

Hoey, Samuel; Peeters, Thomas; Principe, Francesco

Working Paper

Who benefits from transfers?

Tinbergen Institute Discussion Paper, No. TI 2020-034/VII

Provided in Cooperation with:

Tinbergen Institute, Amsterdam and Rotterdam

Suggested Citation: Hoey, Samuel; Peeters, Thomas; Principe, Francesco (2020) : Who benefits from transfers?, Tinbergen Institute Discussion Paper, No. TI 2020-034/VII, Tinbergen Institute, Amsterdam and Rotterdam

This Version is available at:

<https://hdl.handle.net/10419/220071>

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TI 2020-034/VII
Tinbergen Institute Discussion Paper

Who benefits from transfers?

*Samuel Hoey*¹

Thomas Peeters^{1,2}

*Francesco Principe*¹

¹ Erasmus School of Economics, Tinbergen Institute and Erasmus Center for Applied Sport Economics

² ERIM

Tinbergen Institute is the graduate school and research institute in economics of Erasmus University Rotterdam, the University of Amsterdam and Vrije Universiteit Amsterdam.

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Tinbergen Institute Amsterdam
Gustav Mahlerplein 117
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The Netherlands
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Tinbergen Institute Rotterdam
Burg. Oudlaan 50
3062 PA Rotterdam
The Netherlands
Tel.: +31(0)10 408 8900

Who benefits from transfers?

Sam Hoey¹

Thomas Peeters²

Francesco Principe³

This version: June 2020

Abstract

One major argument to legitimize the transfer system in European club football is that transfer fees paid by hiring clubs result in a redistribution of revenues from large market to small market clubs, which may lead to more intense on-field competition. We investigate this claim using a unique dataset of digitalized financial accounts for a representative sample of clubs across eight national football associations. Overall, the transfer system leads to a very modest reduction in revenue inequality. Small market clubs rarely earn substantial amounts of money from the transfer market. The main financial beneficiaries are clubs around the middle of the market size distribution. A select group of large market clubs makes significant transfer losses, but this does not undo these clubs' initial financial advantage.

JEL Codes: J41; K12; L83

Keywords: labor contracts, transfer system, European football, redistribution

¹ Corresponding author. Erasmus School of Economics, Tinbergen Institute and Erasmus Center for Applied Sport Economics, e-mail: hoey@ese.eur.nl.

² Erasmus School of Economics, Tinbergen Institute, ERIM and Erasmus Center for Applied Sport Economics, e-mail: peeters@ese.eur.nl

³ Erasmus School of Economics, Tinbergen Institute and Erasmus Center for Applied Sport Economics, e-mail: principe@ese.eur.nl

1. Introduction

Following an agreement in 2002 between the European Commission and FIFA, football's governing body, the labor market of European football (soccer) players has been regulated by the current "transfer system" (European Commission, 2002). Under this regulation, players are held to their temporary employment contracts unless a rival employer (usually a rival football club) or the player himself pays a release clause, which is typically much higher than the economic value of the remaining term of the employment contract. In practice, players almost never break up their contract unilaterally, because they lack the financial resources to do so. Instead, they are forced to wait for a rival club to poach them if they desire to end their current employment. The player's old and new club usually end up negotiating the height of the release fee (referred to as the "transfer fee"), rather than paying the fee specified in the original employment contract.

As it currently exists, the transfer system clearly restricts the freedom of labor of European football players and therefore constitutes a potential breach of EU regulations. Moreover, the football players' union, FIFPro, filed a complaint with the European Commission in 2016 arguing that the transfer system violates EU competition rules.⁴ The system would shield currently dominant clubs from competition by new rivals because it creates an unnecessary financial hurdle to assemble a competitive playing squad (Szymanski, 2016).

In response to this, two arguments have been proposed to legitimize the system. The first argument maintains that transfer fees are necessary to reward clubs for training and testing talented young players. Without the system, clubs would lose their incentive to educate young players, because they cannot reap the full benefits of training and discovery. This in turn would lead to an "under-discovery" of talented players relative to the socially optimal level, as put forward in the model by Terviö (2006).

The second argument contends that the transfer system eases the economic disparities among European football clubs, such that they can stage a more tense and interesting on-field competition (Szymanski, 2016). If players predominantly transfer from relatively poor clubs to relatively rich clubs, the monetary flows resulting from these transactions should favor smaller clubs at the expense of larger ones. As such, the transfer system may redistribute revenues towards small market clubs and counter-act the growing inequality in club revenues from other sources. This could in turn lead to a more favorable "competitive balance", if clubs effectively use this additional revenue to field a more competitive team. Note however, that the redistribution of revenues in this system goes hand in hand with the redistribution of talented players in the opposite direction.

⁴ FIFPro later dropped this case after reaching a settlement with FIFA before the Commission judged the merits of the case.

In this paper we ask to what extent the transfer system redistributes revenues from large market to small market European football clubs. We collect the original financial accounts for all football clubs playing in the top division(s) in England, France, Germany, Italy, the Netherlands, Portugal, Scotland and Spain from the respective national firm registers or regulatory agencies. In accounting terms, player transfers are regarded as investments in intangible fixed assets and only the original accounts allow us to calculate the true costs and revenues clubs incur from their transfer activity. Other data sources either do not provide a detailed split-out of club revenues and amortizations (e.g., Bureau van Dijk's Orbis data), or neglect certain types of transfers (e.g., FIFA only tracks cross-border transfers), which precludes us from constructing a complete overview of transfer revenues and costs. Based on the accounts, we construct measures of club income before and after transfer activity. We then develop a measure to characterize a club's earnings potential and investigate how transfer activity affects club revenues along the observed distribution of estimated earnings potential.

Looking at all European clubs combined, we find that the transfer system redistributes very little revenue from large to small market clubs. Standard income inequality measures show very small movements towards more post-transfer equality. The resulting redistributive effect is not strong enough for smaller clubs to significantly catch up. This is surprising, because the economic importance of the transfer system is substantial for the football industry. In 2018 transfer payments constituted more than €10 billion in non-tangible asset value across the clubs in our sample, relative to total revenues of around €21 billion in the same year. Consistent with the theory of Terviö (2006), we find that transfer losses are concentrated near the top of the earnings potential distribution, while the largest beneficiaries of the transfer system are the middle-income clubs. By comparison, clubs at the bottom of the earnings distribution benefit less from player trading. At the national level, this implies that income inequality in relatively smaller leagues, such as the Netherlands, is exacerbated by the transfer system. This is evidenced by the fact that the large market clubs in these countries are among the top net earners from player trading, whereas the small clubs earn very little.

To the best of our knowledge, we provide the first empirical investigation of the impact of the transfer system on revenue inequality in European football. Still, the transfer system has attracted quite some attention in the economic literature to date. Authors have extensively explored the repercussions of the transfer system for the employment contracts and effort provision of players, both in theoretical models (see e.g., Feess & Muehlheusser 2002; 2003a; 2003b; Dietl et al 2008) and combining theory with empirical work (Feess et al 2015). Most closely related to our analysis, is the paper by Terviö (2006), which explores how the transfer system induces clubs to "test" the ability of novice players. Under the assumption that playing ability cannot be observed before a player enters the labor market, it is socially optimal to increase

the degree to which clubs test novel players, because this brings the discovery of talent closer to the socially optimal level. While not the focus of his paper, Terviö's model implies that the transfer system generates the largest transfer losses at clubs near the top of the earnings distribution resulting in a more egalitarian distribution in post-transfer income relative to pre-transfer income.

