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Exploring the Impact of Portuguese Football Players in the Top 5 European Leagues:
A Wage Analysis

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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 from the wage analysis indicate that Portuguese players receive higher average annual salaries than Dutch players. In addition, it was found a salary premium for Portuguese better-performing, older midfielders, selected to represent Portugal National Team.

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

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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”*.

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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 perception 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 analysis that are carried out in this work. Chapter 5 analyses the impact of Portuguese players from a brand perspective, discussing the main findings of the analysis. Chapter 6 provides limitations for the analyses conducted and Chapter 7 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 (INE 2022), 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

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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 Europe¹ (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.)

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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 (Barredo 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

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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

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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 Sachdeo (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 Aak 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 2020), 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

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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 rule² (UEFA), the 6+5 rule³ (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, 3) 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).

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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

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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

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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. (2019, 2) 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 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,

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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 niche (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

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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.

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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

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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 Global'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

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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.

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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 remuneration 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); Battre, 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?*

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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

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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. 2017 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

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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. 2016; 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 F1. 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 season⁴. 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.

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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 2020). 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. It 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 it is asked directly to respondents which traits do they associate with Portuguese football players.

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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

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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

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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?”*

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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 OECD 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 which leagues are willing to pay higher wages to Portuguese players and then from a broader perspective, by combining 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 of 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.

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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:

$$\text{Wages} = \beta_0 + \beta_1 \text{Performance} + \beta_2 \text{Position} + \beta_3 \text{Age} + \beta_4 \text{NationalTeam}$$

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 European Leagues:

A Wage Analysis

5.1 Top 10 highest paid Portuguese players in the Top 5 European Leagues

Table 5 presents the 10 highest paid Portuguese players in the Top 5 European from the 2013/14 to the 2023/24 seasons. At the forefront, the indisputable dominance of Cristiano Ronaldo is evident, standing out with a gross annual wage of approximately €57.41 million while playing in Serie A with Juventus during the 2020/2021 season. Excluding Cristiano Ronaldo's position, the gross annual salaries of the other nine players range from €8 million (Raphael Guerreiro in Bayern Munich during the 2023/24 season) to approximately €18.06 million (Bernardo Silva in Manchester City during the 2023/24 season). The English Premier League emerges as a prominent financial hub, hosting four players within the top 10 – Bernardo Silva and Rúben Dias from Manchester City, Bruno Fernandes from Manchester United and Diogo Jota from Liverpool- all earning substantial gross annual wages. The Spanish LaLiga is represented by three players – João Félix in Atlético Madrid, Nani in Valencia and Pepe in Real Madrid- demonstrating the financial competitiveness of the Spanish league. The German Bundesliga is represented by João Cancelo and Raphael Guerreiro during their spells at Bayern Munich in the 2022/23 and 2023/24 seasons respectively. The Italian Serie A is remarkably represented by Cristiano Ronaldo, during his time at Juventus. Notably, the French Ligue 1 is not represented in the top 10 highest paid Portuguese players in the Top 5 European leagues between 2013/14 and 2023/24.

In the context of the current season, the Premier League stands out as the most represented league in this ranking, with six out of the ten athletes playing in the English league – Bernardo Silva, Bruno Fernandes, Rúben Dias, Diogo Jota, Matheus Nunes and André Gomes. Consequently, Manchester City is the most represented club in the top 10 highest earning Portuguese football players for the current season, with three out of ten players playing for *The*

Citizens (Goal 2019). La Liga is represented by João Cancelo, who is currently playing for Barcelona and earning around €12.5 million; Bundesliga is represented by Raphael Guerreiro, who plays for Bayern Munich and earns a gross annual wage of approximately €8 million ; Serie A is represented by Rafael Leão, who plays for AC Milan and is earning about €6.4 million ; and, Ligue 1 has also a place in the ranking, being represented by Gonçalo Ramos, who plays for Paris Saint-Germain and earns a salary of approximately €5.5 million (Table 21).

Ranking	Player	Gross Annual Wage	League	Team	Season
1	Cristiano Ronaldo	57,410,000	Serie A	Juventus	20/21
2	Bernardo Silva	18,059,828	Premier League	Manchester City	23/24
3	João Cancelo	15,280,000	Bundesliga	Bayern Munich	22/23
4	João Félix	14,580,000	La Liga	Atlético Madrid	21/22
5	Bruno Fernandes	14,447,863	Premier League	Manchester United	23/24
6	Rúben Dias	10,835,897	Premier League	Manchester City	23/24
7	Nani	10,450,000	La Liga	Valencia	16/17
8	Diogo Jota	8,427,920	Premier League	Liverpool	23/24
9	Pepe	8,140,000	La Liga	Real Madrid	13/14
10	Raphael Guerreiro	8,000,000	Bundesliga	Bayern Munich	23/24

Table 5. Top 10 Highest Paid Portuguese Players from 2013/2014 to 2023/2024

Ranking	Player	Gross Annual Wage	League	Team
1	Bernardo Silva	18,059,828	Premier League	Manchester City
2	Bruno Fernandes	14,447,863	Premier League	Manchester United
3	João Cancelo	12,500,000	La Liga	Barcelona
4	Rúben Dias	10,835,897	Premier League	Manchester City
5	Diogo Jota	8,427,920	Premier League	Liverpool
6	Raphael Guerreiro	8,000,000	Bundesliga	Bayern Munich
7	Matheus Nunes	7,825,926	Premier League	Manchester City
8	André Gomes	6,711,944	Premier League	Everton
9	Rafael Leão	6,410,000	Serie A	AC Milan
10	Gonçalo Ramos	5,500,000	Ligue 1	PSG

Table 6. Top 10 Highest Paid Portuguese Players in 2023/2024

5.2 Annual Wages of Portuguese Players

The initial step of the analysis involved addressing the question: *“To what extent are clubs from the Top 5 European Leagues willing to offer higher wages to Portuguese Players? If this is the case, how does it contrast with salaries provided to players from other nations?”*. The following sections of the analysis try to answer that question, taking into account each league from the Top 5 European Leagues individually and the 5 leagues combined into one sole entity.

5.2.1 Annual Wages of Portuguese Players Segmented by League

When looking at the average annual salaries of Portuguese players in the Top 5 European Leagues, results demonstrate that, during the studied period, Premier League was the league with the highest average total salary for Portuguese players (€3.81 million), followed by Serie A (€3.70 million). On the other hand, Ligue 1 was the league that offered the lowest average annual salary to Portuguese players during the period (€1.77 million).

Figure 1 shows the evolution of the average annual salary of Portuguese players by league, between 2013/14 and 2023/24 seasons. Firstly, the average annual salary of Portuguese players in the Top 5 leagues has increased from the 2013/14 season until the current one, 2023/24, despite experiencing some fluctuations during this period. Notably, during the initial period, from 2013/14 to 2017/18, the league that paid the highest average annual wage to Portuguese players was the Spanish LaLiga. A distinct shift occurred from 2018/19 to 2020/21, marking three years of Italian supremacy. During this period, Serie A emerged as the league offering the highest average annual salary to Portuguese players. In the most recent three years, from 2021/22 to 2023/24, the Premier League was the league that paid the highest average annual wage to Portuguese players.

