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ABSTRACT

This paper describes an approach based on media value to evaluate sport talent. We then apply this methodology to estimate the theoretical value of transfer fees for professional football players. First, we compute the individual index of media value and expressed it with respect to the average of the top 2,500 players included in our data set of more than 5,000 individuals. The media value score is the factor by which the number of news of a player multiplies the news articles of the normal (average) player in our sample. Based on individual appraisals, we then work out the media value rank of football teams and leagues.

To calculate the theoretical value of football players, we estimate regression models using as dependent variable the transfer fees actually paid. Our analyses allow us to conclude that, in determining the theoretical transfer fee of a player, it is necessary to consider a few variables, among which the media value status plays a major role. Other explanatory variables to explain the transfer fees are: contract duration, economic status of the hiring team, number of years of experience (quadratic form), player's age at the end of the contract, and media value share of the player within his team.

Keywords: Soccer Industry; Transfer Fee; Sport Talent; Media Value.

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Economic evaluation of Football players through media value

1. INTRODUCTION

Professional European Football, likewise other entertainment industries, develops its business on the bases of the talent of individuals. This paper describes a methodology based on media value and applies it for estimating the "theoretical value" of Football players' transfer fees. The proposed valuation approach is feasible thanks to the data on media value that we have collected over the years.

Economic compensation for hiring professional Football players is mandatory under present rules, unless the player had finalized his current contract with the club[1]. This paper aims to measure the overall economic contribution of Football players and, thus, to provide a method for estimating the fair value of the transfer fees.

Conventional attempts to measuring the players' contribution to their teams and to the business of Football have typically been restricted to measuring sport performance. Actually, academic appraisals to the theoretical value of players are assumed to be determined on the expectation of present and future sport achievements, which may be predicted on the bases of past records. Some researchers estimate the players' theoretical value by means of individual indicators of sport performance, along with variables related to the characteristics of players and teams. Such an approach has been applied to European Football too, like in the works by Horowitz and Zappe (1998), Berri (1999) and Dobson and Gerrard (1999). The former paper

[1] The union that represents football players around the world (Fifpro) has recently start legal actions to challenge the transfer fee system, to the aim of facilitating football players to change team while respecting their contracts. They claim that the current system is anti-competitive insofar as it grants too much power to clubs whose financial situation allows them to afford large transfer fees. Previous economic papers are built upon the analysis of legal aspects on this issue: Feess and Mühlheußer (2002), for instance, examined the effects of different transfer fee regimes in European football, by comparting the system applied until the Bosman law of 1995 with others proposals by the European Commission. Dietl et al (2008) stressed that transfer fees, in spite of having long tradition in professional sport markets, came under attack already with the Bosman ruling. Besides, some new regulations (on club licensing and financial fair play) approved by UEFA may alter the current situation in the near future. Franck (2014) provides a useful description of this issue, along with the discussion on the potential implications (benefits and shortcomings) derived from the new regulations.

recognizes that the literature generally accepts that players' rewards in sport labour markets are solely based on sporting performance[2]. In the latter paper, in addition to individual players characteristics, Dobson and Gerrard (1999) examine the impact of certain characteristics of the buying and selling clubs.

However, we argue here that the overall contribution of players depends also on their skills as media leaders and, hence, we advocate that it is imperative enhancing the scope of the analysis to achieve a more comprehensive approach. Actually, sport performance in this paper is implicitly captured through media value appraisals, a procedure that successfully accounts also for non-sport-related players' skills that bring forth potential economic gains to the teams, which makes redundant using direct measures of sport achievements.

Models based solely on sport performance are in fact of little help to practitioners, who seem to establish the final transfer payment depending also on the economic power of seller and buyer clubs, as well as on the bargaining ability of the player's agent. Ultimately, transfer fees agreements are often established on the bases of the available information on payments made in the past for players with "similar" characteristics.

Nevertheless, we claim here that, as long as the media value status is recognised to be a major intangible asset in the sports business (as it conveys mass media attention and fans' attraction) it also provides indispensable information to establish the theoretical value of players. Precisely, intangible assets (like popularity and reputation) are essential elements in modern industries of professional sports. The popularity and visibility of football players in the media are actually good indicators of their sport talent and social recognition. Moreover, sport

[2] The correlation between sport performance and actual transfer fees paid in European Football is typically weaker than in individual sports, since it is difficult to translate individual sport performance into accurate scores of the real contribution to the team. Additionally, the performance level of individuals playing in different positions in the pitch is difficult to compare. Pujol and Garcia-del-Barrio (2007) show that the actual media value of football teams is largely explained by present and past sport achievements. Also Franck and Nüesch (2012) deal with the relationship between performance and the measures of visibility while avoiding problems of multicollinearity. Besides, since media value is a major asset in the sport industry, a possitive correlation between media value and income is expected both at individual and team level.

talents as well as other non-sport-related skills of players are treasured assets on which to develop the business. The valuation approach proposed here provides a useful way to evaluate players on the bases of the information provided by journalists, fans and the general public[3].

In summary, we argue here that transfer fee payments in Football can be largely explained by means of media value ratings. According to this view, the empirical analysis is carried out by including just a few other relevant variables, in addition to media value appraisals, while excluding direct measurements of sport achievements. Moreover, given that the sport talent is already captured through the media value appraisals, introducing direct indicators of sport performance along with media value ratings may provoke problems of multicollinearity, which bring about distortions regarding the validity of the estimated coefficients.

Before we introduce the methodology, it is worth mentioning some features of the Football industry. First, according to Deloitte (2015), total revenues of European football in 2014/15 are estimated in about €22.1 billion. The share of the European market was dominated by the "big Five" leagues (England, France, Germany, Italy and Spain) whose cumulative revenue in that season totalled €12 billion. Among the European domestic leagues, the Premier League achieved the highest revenues. Yet, in spite of the big revenues accrued by European domestic leagues, Football clubs seldom make profits and often face financial difficulties.[4] The reason seems to be that they usually act as win rather than profit maximizing agents. This feature has been largely documented, like for instance in the papers by Sloane (1971), Késenne (1996), Szymanski and Smith (1997), and Garcia-del-Barrio and Szymanski (2009).

[3] Growing number of firms develop their business on intangible assets. But the economic value of this type of assets is difficult to measure (Lev, 2006), even if they represent crucial inputs for the purpose of generating revenues (Hall, 1992). According to Damodaran (2007), however, valuation models "fail to fully account for the many intangible assets possessed by firms", a feature that has important consequences for investors. Besides, Damodaran (2009) claims that in some firms certain expenses. associated to labour and talent. are treated as operating expenses, even if they should rather be taken as capital expenses. But then, as a consequence, it becomes difficult to accurately value these firms, given the sparing use of debt and equity based compensation that such a miscategorisation of capital expenses implies. For a review of different brands' valuation approaches, including intangible assets, see: Fernández (2002); Garcia-Parra (2004); or Fernández (2007).

[4] The financial situation of some Spanish clubs is specially concerning, as stressed by Barajas and Rodriguez (2014).

Another distinctive characteristic of sport industries is the winner-take-all phenomenon, as exposed by Frank and Cook (1995). Professional sports, including the market for Football spectacle, are characterized by the fact that being slightly better than other competitors results in a reward that is more than proportional to performance.[5]

This feature is congruent with the evidence that a high media concentration occurs in the distribution of football talent, and that a small number of individuals monopolize the attention in the media. According to our analysis, 10% of the players account for half (50%) of the global media visibility in the football industry. We also find in our sample that 50% of the football players are responsible for 90% of the global media value generated. Hence, to develop media value indexes, it will be sufficient to express the calculations in terms of the 2,500 best players (of the total 5,000 in the original database).

Also Rosen and Sanderson (2001) claimed that the winner-take-all phenomenon has become a commonplace in sport labour markets and characterizes an increasingly number of activities. This feature may often result in an inefficient investor behavior in the race to hire players with the status of superstar. Along with average talents, the Football players market is composed of a few individuals with extraordinary abilities. These unique skills, which only a few possess in such high degree, bestow the status of media stars upon these players and allows them to benefit from the winner-take-all effect. A large number of clubs will be in fierce competition to snatch up these few players, who will therefore enjoy a huge bargaining power.

2. The Media Value Methodology

To estimate the "theoretical value" of the transfer fee of Football players we apply here the MERIT (Methodology for the Evaluation and Rating of Intangible Talent) approach, which is

[5] This feature also affects other industries like motion picture or music, where the market leaders receive salaries out of proportion to their productivity. But the winner-take-all element is paramount in professional sports, as documented by Garcia-del-Barrio and Pujol (2007). Scully (2004) recognized a dual market structure and proposed the necessity to treat different types of players separately. The issue is also related to the phenomenon of superstars, as stressed by Rosen (1981). For a general view of the Football industry, see: Hoehn and Szymanski (1999).

a further extension of the methodology developed by ESI (Economics, Sports and Intangibles) research group. Using extensive databases composed with the help of new technologies, we compute results and rankings by examining media value (attention in the media outlets dedicated to an individual or institution) and popularity (degree of interest generated amongst the fans and the general public). Actually, the media value status is measured by the number of news articles – news hits reported by searching engines – in media sources from around the world; and popularity on the basis of the number of Internet web pages.

The outcomes of this paper are the result of analyzing the evolution over time of the exposure in the media of over 5,000 Football players from almost 200 clubs; the most popular ones in the word. The calculations are based on news articles and Internet contents associated to the players registered in the main European domestic leagues (England, Spain, Italy, Germany, France, Portugal and the Netherlands), in addition to Argentina and Brazil as well as teams that participate in the Europa and UEFA Champions League.

