona	La Liga	130,99	10	164,16	10	33,17
10	FC Chelsea	Premier League	120,3	17	30,9	18	-89,4
11	FC Porto	Liga Portugal	110,52	274	617,7	337	507,18
12	AC Mailand	Serie A	109,32	7	6,8	5	-102,52
13	Sporting Lissabon	Liga Portugal	106	223	537,42	552	431,42
14	Inter Mailand	Serie A	91,38	23	20,8	24	-70,58
15	AS Monaco	Ligue 1	89,25	21	84,35	23	-4,9
16	Benfica Lissabon	Liga Portugal	86,07	236	576,35	299	490,28
17	FC Liverpool	Premier League	72,3	9	19,65	8	-52,65
18	FC Everton	Premier League	67,9	11	1,2	9	-66,7
19	Zenit St. Petersburg	Russian Premier League	64,5	5	6,5	5	-58
20	LOSC Lille	Ligue 1	60,9	19	45	18	-15,9
21	Al-Nassr	Saudi Pro League	60	3	0	1	-60
22	Al-Hilal	Saudi Pro League	55	1	0	0	-55
23	Arsenal London	Premier League	43,3	7	1,15	6	-42,15
24	Leicester City	Premier League	42,9	6	0	5	-42,9
25	Lazio Rom	Serie A	40,96	13	46,7	16	5,74
26	Olympique Marseille	Ligue 1	38,7	7	0	6	-38,7
27	RB Leipzig	Bundesliga	38	3	12	2	-26
28	FC Sevilla	La Liga	37,88	17	7,7	18	-30,18
29	Bayern München	Bundesliga	35	5	28,5	4	-6,5
30	Betis Sevilla	La Liga	35	15	0	13	-35
31	FC Fulham	Premier League	30,32	15	13,25	15	-17,07
32	Dinamo Moskau	Russian Premier League	30,2	14	45,3	13	15,1
33	Al-Ittihad Club	Saudi Pro League	29,9	4	0	3	-29,9
34	Fenerbahce	Süper Lig	28,25	8	15	7	-13,25
35	SC Braga	Liga Portugal	25,41	238	245,34	291	219,93
36	Olympiakos Piräus	Greek Premier League	25,04	27	34,5	291	9,46
37	AS Rom	Serie A	24,8	13	9,7	11	-15,1
38	Galatasaray	Süper Lig	23,2	8	22,9	7	-0,3
39	Besiktas	Süper Lig	22	11	0	10	-22
40	Tottenham	Premier League	21,5	6	7,82	6	-13,68
41	Ajax Amsterdam	Eredevise	20	4	0	4	-20
42	Udinese Calcio	Serie A	19,5	8	32	6	12,5
43	West Ham United	Premier League	19,3	6	5,81	6	-13,49
44	Nottingham Forest	Premier League	19,24	16	0	15	-19,24
45	VfL Wolfsburg	Bundesliga	17,8	4	1,5	3	-16,3
46	Parma Calcio	Serie A	17,1	22	18,6	23	1,5
47	AC Florenz	Serie A	17	2	41,43	16	24,43
48	SSC Neapel	Serie A	17	4	0	3	-17
49	Deportivo La Coruna	La Liga	16,33	23	22,1	24	5,77
50	Celtic Glasgow	Scottish Premiership	16,2	3	29,1	2	12,9

Appendix E. 50 Clubs with most expenditures for Portuguese players since 2000

Portugal

t-Test: Two-Sample Assuming Unequal Variances

	MW	*Transfer Fee*
Mean	16.005484	20.057419
Variance	234.90002	391.77548
Observations	155	155
Hypothesized Mean Difference	0	
df	290	
t Stat	-2.015148	
P(T<=t) one-tail	0.0224058	
t Critical one-tail	1.6501249	
P(T<=t) two-tail	0.0448116	
t Critical two-tail	1.9681779	

Appendix F.1. Transfer Premium t-Test Output for Portugal including all Transfers exceeding a fee of €5 million since 2005/06 season

Netherlands

t-Test: Two-Sample Assuming Unequal Variances

	MW	*Transfer Fee*
Mean	13.129444	14.529
Variance	154.66664	176.99041
Observations	180	180
Hypothesized Mean Difference	0	
df	356	
t Stat	-1.031055	
P(T<=t) one-tail	0.1516075	
t Critical one-tail	1.6491451	
P(T<=t) two-tail	0.303215	
t Critical two-tail	1.96665	

Belgium

t-Test: Two-Sample Assuming Unequal Variances

	MW	*Transfer Fee*
Mean	16.159091	18.470165
Variance	367.58275	384.42176
Observations	121	121
Hypothesized Mean Difference	0	
df	240	
t Stat	-0.927036	
P(T<=t) one-tail	0.1774197	
t Critical one-tail	1.6512274	
P(T<=t) two-tail	0.3548394	
t Critical two-tail	1.9698976	

Appendix F.2. Transfer Premium t-Test Output for Benchmark Group 1 Countries (Netherlands and Belgium) including all Transfers exceeding a fee of €5 million since 2005/06 season

Germany

t-Test: Two-Sample Assuming Unequal Variances

	MW	*Transfer Fee*
Mean	14.7535714	14.7007738
Variance	172.62846	155.463729
Observations	168	168
Hypothesized Mean Difference	0	
df	333	
t Stat	0.03778079	
P(T<=t) one-tail	0.48494255	
t Critical one-tail	1.64944234	
P(T<=t) two-tail	0.9698851	
t Critical two-tail	1.96711344	