Our paper also relates to the growing body of empirical literature evaluating the effects of regulation in the football industry. For example, recent studies analyze how the Bosman ruling has affected the European football market. Norback et al. (2016) show that the integration of the European football market has created a stable vertically organized market, with few established top clubs and many “nursery” clubs, acting as suppliers of star players. Deschamps and De Sousa (2019) argue that low monopsony power due to relaxed labor mobility constraints inhibits clubs from acting on prejudice. They find evidence that wage discrimination has disappeared for the workers whose mobility constraints were lifted as a result of the Bosman ruling. Other papers (Peeters and Szymanski 2014, Budzinski and Szymanski 2015) have investigated the financial and sporting impact of the “Financial Fair Play” (FFP) regulation set by UEFA. Primary findings suggest that FFP shifts rents from the players to the owners without delivering gains for consumers in terms of an improvement in competitive balance. We contribute to the literature by focusing on redistributive effects of the transfer system among clubs, which has had less empirical attention due to the lack of data heretofore.

The remainder of the paper is structured as follows. In Section 2, we present our data and methodology. In Section 3, we report the overall results of our empirical analysis. Section 4 focuses on the effects of the transfer system within associations for which we have the best coverage. Section 5 discusses and concludes.

2. Data and Methods

2.1. Variable definitions and coverage

In order to evaluate how the European football transfer system redistributes revenues from large market to small market clubs, we digitalized data from the original financial accounts of all football clubs playing in the top divisions of England, France, Germany, Italy, the Netherlands, Portugal, Scotland and Spain. These data are obtained from the respective national firm registers or regulatory agencies. Our sample includes the seasons 2013-2014 until 2017-2018. We convert all monetary values to euros using the exchange rate on the 30th of June of the respective year. We collect data on all clubs that compete in the highest division of their association⁵ in at least one of these seasons. For these clubs, we include all years in this time period, even if they were active in lower divisions. The result is a balanced panel that represents all clubs which

⁵ Associations most commonly coincide with independent nations. The United Kingdom is a notable exception to this rule, as there are separate football leagues in England, Scotland and Northern Ireland.

have been active in the top division of these associations. Using the complete set of seasons for each club draws a more accurate picture of the economic strength of promoted and relegated clubs, because the financial performance of these clubs is usually at its best when they play in the top division. Selecting just these seasons would therefore overestimate the typical financial position of the relatively smaller clubs.

The financial accounts of football clubs enable us to draw a clear national and international comparison of club transfer costs and transfer income. The current accounting standards stipulate that football clubs should book transfer fees paid as intangible assets and amortize them over the length of the player's initial contract. Football clubs use linear amortization for player contracts, meaning that every year the value of the player contract is reduced proportionally to the contract length. As a rule, clubs cannot update the valuations of these assets unless they sell the player to another club.

< Insert Table 1 here >

Table 1 presents the main variables of interest we construct from the accounts database. We collect the total asset value of player contracts at the end of a club-season in the variable *transfer book value*. On average, clubs have player registrations worth €38m in their accounts, but this varies immensely across clubs resulting in a standard deviation of €71m. We define the transfer income on a player transaction as the amount received from the buying club minus the book value of the player contract at the time of the transaction. In other words, it is the surplus over the current book value of the player contract. Our variable *transfer income* is simply the sum of this number over all player transactions in a club-season. Table 1 shows that clubs received an average of €15m from transfers, with again a high standard deviation of €25m. *Transfer costs* are defined as the total amortization on player contracts owned by the club for that year. It is important to note that this measure looks at the current accounting costs of transfers and therefore disregards potential future costs in the form of amortizations in the years ahead.⁶ For example, when Paris Saint Germain bought Neymar for €222m in 2017, this amount was not fully registered in the transfer costs for 2017. Instead, it is amortized over the length of the contract and contributes to the transfer cost over several seasons. The variable *net transfer earnings (loss)* is simply transfer income minus transfer costs. On average *transfer costs* marginally exceed *transfer income*, with its average value being €17m. The resulting mean of *net transfer earnings* is slightly negative at -€1.6m.

⁶ An alternative way to measure transfer costs would be to add the difference in book value of player registrations at the end of each season to the amortization. This would reflect that an increase (decrease) in asset book value corresponds to a net investment (divestment) in player registrations by the club in that season. This measure is therefore closer to a cash flow measure of transfer costs. In contrast, our definition measures the impact of transfers on accounting profits. We judge our measure to be more relevant, as it aligns better with UEFA protocol. Among other things, it corresponds to the measure clubs report for the infamous Financial Fair Play break-even rule.

In addition, we gather data on the clubs' *pre-transfer revenues*. These mainly consist of media rights sales, match-day revenue, merchandise sales, sponsor deals and prize money. The mean of *pre-transfer revenues* in our sample is around €82m, with a standard deviation of about €120m. We will compare these *pre-transfer revenues* to *post-transfer revenues*, which we define as revenues after adding the club's *net transfer earnings*. We further collect the total personnel costs of the club under the *wage bill* variable. As personnel expenses mostly consist of player wages, this variable is a good proxy for the club's stock of playing talent (see e.g., Szymanski, 2003). Our final financial variable measures the book value of the clubs' *tangible fixed assets*. With a mean value of around €39m and a standard deviation of €90m, these are more or less equally important as the book value of player registrations in the clubs' balance sheets. In other words, the accounting value of player contracts is similar in magnitude to the typical club's tangible fixed assets, consisting of the combined value of its stadium, training grounds etc.

We further add three sports-related variables. We include the end-of-season *rank* of the club in its respective association, where we count the rank through the tiers of the football pyramid. Hence, the first club in the second division is typically ranked 21, as most associations have 20 clubs in the top tier. The dummy variables *promoted* and *relegated* record whether the club moved up (or down) to a higher (lower) tier before the start of season *t*.

< Insert Table 2 here >

Table 2 describes the coverage of the dataset by association for the clubs that meet the selection criterium set out above. The coverage is based on the percentage of club-seasons for which the variable is available. The coverage is nearly 100% for England, France, Italy, the Netherlands and Spain. The other associations have lower coverage either due to missing financial accounts or because of clubs filing accounts with too little detail to recover selected variables.

2.2. Estimating club market sizes

To investigate whether the transfer system redistributes revenues from large to small market clubs, we first construct a measure of club market size. We define the market size of a club as the amount of revenues it generates from a given on-field performance. Hence, clubs with a larger market size raise more revenues from each unit of talent they employ. In the terminology of Scully (1974), talented players have a higher marginal revenue product (MRP) at large market clubs. This implies that the transfer market should reallocate talent from small market to large market clubs. As a result, transfer fees flow in the opposite direction, which reduces inequality in revenues. This conceptualization closely tracks the modeling in Terviö (2006), who defines club market size as a multiplicative factor for talent in the club revenue function.