The MERIT media value index is calculated in a way that permits performing homogenous comparisons across individuals and over time. Specifically, the individual MERIT index is expressed with respect to the average number of appearances in the media of a representative (average) player. From a database with more than 5,000 individuals, we express the media value rating of each as the factor by which a player multiplies the average number of news articles that the average (normal) player generates, with respect to the average news of the main 2,500 footballers worldwide. Notice that the relevant information is not exactly the absolute number of news articles counted, or the level of attention an individual receives on the Internet, but the relative position he or she occupies with respect to other players.

On the basis of individual ratings of media value (the MERIT index), we derive aggregate figures for the media value of group of players, which allow us to legitimately compare the media status across teams or leagues and, if properly treated the temporal dimension, it may actually permit to make comparisons across different sport disciples.

In the previous paragraphs we have introduced the basic elements of the methodology. Then, Section 4 and Section 5 develop, step by step, how to translate the media value into economic value. Specifically, it explains the process for estimating the theoretical economic price, which applies statistics techniques of linear regression to translate individual sport talent – and its expression in media value – into economic terms, stated in Euros.

4. Media value in European Football

Precedent studies, like Pujol and Garcia-del-Barrio (2007) or (2008), have shown that the media value status of players and teams play a crucial role to understand the dynamics of the football industry. Also Korzynski and Paniagua (2016) stress that gifted players, who benefit from media exposure, achieve greater market value than other players with a similar sport performance. Therefore, the economic contribution of players must not neglect taking into account media value appraisals.

It was already explained how the media value ratings are calculated. Actually, the MERIT index is defined as the factor by which the value of an individual multiplies the number of news articles of the representative (average) player in our sample. For illustrative purposes, Table 1.a and Table 1.b show the results of top players in different seasons.

Table 1.a & **Table 1.b**

In 2010/11, for instance, Messi received an exposure in the media 36.4 times bigger than the attention paid to the normal player (average from the 2,500 individuals). In a similar way, in season 2013/14, Ronaldo multiplied by 37.89 the media presence of the representative player (average from the 2,500). The status in the media of these two superstar players is far ahead of the others, a feature that is not surprising in markets affected by the winner-take-all element.

In addition to our principal explanatory variable (the individual index of media value), our empirical analysis uses other regressors that are relevant for estimating the theoretical value of players. We start by referring to other variables that are also related to the media value.

First, we examine the media value ranking of the main Football teams. The way of calculating the actual media value index of a club consists of adding the individual MERIT index of the 15 players of each team who are mentioned more often in the media. Of course, the choice of this procedure does not mean that the economic value of a Football club is merely the aggregate figure of these fifteen protagonists, but it provides a good approximation of the degree of visibility of a team at the given period. (The number 15 responds to the logic that media visibility tends to escort those who participate more frequently in matches: the starting eleven plus four other players who are usually called up to play). To identify the 15 players we simply take those who possess the greatest levels of media visibility.

Table 2.a and Table 2.b show the ranking of teams with greatest media value ratings of the four seasons running from 2010/11 to 2013/14, both included.

Table 2.a & **Table 2.b**

Our methodology permits also carrying out a comparative analysis of the leagues' status in terms of media value. The hierarchy of domestic Football leagues is thus obtained by applying a similar procedure than the one used for teams: we aggregate the MERIT media value index of the 400 most relevant players registered to play in each competition. The main results are summarized in Table 3, which expresses in percentages the relative weight of the total visibility in the media accumulated by the "Big Five" domestic Football leagues.

Table 3

The exercise of examining the relative relevance of the Football leagues is relevant, because the fact of belonging to a certain domestic league may entail significant variations in terms of media value (there is a "premium" or "prize" if hired by a team that competes in a better league). In this respect, the English Premier League has historically occupied a position of privilege in the world of football, which is reflected in its substantial visibility in the media. Also the Spanish Liga BBVA holds a prominent position.

Another variable related to media value that affect the economic value of players is the media value share that individuals hold within their own team. To illustrate this aspect, Figure 1 displays the individual percentages that the principal icon player represented with respect to the total media value of his team in season 2012/13.

Figure 1

The columns in the graph indicate the total media value of the team, while the numeric value (highlighted in white) corresponds to the percentage that the media value of a particular player represents. In season 2012/13, we identify Falcao and Messi as the principal media icons of their respective teams, as they both reach a very high concentration of the total media value of their teams. A similar analysis applied to 2013/14 leads us to conclude that the media value share of the main player typically ranges between 20% and 40% of his team's overall media value. Actually, the empirical section shows that the influence of players' media value is relevant not only in absolute terms but also in relative terms: we find a positive effect associated to increasing relative share – in terms of media value – of the players inside the roster of the selling club. As Table 6 shows, apart from individual media value scores, there is a statistically significant relationship between the dependent variable (the transfer fee paid) and the status in the media of the player with respect to the overall figure of his squad.

4. Other Relevant Variables to Estimate the "Theoretical Value"

It seems clear that the media value status is a major force to calculate the economic value of Football players. Accordingly, to attain accurate estimations, several variables related to the media value status of individuals and teams are going to be introduced in the regressions.

Nonetheless, there are also other types of variables that deserve our attention, since they affect the appraisal for hiring professional football players. According to our chosen approach, and regarding the individual characteristics of players, only those aspects not directly related to

sport performance must be now taken into account, since sport productivity is already implicitly captured through media value ratings.

Let us examine first the age of a football player (and the resulting accumulated experience), which is meant to affect the players' economic value. In the estimations, the functional form appropriated for introducing "experience" into the statistical model is in quadratic form: a positive coefficient that multiplies the years of experience, and another, statistically negative, for the square of those years. This is the conventional procedure, which responds to the logic that increases in productivity reach their maximum – maturity level – as players advance in age and thereafter suffer a decrease. Professional sport is no exception, even if the decay occurs earlier than in other professions. (Too young players have higher risk concerning their future performance as compared to mature players. Besides, sport performance is expected to diminish when a player becomes older than the maturity threshold).

The theoretical predictions are in perfect accord with the behavior we observe from our estimations. To illustrate this point, Figures 2.a and 2.b present the outcomes of this aspect for a couple of sub-samples of the estimated models.

Figure 2.a & **Figure 2.b**

According to our analysis, it seems that the decline in the increase in a player's value begins when he has accumulated about 8 or 9 years of professional experience: i.e., when he is 26 or 27 years old. From that moment on, player's additional age provokes an increase (in his market value) that grows smaller each time until the moment when, having 14 or 16 years of experience (depending on whether we look at the analysis shown in Table 2.a or Table 2.b), the player's age of 32 or more begins to weigh negatively on their economic appraisal.

Notice also that there is no need to control by characteristics like the players' position in the pitch, since it has substantial influence on player's media value and is therefore accounted for

already through the media value ratings.[6] Pitch position does affect the transfer fee, but this influence also alters the media value score, implying that once the media value of players has been introduced in the regressions, further information on pitch position is no longer needed.

5. Model Estimation and Main Results

In this section we estimate linear regression models using – as dependent variable – the actual transfer fee paid for hiring players in the respective season, including those signed in the winter transfer window (but excluding the cases in which no payment was made). We use records of actual payments publicly disclosed of the players for whom we had also data on media value. The information on transfer fees were obtained from transfermarkt.de.

The estimations carried out comprise data for five seasons: from 2010/11 to 2014/15, both included. (Notice however that only 39 observations of last season were used). In addition to the results of the pooled model, we show the results of running separate regressions for each season. This is a reasonable choice since the estimated "theoretical values" of transfer fees (calculated over the years) were based on the available observations in the respective year. The estimated models yield high goodness of fit and statistically significant estimates for the explanatory variables. Overall, our results indicate a high predictive power of the model and very consistent results. Moreover, the similarity of the estimated coefficients over the seasons inform that the outcomes are robust and prompt us to place full trust in our valuation method and results. Tables 4 and 5 summarize the statistics of the variables used in the estimations.

Table 4 & **Table 5**

One of the conclusions reached by the statistical analysis is that sporting performance is well captured through media value ratings. Furthermore, MERIT media value index is capable of

[6] Studies on this particular point conclude that similar appearances (in terms of minutes played) implies for strikers media value ratings markedly higher than that of defenders. But this result implies that the position in the field (as well as any other sport related factor) is already internally accounted for within the media value impact.

measuring players' contributions beyond their sport talent. This is a distinguishing feature of our methodological approach that involves substantial savings on time and effort when measuring sporting contribution. In fact, other approaches spend considerable resources to measure and collect performance indicators (number of goals, passes, distance covered, etc.) upon which to perform their estimates. However, these other methods are inadequate for comparing contestants that play in different positions, not to mention measuring their contributions beyond the sporting context.

Furthermore, among the virtues of our approach, it is worth stressing its appropriateness to carry out comparisons – using homogenous criteria – of the sporting contributions of players who play in different positions in the pitch, as well as athletes from different disciplines. Similarly, the foregoing is accomplished without neglecting other personal characteristics, such as age or experience, which make a sportsperson a more or less valuable asset for the development of the business in a particular time and place.

Table 6 shows the results of the pooled model, while Table 7 displays the estimators for each of the four seasons in which we focus our description. The tables incorporate marginal effects, which allow us identifying "Contract duration" and "MERIT Media Value index" as the most relevant variables to determine the transfer fees.

