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Labour mobility effect on wages: the professional football players? case

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Abstract

In their seminal paper, Lazear and Rosen (1981) consider a setting characterized by tournaments. The high wage dispersion within football teams can be a sign that clubs set up an internal tournament among players as an incentive device (Rosen 1981). In the context of football teams, considering that the player?s output is a random variable whose distribution is controlled by the player himself, club managers may observe the team and player output but cannot ascertain the extent to which it is due to good fortune, to effort, or to both. Sport industry is a particular example in which the organization outcome depends strongly from human capital, in particular, from the players? skill. The football labor market offers a peculiar opportunity to study incentives and human capital accumulation. Clubs hiring star players usually also have a pay scale where top players earn disproportionally more than average players (Lucifora and Simmons 2003). In Portugal, some players earn more than 10 times the average salary of the team. Employers use wide pay scales to encourage workers to get better results, in the particular case of football, to win championships and international competitions. However, it can lead the club to high losses if the sport results do not generate sufficient income to meet the assumed responsibilities.

Given this context, this research work focuses on the effect that labour mobility between Portuguese clubs and leagues has on wages. We want to apprehend if this particular sort of individuals, professional football players, are willing to work (play) in companies with greater visibility (higher leagues) for less money and how much money or status within the hierarchy of the company (team) they are available to accept in order to work for largest employers. The inverse actions are also possible.

We obtain the information on players and clubs from Quadros de Pessoal (QP), a Portuguese longitudinal matched

employer-employee micro-data mandatory survey, annually collected by the Portuguese Ministry of Labor and Social Solidarity in the last quarter of each year. Covering the seasons from 2002-2003 to 2009-2010 we identify more than 7000 players, which gives an average of almost 900 professional and semi-professional players each year. It consider five types of movements: UP - player get transfer to a new club of a higher league; DOWN ? player get transfer to a new club of a lower league; SAME ? player get transfer to a new club of the same league; PROM ? player stays in a club that was just promoted; REL ? player stays in a club that was just relegated.

Results show that moving from an inferior league to a higher league (UP) renders an average wage increase of more than 45%. This kind of move also shows that players are agreeable to lose positions in team hierarchy in order to play in a higher league. On the other hand, move type DOWN shows an wage decrease around 45% and that there are a large percentage of players (35%) who accept to earn less money in order to have a higher rank in the team?s hierarchy. For those players who stays in the same league (SAME) it is expected a slightly wage increase (around 8%) and small variations in hierarchy rank. Regarding players who stay with club after promotion (PROM) or relegation (REL), results seem to show that there is not a premium or penalty in wage for being part of a winning or losing team. Concerning hierarchy level, a player o stays with the club after relegation is expected to rise in the ranking.

Lazear, E., & Rosen, S. (1981). Rank-order tournaments as optimum labor contracts. The Journal of Political Economy, 89(5), 841-864.
Lucifora, C., & Simmons, R. (2003). Superstar Effects in Sport: Evidence From Italian Soccer. Journal of Sports Economics, 4(1), 35-55.
Rosen, S. (1981). The economics of superstars. The American Economic Review, 71(5), 845?858.

Labour mobility effect on wages: the professional football players' case

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Labour mobility effect on wages: the professional football players' case

Abstract

We use detailed professional and semi-professional football players data to observe the individual wage and pay hierarchical rank changes when football players move from one club to another. The objective is to look over the players' career path, from lower leagues to Portuguese first league and the associated wage profile, before being eventually transferred to onother country. Pay is clearly structured in ranks and football clubs spend a considerable amount of resources, seeking an optimal pay ranking for inducing effort and further development of individual abilities in order to achieve maximum efficiency. When changing clubs, a player may move to a higher league, to a lower league or stay in the same league. We also observe players who did not change clubs, but the clubs changed league tier – promoted or relegated. The results suggest that players who move from a lower to a higher league are willing to lose hierarchical pay positions in order to have the opportunity to play in a higher league. Nevertheless, this does not mean that players lose money; they just lose salary rank positions within the team. On the other hand, a player who moves from a higher league to a lower league accept to play in a lower league earning less each month, but in exchange wins hierarchical importance within the team.

I. Introduction

Over the last 20 years sport organizations became large companies with high revenues regarding the growth of commercial and broadcasting revenues (Deloitte and Touche 2012). The top 20 European clubs revenue reached more than € 4.4 billion in 2010/2011 season and the tendency is to keep growing despite the economic problems felt in Europe. In 2010/2011 season, Portuguese club SL Benfica was the 21st club in Europe in revenue slightly passing € 100 million. Being one of the most popular sports in European countries, football clubs face the challenge to concretize the objectives defined in the Union of European Football Associations (UEFA) Financial Fair Play concept (UEFA 2009). Clubs managers will be required to guarantee clubs sustainability while at the same time balance the desire of supporters in winning trophies instead of reaching profit (Sloane 1971). The disregard of UEFA rules can lead to the exclusion from internationals competitions organized by UEFA, which are responsible to share € 1.34 billion in 2012/13 season, especially in UEFA Champions league which has a significant impact on clubs revenue (Pawlowski et al. 2010).

The beginning of sports academic study goes back to the 50s with Rottenberg's (1956) research on baseball players' labor market. Less than ten years later Neale (1964) showed that the particular industry of sports boosts profitability with higher competitive balance. This result was the reverse of other industries were highest competition minimize profits. Some decades after, Rosen (1981) returned to the professional sport labor market with a study on the inequality of earnings distribution among players. Almost 30 years after Rosen, Zimbalist (2010) showed that, contrary to what may be expected, leagues without salary cap distribute less revenue than leagues with salary cap. Unlike most of North American professional leagues in Europe there is no salary cap.