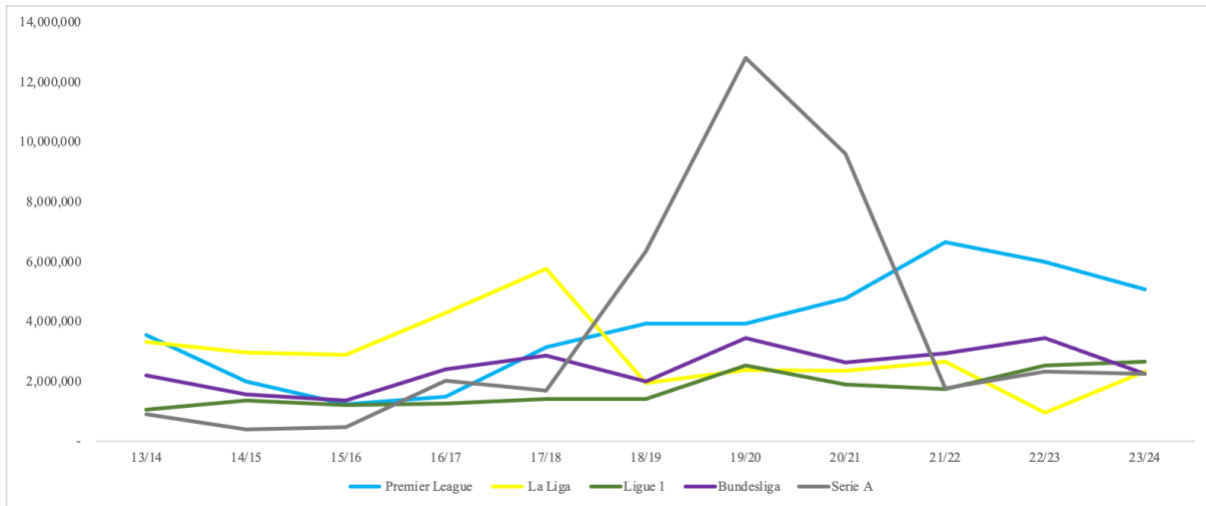


Figure 1 Evolution of the Annual Average Salary of Portuguese Players in the Top 5 European Leagues

The changes in the league that pays the highest average annual salary to Portuguese players during the studied period, can be explained by the earnings of Cristiano Ronaldo. Throughout this period, Cristiano Ronaldo coincidentally played in the league that paid the highest average annual wage to Portuguese players (Transfermarkt 2023). According to Forbes Portugal (2023), over the last decade, Cristiano Ronaldo secured the position of the highest paid football player in the World six different times, making him is the best-paid Portuguese football player across the Top 5 European Leagues. Consequently, the amount of money earned by Cristiano Ronaldo in each season, has an impact in the League that pays the highest average annual salary to Portuguese players, introducing a degree of bias into this analysis. In that sense, the subsequent part of the results will demonstrate how does the average annual salary of Portuguese players in the Top 5 European leagues varied between 2013/14 and 2023/24, when excluding Cristiano Ronaldo's wage.

5.2.2 Annual Wages of Portuguese Players Segmented by League without Cristiano Ronaldo

By excluding Cristiano Ronaldo's wage for each year he played in the Top 5 European leagues, the results demonstrate that, on average, Premier League paid the highest average annual salary

to Portuguese players (€3.60 million), whereas Serie A paid the lowest average annual salary (€1.62 million) between 2013 and 2024.

When analyzing it from a longitudinal perspective and considering each season individually, Figure 2 demonstrates that with the exception from the 2015/16, 2016/17 and 2017/18 seasons - years in which Bundesliga paid the highest average annual wages - Premier League consistently held the position of paying the highest average annual salaries to Portuguese players.

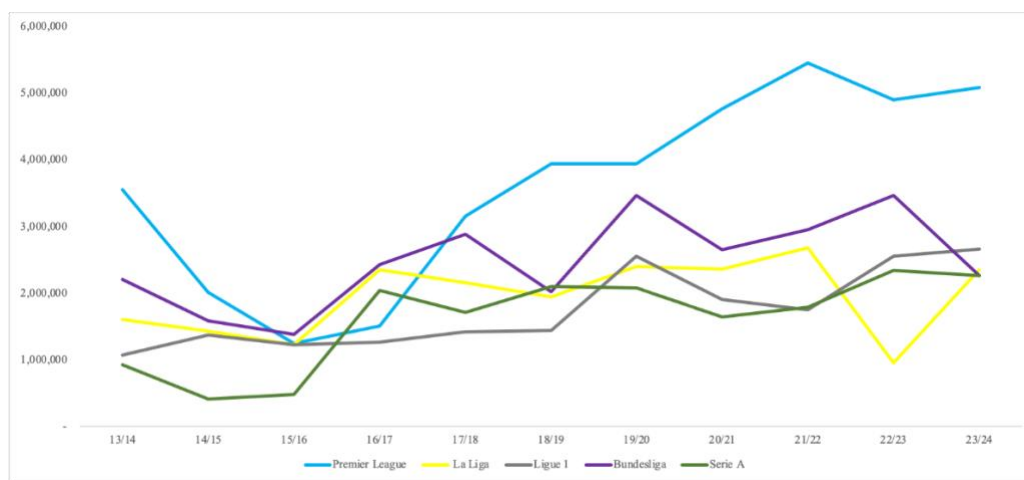


Figure 2.. Evolution of the Average Annual Salary of Portuguese Players excluding Cristiano Ronaldo's Wage

5.2.3 Annual Wages of Portuguese Players- Top 5 European Leagues perspective

When analyzing the evolution of Portuguese players' wages, between 2013/14 and 2023/24, considering the Top 5 European leagues as one sole entity, Figure 3 illustrates this evolution. According to Figure 3, the average annual salary of Portuguese players has increased from approximately €2.43 million to €3.31 million, during this period. While there is an increase in the average annual salary, it is relevant to notice that the highest value occurred in the 2019/20 season, with an average salary of €4.09 million.

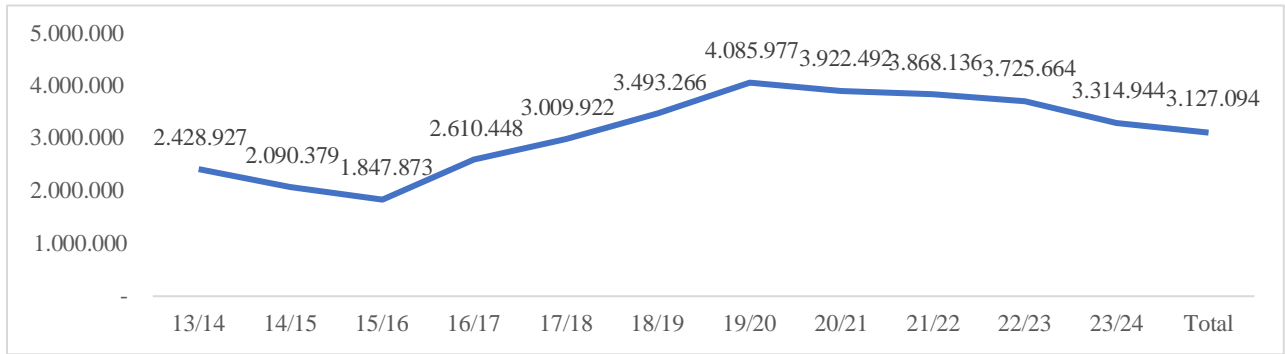


Figure 3. Evolution of the Average Annual Salary of Portuguese Players in the Top 5 European Leagues