Table 6

The results of the regression for the whole sample (Model 1 in Table 6), are replicated for a smaller sample (Model 2), in which only transfer fees above 2.4 Million € were considered. The latter estimation was made to verify the soundness of the estimators (since, as can be noticed from inspection of Table 5, the sample for seasons 2010/11 and 2011/12 comprised contracts whose transfer payment was as little as 0.5 Million €, whereas the minimum transfers considered in the two other seasons started at 2.4 Million €).

Then, Table 7 shows the results of the separate estimations made for the four seasons between 2010/11 to 2013/14. In all the cases, the coefficient of determination is high, indicating that the model's predictive power is also high. Besides, the statistical analyses and estimations have resulted to be very consistent over time: actually the estimated coefficients reported in Table 7 yield substantially similar results in the four cases. The similarity of the estimations over the seasons is a guarantee of the model's robustness and the validity of our results. Moreover, the signs of the estimated coefficients respond to the expected outcomes, thereby supporting the consistency of our methodological approach.

Table 7

In the following paragraphs, we examine the variables that are statistically significant to explain the economic market value of the players in the football industry. Among them, as was already anticipated, the main ones are related to media value status, which is measured through two variables: the MERIT individual index (values like the ones reported in Table 1.a or 1.b) and the share of media value expressed as the percentage that the player represents within his team (values like those displayed in Figure 1).

The empirical analysis leaves no doubt about the central role of the media value issue, which is evident from the fact that the respective estimates (of the variables that measure it) are statistically significant. It also corroborates that, in assessing a football player's overall contribution, it is redundant to introduce direct information on player's performance, since his sporting talent is already implicitly captured by the media value ratings: The media value reflects what happens on the playing field and translates it into media coverage and popularity. Furthermore, the media value index successfully captures characteristics that transcend mere sport and are relevant regarding the economic dimension of a player.

Having addressed the principal issue, we next examine other variables that have proved themselves relevant to our goal. In particular, attention must be payed to the extent to which

media value of buying and selling teams influence the effective transfer fees. In this regard, we expect – and the empirical analysis verifies – that the greater the media value of the buying club (and its economic power), the higher the price paid for a player, for a given media value status. This result means that top media value teams will have to pay a premium to hire new players. This result hides like a paradox characterizing the football industry: the higher is the buyer's media and economic power, the lower its bargaining power becomes.[7]

A complementary explanation of this feature relates the internal rationale of the media value dynamics. There are certainly synergies between individual media value and team media value: sport performance leads to an increase of player's media value and such an increase also benefits the overall media value of the club as a whole. But the link also operates in the opposite direction: sport successes and global achievements of a team bring forth media value upgrade, which in turn results into players' media value increases. Hence, teams with high levels of media value will be ready to pay a premium when contracting new players. The high exposure of a club will revert into an increase of the media value of the player. It means that the economic revenues associated with media value status will be better exploited in team with high levels of media value than in teams with a poor media value status. The former type of club is thus willing to pay a higher premium for the player than the latter, due to its capacity to generate a larger future income.[8]

[7] To explain this feature consider that top clubs struggle each other to attract top football stars. The fierce competition among clubs works to the advantage of the selling club, which will demand a greater amount, instead of simply receiving the "fair price" determined by the market. See Garcia-del-Barrio and Pujol (2007) for a theoretical and empirical study of this issue.

[8] The opposite tends to happen when analysing the impact of team seller's media value. The higher the media value of the selling team, the lower the price they will obtain for the player. Again, this suggests a curious result: weak clubs have stronger bargaining power than rich clubs. This result can perhaps be understood considering that rich clubs do not usually behave as selling clubs, and do not typically sell talented players; although they may do it when the players start getting older. Under these conditions, top teams will find it difficult selling the player at the level established by the market. The opposite happens with mid and small size clubs, who tend to play the role of selling clubs. Besides, buying teams may apply a discount factor for players coming from top media value teams as they know that a share of the player media value is produced by team media value, and it will vanish when they are hired by teams with lower media value. To our understanding, the combined effect of impacts of buyer and seller teams' media value into transfer fees leads to a major finding, which suggests that there should be a careful study of the patterns affecting transfer market evaluation.

In any case, the impact exert by the media value status of a team on player transfer valuation has the important implication that there is not a single theoretical market value for a player, but a range of prices depending basically on the team that hires the services of the player.

In summary, in order to accurately estimate the theoretical value of transfer fees for Football players, it seems satisfactory to examine (besides the appraisals of media value) just a few variables: contract duration, age (as indicative of experience, in quadratic form; as well as the age at which the player will end his contract); economic and media value status of the team signing the player; the fact of playing in the Premier League and whether or not the contract was made during the winter transfer window. The relevant variables are then listed below:

- Media value: MERIT absolute index and share within the team
- Duration of the contract
- Economic and media value of the team that signs the player
- Experience (in quadratic form) and age at the end of the contract
- Team belonging to the Premier League
- Transfer during the winter transfer window

Notice again that, in response to some of the above aspects (specifically, the media value of the team that signs the player) a crucial issue is that, to be rigorous, the estimated market value or theoretical transfer fee football player cannot be considered unique. (The same could be said of the "contract duration" variable; but once this circumstance is known, it is assumed in the estimations that the player signs for the number of years agreed in the contract. Notwithstanding that the actual duration of the contract may eventually be reduced).

Hence, it is basically the differences in the media and economic status of teams that generate a range of theoretical prices. As a consequence, it is methodologically unavoidable to define an interval of values rather than establishing a single price. Naturally, if the estimate were made once the transfer has occurred, it is enough to simply introduce in the calculations the media

value of the team that has signed the player. However, it may also be informative to calculate what the price would have been if the player had signed by a different club.

The relevancy of the issue also connects with accounting and managerial practices. Actually, at evaluating the economic value of intangible talent of players, the accounting rules applied in professional football typically use the available information on transfer fees. Besides, in the bargaining process to establish transfer fees and other contractual conditions, the buying-team and the selling-team rely on information concerning the sport and economic contribution of players. The transfer fee actually paid informs on what is considered the "theoretical value" to hire the services and skills of a football player. Hence, the transfer fee effectively paid is often the only reference taken into account to appraise the economic value of players. Section 6 discusses the scope and the potentialities of our approach to improve decision making in the European Football industry.

6. Reliability of the Estimations and Managerial Practices

To show the predictive power of the models and to illustrate our results, Figure 4 and Figure 5 compare estimated (or theoretical) transfer fees and actual fees effectively paid. In the figures, we have confronted theoretical and actual transfer payments for two seasons in each case.

The empirical results of each of the estimated models present a high explanatory power. But of course, there is some distance between the estimated theoretical value and the transfer fee actually paid, which is precisely reflected in the size of these residuals. This is always the case in empirical models, as the residuals are never zero. In our case, it means that, when hiring players, Football clubs deviates from the (expected) efficient behavior, either by agreeing an overpaid transfer fee or, on the contrary, by paying a fee below market conditions. But it may also be the case that omitted variables (or poor explanatory capacity of the model) play a significant role in the Football transfer market, generating too large residuals.

A critical issue here is determining if the accuracy of the model could be improved by using better measures on media value or incorporating additional explanatory variables. Otherwise, the deviations of estimated transfer fees from actual payments would be driven by agreements diverging form an efficient behavior in the market.[9] The difference between the theoretical value (based on market conditions) and the actual transfer fee may arise from the bargaining power positions of the clubs, the player's agent negotiation ability or the public and private attitude of the player concerning his interest in the transfer. These circumstances are always *ad hoc*, which makes it difficult to internalize them inside a general empirical framework.

There is not a conclusive way to establish the extent to which differences between the transfer fees effectively paid and the theoretical transfer fees (as estimated in our model) are due to imperfections of the explanatory model or to wrong decisions in the transfer market. We propose here the intuitive procedure of simply comparing estimated transfer fees and actual payments of real transactions of our sample. Thus, a judgement can be made to judge which of the two figures seems more correct, taking into account the general conditions of the transfer market and the characteristics of the player at the moment of the contract. (Of course, the appraisal should not be affected by circumstances produced after the contract is signed).

Next, to evaluate the deviations of our estimates with respect to the fee effectively paid, let us examine specific transfer payments. We are also interested to explore the extent in which those discrepancies hide in some cases misperception errors in the transfer agreement or respond instead to measurement errors of the model.

Table 8 discloses the MERIT estimations of the "theoretical value" for the transfer fees of 60 players who changed team during 2013 and 2014. The table only reports the contracts whose transfer payments were above 15 and 18 Million €, respectively.

[9] In this case, the fact that the estimation does not explain 100% of the variance (of the dependent variable; namely, the transfer fee) means that transfer market is not perfectly efficient. In these cases, transactions of the clubs were made in a way that they underpay or overpay the "fair value" that was expected for players with similar sport and personal characteristics.

Table 8

Column (4) reports the actual transfer payments, in Millions €, that were made by the buying clubs (according to www.transfermarkt.de). Then, in column (5), we indicate the MERIT estimation of the theoretical "transfer value". And column (6) shows the difference, also in Millions €, between estimated value and actual payment. A positive number indicates that the buying club has paid less than his true value to the selling club, while a negative value corresponds to an overpriced deal. The rest of the information in the table is related to other relevant explanatory variables: players' age, contract duration, etc.

7. Summary of the Results and Conclusions

This paper has estimated the economic "theoretical value" of football players. To this aim, we measure the comprehensive talent of players through media value ratings. More specifically, using the large data sets on media value collected by MERIT (Methodology for the Evaluation and Rating of Intangible Talent) and building upon ESI (Economics, Sport and Intangibles) methodology, we calculate the "theoretical value" of transfer fees of professional football players.