One way to set workers salary is by tournaments. Lazear and Rosen (1981) show that companies cannot base salary just on workers effort choices. The company must establish a tournament between workers and determines prizes to winners and losers, independently of the difference between outputs. This prize spread, or pay scales, works as an effort incentive, because the winner is the worker who achieves the highest output, even if it is not possible to know if the output has been reached due to luck, to effort, or both.

The tournament theory has been studied in several industries considering firms' top levels (Eriksson 1999) and in sports (Kahn 2000). There are a few sports example like golf tournaments (Ehrenberg and Bognanno 1990), Italian football superstars (Lucifora and Simmons 2003) and also tennis (Sunde 2009).

Since last decade football literature grew as football began to move large sums of money and the several examples of historical clubs that faced bankruptcy after years of losses, some were rescued by multi-millionaire investors and others simply felt into forgetfulness in lower leagues. We can find examples of football studies relating to economic situation and revenue (Kesenne 2007), players' wages (Kuethe and Motamed 2010), club performances (Haugen and Hervik 2002), clubs efficiency (Ribeiro and Lima 2011), players' labor market (Frick 2007) and the revenue impact of clubs promotions and relegations (Noll 2002).

Sport industry is a particular example in which the organization outcome depends strongly from human capital, in particular, from the players' skill. The football labor market is a peculiar opportunity to study the topic of incentives and human capital accumulation. In theory, this is the case where wages are largely determined by the workers' performance, which can be observable to the employer (Kahn 2000), in our case the players' performance.

This study proposes to use data from Quadros de Pessoal (QP), a longitudinal matched employer-employee data set with information on Portuguese workers and firms, collected yearly by the Ministry of Social Security. The QP information is matched with club

statistics collected between 2002/2003 and the 2009/10 seasons. During this period, we identify almost 7000 players, an average of more than 800 players each year. The objective is to look over the players' career path, from lower leagues to Portuguese first league and the associated wage profile, before being eventually transferred to other country. Pay is clearly structured in ranks and football clubs spend a considerable amount of resources, therefore they should seek an optimal pay ranking for inducing effort and further development of individual abilities in order to achieve maximum efficiency.

After describing the national competition setting, the statistical information contained in the datasets, and the econometric model, we estimate the relationships taking into account the wage change occurring for each type of transition and use comparable control groups (as in a difference-in-differences setting). We consider five types of movements: when a player moves to a new club of a higher league; when a player moves to a new club of a lower league; when the player moves to a new club in the same league; and when a player stays in the same club that was promoted or relegated.

After the introduction and theoretical background the paper continues as follows. Section II describes the Portuguese football organization. Section III presents the data used in this research. In section IV we show the models tested and the results obtained. In Section V we conclude our work.

II.   Portuguese Football Leagues

The Portuguese football league system has a hierarchical format with national and regional leagues. All leagues are open and clubs compete for the best possible rank in order to get promotion to a higher league and avoid relegation to the league below. The number of

promotion and relegation clubs can vary from league to league. This system allows that in theory every club can rise from local leagues to First League, the Portuguese top league.

National leagues are divided in four tiers and the regional leagues have typically three tiers, this value may vary depending on the number of teams in each region. We focus on the first four levels – the national leagues. The first two are professional leagues and the remaining two are semi-professional. In the years considered in this research the Portuguese First and Second leagues had 18 teams, of which the last three were relegated, until 2005-2006 season. Since 2006-2007 the two top leagues have 16 teams and the last two are relegated to the lower league. In order to reduce the number of teams in the first and second leagues in 2006, four were relegated clubs in the end of 2005-2006 first league season and only two were promoted from the second league. In the second league there were five relegations and only one promotion from the third league. The two semi-professional leagues are divided in several divisions, some of them regarding clubs regional location, and in the end of the season it is necessary to perform some promotion/relegation playoffs in order to know which clubs are promoted and relegated. During this period, several events disrupted the normal functioning of the promoted relegated scheme. Some clubs were relegated for financial reasons (Farense, Salgueiros, Felgueiras, Estrela da Amadora), other gave up professional football (Alverca), administrative irregularities (Gil Vicente) and there were clubs that were relegated due to bribery of referees (Boavista) and for corruption convictions (Vizela). Table 1 summarizes the number of clubs, divisions, promoted and relegated clubs during the seasons covered by our study.

Table 1 – Professional and Semi-Professional leagues summary: number of clubs, relegations promotions, and divisions.

	First League		Second League			Third League				Fourth League			
Season	Clubs	Rel.	Clubs	Prom.	Rel.	Divisions	Clubs	Prom.	Rel.	Divisions	Clubs	Prom.	Rel.
2002-03	18	3	18	3	3	3	59	3	12	7	117	13	22
2003-04	18	3	18	3	3	3	59	3	11	7	118	13	27
2004-05	18	3	18	3	3	3	59	3	11	7	118	13	27
2005-06	18	4	18	2	5	4	58	1	13	7	115	13	23
2006-07	16	2	16	2	2	4	56	2	12	7	104	13	30
2007-08	16	2	16	2	2	4	55	2	15	7	94	13	28
2008-09	16	2	16	2	2	4	47	2	15	7	92	13	28
2009-10	16	2	16	2	2	3	47	2	13	8	94	13	25

Over the last 20 years, Portuguese clubs have been a source of high quality players to most important European leagues.[1] In the last years there were also a new trend, international players, mostly South American, who came to Portugal play two or three years and get transfer for European countries.[2] To sum up to the quality that Portuguese players and players from Portuguese clubs it is also necessary to note that Portuguese clubs play an important role in the players and coaches transfer market. Portugal is nowadays an important source of

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[1] In the 1990s, for example, players like Fernando Couto, Luís Figo, Paulo Sousa, Rui Barros, Vítor Baía, Sérgio Conceição and Carlos Secretário were transferred from Portuguese teams, which have won domestic and international titles with European clubs. In the new millennium there are more examples of Portuguese players who won domestic and international titles with foreign clubs (Nani, Cristiano Ronaldo, Rui Costa, Paulo Ferreira, José Bosingwa, Deco, Tiago, Simão Sabrosa and Raul Meireles).