Spain

t-Test: Two-Sample Assuming Unequal Variances

	MW	*Transfer Fee*
Mean	12.8158879	14.1835514
Variance	136.215262	146.49309
Observations	321	321
Hypothesized Mean Difference	0	
df	639	
t Stat	-1.4573453	
P(T<=t) one-tail	0.07275616	
t Critical one-tail	1.64724172	
P(T<=t) two-tail	0.14551232	
t Critical two-tail	1.96368338	

France

t-Test: Two-Sample Assuming Unequal Variances

	MW	*Transfer Fee*
Mean	13.8968338	16.2829551
Variance	240.06667	338.418461
Observations	379	379
Hypothesized Mean Difference	0	
df	735	
t Stat	-1.9313725	
P(T<=t) one-tail	0.02691059	
t Critical one-tail	1.64692941	
P(T<=t) two-tail	0.05382118	
t Critical two-tail	1.9631968	

England

t-Test: Two-Sample Assuming Unequal Variances

	MW	*Transfer Fee*
Mean	11.5147569	16.6245486
Variance	227.617595	287.66016
Observations	288	288
Hypothesized Mean Difference	0	
df	566	
t Stat	-3.8201353	
P(T<=t) one-tail	7.4067E-05	
t Critical one-tail	1.64755024	
P(T<=t) two-tail	0.00014813	
t Critical two-tail	1.9641641	

Italy

t-Test: Two-Sample Assuming Unequal Variances

	MW	*Transfer Fee*
Mean	9.8852071	11.5338166
Variance	85.0275513	65.6379792
Observations	338	338
Hypothesized Mean Difference	0	
df	663	
t Stat	-2.4692735	
P(T<=t) one-tail	0.00689483	
t Critical one-tail	1.64715516	
P(T<=t) two-tail	0.01378967	
t Critical two-tail	1.9635485	

Argentina

t-Test: Two-Sample Assuming Unequal Variances

	MW	*Transfer Fee*
Mean	11.1302448	13.2937063
Variance	100.948319	166.096381
Observations	286	286
Hypothesized Mean Difference	0	
df	538	
t Stat	-2.2389284	
P(T<=t) one-tail	0.01278429	
t Critical one-tail	1.64769082	
P(T<=t) two-tail	0.02556858	
t Critical two-tail	1.96438318	

Brazil

t-Test: Two-Sample Assuming Unequal Variances

	MW	*Transfer Fee*
Mean	11.5148699	14.5049257
Variance	140.669313	285.983362
Observations	538	538
Hypothesized Mean Difference	0	
df	962	
t Stat	-3.3576327	
P(T<=t) one-tail	0.00040847	
t Critical one-tail	1.64643912	
P(T<=t) two-tail	0.00081695	
t Critical two-tail	1.96243302	

Appendix F.3. Transfer Premium t-Test Output for Benchmark Group 2 Countries (Germany, Spain, France, England, Italy, Argentina and Brazil) including all Transfers exceeding a fee of €5 million since 2005/06 season

Portugal

t-Test: Two-Sample Assuming Unequal Variances

	MW	*Transfer Fee*
Mean	20.186	24.8773
Variance	283.08021	479.32582
Observations	100	100
Hypothesized Mean Difference	0	
df	186	
t Stat	-1.699026	
P(T<=t) one-tail	0.0454931	
t Critical one-tail	1.6530871	
P(T<=t) two-tail	0.0909862	
t Critical two-tail	1.9728001	

Appendix F.4. Transfer Premium t-Test Output for Portugal including Top 100 Transfers in Top 5 Leagues since 2005/06 season

Netherlands

t-Test: Two-Sample Assuming Unequal Variances

	MW	*Transfer Fee*
Mean	17.4295	19.9859
Variance	220.55713	239.75728
Observations	100	100
Hypothesized Mean Difference	0	
df	198	
t Stat	-1.191521	
P(T<=t) one-tail	0.1174378	
t Critical one-tail	1.6525858	
P(T<=t) two-tail	0.2348756	
t Critical two-tail	1.9720175	

Belgium

t-Test: Two-Sample Assuming Unequal Variances

	MW	*Transfer Fee*
Mean	17.128	19.9544
Variance	424.54951	437.61091
Observations	100	100
Hypothesized Mean Difference	0	
df	198	
t Stat	-0.962586	
P(T<=t) one-tail	0.1684647	
t Critical one-tail	1.6525858	
P(T<=t) two-tail	0.3369294	
t Critical two-tail	1.9720175	

Appendix F.5. Transfer Premium t-Test Output for Benchmark Group 1 Countries (Netherlands and Belgium) including Top 100 Transfers in Top 5 Leagues since 2005/06 season

Italy

t-Test: Two-Sample Assuming Unequal Variances

	MW	*Transfer Fee*
Mean	17.49	20.4759
Variance	125.54535	81.101334
Observations	100	100
Hypothesized Mean Difference	0	
df	189	
t Stat	-2.077117	
P(T<=t) one-tail	0.0195714	
t Critical one-tail	1.6529558	
P(T<=t) two-tail	0.0391428	
t Critical two-tail	1.9725951	

Brazil

t-Test: Two-Sample Assuming Unequal Variances

	MW	*Transfer Fee*
Mean	26.645	36.0449
Variance	256.49644	704.71762
Observations	100	100
Hypothesized Mean Difference	0	
df	163	
t Stat	-3.031888	
P(T<=t) one-tail	0.001414	
t Critical one-tail	1.6542556	
P(T<=t) two-tail	0.002828	
t Critical two-tail	1.9746246	

Germany

t-Test: Two-Sample Assuming Unequal Variances

	MW	*Transfer Fee*
Mean	20.1575	19.9475
Variance	209.14224	187.93997
Observations	100	100
Hypothesized Mean Difference	0	
df	197	
t Stat	0.1053851	
P(T<=t) one-tail	0.4580887	
t Critical one-tail	1.6526252	
P(T<=t) two-tail	0.9161775	
t Critical two-tail	1.972079	