Our methodology relies on two elements: popularity and media value. To measure popularity, we analyze the share of attention that the protagonists draw from the general public worldwide, as captured by Internet traffic. Similarly, media value scores are computed by examining the level of mass media exposure. The MERIT index of media value is then expressed with respect to the average of the top 2,500 players included in a data set of more than 5,000 individuals. The media value score is actually the factor by which the value of a player multiplies the number of news articles of the representative (average) player in our sample. Based on individual media value appraisals, we are also able to work out the media value of teams and leagues, and to calculate related measures.

The first contribution of this paper is defining the relative status in media value of the main Football players. In addition to individual rankings, the paper shows media value records of clubs and the hierarchy of the principal domestic Football leagues. Extensions of this paper may include performing regional analysis by countries.

Then, we argue that both sport and non-sport skills of players are valuable assets on which to develop a profitable project. The proposed valuation approach provides a useful tool for evaluating players' talent on the bases of information delivered in the media by journalists, fans and the general public.

Section 5 addressed the main goal of the paper: calculating the "theoretical value" of transfer fees that, according to economic rationality, should be paid for hiring football players. The method does not require taking into account direct ratings on sport performance of players, since that information is implicitly captured by our measures of media value.

The analysis is carried out applying econometric techniques using as dependent variable the transfer fees effectively paid to hire professional football players. The explanatory power and statistic characteristics are very satisfying in all the estimated models (the pooled model as well as the cross-sectional analysis by seasons). Among the variables to determine the value of football players, the media value status results crucial. This feature is actually captured through two complementary indicators: the MERIT index of individual media value, and the relative share of media value (in percentage) that the player represents within his team.

The econometric analysis served to identify and ponder the weight of the factors that determine a football player's market value. Other variables affecting the theoretical transfer fees are: the contract duration, the status (in terms of media value and economic potential) of the team hiring the player, the number of years of experience, in quadratic form, the player's age at the time in which the contract will finish, the fact of being hired by a team of the Premier League, and whether or not the transfer took place in the winter window.

Among other conclusions, we argue that, if willing to be rigorous, fair appraisals of players cannot be given by a single value, but must be defined within an interval. This is due, among other things, to the fact that the higher the media value status of the buying team, the higher the actual transfer fee paid for the player. This feature is congruent with top teams fiercely competing for a small number of very top players. This also reflects that financially powerful clubs are more capable to generate greater economic returns from the players' media value, thereby allowing them to pay an additional price premium.

Further extensions of our research may permit exploring discrepancies between managerial and accounting practices and the economic evaluation of home grown players, a feature that affects various aspects of the Football industry economic development.[10]

[10] In this respect, note for instance how if home grown players' economic value is not taken into account in the financial documents, teams with high concentration of academy players will suffer from a distorted appraisal of their financial soundness, thereby being penalized by underestimating its economic valuation. The issue may be especially critical for teams that are about entering in the stock market or looking for new investors. Of course, this problem will entail a bias against home grown players and mistaken transfer market decisions.

References

Barajas, Angel and Rodríguez, Plácido (2014). Spanish Football in Need of Financial Therapy: Cut Expenses and Inject Capital. International Journal of Sport Finance 9 (1): 73–90.

Berri, J. (1999). Who is 'Most Valuable'? Measuring the player's production of wins in the National Basketball Association. Managerial and Decision Economics 20: 411–427.

Damodaran, A. (2007). Dealing with intangibles: Valuing brand names, flexibility & patents. Flexibility and Patents. SSRN Electronic Journal 04/2007; DOI: 10.2139/ssrn.1374562.

Damodaran, A. (2009). Valuing Companies with intangible assets. WP Stern School of Business. http://pages.stern.nyu.edu/~adamodar/pdfiles/papers/intangibles.pdf (Retrieved: August 12th, 2015).

Deloitte (2015). Annual Review of Football Finance. Deloitte's Sports Business Group.

Deloitte FML (1997-2015). Football Money League. Deloitte's Sports Business Group.

Dietl, Helmut M.; Franck, Egon and Lang, Markus (2008). Why football players may benefit from the 'shadow of the transfer system'. European Journal of Law and Economics 26 (2): 129-151.

Dobson, S. and Gerrard, B. (1999), The Determination of Player Transfer Fees in English Professional Soccer, Journal of Sport Management, 13, pp. 259-279.

Feess, Eberhard and Mühlheußer, Gerd (2002). Economic Consequences of Transfer Fee Regulations in European Football. European Journal of Law and Economics 13 (3): 221-237.

Fernández, Pablo (2002), Valuation of brands and intellectual capital, IESE Business School, Research Paper N. 456.

Fernández, Pablo (2007), Valoración de marcas e intangibles, IESE Business School, Documentos de Investigación N. 686.

Franck, E. and Nüesch, S. (2012). Talent and/or popularity: What does it take to be a superstar? Economic Inquiry, 50: 202-216.

Franck, E. (2014). Financial Fair Play in European Club Football: What Is It All About? International Journal of Sport Finance 9 (3): 193–217.

Frank, R. y Cook, P. (1995). The winner-take-all society: How more and more Americans compete for ever fewer and bigger prizes, encouraging economic waste, income inequality, and an impoverished cultural life. New York; London and Toronto. Simon and Schuster, Free Press, Martin Kessler Books.

Garcia-del-Barrio, P. and Pujol, F. (2007). Hidden Monopsony Rents in Winner-take-all Markets. Managerial and Decision Economics 28: 57–70.

Garcia-del-Barrio, P. and Szymanski, S. (2009). Goal! Profit maximization and win maximization in football leagues. Review of Industrial Organization 34: 45–68.

Garcia-Parra, M. (2004). Activos inmateriales y contabilidad. Intangible Capital 3: 214–225.

Hall, R. (1992). The strategic analysis of intangible resources. Strategic Management Journal 13: 135–144.

Hoehn, T. and Szymanski, S. (1999). European football. The structure of leagues and revenue sharing. Economic Policy: A European Forum 0 (28): 203–240.

Horowitz, I. and Zappe, C. (1998). Thanks for the memories: baseball veterans' end-of-career salaries. Managerial and Decision Economics 19: 377–382.

Késenne, S. (1996). League Management in Professional Team Sports with Win Maximizing Clubs. European Journal for Sport Management 2 / 2: 14–22.

Korzynski, P. and Paniagua, J. (2016). Score a tweet and post a goal: Social media recipes for sports stars. Business Horizons 59 (2): 185–192.

Lev, B. (2006). Intangibles: Measurement, Management and Reporting. Brooking Institutions Press.

Pujol, F., Garcia-del-Barrio (2007), "Mid-Season Report on the Media Value of Football". ESI - Universidad de Navarra, February 2007.

Pujol, F., Garcia-del-Barrio (2008), "Report on Media Value in Football. Home Grown Players: A Major Asset for Leading Football Clubs?". ESI - Universidad de Navarra, February 2008.

Rosen, S. (1981). The Economics of Superstars. American Economic Review 71 (5): 845–58.

Rosen, S. and Sanderson, A. (2001). Labor markets in professional sports. The Economic Journal 111 (February): F47–F69.

Scully, G.W. (2004). Player salary share and the distribution of player earnings. Managerial and Decision Economics 25: 77–86.

Sloane, P. (1971). The economics of professional football: the football club as utility maximiser. Scottish Journal of Political Economy 17: 121–46.

Szymanski, S. and Smith, R. (1997). The English football industry: profit, performance and industrial structure. International Review of Applied Economics 11: 135–153.

