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# The Economics of Football's Global Transfer Market: Valuation Drivers among Top 305 Transfers

## Ekonomiczne Aspekty Globalnego Rynku Transferowego w Piłce Nożnej: Czynniki Wyceny na Przykładzie 305 Najdroższych Transferów

**Abstract**

The football transfer market is one of the most dynamic areas of contemporary sport. The aim of this study is to examine the determinants of transfer fees in the elite segment of the global football transfer market. The analysis is based on a dataset of 305 of the most expensive transfers between 2000 and 2023. Descriptive statistics, nonparametric tests, and hedonic regression models with log-transformed variables and bootstrap procedures were applied. The results show that traditional sporting indicators, such as goals and assists, have limited explanatory power within the elite segment of the market. Stronger associations are observed for contextual factors, particularly transfers to Premier League clubs and social-media visibility measured by Instagram followers. The results contribute to the debate on competitive balance and financial regulation in global football.

**Keywords:** competitive balance, sports economics, football transfer market, player valuation.

**JEL:** J44, L83, Z22

**Streszczenie**

Rynek transferowy w piłce nożnej jest jednym z najbardziej dynamicznych obszarów współczesnego sportu. Celem artykułu jest zbadanie czynników determinujących wysokość opłat transferowych w segmencie najdroższych transferów w globalnej piłce nożnej. Analiza opiera się na zbiorze 305 najbardziej wartościowych transferów z lat 2000–2023. Zastosowano statystyki opisowe, testy nieparametryczne oraz modele regresji hedonicznej z logarytmiczną transformacją zmiennych i procedurą bootstrap. Wyniki wskazują, że tradycyjne wskaźniki sportowe, takie jak liczba goli i asyst, mają ograniczoną siłę wyjaśniającą w tym najdroższym segmencie rynku. Silniejsze związki z poziomem opłat wykazują czynniki kontekstowe, zwłaszcza transfer do klubów Premier League oraz widoczność w mediach społecznościowych mierzona liczbą obserwujących na Instagramie. Wyniki wpisują się w debatę nad równowagą konkurencyjną i regulacjami finansowymi w światowej piłce nożnej.

**Słowa kluczowe** : ekonomia sportu, rynek transferowy w piłce nożnej, wycena zawodników, równowaga konkurencyjna.

**JEL:** J44, L83, Z22

## 1. Introduction

The global football transfer market has evolved into one of the most visible and financially significant aspects of the professional sports industry (FIFA, 2024). Over the past three decades, the commercialization of football has intensified, turning players into highly valued assets whose movement between clubs attracts worldwide attention (Franceschi et al., 2023; Poli et al., 2024). Transfer fees exceeding €100 million, once considered extraordinary, are now recurring events, reflecting how acquisitions are shaped not only by tactical and sporting considerations but also by financial strategy, brand development, and global media exposure (Chadwick et al., 2025; UEFA, 2024). As a result, the transfer market is no longer a peripheral feature of the game; it has become a central arena in which sporting institutions, investors, and fans converge around the valuation of human capital.

From an economic perspective, transfers represent much more than headline-grabbing fees. They are instruments of labor mobility, mechanisms of resource allocation, and strategic levers that affect both sporting outcomes and financial performance. Clubs increasingly treat player acquisitions not as short-term tactical moves but as long-term capital investments. The decision to sign a player embodies an expectation of returns that extend beyond the pitch, encompassing match performance, merchandise sales, sponsorship contracts, and global brand recognition (Andreff & Szymanski, 2006). In this sense, the transfer market operates as a laboratory of applied economics, where theories of human capital, labor mobility, and asset valuation find direct expression in market transactions (Simmons, 2022).

Despite the market's scale and visibility, important analytical gaps remain. While there is a growing body of research investigating the determinants of transfer fees, much of it is confined to specific leagues (e.g. Dobson et al., 2000; Pantuso & Hvattum, 2021) or short timeframes (e.g. Leifheit & Follert, 2023). This reduces the scope for generalization across the global football economy. In particular, the segment involving the most expensive transfers—where financial stakes, competitive implications, and commercial pressures are most pronounced—has received relatively little systematic attention. The present study seeks to address these shortcomings by conducting an empirical examination of the 305 most expensive player transfers in football history, all exceeding €25 million and occurring between 2000 and 2023. The dataset, drawn from Transfermarkt, covers transactions primarily concentrated in Europe, where the top leagues dominate global flows of talent and capital.

The aim of this study is to examine the determinants of transfer fees in the elite segment of the global football transfer market, focusing on the 305 most expensive player transfers. The analysis investigates whether attack-oriented players dominate among the most expensive transfers due to their decisive role and visibility; whether younger players command higher valuations in line with human capital theory; whether European players are overrepresented in elite transfers, and whether Premier League clubs attract a disproportionate share of top transfers owing to their financial power. By addressing these questions and integrating contextual and digital visibility variables, the study offers a multidimensional perspective on player valuation and contributes to broader debates in labor economics and finance.

Methodologically, the paper combines descriptive statistics, chi-square tests, nonparametric tests (Kruskal–Wallis, Mann–Whitney), and hedonic regression models that incorporate log-transformed variables and bootstrapping to ensure robust estimates. The use of hedonic regression is justified by its ability to quantify the part played by specific sporting, contextual, and commercial characteristics in transfer fees, following the general principles of hedonic pricing theory (Rosen, 1974). This approach provides a structured framework for valuing players based on their attributes and enables the joint assessment of multiple determinants.