Argentina

t-Test: Two-Sample Assuming Unequal Variances

	MW	*Transfer Fee*
Mean	18.658	23.2889
Variance	170.27418	296.81723
Observations	100	100
Hypothesized Mean Difference	0	
df	184	
t Stat	-2.142715	
P(T<=t) one-tail	0.016725	
t Critical one-tail	1.6531771	
P(T<=t) two-tail	0.0334499	
t Critical two-tail	1.9729405	

Spain

t-Test: Two-Sample Assuming Unequal Variances

	MW	*Transfer Fee*
Mean	24.24	27.5438
Variance	189.94687	179.80135
Observations	100	100
Hypothesized Mean Difference	0	
df	198	
t Stat	-1.718149	
P(T<=t) one-tail	0.0436664	
t Critical one-tail	1.6525858	
P(T<=t) two-tail	0.0873328	
t Critical two-tail	1.9720175	

England

t-Test: Two-Sample Assuming Unequal Variances

	MW	*Transfer Fee*
Mean	22.0515	31.6718
Variance	454.34704	468.97908
Observations	100	100
Hypothesized Mean Difference	0	
df	198	
t Stat	-3.166001	
P(T<=t) one-tail	0.0008949	
t Critical one-tail	1.6525858	
P(T<=t) two-tail	0.0017898	
t Critical two-tail	1.9720175	

France

t-Test: Two-Sample Assuming Unequal Variances

	MW	*Transfer Fee*
Mean	29.305	36.4215
Variance	513.43886	699.42304
Observations	100	100
Hypothesized Mean Difference	0	
df	193	
t Stat	-2.043435	
P(T<=t) one-tail	0.0211842	
t Critical one-tail	1.6527871	
P(T<=t) two-tail	0.0423684	
t Critical two-tail	1.9723317	

Appendix F.6. Transfer Premium t-Test Output for Benchmark Group 2 Countries (Germany, Spain, France, England, Italy, Argentina and Brazil) including Top 100 Transfers in Top 5 Leagues since 2005/06 season

Before European Championship Title 2016

t-Test: Two-Sample Assuming Unequal Variances

	Damaliger MW	*Ablösesumme*
Mean	14.79677419	16.62741935
Variance	129.6569892	257.8003065
Observations	31	31
Hypothesized Mean Difference	0	
df	54	
t Stat	-0.517813176	
P(T<=t) one-tail	0.303351822	
t Critical one-tail	1.673564906	
P(T<=t) two-tail	0.606703644	
t Critical two-tail	2.004879288	

After European Championship Title 2016

t-Test: Two-Sample Assuming Unequal Variances

	Damaliger MW	*Ablöse*
Mean	22.60724638	28.58376812
Variance	335.740682	539.1390503
Observations	69	69
Hypothesized Mean Difference	0	
df	129	
t Stat	-1.678413141	
P(T<=t) one-tail	0.047843704	
t Critical one-tail	1.656751594	
P(T<=t) two-tail	0.095687409	
t Critical two-tail	1.978524491	

Appendix F.7. Transfer Premium t-Test Output for Portugals' Transfers of Top 100 Transfers in Top 5 Leagues that happened before and after European Championsship 2016

Portugal - Offensive Positions

t-Test: Two-Sample Assuming Unequal Variances

	MW	*Ablöse*
Mean	22.8068182	30.5497727
Variance	450.607162	729.523188
Observations	44	44
Hypothesized Mean Difference	0	
df	81	
t Stat	-1.4950925	
P(T<=t) one-tail	0.06938812	
t Critical one-tail	1.66388391	
P(T<=t) two-tail	0.13877624	
t Critical two-tail	1.98968632	

Portugal - Defensive Positions

t-Test: Two-Sample Assuming Unequal Variances

	MW	*Ablöse*
Mean	18.7729167	21.8883333
Variance	161.295208	264.086329
Observations	48	48
Hypothesized Mean Difference	0	
df	89	
t Stat	-1.0465198	
P(T<=t) one-tail	0.14907751	
t Critical one-tail	1.66215533	
P(T<=t) two-tail	0.29815502	
t Critical two-tail	1.9869787	

Portugal - Winger Position

t-Test: Two-Sample Assuming Unequal Variances

	MW	*Transfer Fee*
Mean	18.7380952	28.2019048
Variance	293.565476	654.509876
Observations	21	21
Hypothesized Mean Difference	0	
df	35	
t Stat	-1.4084914	
P(T<=t) one-tail	0.08390372	
t Critical one-tail	1.68957246	
P(T<=t) two-tail	0.16780744	
t Critical two-tail	2.03010793	

Appendix F.8. Transfer Premium t-Test Output for Portugal focusing on different positions and including Top 100 Transfers in Top 5 Leagues since 2008/09 season

Belgium - Offensive Positions

t-Test: Two-Sample Assuming Unequal Variances

	MW	*Transfer Fee*
Mean	22.3555556	26.5382222
Variance	737.325253	746.417883
Observations	45	45
Hypothesized Mean Difference	0	
df	88	
t Stat	-0.7284171	
P(T<=t) one-tail	0.23414613	
t Critical one-tail	1.66235403	
P(T<=t) two-tail	0.46829225	
t Critical two-tail	1.98728986	

Belgium - Defensive Positions

t-Test: Two-Sample Assuming Unequal Variances

	MW	*Transfer Fee*
Mean	12.9769231	14.9530769
Variance	142.743379	132.810257
Observations	52	52
Hypothesized Mean Difference	0	
df	102	
t Stat	-0.8584586	
P(T<=t) one-tail	0.19632606	
t Critical one-tail	1.65992998	
P(T<=t) two-tail	0.39265212	
t Critical two-tail	1.98349526	