Table 1.a. Individual MERIT Index of Media Value - Seasons 2010/11 and 2011/12

Rank	Player (2010/11)	Team	MERIT Index 2010/11	Rank	Player (2011/12)	Team	MERIT Index 2011/12
1	**Lionel Messi**	FC Barcelona	36.35	**1**	**Lionel Messi**	FC Barcelona	46.60
2	**Cristiano Ronaldo**	Real Madrid	29.94	**2**	**Cristiano Ronaldo**	Real Madrid	36.60
3	**Wayne Rooney**	Man. United	19.09	**3**	**Xavi Hernández**	FC Barcelona	25.40
4	**Xavi Hernández**	FC Barcelona	17.27	**4**	**Zlatan Ibrahimovic**	AC Milan	16.90
5	**David Villa**	FC Barcelona	15.85	**5**	**Andrés Iniesta**	FC Barcelona	16.20
6	**Ibrahimovic**	AC Milan	15.85	**6**	**Wayne Rooney**	Man. United	15.50
7	**Karim Benzema**	Real Madrid	14.66	**7**	**Karim Benzema**	Real Madrid	14.70
8	**Andrés Iniesta**	FC Barcelona	14.54	**8**	**Robin van Persie**	FC Arsenal	14.10
9	**Samuel Eto'o**	Inter Milan	13.01	**9**	**Iker Casillas**	Real Madrid	12.50
10	**Xabi Alonso**	Real Madrid	12.91	**10**	**Mario Balotelli**	Manchester City	12.00
11	**Fernando Torres**	FC Liverpool	12.39	**11**	**Édinson Cavani**	SSC Nápoles	11.80
12	**Iker Casillas**	Real Madrid	11.70	**12**	**Cesc Fàbregas**	FC Barcelona	11.40
13	**Gonzalo Higuaín**	Real Madrid	11.30	**13**	**Fernando Torres**	FC Chelsea	11.40
14	**Francesco Totti**	AS Roma	10.91	**14**	**John Terry**	FC Chelsea	11.30
15	**Pato**	AC Milan	10.79	**15**	**Gerard Piqué**	FC Barcelona	11.20
16	**Robinho**	AC Milan	10.22	**16**	**Alexis Sánchez**	FC Barcelona	11.00
17	**Gerard Piqué**	FC Barcelona	10.17	**17**	**Marcelo**	Real Madrid	11.00
18	**Mesut Özil**	Real Madrid	10.05	**18**	**Gonzalo Higuaín**	Real Madrid	10.90
19	**Steven Gerrard**	FC Liverpool	10.05	**19**	**Dani Álves**	FC Barcelona	10.80
20	**Diego Milito**	Inter Milan	9.94	**20**	**David Villa**	FC Barcelona	10.40
21	**Didier Drogba**	FC Chelsea	9.88	**21**	**Didier Drogba**	FC Chelsea	10.20
22	**Ronaldinho**	AC Milan	9.66	**22**	**Luis Suárez**	FC Liverpool	10.00
23	**Wesley Sneijder**	Inter Milan	9.66	**23**	**Ezequiel Lavezzi**	SSC Nápoles	9.60
24	**Carlos Tévez**	Manch. City	9.44	**24**	**Kaká**	Real Madrid	9.40
25	**Dani Alves**	FC Barcelona	9.43	**25**	**Arjen Robben**	Bayern Munich	9.30
26	**Cesc Fàbregas**	FC Arsenal	8.99	**26**	**Carles Puyol**	FC Barcelona	9.30
27	**Carles Puyol**	FC Barcelona	8.97	**27**	**Sergio Ramos**	Real Madrid	9.30
28	**Kaká**	Real Madrid	8.97	**28**	**Mesut Özil**	Real Madrid	9.20
29	**Ryan Giggs**	Man. United	8.58	**29**	**Robinho**	AC Milán	9.10
30	**Robin van Persie**	FC Arsenal	7.90	**30**	**Pato**	AC Milán	9.10
31	**Ezequiel Lavezzi**	SSC Neapel	7.84	**31**	**Éric Abidal**	FC Barcelona	9.00
32	**Franck Ribéry**	BayernMunich	7.73	**32**	**Mario Gomez**	Bayern Munich	8.80
33	**Raúl**	FC Schalke 04	7.67	**33**	**Pepe**	Real Madrid	8.70
34	**Dimitar Berbatov**	Man. United	7.50	**34**	**Diego Milito**	Inter de Milán	8.70
35	**Arjen Robben**	BayernMunich	7.44	**35**	**Xabi Alonso**	Real Madrid	8.40
36	**Frank Lampard**	FC Chelsea	7.05	**36**	**Juan Mata**	FC Chelsea	8.40
37	**Sergio Ramos**	Real Madrid	7.04	**37**	**Sami Khedira**	Real Madrid	8.30
38	**van der Sar**	Man. United	7.04	**38**	**Frank Lampard**	FC Chelsea	8.20
39	**Marco Borriello**	AS Roman	7.04	**39**	**Joe Hart**	Manchester City	7.90
40	**Javier Zanetti**	Inter Milan	7.04	**40**	**Steven Gerrard**	FC Liverpool	7.60
41	**Sergio Busquets**	FC Barcelona	6.76	**41**	**Franck Ribéry**	Bayern Munich	7.50
42	**Victor Valdés**	FC Barcelona	6.76	**42**	**Christian Maggio**	SSC Nápoles	7.40
43	**Nani**	Man. United	6.76	**43**	**Klaas-Jan Huntelaar**	FC Schalke 04	7.30
44	**Gareth Bale**	Tottenham	6.53	**44**	**Radamel Falcao**	Atlético Madrid	7.30
45	**Marcelo**	Real Madrid	6.53	**45**	**Alessandro Nesta**	AC Milán	7.30
46	**Diego Forlán**	AtleticoMadrid	6.44	**46**	**Wesley Sneijder**	Inter de Milán	7.20
47	**John Terry**	FC Chelsea	6.37	**47**	**Neymar**	Santos Futb.Club	7.20
48	**Mario Balotelli**	Manch. City	6.13	**48**	**Sergio Busquets**	FC Barcelona	7.10
49	**Nicolas Anelka**	FC Chelsea	5.97	**49**	**Daniele De Rossi**	AS Roma	7.00
50	**Kun Agüero**	AtleticoMadrid	5.96	**50**	**Francesco Totti**	AS Roma	6.70

Source: Authors' own calculations – MERIT Data collection

Table 1.b. Individual MERIT Index of Media Value - Seasons 2012/13 and 2013/14

Rank	Player (2012/13)	Team	MERIT Index 2012/13	Rank	Player (2013/14)	Team	MERIT Index 2013/14
1	**Lionel Messi**	FC Barcelona	33.72	**1**	**Cristiano Ronaldo**	Real Madrid	37.89
2	**Cristiano Ronaldo**	Real Madrid	30.75	**2**	**Lionel Messi**	FC Barcelona	24.52
3	**Radamel Falcao**	At.Mad./Monaco	17.82	**3**	**Gareth Bale**	Real Madrid	19.77
4	**Wayne Rooney**	Man. United	17.48	**4**	**Wayne Rooney**	Man. United	16.57
5	**Robin van Persie**	Man. United	16.85	**5**	**Neymar**	FC Barcelona	16.36
6	**Iker Casillas**	Real Madrid	16.78	**6**	**Sergio Ramos**	Real Madrid	15.66
7	**Lewandowski**	Borussia Dortmun	13.66	**7**	**Diego Costa**	Atlético Madrid	15.33
8	**Neymar**	Santos / Barcelona	13.27	**8**	**Karim Benzema**	Real Madrid	12.29
9	**Mario Balotelli**	AC Milan	12.44	**9**	**Iker Casillas**	Real Madrid	12.14
10	**Fernando Torres**	Chelsea	12.25	**10**	**Mario Balotelli**	AC Milán	12.02
11	**Arjen Robben**	BayernMunich	12.15	**11**	**Manuel Neuer**	Bayern Múnich	11.73
12	**Andrés Iniesta**	FC Barcelona	11.96	**12**	**Robin van Persie**	Man. United	10.88
13	**Édinson Cavani**	SSC Napoli	11.68	**13**	**Mesut Özil**	Arsenal	10.18
14	**Ibrahimovic**	Paris St.Germain	11.16	**14**	**Juan Mata**	Chelsea/Man.Utd	9.67
15	**David Villa**	FC Barcelona	10.94	**15**	**Franck Ribéry**	Bayern Múnich	9.43
16	**Franck Ribéry**	BayernMunich	10.56	**16**	**Ángel di María**	Real Madrid	8.91
17	**Luis Suárez**	Liverpool	10.48	**17**	**Steven Gerrard**	Liverpool	8.87
18	**Gareth Bale**	Tottenham	10.34	**18**	**Fernando Torres**	Chelsea	8.80
19	**Manuel Neuer**	BayernMunich	9.90	**19**	**Luis Suárez**	Liverpool	8.73
20	**Frank Lampard**	Chelsea	9.76	**20**	**Andrés Iniesta**	FC Barcelona	8.66
21	**Sergio Ramos**	Real Madrid	9.71	**21**	**Arjen Robben**	Bayern Múnich	8.54
22	**Mario Götze**	B.Dortm/B.Munich	9.68	**22**	**Radamel Falcao**	Mónaco	8.37
23	**Juan Mata**	Chelsea	9.49	**23**	**Xabi Alonso**	Real Madrid	8.14
24	**David Silva**	Manch. City	9.20	**24**	**Pepe**	Real Madrid	8.07
25	**Gonzalo Higuaín**	Real Madrid	8.89	**25**	**Robert Lewandowski**	Borussia Dortm.	7.80
26	**Steven Gerrard**	Liverpool	8.43	**26**	**Thomas Müller**	Bayern Múnich	7.67
27	**Thomas Müller**	BayernMunich	8.37	**27**	**David Villa**	Atlético Madrid	7.63
28	**Eden Hazard**	Chelsea	8.33	**28**	**Eden Hazard**	Chelsea	7.31
29	**Ángel Di María**	Real Madrid	8.33	**29**	**Marcelo**	Real Madrid	7.30
30	**Karim Benzema**	Real Madrid	8.30	**30**	**Samuel Eto'o**	Chelsea	7.13
31	**Javi Martínez**	BayernMunich	8.22	**31**	**Arda Turan**	Atlético Madrid	6.94
32	**Mesut Özil**	Real Madrid	8.01	**32**	**Burak Yilmaz**	Galatasaray	6.90
33	**Schweinsteiger**	BayernMunich	8.01	**33**	**Carlos Tévez**	Juventus	6.62
34	**Gerard Piqué**	FC Barcelona	7.16	**34**	**Aaron Ramsey**	Arsenal	6.55
35	**Xavi**	FC Barcelona	6.94	**35**	**Zlatan Ibrahimovic**	Paris St.Germain	6.55
36	**Oscar**	Chelsea	6.79	**36**	**Ryan Giggs**	Man. United	6.47
37	**David Luiz**	Chelsea	6.78	**37**	**David Silva**	Manchester City	6.44
38	**Lukas Podolski**	Arsenal	6.73	**38**	**Gerard Piqué**	FC Barcelona	6.31
39	**Wesley Sneijder**	Inter Milan	6.69	**39**	**Paul Pogba**	Juventus	6.30
40	**Kun Agüero**	Manch. City	6.61	**40**	**Daniel Sturridge**	Liverpool	6.26
41	**Luka Modric**	Real Madrid	6.45	**41**	**Giuseppe Rossi**	Fiorentina	6.25
42	**Mario Gomez**	BayernMunich	6.44	**42**	**Dani Alves**	FC Barcelona	6.12
43	**Gianluigi Buffon**	Juventus	6.36	**43**	**Kun Agüero**	Manchester City	6.07
44	**Olivier Giroud**	Arsenal	6.34	**44**	**Carles Puyol**	FC Barcelona	6.06
45	**Philipp Lahm**	BayernMunich	6.19	**45**	**John Terry**	Chelsea	6.05
46	**Roberto Soldado**	Valencia	6.11	**46**	**Luka Modrić**	Real Madrid	5.72
47	**Xabi Alonso**	Real Madrid	5.98	**47**	**Gonzalo Higuaín**	Nápoles	5.65
48	**Ivanovic**	Chelsea	5.97	**48**	**Didier Drogba**	Galatasaray	5.65
49	**Wesley Sneidjer**	Galatasaray	5.96	**49**	**Philipp Lahm**	Bayern Múnich	5.41
50	**Rio Ferdinand**	Man. United	5.96	**50**	**Xavi Hernández**	FC Barcelona	5.33