The findings help to gain a better understanding of how value is shaped in markets with winner-takes-all dynamics (Rosen, 1981) and informational asymmetries (Akerlof, 1970; Spence, 1973), while also reflecting the importance of reputational and commercial factors in shaping player valuations. While the analysis is primarily empirical, the results may offer useful insights for ongoing debates on financial fair play (Najem & Ali, 2023), competitive balance (Read et al., 2021), and the globalization of talent flows (Capuano & Chekroun, 2024).

The remainder of the article is structured as follows. Section 2 contains a review of the relevant literature. Section 3 provides a description of the data and methods. Section 4 presents the results. Section 5 contains a discussion of the findings in relation to existing research and policy debates. Section 6 concludes with contributions and implications.

## 2. Literature Review

The football transfer market has been researched as a unique and dynamic segment of the global economy, combining features of labor markets, asset valuation, and entertainment industries (Carmichael & Thomas, 1993; Coates & Parshakov, 2022; Poli et al., 2022). Like other labor markets, in football there are disparities in remuneration, but the scale of wage and transaction differences is unusually pronounced (Frick, 2007). What makes football particularly distinctive is the exceptional availability of standardized performance data—such as goals, assists, and appearances—which enables a direct link to be determined between productivity and market valuation (Müller et al., 2017). In addition, the transfer system itself is unique: unlike in most professions, where employees move between firms primarily through contractual negotiations, football players are frequently acquired through transfer fees that resemble asset purchases (FIFA, 2024). This dual specificity—quantifiable productivity measures combined with explicit market pricing—makes the football transfer market an unique case study for examining labor economics and financial valuation (Simmons, 2022). Early research emphasized performance-related determinants, with Frick (2007) showing that measurable productivity indicators—such as goals, assists, and appearances—play a critical role in explaining wage structures and transfer fees. These findings align closely with Becker's (1964) human capital theory, which stresses the link between individual productivity and labor market rewards.

Age has long been regarded as a key indicator of human capital and future productivity (Mincer, 1974). Empirical studies consistently show that younger players

command higher transfer fees, reflecting the premium placed on long-term potential and future performance (Metelski, 2021; Poli et al., 2019). This dynamic reflects the logic of investment logic under uncertainty, where clubs favor assets with greater potential for long-term appreciation.

However, performance and age alone cannot fully account for observed transfer patterns. Scholars have increasingly recognized the importance of intangible attributes and non-performance factors. Franck and Nüesch (2012) argued that popularity and star power significantly amplify player valuations, as clubs capture revenue streams beyond sporting performance, such as merchandising, sponsorship, and media exposure. These findings resonate with Rosen's (1981) theory of the economics of superstars, where small differences in talent or reputation generate outsized financial returns.

Positional differences constitute another central theme in the literature (Franceschi et al., 2023; Müller et al., 2017). Empirical studies show that attack-oriented players, particularly forwards, tend to attract substantially higher transfer fees, as their goal-scoring ability is directly linked to match outcomes and generates significant market premiums (Garcia-del-Barrio & Pujol, 2007).

At the institutional level, structural conditions across leagues and countries play a key role in shaping transfer activity. Andreff and Szymanski (2006) characterized European football as a form of oligopsony dominated by a small number of financially powerful clubs whose demand effectively sets prices for elite talent. The English Premier League (EPL), in particular, has emerged as the financial epicenter of global football, generating far higher broadcasting and commercial revenues than other European leagues (Deloitte, 2025; UEFA, 2024). This concentration of financial power creates systemic disparities in purchasing capacity and helps explain why Premier League clubs consistently dominate the most expensive transfers.

At the same time, the globalization of the football economy has further transformed transfer dynamics. Certain countries—most notably France, Brazil, and Argentina—are disproportionately represented among elite transfers, a pattern linked to strong talent pipelines, institutionalized scouting networks, and historically embedded reputations for player development (FIFA, 2024). Network-based analyses (Velema, 2019) reveal that transfers follow core–periphery structures, with European clubs acting as hubs within a highly interconnected global system. This structure reinforces Europe's dominant position in the global football economy and limits upward mobility for clubs and leagues outside the continent's core.

Building on prior work, this study extends existing research by focusing on the premium segment of the football transfer market and incorporating sporting, contextual, and digital visibility variables into a hedonic regression framework. This perspective provides a more comprehensive view of how sporting performance, institutional context, and commercial exposure interact in shaping player valuation at the elite level.

## 3. Data and Methods

### 3.1. Data

This study is based on a structured dataset comprising the 305 most expensive football transfers in history, according to data available as of October 1, 2023. The dataset was compiled from Transfermarkt, a globally recognized and academically cited platform that aggregates detailed information on player transfers, market values, and club transactions (Herm et al., 2014; Müller et al., 2017). Transfermarkt has been widely used in sports economics research due to the consistency of its methodology and the transparency of its archival records, which makes it particularly suitable for comparative analyses across leagues and over time. The dataset covers transfers completed between 2000 and 2023, a period in which the football transfer market underwent rapid commercialization and increasing financialization. To ensure analytical clarity and financial relevance, a minimum transfer value threshold of €25 million was applied. This threshold guarantees that the sample captures transactions with substantial economic significance, thereby isolating the premium segment of the market where strategic and financial stakes are highest. Each observation in the dataset represents an individual player, accompanied by sporting and contextual attributes that serve as the basis for the empirical analysis presented in the following sections.