[2] Once again there are several examples of international players that transfer from Portuguese clubs that won domestic and international titles with clubs all over the Europe, as: David Luíz, Anderson, Radamel Falcão and Ramires.

players and coaches not just to the most important leagues in Europe but also to the Middle East, South Asia and Western European countries. Among the ten best placed countries in the UEFA Country ranking over the years covered by the research only Portugal, France and Netherlands have a positive trade balance with regard to player transfers in the overwhelming majority of the years covered. Czech Republic and Belgium first leagues also have a positive trade balance but unlike Portugal they do not appear consistently in the top 10 of UEFA country ranking. First leagues from countries like Spain, England, Germany, Italy, Ukraine, Russia and Turkey have almost yearly negative balances. This facts show that Portuguese players and Portuguese clubs play a relevant role in the formation and sale of high-quality players for the major European leagues and clubs.

III.   Data

Data on players and clubs came from Quadros de Pessoal, a longitudinal matched employer-employee micro-data, an annual mandatory survey collected by the Portuguese Ministry of Labor and Social Solidarity in the last quarter of each year. The survey covers all private firms with at least one worker. We are able to identify football players among an average of more than 3 million workers each year. After the identification of football players it is necessary to identify the correct league in which players started the season (before the winter transfer market). Covering the seasons from 2002-2003 to 2009-2010 we identify 6785 players, an average of almost 850 professional and semi-professional players each year. Table 2 shows players' statistics. Players are on average 25.0 years old. There are players who become professionals at the age of 16, and some only retire when they have more than 40 years old. The majority of players (75%) do not stay more than two years in each club. As expected the majority of players are from professional leagues. Clubs that compete in these leagues have more players and all players are professional.

Table 2 - Descriptive statistics.

Variable	Mean	Std. Dev.
Wage (Euro)	5530.198	13610.830
Age (years)	25.077	4.635
Tenure (years)	1.236	4.463
League	1.896	0.946
Wage Quartile	2.539	1.117
Age < 18	0.011	0.102
18<= age <=21	0.253	0.435
22<= age <=24	0.220	0.414
25<= age <=27	0.221	0.415
28<= age <=29	0.114	0.318
30<= age <=32	0.116	0.321
age >=33	0.065	0.247
Quartile 1	0.235	0.424
Quartile 2	0.254	0.435
Quartile 3	0.247	0.431
Quartile 4	0.264	0.441
First League	0.443	0.497
Second League	0.279	0.448
Third League	0.219	0.413
Fourth League	0.062	0.240
Tenure = 0	0.544	0.498
Tenure = 1	0.202	0.401
Tenure > 2	0.254	0.435
Number of players		6785

Clubs from semi-professional leagues have fewer players and not all have contracts with the club. We have more than 3000 players from First League and just over 400 from tier 4. Table 3 resumes players and leagues for each year. There are almost 90 clubs in our sample, some of them with only few players. It was necessary to cross information on clubs and players in order to guarantee that players were associated to the right league. When there were doubts about the correct league players were drop from the sample.

Table 3 – Number of players for each league and year

Year	league				Total
	1	2	3	4	
2002	234	152	147	59	592
2003	246	245	254	67	812
2004	321	175	175	36	698
2005	380	282	195	63	920
2006	420	266	210	55	951
2007	429	286	231	41	1,029
2008	491	233	159	47	930
2009	497	253	95	50	895
Total	3,009	1,892	1,466	418	6785

More than 50% of players were new hires and less than 5% of players stayed more than three years in the same club. Considering these specific characteristics of the market, low tenure and age, we could follow 1345 moves from nearly 900 players in the years covered. Table 4 shows the number of moves considered in the research. We must assume that players who earn more, are those more productive and important to clubs, those who play more and have more influence in teams' result.

As moves we considered five types of changes: UP - player get transfer to a new club of a higher league; DOWN – player get transfer to a new club of a lower league; SAME – player get transfer to a new club of the same league; PROM – player stays in a club that was just promoted; REL – player stays in a club that was just relegated. Table 4 summarizes the number of changes that were identified in our sample.

Table 4 – Players changes between 2002-03 and 2009-10

Number of changes	Observations	Type of change	Observations	Description of change
1	598	UP	265	player get transfer to a new club of a higher league
2	227	DOWN	310	player get transfer to a new club of a lower league
3	80	SAME	463	player get transfer to a new club of the same league
4	26	PROM	215	player stays in a club that was just promoted
5 or more	3	REL	159	player stays in a club that was just relegated
Total	934	Total	1412	

IV. Models and Results

We identify players that repeatedly appeared in the database so that we could follow its path along the seasons covered. All clubs were identified and the professional category of each player verified in order to reduce errors. Nevertheless, it is not possible to identify all players and therefore may happen that some players belong to a certain club with whom they have contract, in some cases pays them a monthly wage, but are loaned to other clubs, in the same or different leagues. We order players by salary for each club and year and set wherein quartile they are. In first quartile are those who have lowest wages and on the other side, in the fourth quartile, are those players who are more among their peers.