We use the following regression model to obtain an estimate of market size for clubs in our sample:

$$y_{ct} = \beta_x X_{ct} + \theta_t + \delta_c + \varepsilon_{ct}. \quad (1)$$

In equation (1) we relate the logarithm of pre-transfer revenues (y) of club c in season t to a set of observables (X_{ct}) and season (θ_t) and club (δ_c) fixed effects. As observables we include a standardized version of the *rank* variable,⁷ the logarithm of *tangible fixed assets* and the *promoted* and *relegated* dummies. Note that our intention is not to estimate the causal impact of these variables on revenues.⁸ We are merely interested in isolating the club and season effects from these regressions, such that we can construct a market size measure (m_{ct}) in the following way:

$$m_{ct} = \theta_t + \delta_c \quad (2)$$

We average this measure over the seasons in which the club's data is present in our dataset.⁹ Throughout our analyses, we rank clubs according to this market size measure to assess their relative economic strength. Figure 1 depicts the relationship between the pre-transfer revenues and the rank in estimated market size. As expected, there is a strong positive relationship between the market size ranking and pre-transfer revenues. The elite clubs form the largest European associations, such as Manchester United, Real Madrid and Paris Saint Germain, end up at the top of the market size ranking. Top clubs from smaller associations, e.g., Ajax, Benfica, Monaco and Celtic are around the middle of the distribution along with smaller clubs from the larger associations. Naturally, the smaller clubs from the smaller leagues appear near the bottom of the market size distribution.

< Insert Figure 1 here >

3. Europe-Level Results

3.1. Transfer income, transfer costs and net transfer earnings

Figure 2 plots the average *transfer income* and *transfer costs* against the market size rank for each club in our dataset. We draw a smoothed line through the datapoints to get a better sense of the evolution of the variables as market size increases. We first observe that most small clubs (market size rank < 60) do not spend or earn much from player transfers. In practice, most small clubs do not seem able or willing to invest heavily in player registrations. As we move up the market size distribution, transfer costs increase gradually. In contrast, there is a large variance in the trajectory of transfer income among the mid-sized European clubs. Some generate tens of millions of Euros per season from transfers, whereas others have no significant

⁷ We standardize rank by taking the logarithm of $\left(\frac{rank}{\max(rank)+1-rank}\right)$.

⁸ We refer interested readers to the online appendix, where we report the coefficient estimates.

⁹ For most clubs this is trivial, as they are present in all years of the panel. It matters in some clubs, where we were able to retrieve financial data for some, but not all seasons.

transfer income at all. The large market clubs (market size rank > 140) tend to earn the largest amounts from the transfer system, but at the same time they also spend the most. For this elite group of clubs, the trend line for *transfer costs* clearly follows a steeper trajectory than the trend line in *transfer income*. In other words, their spending outpaces their revenues from transfer activities.

< Insert Figure 2 here >

Figure 3 gives a more detailed view of which clubs gain and lose money in the transfer market. To aid interpretation, we plot the net earners and net spenders in two separate panels and provide separate trend lines for each group. Although the average of *net transfer earnings* is negative, there are more individual clubs with positive net transfer earnings, than clubs with net transfer losses in our sample. The sum of annual *net transfer losses* is €826m, spread over 57 clubs, or €14m per club. The sum of annual *net transfer earnings* is smaller at €569m, but spread over more clubs (116), which amounts to an average of €5m per club.

In line with the theoretical predictions of Terviö (2006), we see that almost all small and midsize clubs are net earners, and the biggest net spenders are located at the top of the market size ranking. Still, the top panel of Figure 3 reveals considerable heterogeneity among the net earners. None of the smallest clubs (market size rank < 60) succeed in netting more than a couple million euros per year. In contrast, several midsize clubs, such as Benfica, Monaco, Sevilla, Ajax, and Lyon, earn on average 20 million euros and more per season. The gains of the transfer system are not spread equally among the smaller market clubs but concentrated among a few “top” sellers. The bottom panel of Figure 3 shows that a select group of large market clubs (market size rank > 140) is responsible for the bulk of all net transfer spending. Here, Manchester United, Manchester City and Paris Saint Germain stand out with annual net transfer outlays in the region of €80m and above, but several other clubs, such as Real Madrid, Arsenal and Internazionale, also spend upward of €40m per year. It appears that only clubs with a market size near the very top of the distribution have enough pre-transfer revenue to support this kind of transfer spending.

< Insert Figure 3 here >

3.2. Total player expenses, post-transfer revenues and revenues after player expenses

In Figure 4 we evaluate how much of their revenues clubs devote to player expenses, defined as their combined transfer and wage spending. In panel (a) we plot the average wage bill as a function of the market size ranking. As expected, we observe a close connection between market size and wage spending. Whereas the total personnel costs of smaller clubs typically do not exceed €20m, the top clubs spend more than a tenfold of this number. Given the well documented relationship between wage bills and performance (e.g., Szymanski, 2003), this has obvious implications for the balance of playing strengths among clubs. By

comparison, the *transfer costs*, pictured in panel (b), take up a smaller share of club revenues. As documented above, most small clubs do not engage in expensive incoming transfers. Even for the large market clubs however, the cost of paying player wages easily trumps the costs of acquiring players in the transfer market. The media attention (and outrage) devoted to transfer spending as a main contributor to financial distress in European football (e.g., BBC, 2017) therefore seems somewhat misguided. The wage costs of the players already employed by the club typically impose a larger drag on the club's financial situation than incoming transfers.

< Insert Figure 4 here >

Panel (c) of Figure 4 explores how much revenues clubs are left with after transfer activities. There is clearly a strong relationship between market size rank and post-transfer revenues. Whereas we have seen that net transfer spending tends to be concentrated at the top clubs, this is not enough to materially weaken the connection between market size and revenues. Finally, panel (d) shows that large clubs enjoy much higher revenues than smaller clubs after subtracting player expenses, even though their player expenses are much higher. Consequently, it is not surprising that large clubs are not as vulnerable to negative financial shocks, as smaller clubs are (Szymanski, 2017). This observation seems increasingly relevant in the current post-covid economic environment.

3.3. Gini coefficient and Lorenz Curve

Next, we evaluate the overall impact of the transfer system on revenue inequality. Figure 5 shows the Lorenz curves and Gini coefficients for *pre-* and *post-transfer revenues*. Overall, the net earnings and losses from transfers do not change the distribution of revenues much. The post-transfer revenue line dominates the pre-transfer revenue line meaning that there is less inequality at all quantiles of the income distribution. However, the gap between the two lines is very small, which is also apparent from the Gini coefficients printed in the graph. The gap between the two lines is largest around the middle of the population, suggesting that transfers shift most revenues from the top clubs to the middle clubs. The lines barely diverge for the small clubs, confirming that they do not benefit much from the transfer system.

< Insert Figure 5 here >

4. Association-level results

4.1. National associations

It is informative to look at revenue redistribution across the whole of Europe, as we have done above. Yet, in terms of increasing the tension of on-field competition it is more relevant to investigate how the revenue distribution evolves within national associations. After all, the modest Dutch club Willem II never

encounters Spanish giants Real Madrid on the field of play, so the relative revenues of both clubs do not directly impact the competitive balance in any actual game. However, Willem II does play the largest Dutch club, Ajax, twice each season, which renders their relative financial strengths more relevant.

In Figure 6 we therefore show the average *net transfer earnings or losses* per club in selected national associations. We rank clubs according to their estimated market size with the largest clubs on the right. We find stark differences across national associations. In England almost all clubs record net transfer losses, whereas in the Netherlands all clubs obtain positive net transfer earnings. Other associations, such as Italy, Spain and France, see large transfer spending by their largest club(s), but modest positive earnings elsewhere.

< Insert Figure 6 here >

Hence, the transfer system leads to modest revenue redistribution for clubs in Italy, France and Spain. In France, Paris Saint Germain is among the top spenders in Europe, but most of the transfer gains are made by Monaco and Lyon, who rank directly below the Paris club in terms of market size. Fairly little revenues get through to the bottom clubs. A similar picture unfolds in Spain, where Bilbao and Sevilla earn most in the transfer market. In Italy the transfer gains seem more equally spread over the market size distribution. Equivalently, all three associations see a clear decrease in their Gini coefficient post transfers, as is evident from Table 3.