Netherlands - Offensive Positions

t-Test: Two-Sample Assuming Unequal Variances

	MW	*Transfer Fee*
Mean	18.6764706	17.3444118
Variance	140.498217	71.2242739
Observations	34	34
Hypothesized Mean Difference	0	
df	60	
t Stat	0.53380098	
P(T<=t) one-tail	0.29772571	
t Critical one-tail	1.67064886	
P(T<=t) two-tail	0.59545141	
t Critical two-tail	2.00029782	

Netherlands - Defensive Positions

t-Test: Two-Sample Assuming Unequal Variances

	MW	*Transfer Fee*
Mean	17.0342105	21.9566667
Variance	296.045282	362.33173
Observations	57	57
Hypothesized Mean Difference	0	
df	111	
t Stat	-1.4483781	
P(T<=t) one-tail	0.07516512	
t Critical one-tail	1.65869727	
P(T<=t) two-tail	0.15033025	
t Critical two-tail	1.98156676	

Appendix F.9. Transfer Premium t-Test Output for Benchmark Group 1 Countries (Netherlands and Belgium) focusing on different positions and including Top 100 Transfers in Top 5 Leagues since 2008/09 season

Italy - Offensive Positions

t-Test: Two-Sample Assuming Unequal Variances

	MW	*Transfer Fee*
Mean	17.1226415	18.8424528
Variance	61.2875544	33.3691727
Observations	53	53
Hypothesized Mean Difference	0	
df	96	
t Stat	-1.2868947	
P(T<=t) one-tail	0.10061271	
t Critical one-tail	1.66088144	
P(T<=t) two-tail	0.20122543	
t Critical two-tail	1.98498431	

Italy - Defensive Positions

t-Test: Two-Sample Assuming Unequal Variances

	MW	*Transfer Fee*
Mean	17.9042553	22.3148936
Variance	200.583025	130.326669
Observations	47	47
Hypothesized Mean Difference	0	
df	88	
t Stat	-1.6622473	
P(T<=t) one-tail	0.05001073	
t Critical one-tail	1.66235403	
P(T<=t) two-tail	0.10002146	
t Critical two-tail	1.98728986	

Argentina - Offensive Positions

t-Test: Two-Sample Assuming Unequal Variances

	MW	*Transfer Fee*
Mean	19.5	25.604375
Variance	192.808511	274.710791
Observations	48	48
Hypothesized Mean Difference	0	
df	91	
t Stat	-1.9559694	
P(T<=t) one-tail	0.02676788	
t Critical one-tail	1.66177116	
P(T<=t) two-tail	0.05353577	
t Critical two-tail	1.98637715	

Argentina - Defensive Positions

t-Test: Two-Sample Assuming Unequal Variances

	MW	*Transfer Fee*
Mean	19.0365854	22.6456098
Variance	181.254878	383.935815
Observations	41	41
Hypothesized Mean Difference	0	
df	71	
t Stat	-0.9720402	
P(T<=t) one-tail	0.16716527	
t Critical one-tail	1.66659966	
P(T<=t) two-tail	0.33433053	
t Critical two-tail	1.99394337	

Appendix F.10. Transfer Premium t-Test Output for Benchmark Group 2 Countries (Italy and Argentina) focusing on different positions and including Top 100 Transfers in Top 5 Leagues since 2008/09 season

Age <24

t-Test: Two-Sample Assuming Unequal Variances

	Damaliger MW	*Ablöse*
Mean	16.86603774	26.300566
Variance	212.7569013	449.891425
Observations	53	53
Hypothesized Mean Difference	0	
df	92	
t Stat	-2.668188904	
P(T<=t) one-tail	0.004506428	
t Critical one-tail	1.661585397	
P(T<=t) two-tail	0.009012855	
t Critical two-tail	1.986086317	

Age 24-30

t-Test: Two-Sample Assuming Unequal Variances

	Damaliger MW	*Ablöse*
Mean	22.71219512	22.55609756
Variance	219.7660976	353.1000244
Observations	41	41
Hypothesized Mean Difference	0	
df	76	
t Stat	0.041760095	
P(T<=t) one-tail	0.483399732	
t Critical one-tail	1.665151353	
P(T<=t) two-tail	0.966799463	
t Critical two-tail	1.99167261	

30 Youngest Transfers of Top 100 (Age 17-21)

t-Test: Two-Sample Assuming Unequal Variances

	Damaliger MW	*Ablöse*
Mean	12.86333333	23.9596667
Variance	225.2051609	523.613355
Observations	30	30
Hypothesized Mean Difference	0	
df	50	
t Stat	-2.221016753	
P(T<=t) one-tail	0.015454163	
t Critical one-tail	1.675905025	
P(T<=t) two-tail	0.030908325	
t Critical two-tail	2.008559112	

30.-60. Youngest Transfers of Top 100 (Age 22-24)

t-Test: Two-Sample Assuming Unequal Variances

	Damaliger MW	*Ablöse*
Mean	22.11666667	30.138
Variance	193.891092	450.741886
Observations	30	30
Hypothesized Mean Difference	0	
df	50	
t Stat	-1.730417634	
P(T<=t) one-tail	0.044862035	
t Critical one-tail	1.675905025	
P(T<=t) two-tail	0.089724069	
t Critical two-tail	2.008559112	

Appendix F.11. Transfer Premium t-Test Output for Portugal focusing on different age groups and including Top 100 Transfers in Top 5 leagues