To illustrate temporal dynamics, table 1 reports the annual distribution of the 305 most expensive transfers completed between 2000 and 2023. Alongside the number and percentage of transfers, the table shows their average fees and standard deviations. The results show that high-value transfers were relatively rare in the early 2000s, with only isolated deals in 2000–2006 (typically one or two per year). The market began to accelerate after 2009, and the 2010s marked a period of rapid growth, culminating in record volumes in 2017–2019. The COVID-19 pandemic (2020–2021) coincided with a temporary contraction in the number of deals (around 6% of the sample per year). In contrast, 2022–2023 witnessed a strong rebound, together accounting for over 32% of all elite transfers in the sample. These trends underscore the structural transformation of the transfer market, from occasional blockbuster deals at the beginning of the century to a sustained and globalized premium segment in recent years.

**Table 1.**
*Number and average value of the 305 most expensive transfers by year (2000–2023)*

| Year | Number of transfers | Percentage of total | Average fee (€m) | SD (€m) |
|---|---|---|---|---|
| 2023 | 59 | 19.34 | 52.38 | 23.62 |
| 2022 | 40 | 13.11 | 48.68 | 17.70 |
| 2021 | 19 | 6.23 | 48.87 | 27.60 |
| 2020 | 19 | 6.23 | 50.41 | 17.16 |
| 2019 | 40 | 13.11 | 52.61 | 26.94 |

| Year | Number of transfers | Percentage of total | Average fee (€m) | SD (€m) |
|---|---|---|---|---|
| 2018 | 27 | 8.85 | 59.84 | 35.77 |
| 2017 | 19 | 6.23 | 59.05 | 46.29 |
| 2016 | 15 | 4.92 | 48.91 | 22.22 |
| 2015 | 16 | 5.25 | 43.14 | 12.91 |
| 2014 | 9 | 2.95 | 51.82 | 20.75 |
| 2013 | 12 | 3.93 | 43.45 | 20.98 |
| 2012 | 5 | 1.64 | 35.54 | 5.38 |
| 2011 | 5 | 1.64 | 39.90 | 11.04 |
| 2010 | 2 | 0.66 | 34.40 | 7.92 |
| 2009 | 6 | 1.97 | 43.83 | 19.16 |
| 2008 | 2 | 0.66 | 40.50 | 3.53 |
| 2007 | 2 | 0.66 | 32.50 | 3.53 |
| 2006 | 1 | 0.33 | 43.90 | - |
| 2005 | 1 | 0.33 | 27.00 | - |
| 2004 | 1 | 0.33 | 27.00 | - |
| 2001 | 3 | 0.98 | 59.56 | 15.81 |
| 2000 | 2 | 0.66 | 58.40 | 2.26 |
| Total | 305 | 100 | 45.53 | 17.93 |

*Source*: own work based on Transfermarkt data.

### 3.2. Hypotheses and Methods

The analysis explores four interrelated hypotheses concerning the determinants of player valuation in the global elite transfer market. First, attack-oriented players are expected to be disproportionately represented among the most expensive transfers, reflecting both their decisive influence on match outcomes and their heightened visibility. This expectation aligns with the structure of standard tactical systems such as 1-4-4-2, in which forwards typically occupy only two positions compared with larger contingents of midfielders and defenders. Similar asymmetries appear in other common formations, including 1-4-3-3 or 1-3-5-2, where strikers rarely exceed two or three roles. This imbalance suggests that attack positions command market premiums beyond their numerical share on the pitch, consistent with earlier evidence that goal scorers drive both sporting success and commercial appeal (Franceschi et al., 2023; Garcia-del-Barrio & Pujol, 2007).

Second, younger players, particularly those aged 21 or below, are assumed to attract higher transfer fees due to their long-term potential and investment appeal. This logic follows the principles of human capital theory (Becker, 1964; Mincer, 1974), which links youth with greater future productivity and slower depreciation of athletic performance. The age threshold of 21 is commonly used in football economics to denote players who remain "very young" yet are already established at the senior level (ECA, 2022; Metelski, 2021).

Third, European players are expected to dominate elite transfers, reflecting the continent's institutional centrality within the global football economy. The concentration of financial resources, competitive leagues, and well-established scouting networks in Europe creates structural advantages that increase both the visibility and market value of players based there (Deloitte, 2025; UEFA, 2024).

Finally, transfers to the EPL are expected to be associated with higher fees than those to other leagues. As the world's most commercially powerful and internationally visible football competition, the Premier League concentrates financial resources (Deloitte, 2025) and global demand for elite talent, which structurally elevates transfer valuations within its market segment.

To summarize, while earlier research has identified key determinants of transfer fees, it has rarely examined how these factors operate in the elite segment of the transfer market. The contribution of this study lies not in proposing new hypotheses but in testing the validity of established determinants within this segment, using a hedonic regression framework that incorporates social media visibility as an explanatory factor.

To evaluate these hypotheses, the analysis first employed a combination of descriptive and inferential statistical techniques. Descriptive statistics (means, standard deviations, frequencies) were used to examine the distribution of transfer fees across groups. Chi-square tests were applied to assess differences in categorical distributions, such as player positions and continental origins. Non-parametric tests (Kruskal–Wallis H and Mann–Whitney U) were selected due to the skewed and non-normal distribution of transfer fees. All statistical analyses were conducted using SPSS 29.