Source: Authors' own calculations – MERIT Data collection

Table 2.a. Team Index of Media Value - Seasons 2010/11 and 2011/12

Rank	TEAM (2010/11)	League	MediaValue (2010/11)	Rank	TEAM (2011/12)	League	MediaValue (2011/12)
1	**FC Barcelona**	BBVA	140.6	**1**	**FC Barcelona**	Liga BBVA	188.6
2	**Real Madrid**	BBVA	128.4	**2**	**Real Madrid**	Liga BBVA	159.6
3	**Manchester United**	PremierLeague	88.2	**3**	**AC Milan**	Serie A	88.8
4	**AC Milan**	Serie A	69.8	**4**	**FC Chelsea**	Premier League	82.7
5	**Inter de Milan**	Serie A	60.7	**5**	**Manchester United**	Premier League	70.4
6	**FC Chelsea**	PremierLeague	56.2	**6**	**Manchester City**	Premier League	63.6
7	**Manchester City**	PremierLeague	53.2	**7**	**Bayern München**	Bundesliga	61.6
8	**FC Arsenal**	PremierLeague	51.4	**8**	**Inter de Milán**	Serie A	57.9
9	**FC Liverpool**	PremierLeague	45.5	**9**	**FC Liverpool**	Premier League	57.3
10	**AS Roma**	Serie A	43.6	**10**	**SSC Nápoles**	Serie A	57.0
11	**Tottenham**	PremierLeague	37.6	**11**	**FC Arsenal**	Premier League	52.2
12	**Juventus de Turin**	Serie A	35.5	**12**	**Juventus de Turín**	Serie A	45.7
13	**Atlético de Madrid**	BBVA	32.3	**13**	**AS Roma**	Serie A	42.2
14	**Bayern München**	Bundesliga	29.4	**14**	**Atlético de Madrid**	Liga BBVA	39.8
15	**FC Villarreal**	BBVA	27.2	**15**	**FC Valencia**	Liga BBVA	39.7
16	**SSC Napoles**	Serie A	26.1	**16**	**Athletic Bilbao**	Liga BBVA	37.3
17	**FC Schalke 04**	Bundesliga	25.4	**17**	**FC Schalke 04**	Bundesliga	35.0
18	**US Palermo**	Serie A	24.7	**18**	**Tottenham**	Premier League	34.1
19	**Fc Valencia**	BBVA	24.4	**19**	**Málaga CF**	Liga BBVA	29.0
20	**FC Everton**	PremierLeague	21.2	**20**	**FC Sevilla**	Liga BBVA	25.0
21	**Olympique Lyon**	Ligue 1	20.8	**21**	**FC Villarreal**	Liga BBVA	22.5
22	**Athletic Bilbao**	BBVA	20.6	**22**	**Lazio Roma**	Serie A	22.4
23	**Udinese Calcio**	Serie A	20.3	**23**	**BorussiaDortmund**	Bundesliga	21.3
24	**BorussiaDortmund**	Bundesliga	20.3	**24**	**RCD Español**	Liga BBVA	20.4
25	**Lazio Roma**	Serie A	19.7	**25**	**Paris St.Germain**	Ligue 1	20.1

Source: Authors' own calculations – MERIT Data collection

Table 2.b. Team Index of Media Value - Seasons 2012/13 and 2013/14

Rank	TEAM (2012/13)	League	MediaValue (2012/13)	Rank	TEAM (2013/14)	League	MediaValue (2013/14)
1	**Real Madrid**	Liga BBVA	134.7	**1**	**Real Madrid**	Liga BBVA	162.0
2	**FC Barcelona**	Liga BBVA	109.7	**2**	**FC Barcelona**	Liga BBVA	109.7
3	**Bayern Munich**	Bundesliga	93.2	**3**	**Manchester United**	PremierLeague	87.7
4	**Chelsea FC**	PremierLeague	91.1	**4**	**Bayern Munich**	Bundesliga	78.5
5	**Manchester United**	PremierLeague	86.9	**5**	**Chelsea FC**	PremierLeague	76.1
6	**BorussiaDortmund**	Bundesliga	62.9	**6**	**Atlético de Madrid**	Liga BBVA	64.3
7	**Juventus FC**	Serie A	57.6	**7**	**Liverpool**	Premier League	57.4
8	**Arsenal FC**	PremierLeague	49.5	**8**	**Arsenal FC**	Premier League	57.4
9	**Manchester City**	PremierLeague	48.4	**9**	**Juventus**	Serie A	48.8
10	**Paris St.Germain**	Ligue One	47.2	**10**	**Manchester City**	Premier League	45.9
11	**SSC Napoli**	Serie A	46.6	**11**	**AC Milan**	Serie A	41.5
12	**Atletico de Madrid**	Liga BBVA	44.6	**12**	**Paris St.Germain**	League One	35.2
13	**Liverpool**	PremierLeague	44.1	**13**	**AS Roma**	Serie A	31.9
14	**Tottenham**	PremierLeague	41.9	**14**	**Galatasaray**	Süper Lig	31.4
15	**Inter de Milan**	Serie A	36.7	**15**	**SSC Napoli**	Serie A	30.7
16	**Milan AC**	Serie A	36.5	**16**	**BorussiaDortmund**	Bundesliga	26.0
17	**Roma**	Serie A	33.7	**17**	**Inter de Milan**	Serie A	25.8
18	**Valencia**	Liga BBVA	27.1	**18**	**Sevilla**	Liga BBVA	24.6
19	**Lazio**	Serie A	23.9	**19**	**Valencia**	Liga BBVA	21.8
20	**Benfica**	Primeira Liga	20.4	**20**	**Benfica**	Primeira Liga	21.2
21	**Newcastle**	PremierLeague	27.3	**21**	**Fiore**	Serie A	18.7
22	**Schalke 04**	Bundesliga	22.8	**22**	**Oporto**	Primeira Liga	17.7
23	**Everton**	PremierLeague	22.6	**23**	**Santos FC**	Brasileirao	17.2
24	**Genoa CFC**	Serie A	21.7	**24**	**Lazio**	Serie A	16.8
25	**Olympiq.Marseille**	Ligue One	21.3	**25**	**Tottenham**	Premier League	16.3

Source: Authors' own calculations – MERIT Data collection

Table 3. Media Value Share of the "Big Five" European Football Leagues

Leagues	2009/10	2010/11	2011/12	2012/13	2013/14	2014/15*
Premier League	33.07%	26.73%	28.43%	29.91%	30.58%	34.44%
Liga BBVA	32.17%	33.18%	32.05%	25.28%	31.23%	34.87%
Serie A	22.72%	23.51%	21.79%	20.33%	20.59%	14.24%
Bundesliga	8.95%	10.79%	12.08%	15.33%	12.70%	9.46%
Ligue 1	3.09%	5.78%	5.65%	9.15%	4.89%	6.99%
TOTAL	**100%**	**100%**	**100%**	**100%**	**100%**	**100%**

Source: MERIT social value – Data Collection (* Provisional calculations)

Table 4. Summary Statistics of the Main Variables

Pooled: Full Sample	Sample	Mean	Std. Dev.	Min	Max
Transfer Fee *	1,002	7.1284	9.9349	0.05	94
MERIT MV index	1,002	0.9952	1.5946	0	14.8
Share MV within team	1,002	5.4173	4.9088	0	38
Winter window	1,002	0.1107	0.3140	0	1
Experience	1,002	7.2155	3.2943	0	17
Experience^2	1,002	62.9061	52.0842	0	289
End of contract age	1,002	27.7571	3.2138	19	39
Contract duration	1,002	3.5415	1.2906	0	6
New team Media Value	1,002	22.2032	27.0922	0	157.4
Premier League	1,002	0.2315	0.4220	0	1