Top 100 Sales of Portuguese Top Clubs

t-Test: Two-Sample Assuming Unequal Variances

	MW	*Transfer Fee*
Mean	20.56	27.0518
Variance	185.54202	411.85596
Observations	100	100
Hypothesized Mean Difference	0	
df	173	
t Stat	-2.656032	
P(T<=t) one-tail	0.0043229	
t Critical one-tail	1.6537092	
P(T<=t) two-tail	0.0086458	
t Critical two-tail	1.9737713	

Portuguese Players of Top 100 Sales of Portuguese Clubs

t-Test: Two-Sample Assuming Unequal Variances

	MW	*Transfer Fee*
Mean	21.393023	28.807674
Variance	215.27305	465.15191
Observations	43	43
Hypothesized Mean Difference	0	
df	74	
t Stat	-1.863952	
P(T<=t) one-tail	0.0331476	
t Critical one-tail	1.6657069	
P(T<=t) two-tail	0.0662951	
t Critical two-tail	1.9925435	

Appendix F.12 Transfer Premium t-Test Output for Portuguese Top Clubs including Top 100 Transfers in Top 5 Leagues

Top 100 Sales of Dutch Top Clubs

t-Test: Two-Sample Assuming Unequal Variances

	MW	*Transfer Fee*
Mean	15.9725	17.8815
Variance	211.063	296.73428
Observations	100	100
Hypothesized Mean Difference	0	
df	193	
t Stat	-0.847151	
P(T<=t) one-tail	0.1989802	
t Critical one-tail	1.6527871	
P(T<=t) two-tail	0.3979603	
t Critical two-tail	1.9723317	

Dutch Players of Top 100 Sales of Dutch Top Clubs

t-Test: Two-Sample Assuming Unequal Variances

	MW	*Transfer Fee*
Mean	16.162037	16.945926
Variance	289.43669	285.14941
Observations	54	54
Hypothesized Mean Difference	0	
df	106	
t Stat	-0.240311	
P(T<=t) one-tail	0.4052766	
t Critical one-tail	1.659356	
P(T<=t) two-tail	0.8105532	
t Critical two-tail	1.9825973	

Appendix F.13. Transfer Premium t-Test Output for Dutch Top Clubs including Top 100 Transfers in Top 5 Leagues

Top 100 Sales of Belgian Top Clubs

t-Test: Two-Sample Assuming Unequal Variances

	MW	*Transfer Fee*
Mean	7.4265	9.2047
Variance	26.218205	46.910199
Observations	100	100
Hypothesized Mean Difference	0	
df	183	
t Stat	-2.079398	
P(T<=t) one-tail	0.0194874	
t Critical one-tail	1.6532228	
P(T<=t) two-tail	0.0389748	
t Critical two-tail	1.9730119	

Belgian Players of Top 100 Sales of Belgian Top Clubs

t-Test: Two-Sample Assuming Unequal Variances

	MW	*Transfer Fee*
Mean	7.7837838	9.6840541
Variance	37.313063	60.520969
Observations	37	37
Hypothesized Mean Difference	0	
df	68	
t Stat	-1.168614	
P(T<=t) one-tail	0.1233198	
t Critical one-tail	1.6675723	
P(T<=t) two-tail	0.2466396	
t Critical two-tail	1.9954689	

Appendix F.14. Transfer Premium t-Test Output for Belgian Top Clubs including Top 100 Transfers in Top 5 League