To complement these non-parametric comparisons and address their limitations, hedonic regression models were subsequently estimated, incorporating transformed variables to enable multivariate analysis and assess the relative contribution of sporting, contextual, and commercial factors. The dependent variable – the transfer fee – was log-transformed (lnTransfer) to normalize its distribution and to allow the coefficients to be interpreted in percentage terms. The number of Instagram followers was also highly skewed due to a few global superstars. Therefore, this variable was log-transformed using the formula ln(IG+1), which additionally ensured that players with zero followers remained in the sample. This measure served as a proxy for a player's commercial attractiveness and global visibility. Because historical follower counts were not available, data as of October 2023 were used. Consequently, this variable should be understood as a general indicator of a player's marketability rather than as a precise level at the time of transfer. To account for the possibility that the relevance of social media visibility has evolved over time, the calendar year of transfer was incorporated into the analysis in a centered form, obtained by subtracting 2015 from the original year variable. This transformation reduced multicollinearity and allowed a more interpretable interaction with Instagram visibility. An additional interaction term (lnInstagram × YearC) was created to test whether the association between social media popularity and transfer fees varies across different periods, reflecting the gradual emergence of attention-driven valuation mechanisms in the elite segment of the market.

Age was modeled in a non-linear way. Both centered age and its squared term were included to capture the curvilinear relationship between player age and market value, which typically peaks in the mid-20s. Centering the age variable by subtracting the sample mean age reduced multicollinearity between age and age squared, and provided more stable coefficient estimates. For performance-related measures, per-90-minute indicators were calculated to capture player efficiency independent of playing time. Specifically, goals per 90 minutes and assists per 90 minutes were derived by dividing goals and assists by minutes played and multiplying the result by 90. This adjustment reduced the strong correlation between playing time and counting statistics and better reflected the efficiency of players' contributions on the pitch. Finally, a positional dummy variable was introduced to capture whether a player was a forward (coded 1) or played in any other position (coded 0). In addition, dummy variables were created to capture league context (e.g., Premier League) and continental origin (e.g., Europe vs. other regions). Furthermore, in response to prior literature emphasizing bargaining power in transfer negotiations, an additional variable capturing the estimated number of years remaining on a player's contract at the time of transfer was included as an institutional control reflecting the seller's negotiating position.

Prior to estimating the regression models, the necessary statistical assumptions were verified. Multicollinearity was assessed using the Variance Inflation Factor (VIF). For continuous predictors, all VIF values were well below the commonly accepted threshold of 5 (Hair et al., 2019). Residual diagnostics, including standardized residual plots, confirmed approximate normality and homoscedasticity (Osborne & Waters, 2002). To further enhance the reliability of the estimated parameters, a bootstrap procedure with 1,000 replications and bias-corrected accelerated confidence intervals was employed, providing robust estimates of standard errors and confidence intervals (Mooney & Duval, 1993). The consistency between bootstrap estimates and conventional regression results confirmed the stability and robustness of the findings. Overall, these diagnostic checks indicated that the assumptions of linear regression were adequately met, supporting the validity of the estimated models. Table 2 presents a detailed description of the variables used in the regression analysis.

**Table 2.**
*Description of variables used in the regression analysis*

| Variable | Description | Transformation / Coding |
|---|---|---|
| Ln(transfer fee) | Dependent variable: transfer fee of the player (in EUR) | Natural logarithm (ln) of reported transfer fee |
| Age (centered) | Player's age (years) centered around the sample mean | Age – mean age |
| $Age^2$ (centered) | Squared term of centered age | (Age – mean age)$^2$ |
| Goals per 90 minutes | Number of goals per 90 minutes in the season prior to the transfer | (Goals / Minutes) × 90 |
| Assists per 90 minutes | Number of assists per 90 minutes in the season prior to the transfer | (Assists / Minutes) × 90 |

| Variable | Description | Transformation / Coding |
|---|---|---|
| Forward (dummy) | Dummy variable for forwards | 1 = Forward, 0 = otherwise |
| European origin (dummy) | Dummy variable indicating whether the player's country of origin is Europe | 1 = Europe, 0 = other continents |
| Premier League (dummy) | Dummy variable indicating whether the player transferred to the EPL | 1 = EPL, 0 = other leagues |
| Ln(Instagram followers) | Player's popularity and visibility measured by Instagram followers (2023) | Natural logarithm (ln) of Instagram followers |
| Contract | Number of years remaining on the player's contract at the time of transfer | Continuous variable (years) |
| Year (centered) | Calendar year of the transfer, capturing temporal evolution of the market | Year – 2015 (centered) |
| Ln(Instagram) x Year (centered) | Interaction term testing whether the effect of Instagram visibility varies over time | Ln(Instagram followers) × Year (centered) |

*Source*: own elaboration.

To formally specify the econometric framework, hedonic regression models were estimated with the log-transformed transfer fee (lnFee) as the dependent variable. Model 1 (sporting characteristics):

$$ln\,Fee_i = \beta_0 + \beta_1 Age_i + \beta_2 Age_i^2 + \beta_3 GoalsPer90_i + \beta_4 AssistsPer90_i + \beta_5 Forward_i + \varepsilon_i \quad (1)$$

Model 2 (contextual factors):

$$ln\,Fee_i = \beta_0 + \beta_1 EuropeanOrigin_i + \beta_2 PremierLeague_i + \beta_3 ln(InstagramFollowers_i) + \beta_4 Contract_i + \varepsilon_i \quad (2)$$

Model 3 (full specifications):

$$ln\,Fee_i = \beta_0 + \beta_1 Age_i + \beta_2 Age_i^2 + \beta_3 GoalsPer90_i + \beta_4 AssistsPer90_i + \beta_5 Forward_i + \beta_6 EuropeanOrigin_i + \beta_7 PremierLeague_i + \beta_8 ln(InstagramFollowers_i) + \beta_9 Contract_i + \varepsilon_i \quad (3)$$

Model 4 (extended):

$$ln\,Fee_i = \beta_0 + \beta_1 Age_i + \beta_2 Age_i^2 + \beta_3 GoalsPer90_i + \beta_4 AssistsPer90_i + \beta_5 Forward_i + \beta_6 EuropeanOrigin_i + \beta_7 PremierLeague_i + \beta_8 ln(InstagramFollowers_i) + \beta^9 Contracts_i + \beta^{10} YearC_i + \beta^{11}(lnInstagram_i \times YearC_i) + \varepsilon_i \quad (4)$$

where ε_i denotes the error term.