< Insert Table 3 here >

By contrast, we do not see a more equal revenue distribution post transfers in England, Scotland or the Netherlands. England has some of Europe's most prolific spenders in Manchester City and Manchester United. Yet, its smaller clubs do not make up much ground, because they themselves are also net spenders in the transfer market. In the Netherlands and Scotland almost all clubs record net transfer earnings, but in these associations the large clubs (e.g., Ajax and Celtic) succeed in earning more from the transfer system than their smaller counterparts. While we cannot produce a full picture for Portugal, the earnings figures of Benfica, Sporting CP and Porto lead us to believe we would see a similar picture there. For all these associations, we see hardly any decrease, or even a slight increase in their post-transfer income Gini coefficient.

4.2. Champions League

Finally, we consider the implications of the transfer system for the participants of the primary European club competition, the UEFA Champions League. While our data cannot cover all participants in this tournament, the associations in our sample account for a large portion of eligible clubs. Hence, Figure 7

presents the net transfer earnings and losses for all clubs in our sample which participated at least two seasons out of the five seasons in our sample.

< Insert Figure 7 here >

The Champions League is the league in which the transfer system redistributes revenues the most. Its largest clubs are the biggest spenders in Europe and the smaller participants often constitute the top earners in Europe. A “small” Champions League club is usually a top club in its own association, which makes them a midsize club at the European level. As stated earlier, these are the clubs that make most financial gains in the transfer system. This may also be an indirect consequence of regularly participating in the Champions League, as the value of their players can rise a lot due to the increased attention they receive. The result is a relatively significant decrease in the Gini-coefficient from 0.393 to 0.353.

5. Conclusions

The transfer system in European club football puts an exceptionally harsh restriction on the labor market mobility of workers, in this case professional football players. The players are held to their temporary contracts unless a rival club or the player himself pays a release clause, which is typically much higher than the economic value of the remaining term of the employment contract. This system is supported by two main arguments. On the one hand, by the idea that it rewards the discovery and development of new talents. On the other hand, by arguments of resource redistribution, as the transfer system may reduce revenue inequality when money flows from large to small market clubs.

Using a unique dataset of digitalized financial accounts for clubs across eight European national associations, this paper provides the first empirical investigation into the redistributive functions of the transfer system. We show that under the current regulations the transfer system redistributes very little revenues between clubs. Notably, the inequality indexes and the graphical breakdown of pre- and post-transfer revenues show only small movements towards a more egalitarian post-transfers distribution of revenue. Further analysis on what clubs have left to spend after player costs indicate that, again, the large market clubs have more to spend after these expenses. Therefore, we argue that the redistributive effect of the transfer system is clearly not strong enough to fill the gap between small and large market clubs.

This study and its companion dataset offer several hints for future research. For example, when clubs’ financial accounts become available for additional years, follow-up studies could focus on the consequences of the Covid-19 crisis, in order to investigate whether exogenous shocks have symmetric effects on the revenue distribution. Based on our results, we can speculate that it might primarily affect small market clubs as they would suffer both from a reduction in gate revenues due to closed-door games and possible future drops in attendance and from a reduction in the cash inflow due to a drop in transfer fees. On the

other hand, public health concerns about big gatherings might push the demand for televised games and thus favor larger TV markets. This would further widen the gap between small and big leagues.

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Tables and figures

Table 1: Descriptive statistics and variable definitions

Variable	Obs.	Mean	Std. Dev.	Definition
<i>Transfer book value</i>	920	38,103,237	71,495,347	Book value player registrations at end season t.
<i>Transfer income</i>	816	15,033,385	25,445,440	Cash revenue from player sales – book value of players sold in season t.
<i>Transfer costs</i>	848	16,716,676	26,603,113	Amortizations player registrations in season t.
<i>Net transfer earnings (loss)</i>	818	-1,621,154	22,542,156	Transfer income – transfer costs in season t.
<i>Pre-transfer revenue</i>	827	82,265,369	119,639,132	Revenues excl. net transfer earnings in season t.
<i>Post-transfer revenue</i>	855	83,009,842	113,885,187	Revenues incl. net transfer Earnings in season t.
<i>Wage bill</i>	924	48,466,115	67,629,906	Total personnel costs in season t.
<i>Tangible fixed assets</i>	926	38,680,419	90,113,974	Book value of tangible assets at end season t.
<i>Rank</i>	1003	14.393	10.224	Rank at end season t, where 1 = champion, 2 = runner-up etc.
<i>Promoted</i>	1008	0.113	0.316	Dummy =1 if club promoted in t-1, 0 otherwise.
<i>Relegated</i>	1008	0.093	0.292	Dummy =1 if club relegated in t-1. 0 otherwise.

Notes: This table presents summary statistics and variable definitions for the full sample. An observation in this table refers to a club-season. All financial variables are expressed in Euros. We converted other currencies using the exchange rate on 30th of June of the respective season, as this is the most common filing date. If clubs file accounts on another date than 30th of June, we divide their data across seasons in proportion to the number of months covered from each season.

Table 2: Coverage of selected variables per association and source of financial information

Association	Clubs	Obs.	Net transfer earnings	Pre-transfer revenue	Post-transfer revenue	Wages	Source
<i>England</i>	28	140	100%	100%	100%	100%	Companies house
<i>France</i>	30	150	96%	96%	96%	96%	Direction Nationale Contrôle de Gestion
<i>Germany</i>	23	115	43%	43%	65%	65%	Bundesanzeiger
<i>Italy</i>	29	145	96%	97%	98%	99%	Chamber of Commerce: visura.it
<i>Netherlands</i>	24	120	93%	94%	89%	97%	Kamer van Koophandel
<i>Portugal</i>	25	125	36%	39%	93%	94%	Portal de Empresa
<i>Scotland</i>	15	75	72%	72%	72%	69%	Companies House
<i>Spain</i>	28	140	96%	98%	96%	98%	Chamber of Commerce: infocif.es
Overall	202	1010	81%	82%	90%	91%	