Benchmark Group	Name	Transfer Fee	Market Value	Premium		After 17/18 Season?	Remaining Contract Length	Avg. Rating Season before	New Club Premier	Age Distance from 40	Offensive Position
	Joao Felix	127,2	70	Yes	57,2	1	4	7,48	0	21	1
1	Donyell Malen	30	30	No	-	1	3	7,43	0	19	1
2	Ferran Torres	55	45	Yes	10	1	3,5	7,23	0	19	1
	Cristiano Ronaldo	117	100	Yes	17	1	3	7,9	0	7	1
1	Luuk de Jong	12,5	12	Yes	0,5	1	2	7,73	0	12*	1
2	Jonas Hofmann	10	13	No	-	1	2	7,47*	0	10	1
	Ruben Dias	71,6	35	Yes	36,6	1	4	7,05	1	17	0
1	Björn Engels	8	6	Yes	2	1	4	6,9	1	16	0
2	Rodri	70	80	No	-	1	4	7,16	1	17	0
	Bruno Fernandes	65	60	Yes	5	1	3,5	7,89	1	15	1
1	Cody Gakpo	42	60	No	-	1	3,5	8,33*	1	17	1
2	Emiliano Buendia	38,4	35	Yes	3,4	1	3	7,68	1	16	1
	Joao Cancelo 40,4	65	55	Yes	10	1	4	7,12	1	15	0
1	Terence Kongolo	20	10	Yes	10	1	4	7,24	1	16	0
2	Matt Targett	15,5	7	Yes	8,5	1	3	6,97	1	17	0
	Matheus Nunes	62	45	Yes	17	1	4	6,77	1	15	0
1	Youri Tielemans	45	38	Yes	7	1	3	7	1	18	0
2	Emerson Royal	25	25	No	-	1	3	6,95	1	18	0
	Bernardo Silva	50	40	Yes	10	0	3	6,96	1	18	1
1	Vincent Janssen	22	6	Yes	16	0	3	6,74	1	18	1
2	Alvaro Morata	66	40	Yes	26	0	4	7,14	1	16	1
	Rafael Leao	49,5	15	Yes	34,5	1	4	6,9	0	20	1
1	Emanuel megha	13	8	Yes	5	1	3	6,8	0	20	1
2	Andrea Pinamonti	21	13,5	Yes	7,5	1	4	6,67	0	19	1
	Matheus Nunes	45	35	Yes	10	1	4	7,7	1	17	0
1	Donny van de Beek	39	44	No	-	1	2*	7,32*	1	17	0
2	Fabinho	45	45	No	-	1	3	7,34	1	16	0
	Joao Mario	44,78	30	Yes	14,78	0	4	6,46	0	17	0
1	Marten de Roon	16,7	10	Yes	6,7	0	3	6,53	0	14	0
2	Marco Benassi	12	9,5	Yes	2,5	0	4	6,8*	0	18	0
	Diogo Jota	44,7	28	Yes	16,7	1	2	6,81	1	17	1
1	Justin Kluivert	11,2	14	No	-	1	2	6,81	1	16	1
2	Grant	16,5	8	Yes	8,5	1	2	6,87	1	17	1
	Vitinha	41,5	30	Yes	11,5	1	2	7,47	0	18	1
1	Justin Kluivert	17,25	15	Yes	2,25	1	1	7,33	0	21	1
2	Alassane Plea	23	18	Yes	5	1	3	7,23	0	15	1
	Joao Cancelo	40,4	35	Yes	5,4	1	3	7,2	0	16	0
1	Matthijs de Ligt	67	70	No	-	1	2	7,07	0	18	0
2	Dayot Upamecano	42,5	60	No	-	1	2	7,1	0	18	0
	Fabio Silva	40	12	Yes	28	1	2	7,03	1	22	1
1	Jeremy Doku	60	28	Yes	32	1	2	7,15	1	19	1
2	Alejo Veliz	15	7	Yes	8	1	2,5	7,14	1	21	1
	Goncalo Guedes	40	40	No	-	1	3	6,63	0	19	1
1	Alexis Saelemaekers	7,65	8	No	-	1	2	6,62	0	19	1
2	Jeff Reine-Adelaide	25	11	Yes	14	1	3	6,78	0	19	1
	Nuno Mendes	38	40	No	-	1	3	6,73	0	20	0
1	Amadou Onana	12,6	3	Yes	9,6	1	3	6,98	0	21	0
2	Luca Pellegrini	22	5	Yes	17	1	3	6,58	0	20	0
	Andre Silva	38	22	Yes	16	0	4	7,11	0	19	1
1	Landry Dimata	11,5	6,5	Yes	5	0	3	6,86	0	21	1
2	Ousmane Dembele	135	33	Yes	102	0	4	7,34	0	20	1
	Andre Gomes	37	30	Yes	7	0	4	6,62	0	18	0
1	Davy Klaasen	13,5	15	No	-	1*	4	6,5	0	15	0
2	Gerson	18,5	25	No	-	0	3,5	6,75	0	21	0
	Nelson Semedo	35,7	20	Yes	15,7	0	4	7,13	0	17	0
1	Youri Tielemans	25	22	Yes	3	0	3	7,13	0	20	0
2	Roberto Gagliardini	20,5	15	Yes	5,5	0	4	7,07	0	17	0
	Fabio Viera	35	25	Yes	10	1	3	7,45	1	18	1
1	Steven Bergwijn	30	35	No	-	1	3,5	7,28	1	18	1
2	Antony	95	35	Yes	60	1	3	7,44	1	18	1
	Renato Sanches	35	20	Yes	15	0	5	6,82	0	22	0
1	Rick Karsdorp	16	9	Yes	7	0	4	7,08	0	18	0
2	Theo Hernandez	24	15	Yes	9	0	4	6,75	0	21	0
	Goncalo Guedes	32,6	40	No	-	1	2	7,08	1	15	1
1	Romelo Lukaku	113	100	Yes	13	1	3	7,32	1	12	1
2	Eberechi Eze	17,8	9	Yes	8,8	1	1	7,29	1	18	1
	Vitinha	32	15	Yes	17	1	4,5	6,95	0	18	1
1	Louis Openda	38,5	35	Yes	3,5	1	4	7,14	0	17	1
2	Mattheus Cunha	18	13	Yes	5	1	3,5	6,7	0	20	1