5.2.4 Comparison with Benchmark Group 1

Table 7 illustrates the average annual salary spent by each of the Top 5 European leagues on Portuguese players and players from the Benchmark Group 1 – Dutch and Belgian – between 2013/14 and 2023/24. Examining each league individually, results indicate that in Premier League, Portuguese players receive 30.31% lower salaries than Belgian players, but they receive 23.93% higher wages than Dutch players. In LaLiga, Portuguese players receive, on average, lower salaries when compared to both nations from the Benchmark Group 1 (50% less than Dutch players and approximately a third of what Belgian players receive). In Ligue 1, Portuguese players receive, on average, 14.42% less than Dutch players, but almost 66% more than Belgian Players. For the Bundesliga and Serie A, Portuguese players receive, on average, 1.9% and 59.98%, respectively, higher salaries than players from the Netherlands and 7.51% and 22.46%, respectively, higher salaries than players from Belgium.

League	Portuguese	Dutch	Belgian
Premier League	3,805,133	3,070,312	5,460,269
La Liga	2,906,402	5,840,076	7,970,907
Ligue 1	1,744,989	2,039,058	1,054,313
Bundesliga	2,480,871	2,434,514	2,307,568
Serie A	3,535,245	2,209,871	2,886,832

Table 7. Average Annual Salary in each of the Top 5 European Leagues by Nation

When comparing the average annual earnings of Portuguese players with Dutch and Belgian players across Top 5 European Leagues, as presented in Table 8, it is evident that, on average, in these leagues combined, Portuguese players receive, on average, 15.61% higher salaries than Dutch players (€3.13 million compared to €2.70 million) and receive, on average, 32% lower salaries than Belgian players (€3.13 million compared to €3.99 million).

League	Portuguese	Dutch	Belgian
Top 5	3,127,094	2,704,751	3,992,451

Table 8. Average Annual Salary in the Top 5 European Leagues by Nation

5.3 Determinants of Portuguese Players' Wages

This part of the analysis tries to answer the question: “What factors contribute to the determination of wages for Portuguese players in the Top 5 European Leagues?”. As outlined in Chapter 4.4.2, the variables used as possible determinants of wages were: Average Rating, used as a performance metric; players' position, categorized as: Attacker, Midfielder, Defender and Goalkeeper; Age and National Team involvement. As previously stated in Chapter 4.4.2, players' average ratings are only available from the 2015/16 season onwards, therefore, this section of the analysis will only take into account the range of seasons from 2016/17 to 2023/24 (since average ratings are measured as ratings from the previous years). Taking that factor into account, there are in total 1039 wage observations of 117 Portuguese players, 126 Dutch players and 77 Belgian players. According to Dash, Behera, Dehuri, and Ghosh (2023), an outlier is a point in a data set that is far from other data points. Eliminating or resolving it prior to the analysis is essential to avoid results that do not conform to the expected behavior (Dash et. al. 2023). Taking the definition of outlier into account, from the 1042 observed wages, 78 of them were considered outliers – 7.5% of the observations- and, therefore, were removed from the model. Some of these removed values included specific seasons' salary observations of Cristiano Ronaldo, Bruno Fernandes, João Félix, Bernardo Silva and João Cancelo from the

Portuguese side; Virgil van Dijk, Frenkie de Jong, Matthijs de Ligt and others from the Dutch side; and Eden Hazard, Kevin de Bruyne and Thibaut Courtois from the Belgian side.

5.3.1 Coefficient of Determination

Table 9 illustrates the coefficient of determination of Portuguese players. This metric, generally indicated by R-squared, measures how much the dependent variable is influenced by the explanatory variables, expressed as a proportion of the overall variance (Chicco, Warrens and Jurman 2021). Therefore, a higher R-Squared suggests that the selected factors - Performance Metric, Position, Age and Presence in the National Team- hold more significant explanatory power determination of wages. According to Table 24, the coefficient of determination of the Portuguese players is 32%, which indicates that the three independent variables do not explain a significant proportion of the Portuguese wage variability.

R Square	0.320
Adjusted R Square	0.309

Table 9. Coefficient of Determination – Portuguese players

5.3.2 Influence of Performance Ratings

As mentioned in Chapter 3.4.2, a player's success, measured by his performance is associated with higher earnings (Rosen & Sanderson, 2001). In other words, players that perform better tend to command higher salaries. Within the world of football, *Ballon d'Or* stands out as an individual award recognizing the best player each year (MARCA, 2023). Among the criteria for deciding the best player in a season, players' individual performance in the previous season must be taken into account (GOAL, 2023). Concerning Portuguese players, Cristiano Ronaldo has won this award, four of which occurred between 2013/14 season and the 2023/24 season (France Football, 2023). In addition to Cristiano Ronaldo, other notable players, including Bernardo Silva, Rúben Dias, João Cancelo, Rafael Leão, Bruno Fernandes, João Félix and Rui Patrício, have all been on the list of 30 nominees for the *Ballon d'Or* at least once since the 2013/2014 season (Eurosport 2023; Eurosport 2022; Marca, 2021; Marca, 2019; Bleacher

Report, 2016). In other words, all these Portuguese players have entered the race for the award that, among other factors, evaluates the player with the best performance in a season. Accordingly, six out of the eight players mentioned above included in the Top-10 highest paid Portuguese players between 2013 and 2023, as detailed in Table 5 from section 5.1. However, as previously mentioned, this part of the analysis does not include specific season wages of some of these high-performance players in the analysis, considering their outlier status.

When analyzing the impact of Performance ratings on Portuguese players' salaries, the findings reveal that, *ceteris paribus*, an increase in the performance of Portuguese players by one unit corresponds to an increase of €0.37 million in their salaries in the Top 5 European Leagues. In other words, players that perform better receive a salary increase of €0.37 million, that is significant at the 95% level (p-value = 4.3%). A similar pattern can be identified with players from the Benchmark Group 1. According to the results, an increase of 1 unit in the average rating of a Dutch player, results in an average increase of his salary by €0.05 million, *ceteris paribus*, which is not significant at any level of confidence (p-value = 61.6%). Moreover, an increase of 1 unit in the average rating of a Belgian player, *ceteris paribus*, results in an average increase of his salary by €2,39 million, which is statistically significant at the 99% level (p-value = 0.14%). Therefore, the results suggest that clubs from the Top 5 European leagues are willing to pay higher wages to better-performing Portuguese players compared to those with less notable performance. When comparing with the other nations, better-performing Portuguese players receive higher salaries than their Dutch counterparts. However, an inverse trend is observed with Belgian players, indicating that Portuguese players benefit less by performing better when compared to their high-performing Belgian counterparts.