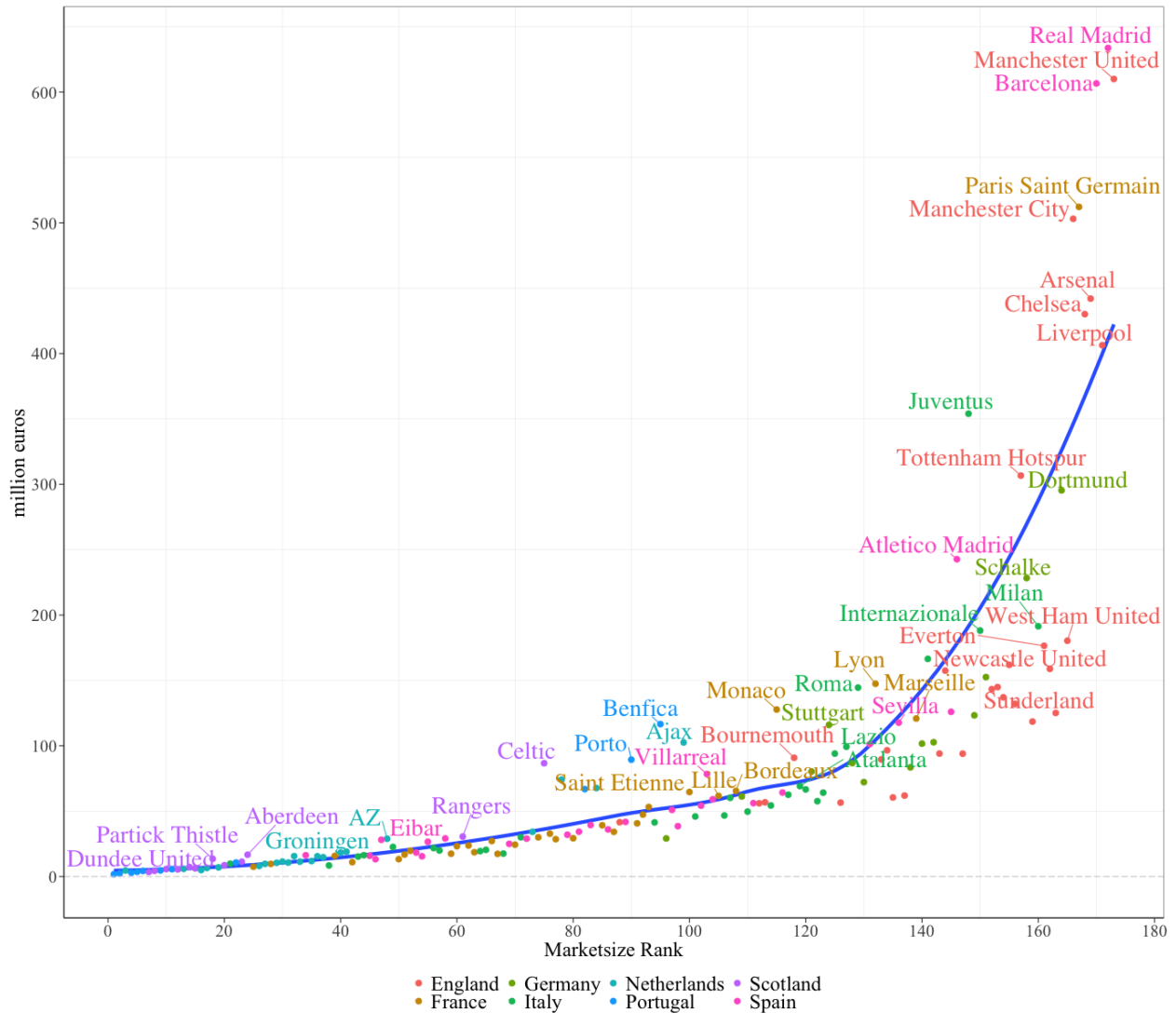
Notes: This table gives an overview of the coverage and source for the key financial variables in our analyses. An observation in this table refers to a club-season.

Table 3: Gini coefficients for pre- and post-transfer revenues by national association

Association	Gini pre-transfer	Gini post-transfer	Δ Gini	Clubs included
<i>England</i>	0.406	0.405	-0.002	28
<i>France</i>	0.553	0.517	-0.036	29
<i>Germany</i>	0.298	0.293	-0.005	13
<i>Italy</i>	0.487	0.449	-0.039	29
<i>Netherlands</i>	0.497	0.503	0.006	22
<i>Portugal</i>	0.665	0.658	-0.007	11
<i>Scotland</i>	0.536	0.531	-0.004	12
<i>Spain</i>	0.602	0.587	-0.015	28
<i>Champions League</i>	0.393	0.353	-0.040	30
Overall	0.596	0.570	-0.026	172

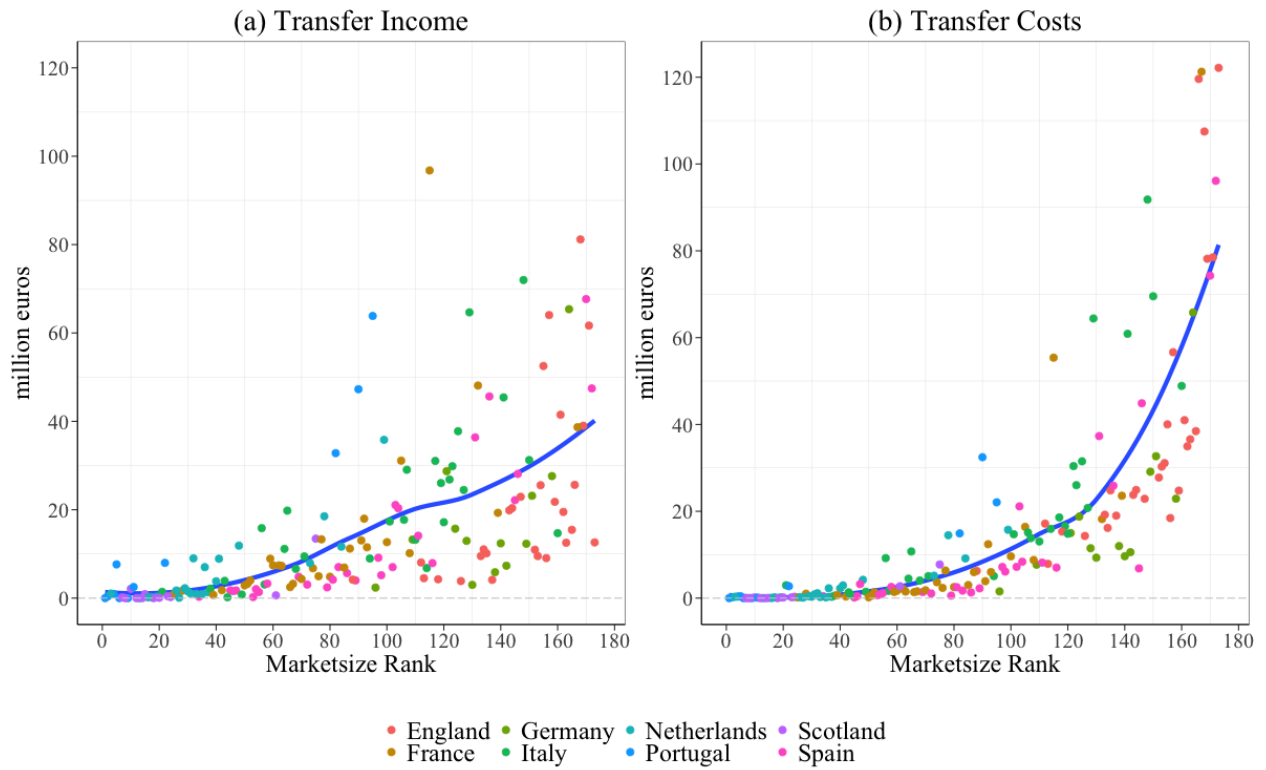
Notes: This table displays the Gini coefficient of *pre- and post-transfer revenues* (as defined in Table 1) for each national association in the dataset. We further include the Gini coefficients measured among clubs, which participated in the Champions League for at least two out of the five seasons in our data sample. In the final column we detail the number of individual clubs the Gini calculations are based on. All calculations refer to club averages over the seasons 2014 to 2018.