We started to study the move UP. It was considered an UP when a player gets transferred to a new club of a higher league. It is possible to identify 236 moves from a lower league to a higher league, considering that the player changed club. Almost 50% of players leaving a club in a lower league to a higher league where, before transfer, in the top paid players of the club. After transfer the majority of players are in the bottom half of club pay list, more than 53%. It is possible to see in figure 1 that the number of players who are in the second and third quartile is almost exactly the same.
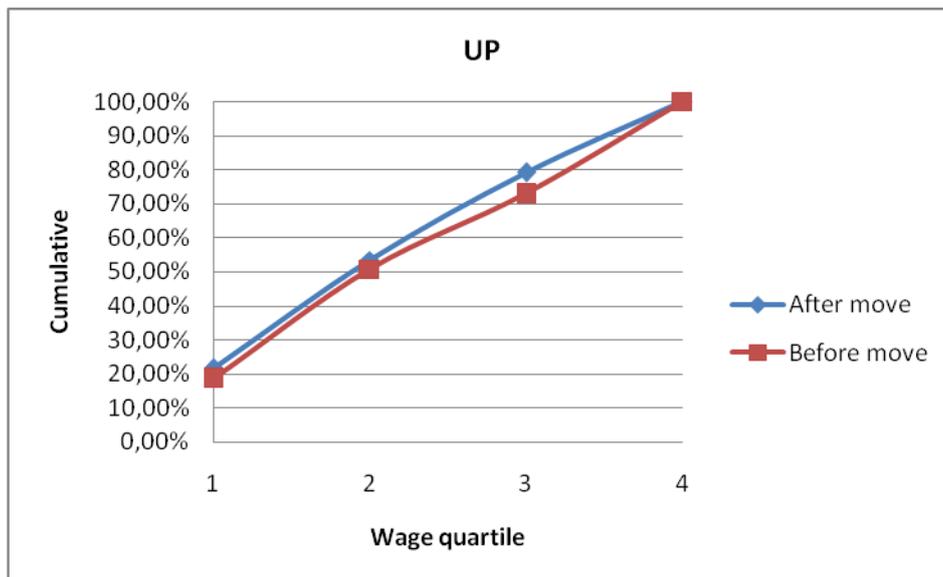
Figure 1 – Before and after cumulative wage quartile in UP change.

The major difference is the number of players who were in fourth quartile and after transfer the number of players who were in the first quartile. We can observe a shift from the fourth quartile to the first quartile. Until now, we were only interested in knowing the cumulative salary quartile change of players who move UP without looking for the value of salary. It is also possible to see that 176 of the 236 that moved UP changed quartile. In total, the 236 players that moved UP summed 145 quartiles decreases and 117 increases. The overall number of quartile changes is -28. Nevertheless, the average salary increased almost 800€ each month, what represents more than 44% of wage increase. From 236 players, less than 90 saw their wages fall after the transfer and around 150 increased their wages.

Concerning salary changes with respect to quartiles variation it is evident that, on average, players who accept to be transferred to a higher league club may well have different expectations of salary change. A player who rises in club order pay rank, in other words a player who moves to a top quartile, can expect a doubling and in some cases the triple of salary. A player who moves to an immediately lower quartile can also expect a wage increase. On the other hand, when players lose more than two quartile levels the cut in wage

can exceed 35%. Players who get transfer to a higher league however stays in the same quartile can expect a wage increase of more than 27%.

After UP we studied REL. This change is considered when players move from a top league to a lower league, throughout a club change. In our data there are 306 REL moves. Almost 55% of players came from lower quartiles and after transfer almost 60% of them take up the two top quartiles. Less than 16% of those players go to first quartile, when before move they were more than 24%. On top paid players quartile it is possible to see that the number of players in the last quartile almost doubled, rose from 58 to 104. The total sum of quartile gains and losses is 114; this is an evident corroboration that in REL there is a transfer of players from lower wage quartiles to higher quartiles.
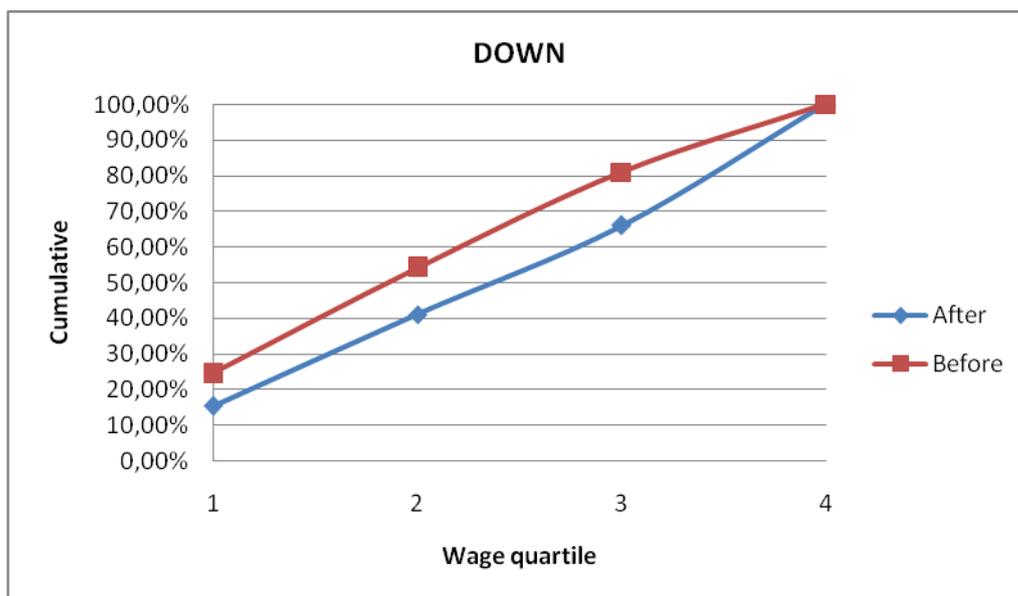

Figure 2 – Before and after cumulative wage quartile in DOWN change.