# 4. Results

## 4.1. Players with the Highest Transfer Value

Table 3 presents the ten most expensive transfers in football history. These transactions, all exceeding €100 million, illustrate the financial magnitude of the elite segment of the market. The ranking highlights both the dominance of attack-oriented players, particularly forwards, and the concentration of transactions within the top European leagues.

**Table 3.**
*Ten Players With the Highest Single Transfer Fees*

| No. | Name | Nationality | Position | Selling | Buying | Fee(€m) | Year |
|---|---|---|---|---|---|---|---|
| 1 | Neymar | Brazil | FW | Barcelona | PSG | 222 | 2017 |
| 2 | Kylian Mbappé | France | FW | AS Monaco | PSG | 180 | 2018 |
| 3 | Ousmane Dembélé | France | FW | Borussia | Barcelona | 140 | 2017 |
| 4 | Philippe Coutinho | Brazil | MF | Liverpool | Barcelona | 135 | 2018 |
| 5 | João Félix | Portugal | FW | Benfica | Atlético | 127 | 2019 |
| 6 | Enzo Fernández | Argentina | MF | Benfica | Chelsea | 121 | 2023 |
| 7 | Antoine Griezmann | France | FW | Atlético | Barcelona | 120 | 2019 |
| 8 | Jack Grealish | England | MF | Aston Villa | Manchester C. | 117 | 2021 |
| 9 | Cristiano Ronaldo | Portugal | FW | Real Madrid | Juventus | 117 | 2018 |
| 10 | Declan Rice | England | MF | West Ham | Arsenal | 117 | 2023 |

*Note*: MF = midfielder; FW = forward.

*Source*: own work based on Transfermarkt data.

In addition to single transfers, cumulative transfer spending on individual players provides a broader measure of market valuation. Some footballers, while not holding the record for a single transaction, changed clubs multiple times for high fees, generating remarkable cumulative sums. Table 4 therefore shows the ten players with the highest cumulative transfer values, based on the sum of all recorded transfer fees during their careers.

**Table 4.**
*Ten Players with the Highest Cumulative Transfer Value*

| No. | Name | Nationality | Position | No. of Paid Transfers | Total Fee (€m) |
|---|---|---|---|---|---|
| 1 | Romelu Lukaku | Belgium | FW | 5 | 322 |
| 2 | Neymar | Brazil | FW | 2 | 310 |
| 3 | Cristiano Ronaldo | Portugal | FW | 4 | 247 |
| 4 | Ousmane Dembélé | France | FW | 3 | 225 |
| 5 | Kylian Mbappé | France | FW | 1 | 180 |

| No. | Name | Nationality | Position | No. of Paid Transfers | Total Fee (€m) |
|---|---|---|---|---|---|
| 6 | Philippe Coutinho | Brazil | MF | 4 | 172 |
| 7 | Ángel Di María | Argentina | MF | 3 | 171 |
| 8 | Antoine Griezmann | France | FW | 3 | 170 |
| 9 | Enzo Fernández | Argentina | MF | 2 | 165 |
| 10 | Zlatan Ibrahimović | Sweden | FW | 6 | 163 |

*Note*: MF = midfielder; FW = forward.

*Source*: own work based on Transfermarkt data.

These descriptive rankings provide an accessible entry point to the empirical analysis. They emphasize the financial scale of elite transfers while revealing two valuation patterns: record-breaking single transactions involving global stars and cumulative investments in players who repeatedly commanded high fees over their careers. Taken together, these dynamics illustrate how both spectacular one-off deals and repeated high-value moves shape the transfer market and motivate the subsequent hypothesis testing.

### 4.2. Results of Hypotheses Testing

First, the study tested the hypothesis that attack-oriented players are overrepresented among the 305 most expensive transfers in football history. In standard tactical formations such as the 1-4-4-2, forwards would be expected to form a minority of elite transfers. However, as shown in table 5, forwards constituted the largest group (127 players), while only six goalkeepers appeared in the sample. This distribution shows that attack-oriented players are systematically more likely to reach the top valuation segment. A chi-square test confirmed that the positional distribution is statistically significant: $\chi^2(3, N = 305) = 133.66$, $p < 0.001$. At the same time, a Kruskal–Wallis H test did not reveal significant differences in mean transfer fees across positions ($p > 0.05$). This outcome suggests that the role of forwards as valuation leaders is reflected primarily in their numerical overrepresentation among the most expensive transfers rather than in systematically higher average fees. In other words, attacking players are more likely to enter the top tier of the market, but once included in this elite group, the premium nature of the sample reduces positional differences in mean values.

**Table 5.**
*The 305 Most Expensive Transfers by Position*

| Position | Players | | Average Fee (€m) | |
|---|---|---|---|---|
| | Number | Percentage | Fee | SD |
| Goalkeeper | 6 | 1.97 | 52.15 | 18.26 |
| Defender | 59 | 19.34 | 47.89 | 16.36 |
| Midfielder | 113 | 37.05 | 46.67 | 20.87 |
| Forward | 127 | 41.64 | 55.27 | 31.39 |
| Total | 305 | 100 | 50,49 | 21,72 |

*Source*: own work based on Transfermarkt data.