Variable	Portuguese	Dutch	Belgian
Performance	371,461**	55,530	2,393,777***

* significant at 90% level; ** significant at 95% level; *** significant at 99% level

Table 10. Coefficient of Performance Metric

5.3.3 Influence of Position on Wages

When examining players' positions, the results presented in Table 11 reveal that being an Attacker or a Midfielder has a statistically significant influence on Portuguese players' salaries (p-values = 0.45% and 0.06%, respectively). Furthermore, the results indicate that Portuguese attackers, midfielders and defenders earn, on average, higher salaries than goalkeepers, who were served as the reference in the study. More specifically, the results demonstrate that a Portuguese attacker earns, on average, ceteris paribus, €1.20 million more than goalkeepers; a Portuguese midfielder earns, on average, €1.40 million more than goalkeepers; and a Portuguese defender earns, on average, €0.33 million more than goalkeepers. This implies that, on average, Portuguese midfielders earn higher salaries compared to their counterparts in other positions. When comparing these findings with players from the Benchmark Group 1, results indicate that Portuguese attackers, midfielders and defenders earn, on average, higher salaries than their Dutch counterparts (€1.05 million, €1.39 million and €0.15 million more, respectively). When comparing with Belgian players, Portuguese midfielders and defenders earn, on average, higher salaries than Belgian midfielders (€0.69 million and €0.36 million more, respectively); however, when it comes to attacker position, Portuguese attackers earn, on average, €0.41 million less than their Belgian counterparts.

Position	Portuguese	Dutch	Belgian
Attacker	1,200,239 ***	148,610	1,609,212**
Midfielder	1,401,679 ***	7,694	710,723
Defender	332,012	179,526	(28,616)

* significant at 90% level; ** significant at 95% level; *** significant at 99% level

Table 11. Coefficient by Position

5.3.4 Influence Age on Wages

When examining the impact of a players' age, results from Table 12 demonstrate that age is statistically significant in defining Portuguese players' salaries (p-value = 0.33%). Moreover, the findings illustrate that, on average, *ceteris paribus*, a one-year increase in the age of Portuguese players corresponds to a wage increase of €0.07 million. In essence, clubs from the Top 5 European Leagues pay higher average wages to older Portuguese players than to their younger counterparts. A similar trend is observed among Dutch and Belgian players, where a one-year increase in age leads to an average wage increase of €0.03 million (statistically significant at a 90% level, p-value = 7.97%) and €0.19 million (statistically significant at a 99% level, p-value = 0.002%), respectively. Consequently, the results suggest that both Portuguese, Dutch and Belgian players experience higher wages with aging. While older Portuguese players receive higher wages compared to their Dutch counterparts (€0.05 million more), the opposite is true when comparing with Belgian players, as the wage for older Portuguese players is smaller than that observed for Belgian (€0.12 million less).

Variable	Portuguese	Dutch	Belgian
Age	74,292***	28,101 *	192,783***

* significant at 90% level; ** significant at 95% level; *** significant at 99% level

Table 12. Coefficient of Age

5.3.5 Influence of National Team Presence on Wages

Table 13 displays the coefficients that illustrate the impact of players' presence in the National team on wages across the Top 5 European Leagues. The model results indicate that, *ceteris paribus*, a Portuguese player called to represent the Portugal National Team, experiences an average wage increase of €2.28 million compared to Portuguese players that are not selected to the National Team. This increase is statistically significant at a 99% level (p-value = 0.00%). A similar pattern is observed among Dutch and Belgian players. According to Table 13, when selected to represent the Netherlands National Team, a Dutch player experiences, on average, *ceteris paribus*, a wage increase of €1.31 million (statistically significant at a 99% level, p-

value = 0.00%). Similarly, a Belgian player, when chosen to represent Belgium, sees, on average, *ceteris paribus*, a salary increase of €2.26 million, (statistically significant at a 99% level, p-value = 0.00%). The results indicate that Portuguese players selected to represent Portugal National Team, enjoy salary benefits compared to players that are not chosen for the National Team. Moreover, in comparison to players from the Benchmark Group 1, clubs from the Top 5 European Leagues are willing to provide greater benefits to Portuguese players selected to the National team than to their Dutch and Belgian counterparts.

Variable	Portuguese	Dutch	Belgian
National Team	2,276,662***	1,308,140 ***	2,261,135***

* significant at 90% level; ** significant at 95% level; *** significant at 99% level

Table 13. Coefficient of National Team

5.4 Conclusion

The initial step involved examining whether clubs from the Top 5 leagues are willing to offer higher wages to Portuguese players and, if so, how does this differ with players of other nationalities. When considering each of the five leagues that constitute the Top 5 European leagues individually, results show that there are differences across leagues. Specifically, only in Bundesliga and Serie A, Portuguese players receive, on average, higher annual wages when compared to players from both the Netherlands and Belgium. On the other hand, in the Premier League and LaLiga, clubs tend to pay, on average, lower annual incomes to Portuguese players in comparison to their Dutch and Belgium counterparts. When considering the aggregate of the five leagues, results indicate that, on average, clubs in the Top 5 European leagues are willing to pay higher salaries than those offered to Dutch players. However, Portuguese players receive lower average wages than their Belgian counterparts. Consequently, the obtained results do not entirely support the initial question of the analysis, as Portuguese players do not receive higher wages than the two nations of the Benchmark Group, even though they do receive higher wages than Dutch players. Accordingly, these findings align with the conclusions reached by Frick

(2006); Pedace (2008); Bryson, Rossi and Simmons (2014); and Della Torre et. al. (2018), regarding differences in salaries based on players' nationalities.

The next stage aimed to identify which factors could explain the wages of Portuguese players across the Top 5 European leagues and if those factors would affect the differences between nationalities. The results demonstrate that the selected explanatory variables – Average Rating, Position, Age and Presence in the National Team- do not have a significant influence on the wages of Portuguese players. This suggests that there are other variables that could explain it better. Nevertheless, the findings reveal that clubs from the Top 5 European leagues are willing to pay higher salaries to Portuguese players that have higher annual ratings. This confirms that superior performance, measured by the average ratings of players, correlates with higher wages, a relationship previously explored by Swift (2017); Ribeiro, Lima, Kraus, and Calabuig (2021); Trhane (2019); Feess, Fick, and Muehlheusser (2004); Giangreco, et. al.(2021). In terms of the influence of player position on salaries of Portuguese players, the results indicate that Portuguese attackers, midfielders and defenders receive, on average, higher wages than Portuguese goalkeepers, the position chosen as the reference. However, the numerical differences also reveal that midfielders earn the highest average incomes when compared to goalkeepers. This leads to the conclusion that Portuguese midfielders are the Portuguese players that receive the highest salaries in the Top 5 European Leagues. This aligns with the results reported by Frick (2007) and Celik and Ince-Yenilmez (2017). In relation to players' age, clubs from the Top 5 European Leagues are willing to offer higher wages as age of Portuguese players increases. These results contradict the prevailing trend observed in the majority of studies, that concluded that younger players receive higher wages than their older counterparts. However, the results align with the findings of Kuethe and Motamed (2010) in their study on MLS wage determination. Concerning the presence of players in the National Team, the model suggests that Portuguese players that selected to the national team, receive, on

average, higher salaries than those that are not selected, which supports the findings of Frick (2007) and Garcia-del-Barrio and Pujol (2007). In summary, clubs from the Top 5 European Leagues pay higher wages to better-performing older Portuguese midfielders that are selected to the National Team.