Figure 1: Average pre-transfer revenues as a function of ranking in estimated market size



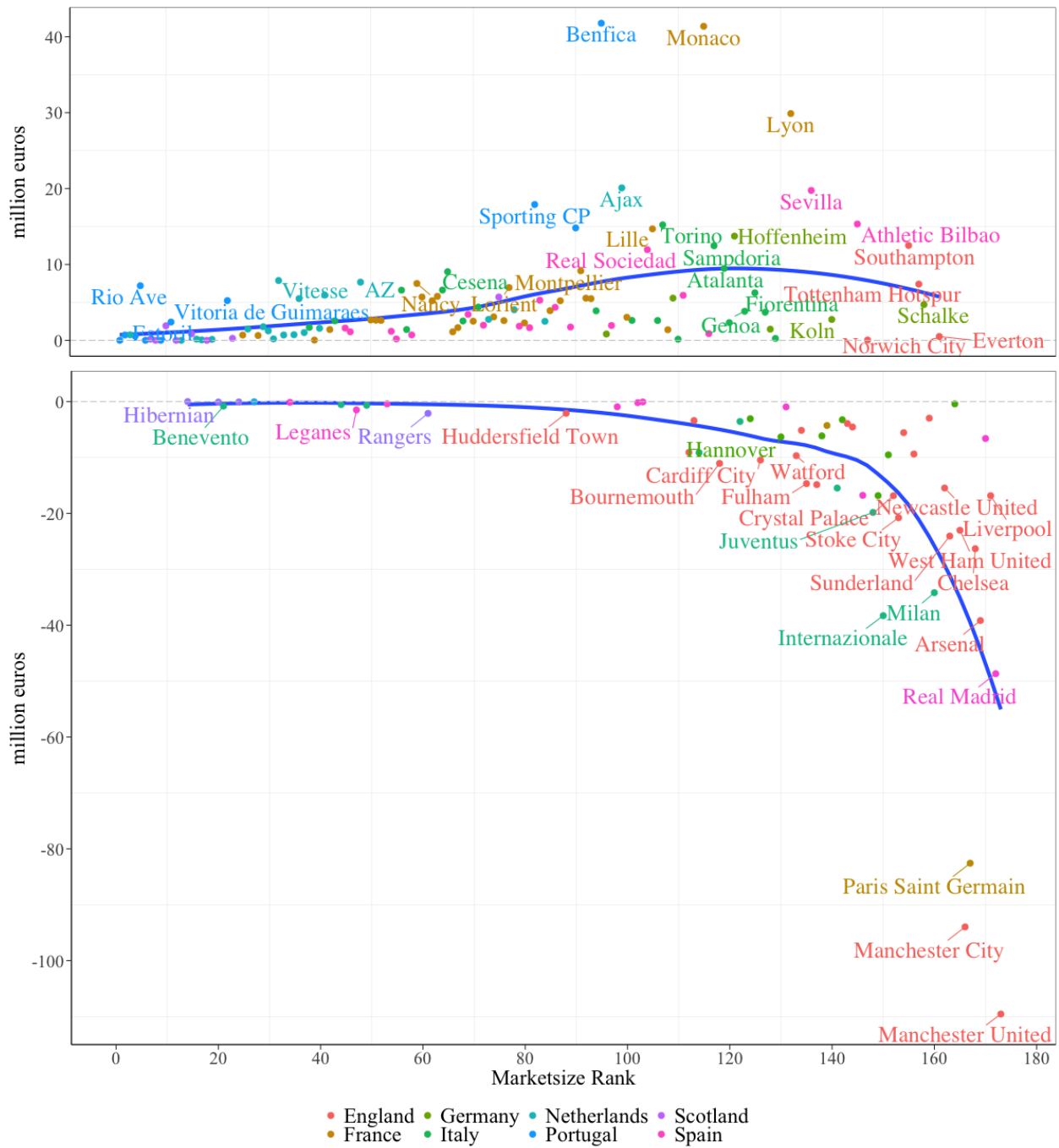
Notes: This figure plots the average pre-transfer revenues of a club as a function of its estimated market size rank. Colors refer to different national associations in which clubs are active. We add labels to some observations to aid the interpretation of the data. The smoothed line is created using the LOESS algorithm with smoothing parameter 0.75 and polynomial of degree 2.

Figure 2: Average transfer costs, transfer income and post-transfer revenues by market size rank.



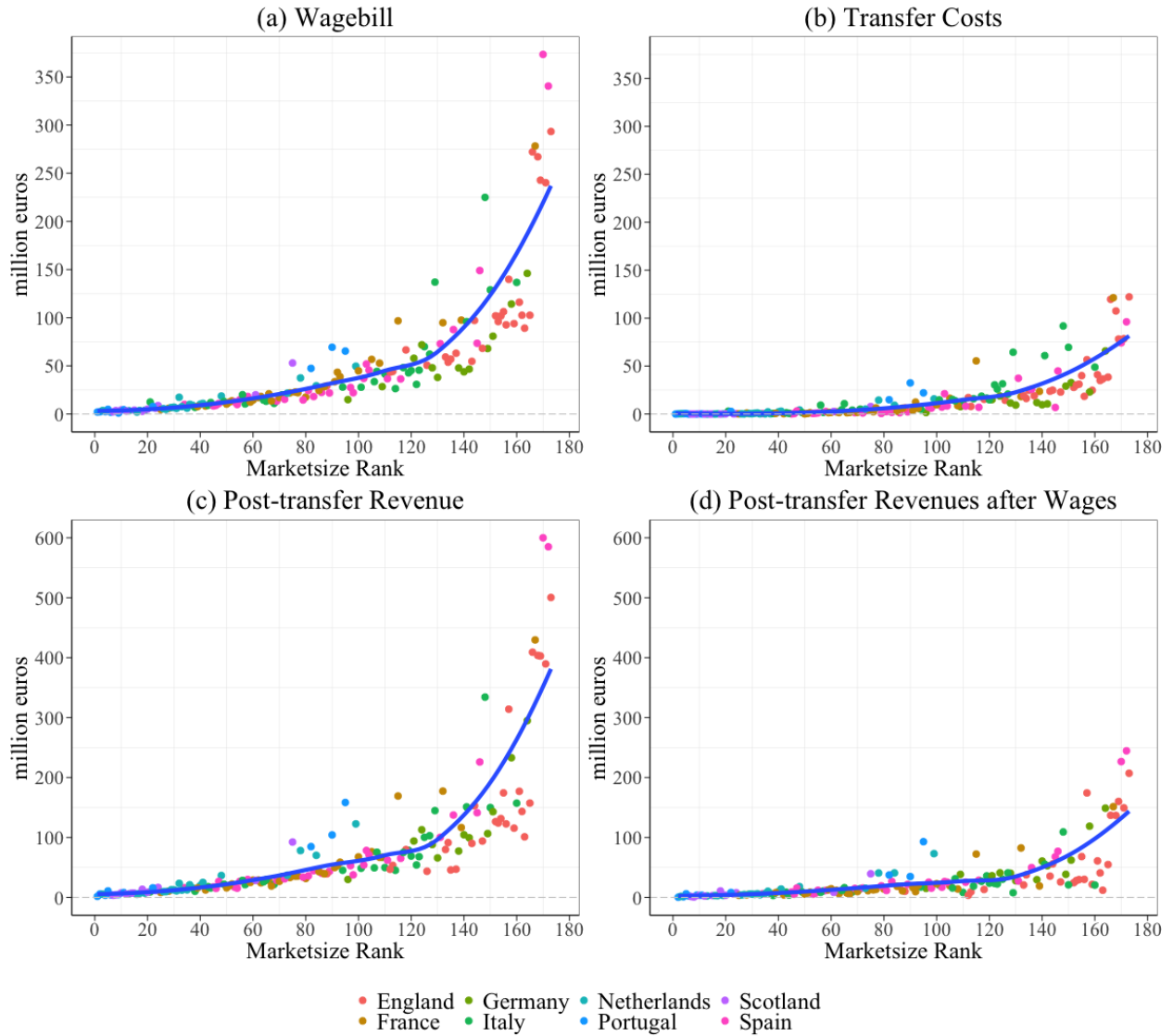
Notes: In panel (a) we plot the average *transfer income* for each club as a function of its market size rank. In panel (b) we plot the average *transfer costs* for each club as a function of its market size rank. Both variables are defined in Table 1. All numbers refer to the seasons 2014 through 2018. If clubs have missing years, we include their average over the available years. Colors denote the national association the club plays in. The smoothed line is created using the LOESS algorithm with smoothing parameter 0.75 and polynomial of degree 2.