Second, the study tested the hypothesis that younger players (aged 21 or under) attract higher transfer fees. Based on the data in table 6, the aggregated mean transfer fee for players aged 21 or below was €59.12 million, compared to €49.51 million for older players. This difference, however, was not statistically significant according to the Mann–Whitney U test ($p > 0.05$). Overall, the majority of transfers (287 out of 305) occurred before age 30, with the mean age of transfer across the sample being 24.7 years. This pattern suggests that player valuation typically peaks in the early-to-mid-twenties, rather than being concentrated exclusively among the youngest athletes.

**Table 6.**
*Age of Players in the 305 Most Expensive Transfers*

| Age | Players | | Average Fee (€m) | |
|---|---|---|---|---|
| | Number | Percentage | Fee | SD |
| 18 | 2 | 0.66 | 45.00 | 0.00 |
| 19 | 4 | 1.31 | 36.77 | 16.99 |
| 20 | 13 | 4.26 | 75.44 | 49.28 |
| 21 | 15 | 4.92 | 52.81 | 19.75 |
| 22 | 37 | 12.13 | 53.50 | 24.09 |
| 23 | 41 | 13.44 | 48.32 | 19.34 |
| 24 | 45 | 14.75 | 47.72 | 20.36 |
| 25 | 32 | 10.49 | 51.71 | 33.85 |
| 26 | 31 | 10.16 | 50.69 | 25.72 |
| 27 | 30 | 9.84 | 46.64 | 14.63 |
| 28 | 25 | 8.20 | 48.03 | 27.94 |
| 29 | 12 | 3.93 | 47.37 | 19.87 |
| 30 | 13 | 4.26 | 48.24 | 21.45 |
| 31 | 3 | 0.98 | 41.67 | 3.51 |
| 33 | 1 | 0.33 | 117.00 | - |
| 34 | 1 | 0.33 | 45.00 | - |
| Total | 305 | 100 | 50.58 | 25.33 |

*Source*: own work based on Transfermarkt data.

Third, the study tested the hypothesis that European players dominate the market for the most expensive transfers. Across the full sample, 201 out of 305 players held European citizenship, confirming the continent's central role in the global transfer economy. Table 7 presents the ten largest national groups among the 305 most expensive players. France stands out as the leading European country (37 players), followed by Spain (26), Portugal (23), and England (21). Outside Europe, Brazil (36) and Argentina (17) emerge as the main exporters of top-level football talent. A chi-square test confirmed statistically significant differences in representation between continents: $\chi^2(4, N = 305) = 458.78$, $p < 0.001$. These results underline

Europe's structural dominance while also highlighting the global importance of South American suppliers of elite players.

**Table 7.**
*Nationality of Players Involved in the 305 Most Expensive Transfers*

| No. | Nationality | Players | | Average Fee (m€) | |
|---|---|---|---|---|---|
| | | Number | Percentage | Fee | SD |
| 1 | France | 37 | 12.13 | 57.86 | 34.15 |
| 2 | Brazil | 36 | 11.80 | 56.66 | 34.70 |
| 3 | Spain | 26 | 8.52 | 44.25 | 15.69 |
| 4 | Portugal | 23 | 7.54 | 53.06 | 25.16 |
| 5 | England | 21 | 6.89 | 63.25 | 27.37 |
| 6 | Argentina | 17 | 5.57 | 51.06 | 24.28 |
| 7 | Netherlands | 16 | 5.25 | 45.34 | 20.52 |
| 8 | Germany | 16 | 5.25 | 38.02 | 14.40 |
| 9 | Belgium | 14 | 4.59 | 53.82 | 29.01 |
| 10 | Italy | 13 | 4.26 | 40.62 | 11.73 |
| Total | - | 219 | 71.80 | 50.39 | 23.70 |

*Source*: own work based on Transfermarkt data.

Fourth, the study tested the hypothesis that the EPL dominates as a transfer destination. In the full sample, more than half of the 305 most expensive players (153) were transferred to EPL clubs, confirming the league's dominant position in the global transfer market. The clubs most frequently involved in acquiring these players were Manchester City (28 transfers) and Chelsea (26). This concentration of elite transfers among EPL teams illustrates the league's financial power and its capacity to consistently attract the world's most valuable football talent. The most frequently represented destination leagues are presented in table 8.

**Table 8.**
*Clubs with the Highest Number of Incoming Transfers Among the Top 305 Most Expensive Transfers*

| No. | League | UEFA ranking | Players | | Average Fee (€m) | |
|---|---|---|---|---|---|---|
| | | | Number | Percentage | Fee | SD |
| 1 | EPL | 1 | 153 | 50.16 | 51.58 | 20.09 |
| 2 | Spanish La Liga | 2 | 49 | 16.07 | 57.42 | 31.06 |
| 3 | Italian Serie A | 3 | 36 | 11.80 | 45.18 | 21.65 |
| 4 | French League 1 | 5 | 25 | 8.20 | 54.41 | 47.38 |
| 5 | German Bundesliga | 4 | 21 | 6.89 | 40.56 | 18.27 |
| 6 | Saudi Professional League | - | 10 | 3.28 | 43.65 | 13.27 |
| 7 | Chinese Super League | - | 8 | 2.62 | 43.10 | 11.99 |

| No. | League | UEFA ranking | Players | | Average Fee (€m) | |
|---|---|---|---|---|---|---|
| | | | Number | Percentage | Fee | SD |
| 8 | Dutch Eredivisie | 6 | 1 | 0.33 | 31.30 | - |
| 9 | Qatari Stars League | - | 1 | 0.33 | 45.00 | - |
| 10 | Portuguese Primeira Liga | 7 | 1 | 0.33 | 25.00 | - |
| Total | - | - | 305 | 100 | 43.72 | 23.39 |

*Source*: own work based on Transfermarkt data.