When comparing these results with players from the Benchmark Group 1, results demonstrate that clubs in the Top 5 European Leagues are willing to pay higher wages to better-performing Portuguese players than to their Dutch counterparts. However, better-performing Belgian players enjoy higher wages compared to Portuguese players. Regarding players' position, the results indicate that Portuguese attackers, midfielders and defenders earn higher average wages than their Dutch counterparts. However, when compared to Belgian players, Portuguese midfielders and defenders earn, on average, higher salaries, while Portuguese attackers receive lower wages than their Belgian counterparts. When considering age, older Portuguese players benefit more than older Dutch players; however, they receive lower wages than their Belgian counterparts. Lastly, clubs from the Top 5 European leagues pay higher wages to International Portuguese players than Belgian and Dutch players that are selected to their respective national teams.

Finally, the differences observed in addressing question (2) align with the disparities identified in question (1), concerning Portuguese and Dutch players. Portuguese players' salaries determined by the Average Rating, Position, Age and presence in the National Team surpass those of Dutch players with similar considerations. These trends align with the overarching findings indicating that Portuguese players competing in the Top 5 European leagues receive, on average, higher salaries compared to their Dutch counterparts. However, the same conclusion cannot be drawn for Belgian players, as differences identified in the variables of Attackers and presence in the National Team contradict the main finding that Portuguese players receive, on average, lower wages than their Belgian counterparts.

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

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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 neglect 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

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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

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most successful positions in terms of sporting and financial transfer success. This can also be linked with “Passing” 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 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, which 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. "Seleção Portuguesa de Futebol." Knoow. July 30, 2016. <https://knoow.net/desporto/futebol/selecao-portuguesa-futebol/>.
- Battré, Marcel, Christian Deutscher, and Bernd Frick. 2008. *Salary Determination in the German "Bundesliga": A Panel Study*. https://www.researchgate.net/publication/24131439_Salary_Determination_in_the_German_Bundesliga_A_Panel_Study.
- 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. "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>.
- 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.
- Bundesliga. 2019. "Why are there so many young French players in the Bundesliga?" Bundesliga.com - the Official Bundesliga Website. June 17, 2019. <https://www.bundesliga.com/en/bundesliga/news/why-so-many-young-french-players-in-germany-world-cup-coman-pavard-hernandez-diaby-5125>.
- 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." *Human Movement Science* 39 (February) : 1–11. <https://doi.org/10.1016/j.humov.2014.10.003>.
- Capology. (@CapologyDB). 2020. "New features released: - 30% of total football players (within 16 leagues) verified directly through clubs, player agencies and journalists – Algorithms estimating salaries based on official payrolls information (where precise data n.a.) – Less than 5% error rate of the model." Twitter. November 23, 2020, 4:10 p.m. <https://twitter.com/CapologyDB/status/1330906457668276233>
- 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>.
- Chicco, Davide, Matthijs J. Warrens, and Giuseppe Jurman. 2021. "The Coefficient of Determination R-Squared Is More Informative than Smape, Mae, MAPE, MSE and RMSE in Regression Analysis Evaluation." *PeerJ Computer Science* 7. doi:10.7717/peerj-cs.623.
- 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. <https://www.cfclassics.co/players/awards/ballondor/ballon-d-or-award-winners.htm>
- Coates, Dennis & Parshakov Petr. 2022. "The Wisdom of Crowds and Transfer Market Values." *Ideas.Repec.Org*. <https://ideas.repec.org/a/eee/ejores/v301y2022i2p523-534.html>.
- 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. <https://www.routledge.com/Football-Europe-and-the-Press/Crolley-Hand/p/book/9780714680170>.
- 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>.
- Dash, Ch. Sanjeev, Ajit Kumar Behera, Satchidananda Dehuri, and Ashish Ghosh. 2023. "An Outliers Detection and Elimination Framework in Classification Task of Data Mining." *Decision Analytics Journal* 6: 100164. doi:10.1016/j.dajour.2023.100164.

- De La Cruz Del Río-Rama, María, Amador Durán-Sánchez, Marta Peris-Ortiz, and José Álvarez-García. 2017. "Sport Management Analysis of Scientific Production in Academic Journals." In *Springer eBooks*, 1–18. https://doi.org/10.1007/978-3-319-63907-9_1.
- 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.
- Della Torre, Edoardo, Antonio Giangreco, William Legeais, and Jacob Vakkayil. 2011. "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.
- Depken, Craig A., and Alexander Frei. 2023. "Player Nationality and Transfer Fee Premiums in Association Football." *Social Science Research Network*, January. <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>.
- 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>.
- Eurosport. 2022. "Ballon d'or 2022 Results in Full - Ranking of Every Player Including Benzema, Haaland and Ronaldo." *Eurosport*. Eurosport. October 17. https://www.eurosport.com/football/ballon-d-or/2022/ballon-d-or-2022-results-in-full-ranking-of-every-player-including-benzema-haaland-and-ronaldo_sto9191941/story.shtml.
- Ewing, Harry. 2023. "Bundesliga top global league of attendance figures, Premier League second." *Inside World Football*. July 14, 2023.
- Federação Portuguesa de Futebol. n.d. "História FPF." 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>. <http://hdl.handle.net/10419/20420>.
- FIFA. 2023. "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_roundup

- Football Benchmark. n.d.. “Introduction”.
https://www.footballbenchmark.com/football_benchmark_introduction
- France Football. 2023. “Palmarès Ballon d’Or : Tous Les Vainqueurs Année Par Année.”
France Football. Accessed December 9. <https://www.francefootball.fr/ballon-d-or/palmares/>.
- 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 Length: 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.
- 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>.
- Gautam, Omvir, and Rahul Chander Jaitly. 2021. "Impact of Social Media Influencers on Customer Engagement and Brand Perception." *International Journal of Internet Marketing and Advertising* 15 (2): 220. doi:10.1504/ijima.2021.10036969.
- 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.
- Goal. 2019. "Football Club Nicknames: Premier League, La Liga, Serie A, MLS & All Team Slang Terms." *Football Club Nicknames: Premier League, La Liga, Serie A, MLS & All Team Slang Terms* / *Goal.Com*. Goal.com. August 19. <https://www.goal.com/en/news/football-club-nicknames-premier-league-la-liga-serie-a-mls--all-team-slang/terms/y258hgejidlw1xede4hbz4ts8>

- Goal. 2019. "Explained: How many foreign players are Real Madrid, Barcelona & each La Liga team allowed?" *Sporting News Canada*, August 17, 2019. <https://www.sportingnews.com/ca/soccer/news/explained-how-many-foreign-players-are-real-madrid-barcelona-each-la-liga-team-allowed/oyxg51yasjw91w2dyjlgkyk51>.
- 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
- 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>.