* Transfer Fees: in Million €

Table 5. Summary Statistics by Seasons

Season 2010/11	Sample	Mean	Std. Dev.	Min	Max
Transfer Fee *	226	5.0994	6.9198	0.05	45
MERIT MV index	226	1.0493	1.2568	0	9.34
Share MV within team	226	5.8066	4.9634	0	29.46
Winter window	226	0.0265	0.1611	0	1
Experience	226	7.4601	3.3771	1	17
Experience^2	226	67.0088	55.2042	1	289
End of contract age	226	27.7300	3.4438	19	39
Contract duration	226	3.2699	1.4056	1	6
New team Media Value	226	18.0187	23.3320	0.47	140.5
Premier League	226	0.2212	0.4160	0	1
Season 2011/12	**Sample**	**Mean**	**Std. Dev.**	**Min**	**Max**
Transfer Fee *	392	4.2682	6.6942	0.05	58.83
MERIT MV index	392	0.7061	1.0857	0	11.42
Share MV within team	392	5.3546	4.3060	0.09	25.45
Winter window	392	0.1198	0.3252	0	1
Experience	392	7.4515	3.3266	1	17
Experience^2	392	66.5637	54.8724	1	289
End of contract age	392	27.6726	3.2881	20	37
Contract duration	392	3.2211	1.2715	0	6
New team Media Value	392	20.9829	24.1917	0.5	141
Premier League	392	0.2244	0.4177	0	1
Season 2012/13	**Sample**	**Mean**	**Std. Dev.**	**Min**	**Max**
Transfer Fee *	124	13.1283	14.1565	3.75	94
MERIT MV index	124	1.6078	2.5294	0	14.88
Share MV within team	124	3.5911	3.5755	0.2	21.4
Winter window	124	0.1048	0.3075	0	1
Experience	124	6.8387	3.1218	0	15
Experience^2	124	56.4354	46.8634	0	225
End of contract age	124	28.1209	2.8926	20	35
Contract duration	124	4.2822	0.8976	1	6
New team Media Value	124	26.8621	33.1894	0.4	157.4
Premier League	124	0.3145	0.4662	0	1
Season 2013/14	**Sample**	**Mean**	**Std. Dev.**	**Min**	**Max**
Transfer Fee *	221	10.6638	12.1051	2.5	81
MERIT MV index	221	1.1199	1.8530	0	13.55
Share MV within team	221	6.3886	6.2206	0.3	38
Winter window	221	0.0361	0.1872	0	1
Experience	221	6.9276	3.2493	1	14
Experience^2	221	58.5022	47.4934	1	196
End of contract age	221	27.9321	3.0866	19	34
Contract duration	221	4.0045	1.0975	1	6
New team Media Value	221	26.7601	30.7812	1	157.4
Premier League	221	0.2036	0.4036	0	1
Season 2014/15	**Sample**	**Mean**	**Std. Dev.**	**Min**	**Max**
Transfer Fee *	39	8.5243	7.5742	2.46	32.3
MERIT MV index	39	0.9333	1.6469	0.02	8.19
Share MV within team	39	4.0948	3.6828	0.5	13.9
Winter window	39	0.9487	0.2234	0	1
Experience	39	6.2564	2.9975	0	12
Experience^2	39	47.8974	39.3431	0	144
End of contract age	39	26.6153	2.5195	22	32
Contract duration	39	3.3589	1.1807	0	5
New team Media Value	39	18.0820	26.6516	0	157.4
Premier League	39	0.2564	0.4423	0	1

* Transfer Fees: in Million €

Table 6. Pooled Model (Seasons 2010/11 to 2014/15)

Dependent Variable: Actual Transfer Fee	**Model 1** full sample **Coeff.**	**t-stat**	**ey/ex**	**Model 2** transfer fees >2.4 Mill. € **Coeff.**	**t-stat**	**ey/ex**
MERIT MV index	3.217861	(7.36)***	0.4492773	3.266546	(7.26)***	0.4107282
ShareMVwithin team	0.223853	(2.74)***	0.1701222	0.250322	(2.50)**	0.1522266
Winter window	0.681915	(0.74)	0.0105972	1.933044	(1.64)	0.0248458
Experience	0.681014	(2.85)***	0.6893394	1.020985	(2.72)***	0.7286198
Experience^2	−0.041454	(−3.37)***	−0.3658226	−0.068408	(−3.51)***	−0.4154723
End of contract age	−0.280792	(−4.96)***	−1.0933720	−0.337203	(−2.94)***	−0.9456794
Contract duration	1.309675	(7.08)***	0.6506827	1.502218	(4.24)***	0.5895610
New teamMVstatus	0.064804	(3.95)***	0.2018484	0.062433	(3.51)***	0.1689523
Premier League	1.980860	(3.82)***	0.0643399	2.501909	(3.78)***	0.0643150
_controlseason2	0.147395	(0.38)	0.0080893	0.881918	(1.37)	0.0230574
_controlseason3	4.685516	(6.14)***	0.0813426	4.238809	(4.63)***	0.0767704
_controlseason4	3.773513	(6.08)***	0.1167554	3.488237	(4.29)***	0.1125969
_controlseason5	3.076823	(2.14)**	0.0167999	1.663954	(0.98)	0.0094784
Nuber Obs.	1,002			684		
Root MSE	6.0350			6.9822		
R-squared	0.6354			0.5950		
	F (12, 989)	= 143.46		F (12, 671)	= 148.65	

Statistical significance: *** p-value < 0.01; ** p-value < 0.05; * p-value < 0.10; (t-statistic) in parenthesis.

Table 7. Cross-Section Regressions by Season (Estimates for years 2010/11 to 2013/14)

Dependent Variable: Actual Transfer Fee	**2010/11 Coeff.**	**t-stat**	**ey/ex**	**2011/12 Coeff.**	**t-stat**	**ey/ex**
MERIT MV index	3.0026710	(5.34)***	0.6179019	3.276963	(4.10)***	0.5421716
ShareMVwithin team	0.1976451	(2.91)***	0.2250571	0.2610824	(2.16)**	0.3275365
Winter window	−2.7197790	(−1.30)	−0.0141597	1.136314	(1.12)	0.0319201
Experience	0.1692431	(0.43)	0.2475934	0.7587124	(2.76)***	1.3245750
Experience^2	−0.0153116	(−0.77)	−0.2012021	−0.0427406	(−3.22)***	−0.6665501
End of contract age	−0.1881521	(−2.68)***	−1.0231490	−0.2383662	(−3.65)***	−1.5454290
Contract duration	1.6321640	(6.47)***	1.0465950	0.9463776	(4.13)***	0.7142092
Newteam_MVstatus	0.0182442	(0.76)	0.0644655	0.0293015	(1.17)	0.1440492
Premier League	0.8504846	(1.11)	0.0368983	2.424497	(3.55)***	0.1275182
Number Obs.	226			392		
Root MSE	4.0731			4.3499		
R-squared	0.6658			0.5864		
	F (8, 217)	= 36.73		F (8, 383)	= 43.53	
Dependent Variable: Actual Transfer Fee	**2012/13 Coeff.**	**t-stat**	**ey/ex**	**2013/14 Coeff.**	**t-stat**	**ey/ex**
MERIT MV index	3.5949970	(7.24)***	0.4402763	2.9257270	(3.19)***	0.3072714
ShareMVwithin team	0.5552247	(2.03)**	0.1518757	0.1423133	(0.76)	0.0852600
Winter window	−1.1517860	(−0.39)	−0.0091978	3.9385820	(1.71)*	0.0133698
Experience	0.3407010	(0.45)	0.1774746	1.0696180	(1.46)	0.6948638
Experience^2	−0.0279904	(−0.59)	−0.1203235	−0.0891507	(−2.06)**	−0.4890862
End of contract age	−0.2264830	(−0.79)	−0.4851259	−0.1440002	(−0.81)	−0.3771857
Contract duration	2.0472350	(1.60)	0.6677736	0.9799221	(1.84)*	0.3679853
New teamMVstatus	0.0705038	(2.37)**	0.1442583	0.1317027	(3.25)***	0.3305002
Premier League	1.3769940	(0.93)	0.0329886	3.5099860	(2.30)**	0.0670214
Number Obs.	124			221		
Root MSE	7.3263			8.2534		
R-squared	0.7496			0.5520		
	F (8, 115)	= 48.52		F (8, 212)	= 44.63	

Statistical significance: *** p-value < 0.01; ** p-value < 0.05; * p-value < 0.10 (t-statistic) in parenthesis.

Table 8. Estimated MERIT "Theoretical Value". Players transferred in 2013 and 2014