### 4.3. Results of Hedonic Regression

To assess the relative importance of sporting versus contextual factors, three regression specifications were estimated with the log-transformed transfer fee as the dependent variable. Model 1 included only sport-related variables, model 2 focused exclusively on contextual variables, and model 3 combined both categories of predictors. In addition, model 4 was introduced to account for the temporal evolution of the elite transfer market and to examine whether the effect of social media visibility varies over time. This specification extended model 3 by including the centered year of transfer and an interaction term between Instagram visibility and year, allowing the attention-related mechanism to differ across periods. The results of these models are presented in table 9.

**Table 9.**
*Determinants of transfer fees (OLS regression models)*

| Predictor | Model 1: Sport | Model 2: Context | Model 3: Full model | Model 4: Extended |
|---|---|---|---|---|
| Age (centered) | -0.011 (0.009) | – | -0.005 (0.009) | -0.011 (0.008) |
| Age$^2$ (centered) | 0.002 (0.002) | – | 0.001 (0.002) | -0.003 (0.002) |
| Goals per 90 minutes | -0.237 (0.199) | – | -0.151 (0.131) | -0.138 (0.139) |
| Assists per 90 minutes | 0.469 (0.205)* | – | 0.002 (0.233) | -0.119 (0.222) |
| Forward (dummy) | 0.075 (0.070) | – | 0.119 (0.062) | 0.097 (0.056) |
| European origin (dummy) | – | 0.013 (0.044) | 0.013 (0.044) | 0.020 (0.041) |
| Premier League (dummy) | – | 0.114 (0.042)** | 0.111 (0.043)** | 0.072 (0.040) |
| Ln(Instagram followers) | – | 0.174 (0.024)*** | 0.173 (0.026)*** | 0.161 (0.022)*** |
| Contract | | -0.007 (0.020) | -0.012 (0.020) | -0.021 (0.018) |
| Year (centered) | | | | -0.018 (0.007)** |
| Ln(Instagram) x Year (centered) | | | | 0.025 (0.004)*** |
| Constant | 3.694 (0.052)*** | 3.530 (0.084)*** | 3.553 (0.098)*** | 3.616 (0.098)*** |
| **N** | 305 | 305 | 305 | 305 |
| **$R^2$** | 0.046 | 0.241 | 0.254 | 0.368 |
| **Adjusted $R^2$** | 0.028 | 0.231 | 0.231 | 0.345 |

*Note*: Unstandardized coefficients (B) with standard errors in parentheses. Dependent variable: log-transformed transfer fee.
*p < .05, **p < .01, ***p < .001.

*Source*: own work based on Transfermarkt data.

The results show clear differences in explanatory power across specifications. Model 1, which included only performance indicators, explained very little of the variation in transfer fees (Adjusted $R^2 = 0.028$). Among these variables, only assists per 90 minutes reached marginal significance, suggesting that productivity on the pitch is not sufficient to account for the valuation of elite transfers.

By contrast, model 2, which focused on contextual factors, achieved much higher explanatory power (Adjusted $R^2 = 0.233$). Both the Premier League dummy and the log of Instagram followers were strongly and positively associated with transfer fees, while continental origin was not significant. This indicates that visibility and market context are more influential than pure sporting output.

Model 3, which combined both sets of predictors, did not improve the model fit compared to model 2 (Adjusted $R^2 = 0.232$). In this specification, Instagram followers and Premier League affiliation remained strong and robust predictors, while assists declined in significance. These results suggest that in the upper segment of the transfer market, commercial visibility and league context play a greater role than direct on-field performance indicators.

Model 4 extended the analysis by incorporating the temporal dimension of the elite transfer market through the centered year variable and its interaction with Instagram visibility. This specification increased the explanatory power (Adjusted $R^2 = 0.345$) and provided evidence that the association between social media visibility and transfer fees is unlikely to be constant across periods. The positive and highly significant interaction term between Instagram followers and year ($\beta = 0.025$, $p < .001$) suggests that attention-related mechanisms have become more relevant in recent years. Once this interaction was introduced, the standalone effect of the calendar year became negative and significant, which is consistent with the interpretation that price escalation in the premium segment operates mainly through changing returns to visibility rather than through a simple linear time trend. Overall, model 4 suggests that the valuation logic of elite transfers may be shifting toward a more attention-oriented framework, in which commercial prominence increasingly complements traditional sporting indicators.

## 5. Discussion

Compared with previous work, the contribution made by this study lies not in proposing entirely new determinants but in demonstrating their relative importance within the top tier of the market. By analyzing the 305 most expensive transfers, the study shows how contextual and commercial factors outweigh traditional performance indicators in this segment. The use of hedonic regression with methodological refinements, including log-transformed digital metrics, provides an additional angle that complements earlier league-based or performance-focused studies. The use of per-90-minute performance indicators, and social media visibility (Instagram followers) constitutes a methodological contribution, expanding previous approaches that relied primarily on raw performance or demographic data.