- 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>.
- 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. 1993. "Conceptualizing, Measuring, and Managing Customer-Based Brand Equity." *Journal of Marketing* 57 (1): 1. doi:10.2307/1252054.
- 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.
- Kuethé, 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.
- 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>.
- Large, Harriet. 2014. "Top 10 Highest Paid Footballers by Wage Starring in World Cup Revealed." *This Is Money*. This Is Money. June 10. <https://www.thisismoney.co.uk/money/celebritymoney/article-2652773/Top-10-highest-paid-footballers-wage-starring-World-Cup-revealed.html#ixzz4nLzScLY8>.
- 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>.

- Lovett, Glenn. 2018. "World Football 2018 Report." Nielsen Sports. <https://develop.nielsen.com/wp-content/uploads/sites/2/2019/04/global-world-football-report.pdf>.
- 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>
- MARCA. 2023. "Ballon d'or 2023: Rules, How Voting Works and Who Is on the Jury." *MARCA*. October 30. <https://www.marca.com/en/football/2023/10/30/653f8c2246163f01408b4594.html>.
- Marmé, Paulo. 2023. "OS 11 Futebolistas Mais Bem Pagos Do Planeta." *Forbes Portugal*. October 16. <https://www.forbespt.com/os-11-futebolistas-mais-bem-pagos-do-planeta/>.
- Marsden, Rory. 2017. "Ballon d'or 2016: Full 30-Man Longlist, Award Nominees Announced in New Format." *Bleacher Report*. Bleacher Report. September 30. <https://bleacherreport.com/articles/2671480-ballon-dor-2016-full-30-man-longlist-award-nominees-announced-in-new-format>.
- Mason, Lewis. 2023. "Ballon d'or 2023: Who Can Stop Favourite Lionel Messi from Winning an Eighth Trophy? What Are the Latest Odds?" *Eurosport*. Eurosport. October 30.

https://www.eurosport.com/football/ballon-d-or/2023/lionel-messi-is-favourite-to-win-an-eighth-ballon-d-or-but-can-erling-haaland-or-kevin-de-bruyne-sto_sto9838730/story.shtml.

- 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>.
- 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, Loic Ravel, and Roger Besson. 2020. "Football Players' Production Index: Measuring Nations' Contributions." Football Observatory. May 2020. <https://football-observatory.com/IMG/sites/mr/mr55/en/>.<https://football-observatory.com/IMG/sites/mr/mr55/en/>.
- Poli, Raffaele, Loic Ravel, 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.
- 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.

- Rosen, Sherwin, and Allen Sanderson. 2001. "Labour Markets in Professional Sports." *The Economic Journal* 111 (469). doi:10.1111/1468-0297.00598.
- 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.
- 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
- 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/>.
- Transfermarkt. n.d. "Intercontinental Cup - Trophy Achievements." Accessed November 20, 2023. https://www.zerozero.pt/competicao_vencedores.php?id_comp=33
- 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/>.
- Weber, Tom. 2023. "Arsenal to trump Liverpool for €60m star." *FootballTransfers*, December 16, 2023. <https://www.footballtransfers.com/en/transfer-news/uk-premier-league/2023/12/arsenal-transfer-news-goncalo-inacio-liverpool-sporting-cp-offer>.
- Wen, Li. 2019. "Analysis of the Offensive Performance of the Top 16 Teams in the Champions League in 2017-2018 Season." *Atlantis Press*, January. <https://doi.org/10.2991/iccessh-19.2019.350>.
- Willis, S. 2022. "Melting pot: Ligue 1 Uber Eats's nationalities." *Ligue1 COM*, September 21, 2022. <https://www.ligue1.com/articles/news/2022/09/21/melting-pot-ligue-1-uber-eats-nationalities>.
- Wilson, Dennis P., and Yung-Hsiang Ying. 2003. "Nationality Preferences for Labour in the International Football Industry." *Applied Economics* 35 (14): 1551–59. doi:10.1080/000368403200010048.

- 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>.
- Young, Henry. 2017. "How the Premier League became a global playground." *CNN*, August. <https://edition.cnn.com/2017/08/15/football/premier-league-25-anniversary-english-first-division-global/index.html>.
- 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-estrelia-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>.

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X. Appendix

	13/14	14/15	15/16	16/17	17/18	18/19	19/20	20/21	21/22	22/23	23/24	Total Average
Premier League	3,551,766	2,010,912	1,240,007	1,509,767	3,151,379	3,936,631	3,938,992	4,769,419	6,674,076	5,989,869	5,083,650	3,805,133
La Liga	3,337,778	2,964,444	2,895,625	4,308,125	5,785,556	1,945,727	2,395,333	2,357,857	2,676,364	954,444	2,349,167	2,906,402
Ligue 1	1,072,500	1,368,333	1,223,000	1,265,714	1,417,778	1,434,444	2,554,111	1,904,167	1,744,167	2,550,667	2,660,000	1,744,989
Bundesliga	2,200,000	1,585,000	1,380,000	2,423,333	2,880,000	2,020,000	3,466,667	2,650,000	2,955,000	3,466,250	2,263,333	2,480,871
Serie A	924,000	411,667	481,750	2,042,500	1,710,545	6,351,769	12,816,000	9,610,000	1,783,750	2,340,000	2,265,556	3,703,412

Appendix A.1. Average Gross Salary (€) of Portuguese Players in the Top 5 European Leagues between 2013/2014 and 2023/2024

	13/14	14/15	15/16	16/17	17/18	18/19	19/20	20/21	21/22	22/23	23/24	Total Average
Premier League	1,979,104	2,683,546	2,423,268	2,372,031	2,872,741	2,667,322	2,969,678	3,613,521	3,519,338	4,311,537	4,361,341	3,070,312
La Liga	1,795,000	-	1,150,000	2,693,333	4,430,000	3,540,000	15,070,000	3,352,500	6,230,000	13,542,500	12,437,500	5,840,076
Ligue 1	2,140,000	2,130,000	2,185,000	2,202,500	2,530,000	2,952,500	2,672,000	2,195,000	2,233,333	545,556	643,750	2,039,058
Bundesliga	3,752,875	3,024,286	2,260,000	3,415,000	1,878,333	1,794,375	1,624,615	1,331,000	1,292,500	3,013,333	3,393,333	2,434,514
Serie A	2,876,667	2,323,333	1,593,750	1,870,000	1,967,143	1,962,222	2,428,333	2,690,833	2,599,286	2,192,353	2,163,750	2,242,515

Appendix A.2. Average Gross Salary (€) of Dutch Players in the Top 5 European Leagues between 2013/2014 and 2023/2024

	13/14	14/15	15/16	16/17	17/18	18/19	19/20	20/21	21/22	22/23	23/24	Total
Premier League	4,213,040	4,439,993	4,993,393	4,284,476	6,345,012	7,459,521	5,710,771	5,886,720	6,693,532	5,487,411	4,549,086	5,460,269
La Liga	1,150,000	4,540,000	5,190,000	5,320,000	4,530,000	7,182,500	13,397,500	15,377,500	12,912,000	11,843,333	6,237,143	7,970,907
Ligue 1	1,157,500	613,333	1,025,000	756,000	1,230,002	1,337,500	1,826,000	838,889	954,444	1,021,000	837,778	1,054,313
Bundesliga	1,696,667	1,565,000	1,408,611	771,000	2,092,500	2,667,500	3,256,000	3,427,143	3,321,250	2,866,667	2,310,909	2,307,568
Serie A	1,254,000	1,662,019	3,065,000	3,129,500	3,121,167	2,497,400	4,217,143	4,350,000	3,090,000	3,281,429	2,087,500	2,886,832