Unlike UP, in REL players on average lose 47% of salary which represents more than 1450€ each month. This loss is supported by players who accept to play in a lower league and also accept to be in lower quartiles than they were. On average, players who lose positions in quartile rank, and even stay in the same, lose more than 2000€ each month. Players who grow two or more positions on quartile ranking, 70 players out of 306, can expect a wage increase.

Next we analyzed the move SAME. There are 449 players that change club in the same league. On average players increase salary 7% which represents more than 380€ each month. As regards to wage quartile changes, we do not observe major variations but the tendency is to rise in hierarchy ranking of salary. Players who stay in the same quartile or increase internal rank are expected to earn a wage increase. The increase can vary almost 400%, players who move from 1st quartile to 4th quartile, or about 52% if they climb just one quartile.
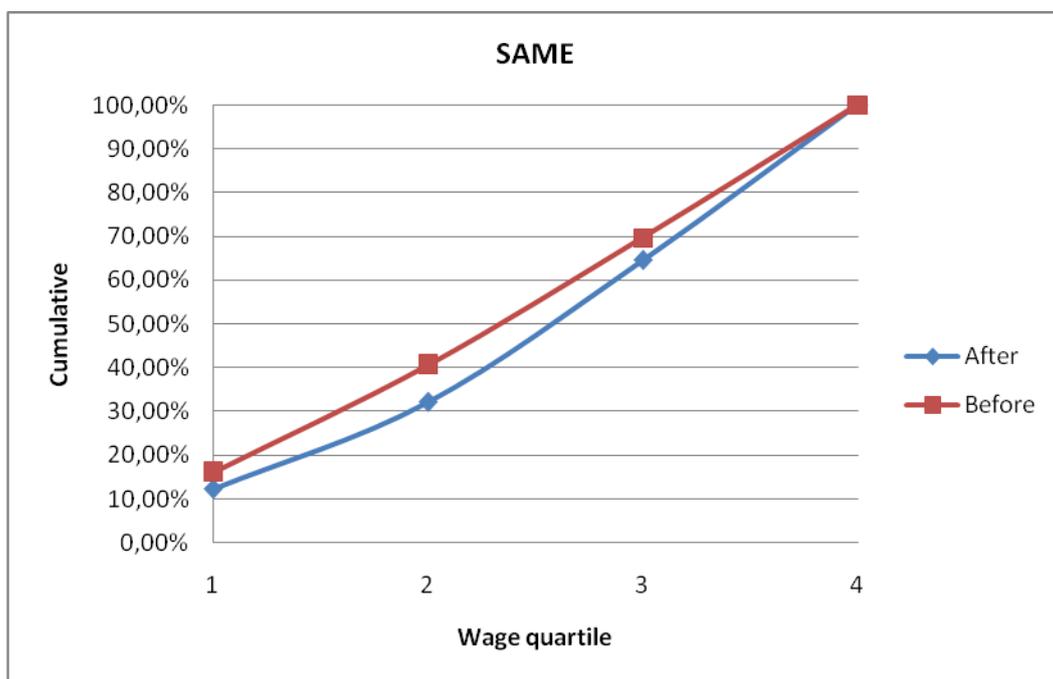

Figure 3 – Before and after cumulative wage quartile in SAME change.

Players who decrease in wage rank can expect a wage decrease higher than 50%. This suggests that players who perform better are willing to play in the same league for better salaries and hierarchical progress, on the other hand there are players who accept to earn less and lost importance within the club so they can remain playing in the same league.

The next changes are PROM and REL. In these two cases players stay from one season to another with a promoted or relegated club. On both cases, there is an average