Figure 3: Net transfer earnings versus losses by market size rank



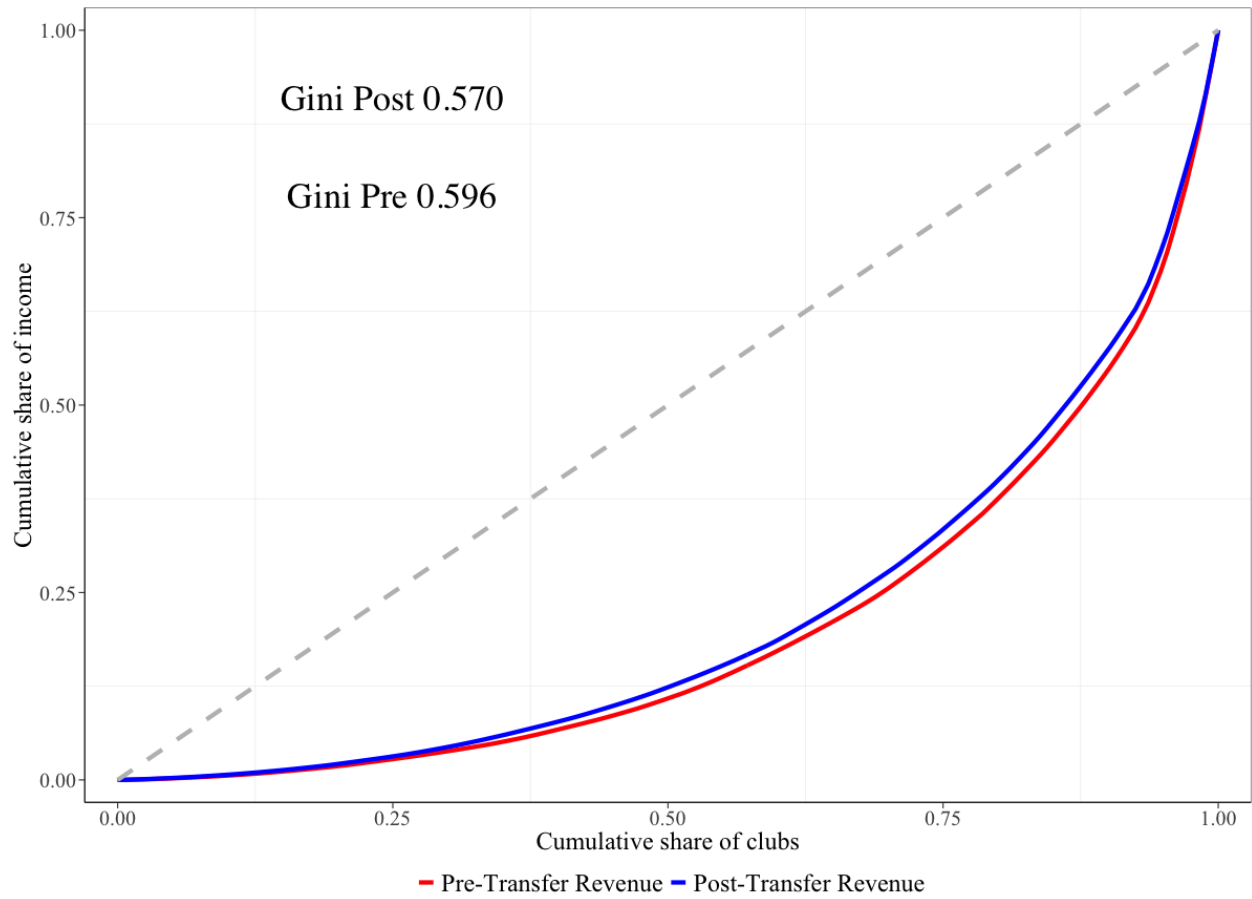
Notes: This figure plots the average *net transfer earnings or losses* for each club as a function of its market size rank. A variable definition is available in Table 1. All numbers refer to the seasons 2014 through 2018. If clubs have missing years, we include their average over the available years. Colors denote the national association the club plays in. We add a separate trend line for clubs with positive or zero net transfer earnings and net transfer losses. Both trend lines are created using the LOESS algorithm with smoothing parameter 0.75 and polynomial of degree 2.

Figure 4: Player expenses and operating margin after player expenses by market size rank



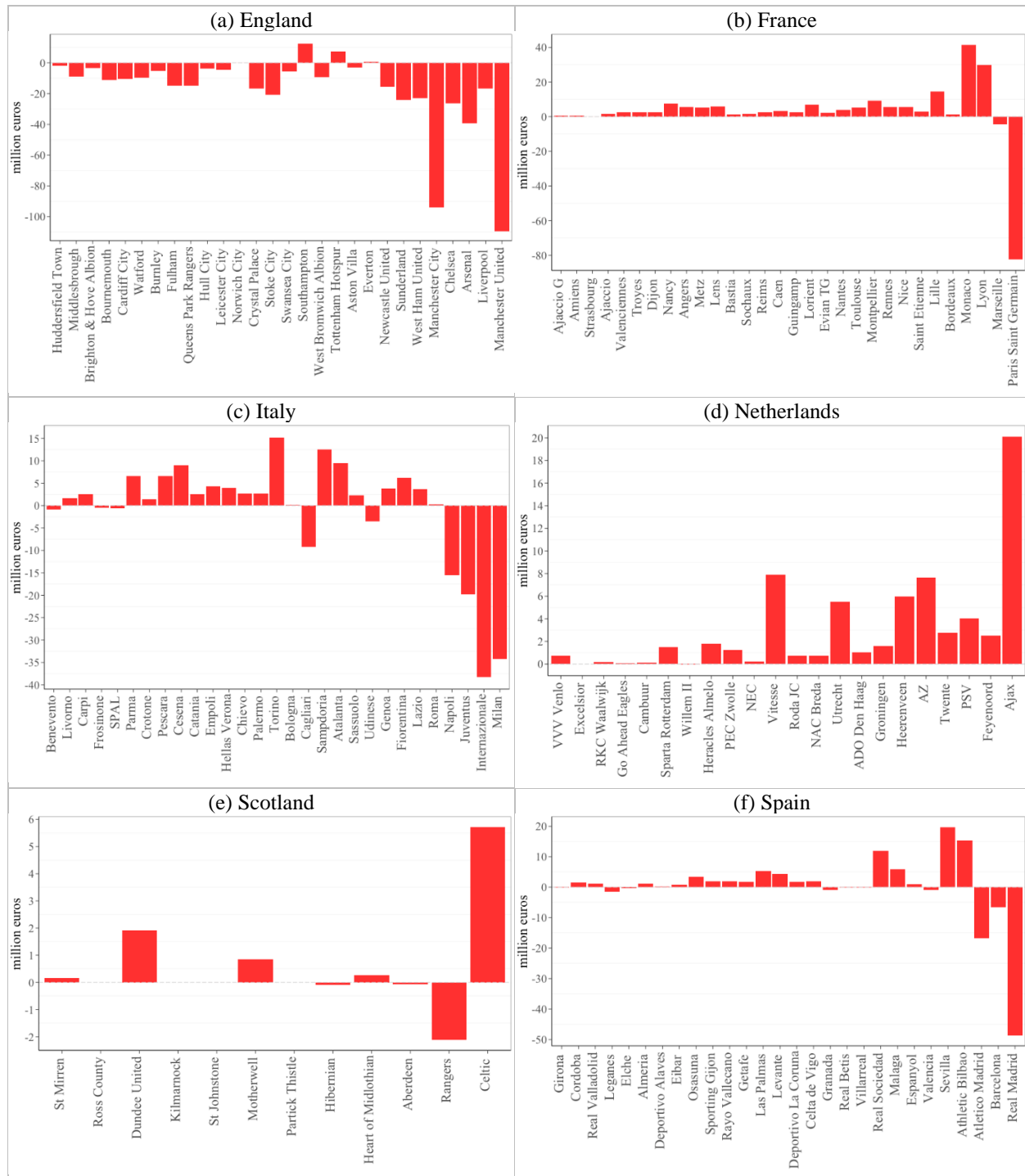
Notes: Panel (a)-(c) show the average *wage bill*, *transfer costs* and *post-transfer revenues* for each club as a function of its market size rank. These variables are defined as in Table 1. In panel (d) we plot average post-transfer revenues minus the average wage bill as a function of market size rank. All numbers refer to the seasons 2014 through 2018. If clubs have missing years, we include their average over the available years. Colors denote the national association the club plays in. The smoothed line is created using the LOESS algorithm with smoothing parameter 0.75 and polynomial of degree 2.