	Nelson Semedo	32	40	No	-	1	2	6,85	1	14	0
1	Nathan Ake	45,3	28	Yes	17,3	1	2	6,97	1	15	0
2	Kalvin Philips	49	50	No	-	1	2	6,85	1	14	0
	Trincao	30,94	16	Yes	14,94	1	3	7,26	0	20	1
1	JeremyDoku	26	9	Yes	17	1	2	7,43	0	22	1
2	Mattheus Cunha	35	30	Yes	5	1	4	7,15	0	18	1
	Gelson Martins	30	28	Yes	2	1	4	6,63	0	16	1
1	Dodi Lukebakio	20	18	Yes	2	1	3	6,89	0	19	1
2	Raul de Tomas	22,5	15	Yes	7,5	1	4,5	6,76	0	15	1
	Goncalo Guedes	30	9	Yes	21	0	4,5	6,81	0	20	1
1	Memphis Depay	16	25	No	-	0	2,5*	6,99	0	18	1
2	Gabriel Barbosa	29,5	20	Yes	9,5	0	4	7,06	0	20	1
	Beto	25	25	No	-	1	3	6,78	1	15	1
1	Anwar El Ghazi	9	7,5	Yes	1,5	1	2	6,82	1	16	1
2	Dwight McNeil	17	18	No	-	1	2	7,03	1	18	1
	Andre Gomes	25	28	No	-	1	2	6,57	1	15	0
1	Orel Mangala	13	15	No	-	1	2	6,69	1	16	0
2	Ben Godfrey	27,5	16	Yes	11,5	1	1	6,76	1	18	0
	Rony Lopes	25	25	No	-	1	3	7,05	0	17	1
1	AnthonyLimbombe	8,25	8	Yes	0,25	1	3	6,86	0	16	1
2	Karim Adeyemi	30	35	No	-	1	2	7,14	0	20	1
	Andre Silva	23	45	No	-	1	2	7,36	0	15	1
1	Sam Lammers	8	7	Yes	1	1	1	7,14	0	17	1
2	Enzo La Fee	20	20	No	-	1	1	7,19	0	17	1
	Gelson Martins	22	35	No	-	1	4	7,07	0	17	1
1	Benito Raman	10	12	No	-	1	3	6,91	0	16	1
2	Bradley Barcola	45	18	Yes	27	1	3	6,88	0	19	1
	Ricardo Pereira	22	20	Yes	2	1	1	7,5	1	16	0
1	Gustavo Hamer	17,3	8	Yes	9,3	1	1	7,35	1	14	0
2	Alexis McAllister	42	65	No	-	1	2	7,21*	1	17	0
	Diogo Dalot	22	15	Yes	7	1	1	6,9	1	21	0
1	Romeo Lavia	22,26	2	Yes	20,26	1	1	6,86	1	22	0
2	Ibrahima Konate	40	35	Yes	5	1	2	6,68	1	18	0
	Joao Palinha	21	25	No	-	1	3	7,1	1	13	0
1	Leander Dendoncker	13,8	18	No	-	1	2	6,84	1	16	0
2	Axel Disasi	45	30	Yes	15	1	2	6,93	1	15	0
	Adrien Silva	20,5	25	No	-	0	3	7,05	1	12	0
1	Steven Defour	8,6	6	Yes	2,6	0	3	7,17	1	12	0
2	Sam Clucas	16,3	2,5	Yes	13,8	0	2	6,81	1	14	0
	Rafael Leao	20,2	6	Yes	14,2	1	4	6,7	0	21	1
1	Olivier Deman	4	3	Yes	1	1	1*	6,95	0	17*	1
2	Rodrygo	45	40	Yes	5	1	3,5	6,9	0	22	1
	Renato Sanches	20	18	Yes	2	1	2	6,73	0	18	0
1	Jerry St. Juste	8	7,5	Yes	0,5	1	2	6,89	0	18	0
2	Gianluca Mancini	21	22	No	-	1	3	6,89	0	16	0
	Daniel Podence	19,6	6	Yes	13,6	1	3,5	6,65	1	16	1
1	Arnaut Danjuma	16,46	12	Yes	4,46	1	3	6,9	1	18	1
2	Anthony Gordon	45,6	40	Yes	5,6	1	2,5	6,89	1	19	1
	William Carvalho	18,5	25	No	-	1	2	7,18	0	14	0
1	Matz Sels	4	4,5	No	-	1	3	7	0	14	0
2	Mario Hermoso	25	25	No	-	1	1	7,06	0	16	0
	Rui Patricio	18	16	Yes	2	1	4	6,92	1	10	0
1	Dennis Praet	19,2	24	No	-	1	2*	7	1	11	0
2	Lucas Digne	30	30	No	-	1	3,5	7,13	1	12	0
	Pedro Neto	17,9	2,5	Yes	15,4	1	3	6,43	1	21	1
1	Julien Duranville	8,5	5	Yes	3,5	1	1,5*	6,61	0*	24	1
2	Cameron Archer	21,55	12	Yes	9,55	1	4	6,44	1	19	1
	Cristiano Ronaldo	17	45	No	-	1	1	7,45	1	4	1
1	Wout Weghorst	17,5	20	No	-	1	1,5	6,94*	1	11*	1
2	Philippe Coutinho	20	20	No	-	1	1	6,77*	1	10*	1
	Danilo Pereira	16	20	No	-	1	1	6,77	0	11	0
1	Birger Verstraete	4	4	No	-	1	1	6,78	0	15*	0
2	Mats Hummels	32	35	No	-	1	2	7,23	0	10	0
	Renato Sanches	15	28	No	-	1	1	7,08	0	16	0
1	Jason Denayer	10	3	Yes	7	1	2	6,88	0	17	0
2	Emre Can	25	24	Yes	1	1	2	7,15	0	14	0
	Beto	15	10	Yes	5	1	1	7,2	0	16	1
1	Denzel Dumfries	14,25	16	No	-	1	2	7,07	0	15	1
2	Leroy Sane	49	80	No	-	1	1	7,17	0	16	1
	Bruma	15	11	Yes	4	0	1	7,32	0	18	1
1	Charles de Ketelaere	36,5	30	Yes	6,5	1*	2	7,25	0	19	1
2	Federico Bernadeschi	40	30	Yes	10	0	2	7,07	0	17	1