decrease of salary around 8%. In PROM cases, it represents to an average decrease of 170€ and in REL near 230€ each month. There are 195 players who followed the promoted club and 159 the relegated club. Regarding the wage quartile changes, there are not significant changes in PROM, as shown in figure 4, just a few losses in quartiles. This can be due to the fact that promoted clubs hire new players to face competitiveness of higher leagues and to captivate those new players they have to tempt them with higher wages.
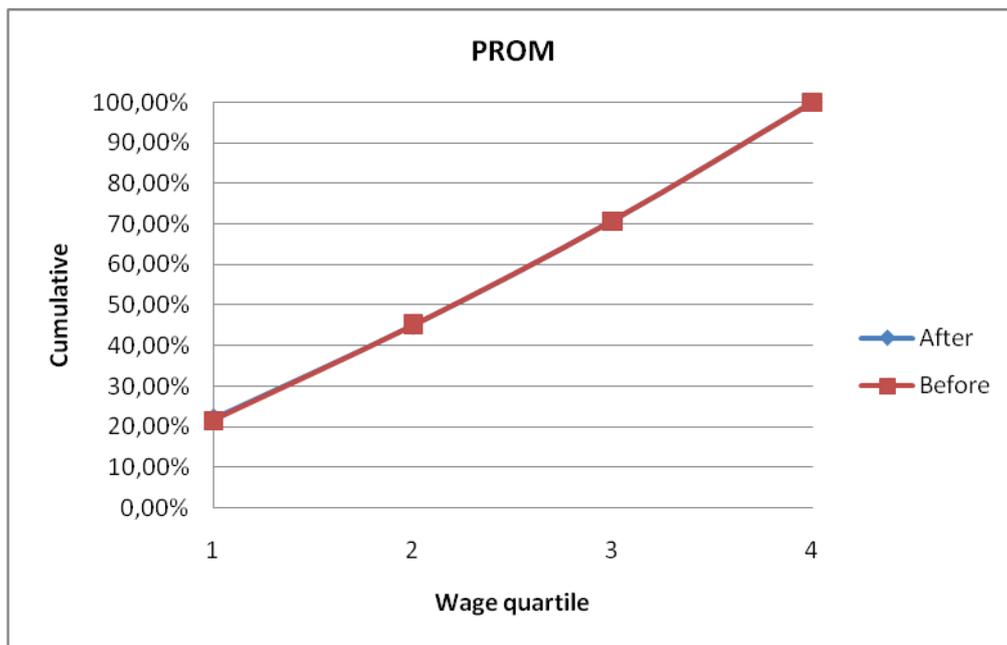

Figure 4 – Before and after cumulative wage quartile in PROM change.

The REL case is different, players can expect an increase in wage quartile since that players had contracts for more than one season and the club comply with the obligations set in the past. An additional cause to this wage quartile increase is that relegated clubs can count with less revenue and so they must consider this breaking in new hires, as we should expect less costly than in late season.
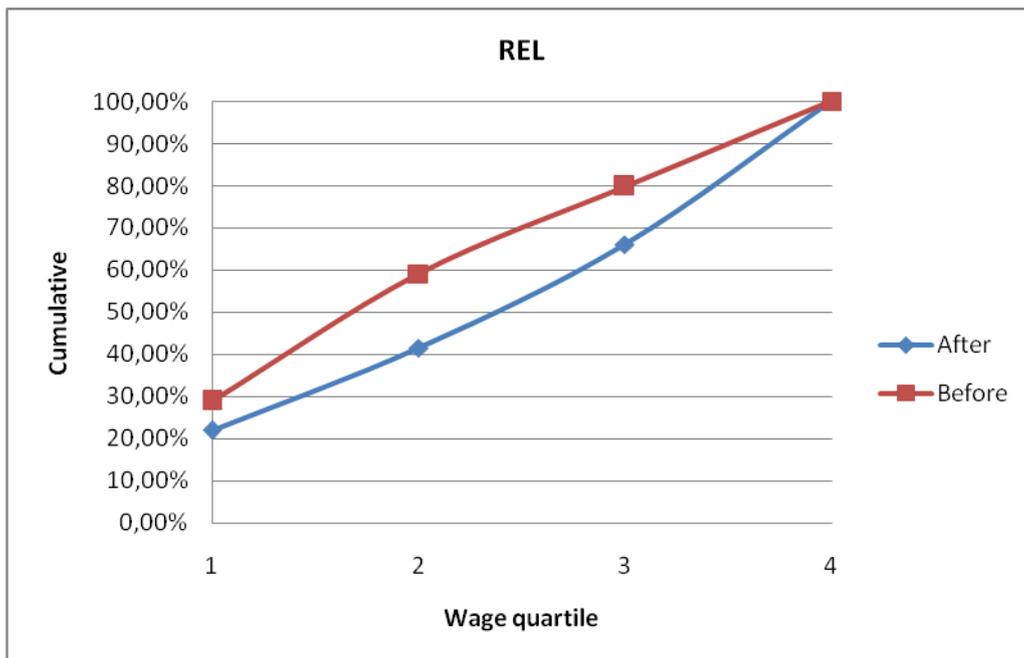
Figure 5 – Before and after cumulative wage quartile in REL change.

On the subject of wage variation related to wage quartile variation we saw that if a player stays in the same club after promotion (PROM) and do not lose wage quartile positions it is expected on average an wage increase, which can be more than 60% if the wage quartile variation is equal or higher than two levels. In contrast, if players lose wage quartile positions it is expected a wage decrease higher than 30%.

Comparable tendency can be found with REL changes. Players who climb in wage quartile ranking can expect a wage increase and players who fall in wage quartile ranking expect a wage decrease. The wage variations magnitudes are similar to PROM changes. The difference between PROM and REL is that players who stays with relegated clubs and do not change wage quartile can earn on average 10% less comparing to an 6% increase of those who stay with promoted clubs and maintain the same wage quartile rank. The summary of results is available in table 5.

Table 5 – Summary of quartile variations.