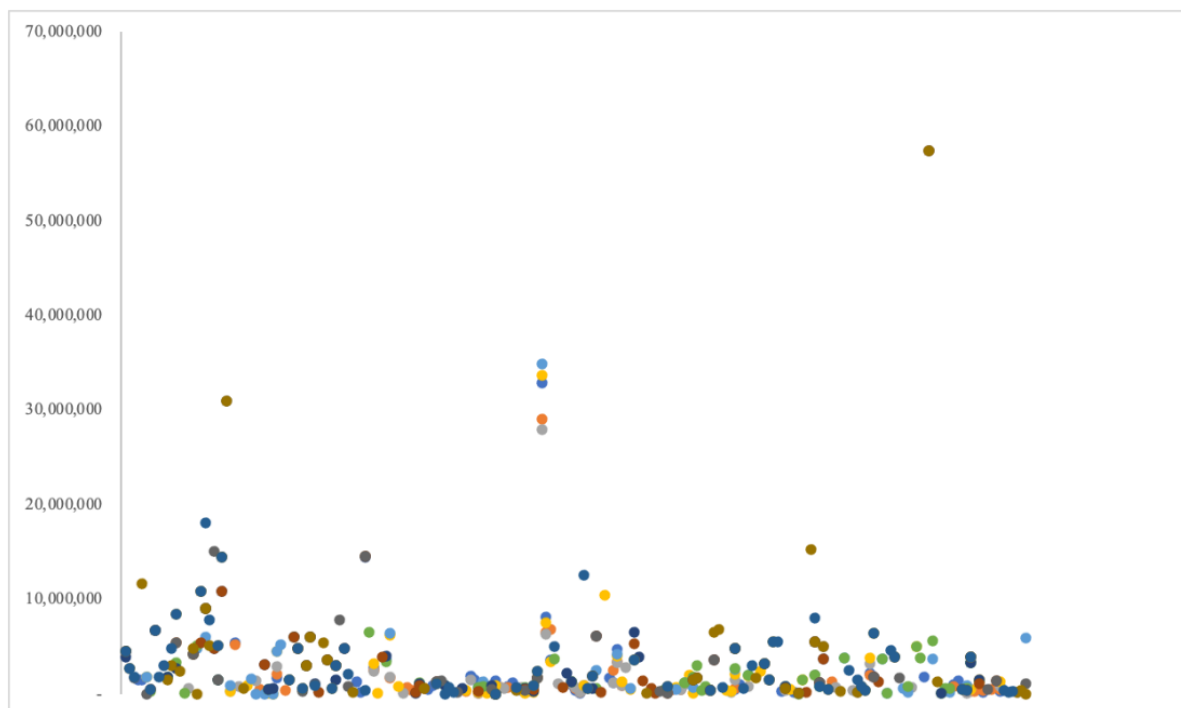
Appendix A.3. Average Gross Salary (€) of Belgian Players in the Top 5 European Leagues between 2013/2014 and 2023/2024

	13/14	14/15	15/16	16/17	17/18	18/19	19/20	20/21	21/22	22/23	23/24	Total
Premier League	3,551,766	2,010,912	1,240,007	1,509,767	3,151,379	3,936,631	3,938,992	4,769,419	5,457,644	4,902,354	5,083,650	3,595,684
La Liga	1,600,588	1,430,000	1,227,333	2,350,667	2,152,500	1,945,727	2,395,333	2,357,857	2,676,364	954,444	2,349,167	1,949,089
Ligue 1	1,072,500	1,368,333	1,223,000	1,265,714	1,417,778	1,434,444	2,554,111	1,904,167	1,744,167	2,550,667	2,660,000	1,744,989
Bundesliga	2,200,000	1,585,000	1,380,000	2,423,333	2,880,000	2,020,000	3,466,667	2,650,000	2,955,000	3,466,250	2,263,333	2,480,871
Serie A	924,000	411,667	481,750	2,042,500	1,710,545	2,096,917	2,074,000	1,643,333	1,783,750	2,340,000	2,265,556	1,615,820

Appendix A.4. Average Gross Salary (€) of Portuguese Players in the Top 5 European Leagues between 2013/2014 and 2023/2024 - excluding Cristiano Ronaldo's Wage

	13/14	14/15	15/16	16/17	17/18	18/19	19/20	20/21	21/22	22/23	23/24	Total
Portuguese	2,428,927	2,090,379	1,847,873	2,610,448	3,009,922	3,493,266	4,085,977	3,922,492	3,868,136	3,725,664	3,314,944	3,127,094
Dutch	2,522,215	2,635,655	2,139,003	2,470,126	2,478,451	2,304,260	2,910,082	2,470,799	2,750,334	3,422,229	3,649,106	2,704,751
Belgian	2,475,400	2,652,964	4,038,693	3,389,684	4,054,585	4,246,722	5,330,565	4,928,843	4,972,648	4,545,038	3,281,817	3,992,451

Appendix A.5. Average Gross Salary (€) of Portuguese, Dutch and Belgian Players in the Top 5 European Leagues, as a sole Entity, between 2013/2014 and 2023/2024



Appendix B. Graphical representation of Portuguese players' salaries – outliers

SUMMARY OUTPUT

<i>Regression Statistics</i>	
Multiple R	0.566
R Square	0.320
Adjusted R Square	0.309
Standard Error	2,002,050
Observations	356

ANOVA

	<i>df</i>	<i>SS</i>	<i>MS</i>	<i>F</i>	<i>Significance F</i>
Regression	6	6.59726E+14	1.09954E+14	27.432333	8.54929E-27
Residual	349	1.39886E+15	4.0082E+12		
Total	355	2.05859E+15			

	<i>Coefficients</i>	<i>Standard Error</i>	<i>t Stat</i>	<i>P-value</i>	<i>Lower 95%</i>	<i>Upper 95%</i>	<i>Lower 95.0%</i>	<i>Upper 95.0%</i>
Intercept	(3,478,985)	1,338,453	-2.599	0.010	(6,111,433)	(846,537)	(6,111,433)	(846,537)
Average Rating Previous Season	371,461	182,862	2.031	0.043	11,810	731,112	11,810	731,112
Attacker	1,200,239	420,228	2.856	0.005	373,740	2,026,737	373,740	2,026,737
Midfielder	1,401,679	406,191	3.451	0.001	602,788	2,200,570	602,788	2,200,570
Defender	332,012	392,370	0.846	0.398	(439,695)	1,103,719	(439,695)	1,103,719
Age	74,294	25,070	2.963	0.003	24,987	123,602	24,987	123,602
National Team	2,276,662	220,494	10.325	0.000	1,842,998	2,710,327	1,842,998	2,710,327