2	Federico Bernadeschi	40	30	Yes	10	0	2	7,07	0	17	1
	Diogo Jota	14	12	Yes	2	1	3	7,23	1	19	1
1	Romelu Lukaku	84,7	50	Yes	34,7	0*	2	7,35	1	16	1
2	Noni Madueke	35	15	Yes	20	1	2,5	7,22	1	20	1
	Ruben Semedo	14	9	Yes	5	0	5	6,95	0	17	0
1	Thomas Meunier	6	6	No	-	0	4	7	0	16	0
2	Dalbert	21	5	Yes	16	0	4	6,91	0	17	0
	Chermiti	12,5	3	Yes	9,5	1	4	6,58	1	21	1
1	Romeo Lavia	62,1	32	Yes	30,1	1	4	6,8*	1	21	0*
2	Franca	20	9	Yes	11	1	4,5	6,69	1	21	1
	Thierry Correia	12	0,4	Yes	11,6	1	3	6,4	0	20	0
1	Mitchel Bakker	10	9	Yes	1	1	2	6,62	0	17	0
2	Alvaro Odriozola	32	25	Yes	7	1	4	6,62	0	18	0
	Raphael Guerreiro	12	9	Yes	3	0	1	6,95	0	18	0
1	Dennis Praet	8	9	No	-	0	1	6,95	0	18	0
2	Mohamoud Dahoud	12	15	No	-	0	1	7,09	0	19	0
	Rui Patricio	11,8	10	Yes	1,8	1	1	6,76	0	7	0
1	Jasper Cillessen	35	18	Yes	17	1	2	6,57	0	10	0
2	Chris Smalling	15	20	No	-	1	2	7,12*	0	10	0
	Pedro Neto	11	2,5	Yes	8,5	1	1	6,43	0	21	1
1	Myron Boadu	17	14	Yes	3	1	2	6,98*	0	20	1
2	Ousmane Dembele	22	7	Yes	15	1	2	6,35	0	18	1
	Felix Correia	10,5	1	Yes	9,5	1	4	6,86	0	21	1
1	Romelu Lukaku	74	75	No	-	1	3	6,89	0	14*	1
2	Mathys Tel	20	2	Yes	18	1	2	6,6	0	23	1
	Luis Maximiano	10,26	12	No	-	1	3	6,94	0	17	0
1	Thibaut Courtois	35	65	No	-	1	4	6,85	0	14	0
2	Clement Lenglet	35,9	36	No	-	1	3	6,93	0	17	0
	Jose Fonte	9,2	6	Yes	3,2	0	1,5	7,08	1	7	0
1	Sven Kums	9	7,5	Yes	1,5	0	4*	6,86	1	12*	0
2	David Luiz	35	28	Yes	7	0	2	7,3	1	11*	0
	Bruno Jordao	8,9	1	Yes	7,9	1	3	6,57	1	20	0
1	Timothy Castagne	13	25	No	-	1	2	6,76	1	23	0
2	Douglas Luiz	16,8	2,5	Yes	14,3	1	3	6,75	1	19	0
	Nani	8,5	16	No	-	0	2	7,45	0	11	1
1	Renaud Emond	4	4,5	No	-	0	1,5	6,86*	0	12	1
2	Lucas Vazquez	16,8	15	Yes	1,8	0	2	7,36	0	13	1
	Tiago Tomas	8	7	Yes	1	1	2	6,8	0	19	1
1	Joshua Zirkzee	8,5	11	No	-	1	1	7,03	0	19	1
2	Vinicius Jr.	45	35	Yes	10	1	1	6,91	0	22	1
	Andre Almeida	8	5	Yes	3	1	1	6,78	0	18	0
1	Arthur Theate	6,75	15	No	-	1	1	6,81	0	18	0
2	Marcos Llorente	30	20	Yes	10	1	2	6,96	0	16	0
	Jose Sa	8	7,5	Yes	0,5	1	2	6,88	1	12	0
1	Leander Dendoncker	15	28	No	-	1	1	6,77	1	13	0
2	Emerson Palmieri	15,4	14	Yes	1,4	1	2	6,91	1	12	0
	Nuno Tavares	8	7	Yes	1	1	3	6,57	1	19	0
1	Jurrien Timber	40	42	No	-	1	2	6,6	1	18	0
2	LesleyUgochukwu	27	9	Yes	18	1	2	6,75	1	21	0
	Diogo Leite	7,5	15	No	-	1	1	6,67	0	16	0
1	Björn Engels	4	6	No	-	1	2	6,67	0	16	0
2	Suad Serdar	8	9	No	-	1	1	6,72	0	16	0
	Diogo Jota	7	3	Yes	4	0	4	6,86	0	21	1
1	Louis Openda	15,39	7,5	Yes	7,89	1*	2*	7,09	0	18	1
2	Jadon Sancho	20,59	5	Yes	15,59	0	3	6,86	0	23	1
	Tiago Santos	6,5	3,5	Yes	3	1	2	6,87	0	20	0
1	Axel Witsel	20	20	No	-	1	1,5	6,99	0	19	0
2	Castello Lukeba	30	25	Yes	5	1	2	6,98	0	20	0
	Bruno Fernandes	6	7,5	No	-	0	1	6,81	0	18	1
1	Dodi Lukebakio	10	12	No	-	1*	1	6,82	0	15	1
2	Maximilian Philipp	20	15	Yes	5	0	2	6,82	0	17	1
	Mario Rui	6	7	No	-	0	2	6,75	0	14	0
1	Christian Kabasele	6,95	6	Yes	0,95	0	2	6,86	0	15	0
2	Antonia Rüdiger	9	12	No	-	0	1	6,92	0	17	0

Appendix G. Propensity Score Matching of Portuguese Transfers with Transfers of Players from Benchmark Group 1 Countries (Netherlands and Belgium) and Benchmark Group 2 Countries (Germany, Spain, England, France, Italy, Argentina and Brazil)

Absolute Frequency

	Premium	No Premium	
Portuguese	48	20	68
Non-Portuguese	38	30	68
	86	50	136

Expected Frequency

	Premium	No Premium	
Portugiesisch	43	25	68
Non-Portugues	43	25	68
	86	50	136

p-value 0.07533

Appendix H.1. Chi-Square Test Results to prove significance of Propensity Score Matching with Benchmark Group 1

Absolute Frequency

	Premium	No Premium	
Portuguese	48	20	68
Non-Portuguese	46	22	68
	94	42	136

Expected Frequency

	Premium	No Premium	
Portugiesisch	47	21	68
Non-Portugues	47	21	68
	94	42	136

p-value 0.71049

Appendix H.2 Chi-Square Test Results to prove significance of Propensity Score Matching with Benchmark Group 2