	UP	DOWN	SAME	PROM	REL	STAY
Sum of quartile changes	-55	142	59	-16	59	176
Salary increase	62.3%	35.9%	50.6%	52.3%	40.3%	57.3%
Salary decrease	37.7%	64.1%	49.4%	47.7%	59.7%	42.7%
Quartile Variation	Number of players	Number of players	Number of players	Number of players	Number of players	Number of players
-3	3.8%	1.6%	2.9%	2.1%	1.9%	2.0%
-2	11.9%	6.9%	7.8%	6.7%	2.5%	5.0%
-1	26.3%	18.0%	19.4%	21.5%	10.7%	14.1%
0	25.4%	30.1%	31.2%	43.6%	44.7%	49.7%
1	19.5%	20.6%	20.0%	14.4%	25.2%	21.9%
2	9.3%	15.4%	15.1%	9.2%	10.7%	5.5%
3	3.8%	7.5%	3.6%	2.6%	4.4%	1.8%

After the five possible changes, we studied players that stay (stay) in the same club and in the same league from one year to another. In 2175 observations of stay in only 906 players lose salary. It is possible to see that there are no significant variations in salary quartile rankings for players who remain in the same club. Figure 6 shows this trend. The sum of all players hierarchy gains and losses is 176, which indicates that players have tendency to benefit from being in the same club one year to another. Regarding salary change, players who climb in hierarchy ranking can expect salaries increases of more than 50%.
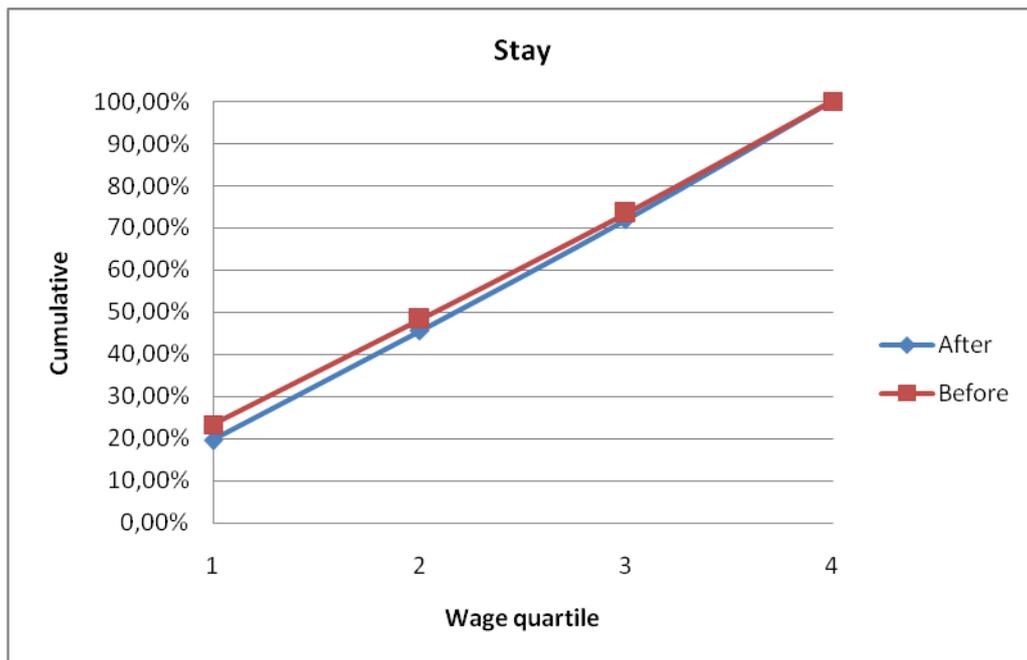
Figure 6 – Before and after cumulative wage quartile in Stay change.

In order to test the relationship between the players' position within the pay rank and the move to another club, we estimate a probit model for the change of club. The probability is defined as a function of player's wage quartile before the move, in addition to the club's league and player's age. The estimation results show that players in lower wage quartiles, namely at the second, hold a higher probability of club change as compared players in other wage quartiles (Table 6).

Table 6. Probability of change club considering the wage quartile – Probit (marginal effects)

Variable	
	.
2ndWage Quartile before change	0.190***
	(0.064)
3rd Wage Quartile before change	0.168***
	(0.065)
4th Wage Quartile before change	0.125*
	(0.065)
Number of observations	3654
Chi-squared	10.17

Standard errors between brackets. * p<0.10, ** p<0.05, *** p<0.01

We examine the initial position of the player within the pay scale at the moment of hiring to a new club by estimating the probability of entry into a particular wage quartile using an ordered probit model. Figure 7 show the probability of entry in top and inferior wage quartile for each league by player's age.
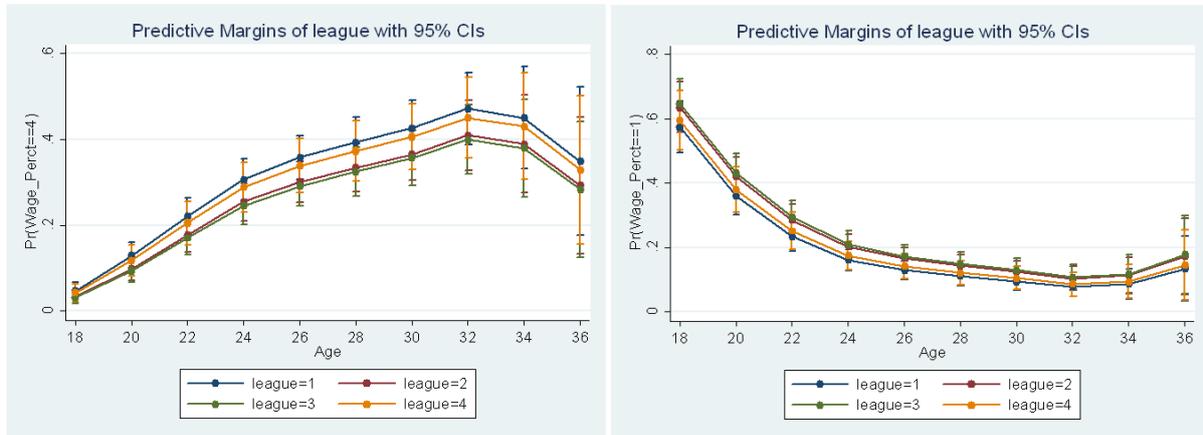

Figure 7 – Probability of entry in top and inferior wage quartile.