Appendix C.1. Results of Multiple Linear Regression for Portuguese Players

SUMMARY OUTPUT

Regression Statistics	
Multiple R	0.467
R Square	0.218
Adjusted R Square	0.204
Standard Error	1,168,950
Observations	356

ANOVA					
	df	SS	MS	F	Significance F
Regression	6	1.32693E+14	2.21154E+13	16.18466799	1.90176E-16
Residual	349	4.76889E+14	1.36644E+12		
Total	355	6.09582E+14			

	Coefficients	Standard Error	t Stat	P-value	Lower 95%	Upper 95%	Lower 95.0%	Upper 95.0%
Intercept	275,431	886,334	0.3108	0.756	(1,467,798)	2,018,660	(1,467,798)	2,018,660
Average Rating Previous	55,530	110,638	0.5019	0.616	(162,071)	273,131	(162,071)	273,131
Attacker	148,610	277,263	0.5360	0.592	(396,707)	693,928	(396,707)	693,928
Midfielder	7,694	255,716	0.0301	0.976	(495,243)	510,632	(495,243)	510,632
Defender	179,526	244,566	0.7341	0.463	(301,483)	660,535	(301,483)	660,535
Age	28,101	15,988	1.7577	0.080	(3,343)	59,545	(3,343)	59,545
National Team	1,308,140	137,819	9.4917	0.000	1,037,079	1,579,201	1,037,079	1,579,201

Appendix C.2. Results of Multiple Linear Regression for Dutch Players

SUMMARY OUTPUT

Regression Statistics	
Multiple R	0.588
R Square	0.346
Adjusted R Square	0.329
Standard Error	2,626,335
Observations	249

ANOVA					
	df	SS	MS	F	Significance F
Regression	6	8.8172E+14	1.46953E+14	21.30488753	4.7804E-20
Residual	242	1.66923E+15	6.89764E+12		
Total	248	2.55095E+15			

	Coefficients	Standard Error	t Stat	P-value	Lower 95%	Upper 95%	Lower 95.0%	Upper 95.0%
Intercept	(19,982,731)	4,784,025	-4.177	0.000	(29,406,376)	(10,559,086)	(29,406,376)	(10,559,086)
Average Rating Previo	2,393,777	739,250	3.238	0.001	937,590	3,849,963	937,590	3,849,963
Attacker	1,609,212	639,984	2.514	0.013	348,561	2,869,862	348,561	2,869,862
Midfielder	710,723	646,396	1.100	0.273	(562,557)	1,984,004	(562,557)	1,984,004
Defender	(28,616)	656,064	-0.044	0.965	(1,320,942)	1,263,709	(1,320,942)	1,263,709
Age	192,783	44,402	4.342	0.000	105,318	280,247	105,318	280,247
National Team	2,261,135	364,990	6.195	0.000	1,542,171	2,980,098	1,542,171	2,980,098

Appendix C.3. Results of Multiple Linear Regression for Belgian Players

Player Name	Season	Wage
João Félix	22/23	11,653,958
João Cancelo	23/24	12,500,000
Bruno Fernandes	23/24	14,447,863
Bruno Fernandes	22/23	14,447,863
Bruno Fernandes	21/22	14,447,863
João Félix	19/20	14,500,000
João Félix	21/22	14,580,000
João Félix	20/21	14,580,000
João Cancelo	21/22	15,049,857
João Cancelo	22/23	15,280,000
Bernardo Silva	23/24	18,059,828
Cristiano Ronaldo	22/23	31,002,705
Cristiano Ronaldo	21/22	31,002,705
Cristiano Ronaldo	16/17	33,670,000
Cristiano Ronaldo	17/18	34,850,000
Cristiano Ronaldo	20/21	57,410,000
Cristiano Ronaldo	19/20	57,410,000
Cristiano Ronaldo	18/19	57,410,000

Appendix D.1. List of Portuguese Players excluded from the Multiple Linear Regression Model (outliers)

Player Name	Season	Wage
Donyell Malen	22/23	6,000,000
Donyell Malen	21/22	6,000,000
Kevin Strootman	20/21	6,000,000
Kevin Strootman	19/20	6,000,000
Frenkie de Jong	20/21	6,240,000
Arjen Robben	16/17	6,680,000
Klaas-Jan Huntelaar	16/17	6,700,000
Arjen Robben	17/18	6,910,000
Arjen Robben	18/19	6,980,000
Stefan de Vrij	23/24	7,040,000
Stefan de Vrij	22/23	7,040,000
Stefan de Vrij	21/22	7,040,000
Stefan de Vrij	20/21	7,040,000
Stefan de Vrij	19/20	7,040,000
Stefan de Vrij	18/19	7,040,000
Cody Gakpo	23/24	7,171,666
Cody Gakpo	22/23	7,171,666
Donny van de Beek	23/24	7,171,666
Donny van de Beek	22/23	7,171,666
Donny van de Beek	21/22	7,171,666
Donny van de Beek	20/21	7,171,666
Memphis Depay	23/24	8,750,000
Ryan Gravenberch	23/24	8,964,583
Ryan Gravenberch	22/23	9,200,000
Georginio Wijnaldum	22/23	9,260,000
Nathan Aké	23/24	9,562,222
Matthijs de Ligt	21/22	10,260,000
Matthijs de Ligt	20/21	10,260,000
Matthijs de Ligt	19/20	10,260,000
Memphis Depay	22/23	10,420,000
Memphis Depay	21/22	10,420,000
Virgil van Dijk	20/21	10,757,499
Virgil van Dijk	19/20	10,757,499
Virgil van Dijk	18/19	10,757,499
Virgil van Dijk	17/18	10,757,499
Georginio Wijnaldum	21/22	12,730,000
Virgil van Dijk	23/24	13,148,055
Virgil van Dijk	22/23	13,148,055
Virgil van Dijk	21/22	13,148,055
Matthijs de Ligt	22/23	16,000,000
Frenkie de Jong	21/22	18,760,000
Frenkie de Jong	19/20	25,670,000
Frenkie de Jong	23/24	37,500,000
Frenkie de Jong	22/23	37,500,000

Appendix D.2. List of Dutch Players excluded from the Multiple Linear Regression Model (outliers)

Player Name	Season	Wage
Eden Hazard	17/18	13,319,301
Eden Hazard	18/19	13,412,395
Thibaut Courtois	23/24	15,000,000
Thibaut Courtois	22/23	15,000,000
Thibaut Courtois	21/22	15,000,000
Romelu Lukaku	21/22	19,423,262
Kevin De Bruyne	19/20	20,917,360
Kevin De Bruyne	18/19	20,917,360
Kevin De Bruyne	23/24	23,905,554
Kevin De Bruyne	22/23	23,905,554
Kevin De Bruyne	21/22	23,905,554
Kevin De Bruyne	20/21	23,905,554
Eden Hazard	22/23	31,250,000
Eden Hazard	21/22	31,250,000
Eden Hazard	20/21	31,250,000
Eden Hazard	19/20	31,250,000

Appendix C.3. List of Belgian Players excluded from the Multiple Linear Regression Model (outliers)