Figure 5: Lorenz curves of pre- and post-transfer revenues for full sample



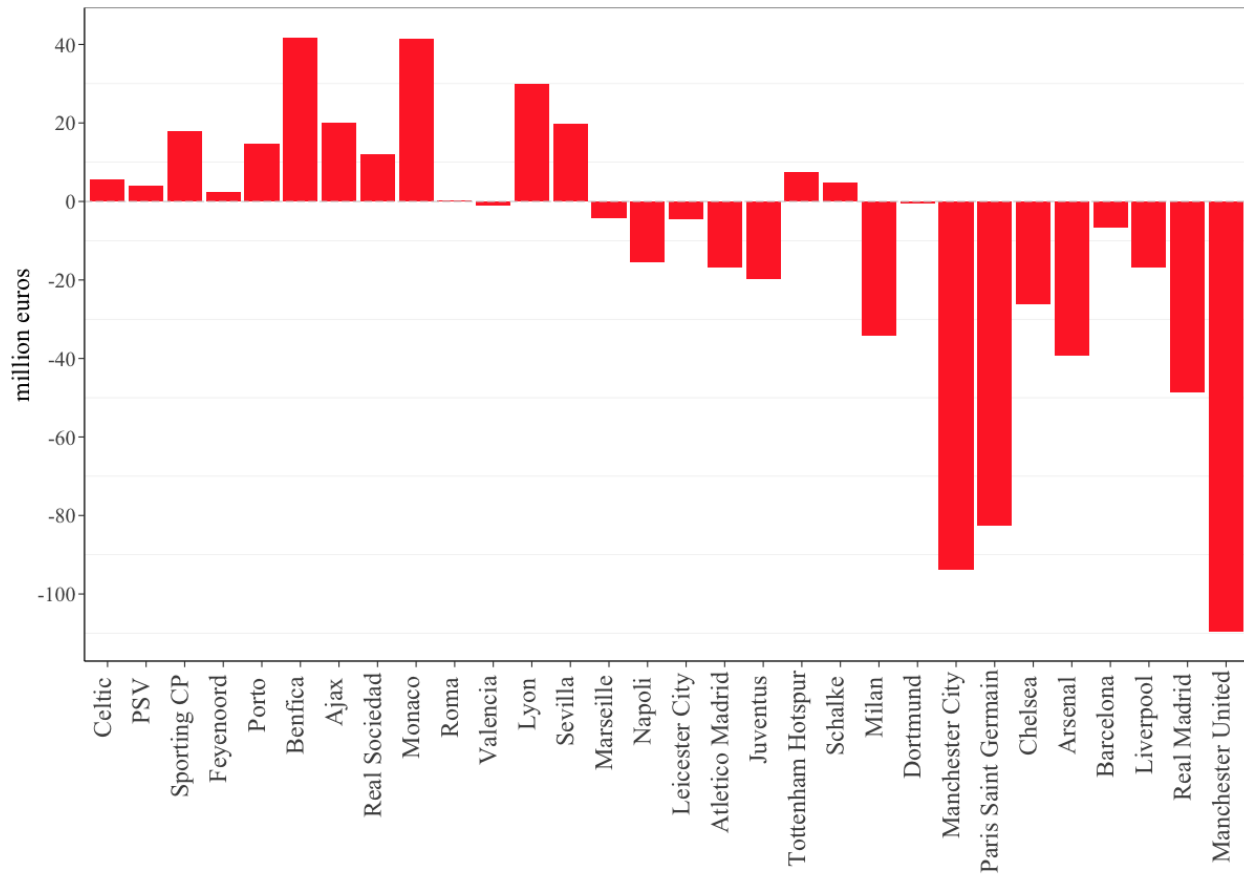
Notes: This figure shows the Lorenz curve for *pre-* and *post-transfer revenues* as defined in Table 1. We display results for the average over the seasons 2014-2018 for all clubs in our data sample. In addition, we display the corresponding Gini coefficients for the distribution of both variables.

Figure 6: Clubs' net transfer earnings or losses by market size rank per national association



Notes: This figure shows distribution of *net transfer earnings or losses*, as defined in Table 1, within each national association. Clubs are ranked according to their estimated market size rank. Variables represent averages over the seasons 2014-2018. Germany and Portugal have been left out, as there are too many missing observations to paint an accurate picture.

Figure 7: Net transfer earnings and losses by market size rank for Champions League participants



Notes: This figure shows distribution of *net transfer earnings or losses*, as defined in Table 1, for all clubs which participated in the UEFA Champions League for at least two out of the five seasons in our sample period. Clubs are ranked according to their estimated market size rank. Variables represent averages over the seasons 2014-2018.

Online appendix: Market size regression results

Table 4: Regression results market size model

Dependent variable:	<i>Log pre-transfer revenue</i>		
	(1)	(2)	(3)
<i>Standardized rank</i>	-0.832*** (0.020)	-0.704*** (0.021)	-0.331*** (0.027)
<i>Log tangible fixed assets</i>		0.127*** (0.010)	0.095*** (0.014)
<i>Relegation</i>	0.169** (0.079)	0.121* (0.072)	0.027 (0.052)
<i>Promotion</i>	0.024 (0.066)	0.083 (0.060)	0.330*** (0.045)
Year fixed effects	YES	YES	YES
Association fixed effects	YES	YES	NO
Club fixed effects	NO	NO	YES
R-squared	0.816	0.847	0.948
Observations	815	815	815

Notes: This table presents the estimated coefficients for the regression model in equation (1). We regress the logarithm of pre-transfer revenues on the standardized *rank*, logarithm of *tangible assets* and the *relegation* and *promotion* dummies. Standardized rank is calculated as the logarithm of $\left(\frac{rank}{\max(rank)+1-rank}\right)$. In columns (1) and (2) we include association fixed effects, which we replace by club fixed effects in column (3). Stars denote significance levels. ***: significant at 1% level, ** at 5% level and * at 10% level.