Player	**Original Team**	**New Team**	**Age**	**Date of Contract**	**Contract Duration** (# years)	**Transfer Fee Actually Paid** (in Mill. €)	**Theoretical TransferFee** (in Mill. €)	**Difference**
			(1)	(2)	(3)	(4)	(5)	(6)
Luis Suárez	Liverpool FC	FC Barcelona	26	11/7/2014	5	81.0	48.13	32.87
James Rodríguez	AS Monaco	Real Madrid	22	22/7/2014	6	80.0	37.86	42.14
Ángel di María	Real Madrid	Manchester Utd.	25	26/8/2014	5	75.0	47.32	27.68
Falcao	Atlético Madrid	AS Monaco	27	01/9/2014	4	60.0	26.38	33.62
David Luiz	Chelsea FC	Paris St.Germain	26	01/7/2014	4	49.5	24.69	24.81
Alexis Sánchez	FC Barcelona	Arsenal FC	24	10/7/2014	4	42.5	24.95	17.55
Eliaquim Mangala	FC Porto	Manchester City	22	11/8/2014	5	40.0	14.73	25.27
Diego Costa	Atlético Madrid	Chelsea FC	24	01/7/2014	5	38.0	56.40	-18.40
Luke Shaw	Southampton	Manchester Utd.	18	01/7/2014	4	37.5	24.05	13.45
Ander Herrera	Athletic Club	Manchester Utd.	24	01/7/2014	4	36.0	16.91	19.09
Romelu Lukaku	Chelsea FC	Everton FC	20	30/7/2014	5	35.4	24.13	11.23
Cesc Fàbregas	FC Barcelona	Chelsea FC	26	01/7/2014	5	33.0	27.62	5.38
Adam Lallana	Southampton	Liverpool FC	25	01/7/2014	5	31.0	19.38	11.62
Griezmann	Real Sociedad	Atlético Madrid	22	28/7/2014	6	30.0	20.92	9.08
Toni Kroos	Bayern Munich	Real Madrid	23	17/7/2014	6	30.0	39.11	-9.11
Gareth Bale	Tottenham Hotspur	Real Madrid	24	01/9/2013	6	94.0	81.31	12.69
Edinson Cavani	SSC Napoli	Paris St.Germain	26	16/7/2013	5	64.5	59.44	5.06
Neymar	Santo Futb. Clube	FC Barcelona	21	01/7/2013	5	57.0	75.45	-18.5
Mesut Özil	Real Madrid	Arsenal FC	24	02/9/2013	5	50.0	45.88	4.12
Fernandinho	Shakhtar Donetsk	Manchester City	28	01/7/2013	4	40.0	8.99	31.01
Lucas Moura	Sao Paulo	Paris St.Germain	21	01/1/2013	4	40.0	22.60	17.40
Mario Götze	Borussia Dortmund	Bayern Munich	21	01/7/2013	4	37.0	46.40	-9.40
Marouane Fellaini	Everton FC	Manchester Utd.	25	02/9/2013	5	32.4	26.03	6.37
Marquinhos	AS Roma	Paris St.Germain	19	19/7/2013	5	31.4	19.50	11.90
Isco	Malaga CF	Real Madrid	21	01/7/2013	5	30.0	27.37	2.63
Asier Illarramendi	Real Sociedad	Real Madrid	23	12/7/2013	6	30.0	21.19	8.81
Roberto Soldado	Valencia CF	Tottenham Hotspur	28	05/8/2013	4	30.0	32.26	-2.26
Érik Lamela	AS Roma	Tottenham Hotspur	21	30/8/2013	5	30.0	17.44	12.56
Mkhitaryan	Shakhtar Donetsk	Borussia Dortmund	24	09/7/2013	4	27.5	7.75	19.75
Stevan Jovetic	AC Fiorentina	Manchester City	23	19/7/2013	5	26.0	26.47	-0.47

Source: MERIT own calculations.

Figure 1. Media Value Concentration - Football Players in Season 2012/13
(with respect to the total media value of the team)

Source: MERIT Data Collection

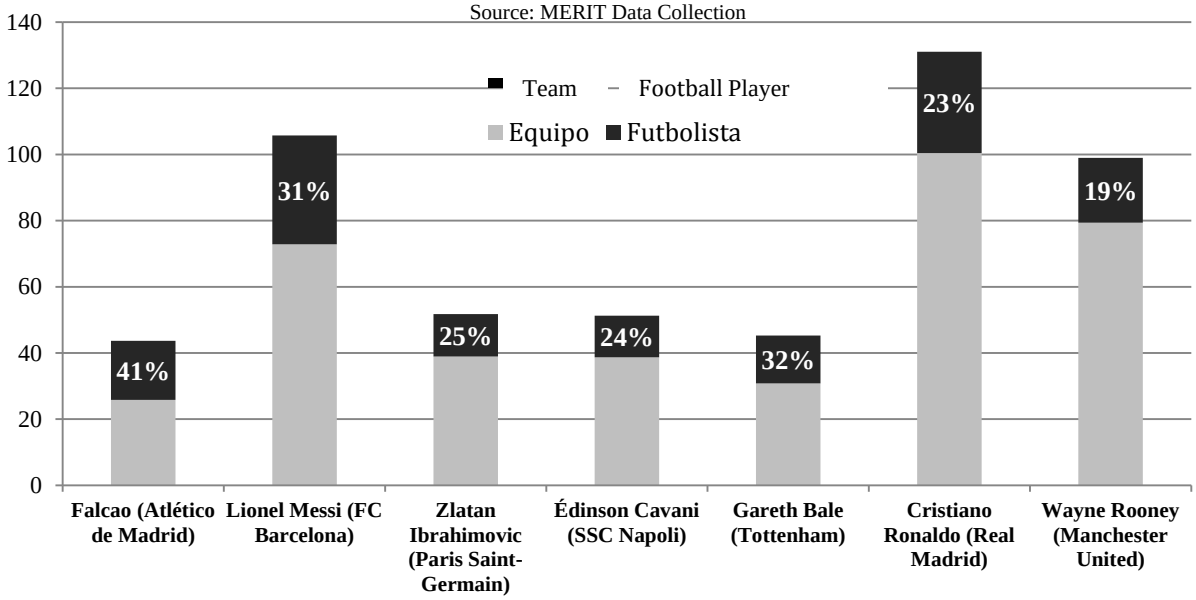

Figure 2.a. Profile of Experience - Impact on Market Value
Sample of 618 Players (2010/11 and 2011/12)

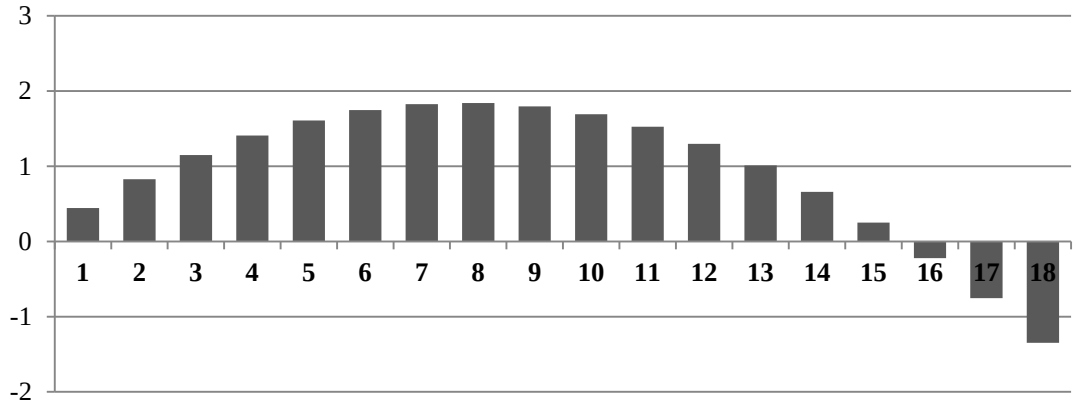

Figure 2.b. Profile of Experience - Impact on Market Value
Sample of 384 Players (2012/13, 2013/14 and 2014/15)

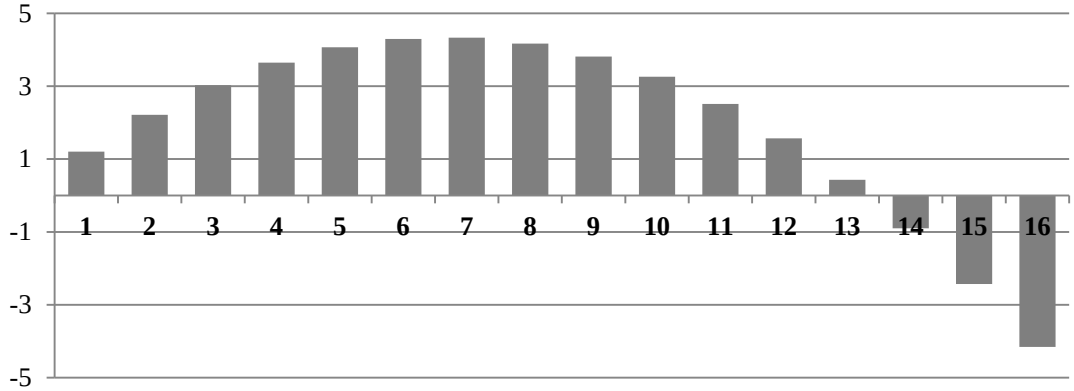

Figure 4. Price Effectively Paid versus Estimated Price

2010/11 and 2011/12 (sample of 618 observations)

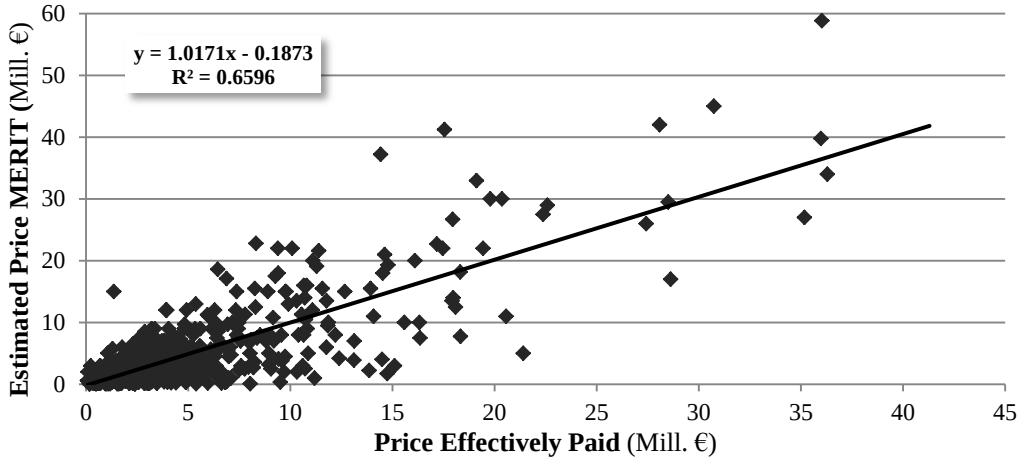

Figure 5. Price Effectively Paid versus Estimated Price (MERIT)

2012/13 and 203/14 (sample of 384 observations)