The descriptive analysis revealed a clear overrepresentation of forwards among the 305 most expensive transfers, which lends partial support to hypothesis 1. This outcome is consistent with winner-takes-all labor market theory (Rosen, 1981), as forwards generate not only decisive sporting outcomes but also higher visibility, commercial appeal, and brand equity. Prior studies confirm the existence of offensive premiums in football (Franceschi et al., 2023; Frick, 2007; Lucifora & Simmons, 2003; Müller et al., 2017). However, regression models did not confirm a statistically significant forward premium once other determinants—such as Premier League affiliation, Instagram visibility, and age—were included. This apparent discrepancy can be explained by the exclusive focus of this study on top transfers. At this elite level, the market already selects a narrow pool of highly valued players, where performance differences between positions are less decisive. This might suggest that in the very top segment of the market, transfer fees are driven more by commercial visibility and institutional context than by position alone.

Another important finding concerns age as a valuation driver, directly addressing hypothesis 2. In line with human capital theory (Becker, 1964; Mincer, 1974), younger players are expected to attract higher transfer fees, as they represent longer career horizons, greater development potential, and higher resale value from a club's investment perspective. In the analyzed sample, descriptive statistics pointed in this direction, yet the observed difference was not statistically significant in nonparametric tests. Regression results that included both centered age and squared age terms suggest a curvilinear relationship. This pattern is consistent with prior research indicating that player valuation typically increases up to a certain age—around the mid-twenties—before declining as athletes move beyond their performance peak (Binder & Findlay, 2012; Herm et al., 2014).

The structural dominance of Europe and, in particular, the EPL (EPL) offers partial confirmation of hypotheses 3 and 4. Descriptive statistics showed that the majority of the 305 most expensive transfers involved European players, highlighting the continent's centrality in the global football economy. However, the regression models did not reveal a statistically significant effect of European origin once other factors were accounted for. By contrast, the results strongly confirmed the central role of the EPL. More than half of the 305 transfers in the sample were directed to Premier League clubs, and the regression analysis identified EPL affiliation as a positive and significant predictor of transfer fees. This reflects the league's superior financial power, global media exposure, and institutional centrality (Deloitte, 2025; UEFA, 2024). Economically, such dominance corresponds to oligopsonistic market structures, where a small number of wealthy clubs exert disproportionate influence over labor pricing and talent allocation (Vrooman, 2007). Informational asymmetries (Akerlof, 1970) further reinforce this advantage, as leading EPL clubs invest heavily in scouting and analytics.

At the same time, the aggregation of elite talent within a handful of wealthy clubs exacerbates competitive imbalance, undermines unpredictability, and fuels inflationary pressures in both wages and transfer fees (Frick et al., 2022). These dynamics lend weight to longstanding proposals for regulatory mechanisms—including

salary caps, revenue sharing, and transfer taxes—aimed at restoring balance and ensuring long-term sustainability.

Social media visibility emerged as a novel and powerful determinant of transfer fees. The log-transformed number of Instagram followers to correct for skewness, proved to be the most influential predictor across all regression models. This finding highlights the growing importance of commercial appeal, brand value, and global fan engagement in shaping market valuations. In line with research on digitalization and sport (Leszczyński et al., 2022; Metelski & Leszczyński, 2022), the results suggest that clubs increasingly treat players not only as athletes but also as media assets whose visibility translates into sponsorships, merchandise sales, and global recognition. While historical follower counts at the exact time of transfer were unavailable, the significant association between Instagram presence and transfer fees underscores the integration of digital metrics into the valuation process and points to new directions for future research on the interplay between sporting and commercial capital.

Taken together, the results provide an integrated view of the determinants of elite transfers at the top end of the global football market. Sporting variables such as goals and assists showed only limited explanatory power once contextual and commercial factors were taken into account. Instead, league affiliation—with the Premier League—and social media visibility proved decisive. These findings suggest that in the very top segment of the transfer market, financial and symbolic considerations outweigh pure sporting performance. The contribution of this study lies in combining descriptive analysis with robust econometric modeling to isolate the mechanisms that drive elite transfers. By doing so, it advances the literature on sports economics and labor markets while enhancing our understanding of how financial, contextual, and commercial factors shape player valuation in an increasingly globalized football industry.

## 6. Conclusion

This study examined the determinants of elite transfers in global football using an original dataset of the 305 most expensive transactions between 2000 and 2023. By focusing on this exclusive segment, the analysis identified how sporting and contextual factors—including league affiliation and social media visibility—are associated with player valuation. The findings show that traditional performance indicators, such as goals and assists, even when adjusted per 90 minutes, play only a limited role in explaining variation in transfer fees. By contrast, contextual determinants—most notably Premier League affiliation and social media visibility—emerge as the strongest correlates of prices within this top-tail market. Age follows a non-linear pattern, with market values peaking in the mid-20s, which reflects both human capital considerations and resale potential. The extended specification further indicates that the association between visibility and prices appears to intensify over time, consistent with the gradual transformation of the elite transfer market into a more attention-oriented environment. These results should be interpreted as reflecting structural

mechanisms of the premium segment rather than precise causal effects at the moment of each transaction, particularly given that social media data were observed at a single point in time. This study contributes by jointly considering sporting and contextual variables in the analysis of elite transfers, offering a broader perspective than single-league or performance-focused research. The use of Instagram followers as a proxy for commercial capital represents a novel methodological addition, while the temporal interaction highlights the evolving nature of attention effects. Beyond football, the study offers broader insights for labor economics and finance by illustrating how global labor markets increasingly reflect the logic of asset pricing and reputation, where visibility and institutional context can outweigh direct productivity in price formation. From a policy perspective, the findings underscore persistent financial inequalities, raising concerns about competitive balance and long-term sustainability, and offering empirical grounding for debates on financial fair play and regulation. Several limitations should be acknowledged: the analysis is confined to the elite tail of transfers, and social media visibility was measured only in 2023, which constrains causal interpretation. Future research could extend this approach by incorporating dynamic information on online popularity.

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