Results show that as players get older, and consequently more become experienced, the probability of being hired to the top of the pay scale – the top of the wage hierarchy – increases. The effect seems more pronounced in Portuguese first league. The wage-age shape indicates that experience while playing football has an effect on wage rank level. In contrast, more young players are almost intended to enter clubs in the bottom of wage rank.

It was also used an ordered probit model to test the probability achieving to the top wage ranks if players stay in the same club for several years. Figure 8 suggest that players have a propensity to achieve higher salaries, if they make the decision of stay in the club. In this case we are dealing with less risky players.
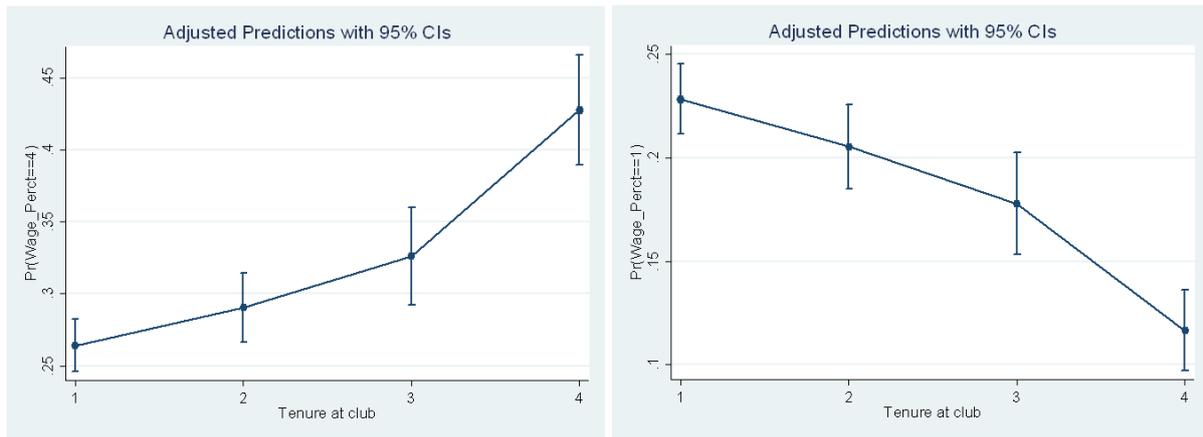
Figure 8 – Probability of higher/inferior salary rank by tenure.

The next step in our analysis is to model the wage variation associated with the five career events defined previously: up; down; same; rel and prom. We define a mincerian wage function with fixed effects for clubs and players. The model is estimated at the first difference for wages allowing for the characterization of the wage profile upon the players' movements between clubs and leagues (Table 7). The results show that lower leagues (after the player's move) hold a negative premium when compared with the first league. The change of club belonging to a higher league is associated with an average increase of 0.269 log points whereas a change to a club in a lower league is associated in an average decrease of 0.242 log points. The comparison group comprises those players who stay in the same club in two consecutive seasons and the club remains in the same league.

Table 7. Players' wages - first-difference estimation

Variable	Model 1	Model 2
2nd league	-0.170***	-0.152***
	(0.021)	(0.021)
3rd-league	-0.134***	-0.094***
	(0.019)	(0.019)
4th league	-0.092***	-0.051*
	(0.030)	(0.030)
up		0.269***
		(0.060)
down		-0.242***

		(0.051)
same		-0.012
		(0.045)
rel		0.031
		(0.031)
prom		-0.092
		(0.069)
Constant	0.121***	0.111***
	(0.012)	(0.011)
Number of observations	5052	5052
Adjusted-R2	0.02	0.04
F	29.3	14.8

Standard errors between brackets. * p<0.10, ** p<0.05, *** p<0.01

V.   Conclusions

Our study uses detailed data on professional football players' wages to determine in each quartile players are in each club for all years covered. We examine the changes between clubs of professional football players in Portugal for eight seasons. After defining five different possible changes, we can conclude that professional football players are willing to lose within team importance in exchange for playing in a higher league. Nevertheless, this hierarchy loss does not mean lower wages. The opposite is also true, players are accepting to lose money and visibility for playing in a lower league in exchange of more importance within the new team. We also saw that typically players who move from clubs of the same league expect to earn a wage increase and also a rise the internal rank when we talk about monthly salary. There are two more moves considered; players who stay in the same club after promotion cannot expect to receive a salary bonus or a rise in internal ranking. In contrast, players who stay in the same club after relegation in general rise in teams' pay hierarchy. However, this rise does not mean that players receive a salary bonus.

A common conclusion for all changes is that a player who climbs in teams' pay hierarchy can expect a salary increase, these means that these sorts of players have their effort

recognized in two different ways: monthly salary increase and team hierarchical importance grow.

We showed that players between 26-30 years old are transferred least than other aged players. We also showed that those same players are on average the players who occupy the higher hierarchy salary quartiles. Alternatively, more young players typically are hired to lower quartiles. These can indicate that professional football players reach career top in this age range.

Finally, an additional conclusion is that players who stay more years in the same club can expect an increase of probability of reaching top wage quartile levels.

Acknowledgments

References

Deloitte & Touche (2012). The untouchables, Football Money League. Available at http://www.deloitte.com/assets/Dcom-UnitedKingdom/Local%20Assets/Documents/Industries/Sports%20Business%20Group/uk-sbg-dfml-2012-final.pdf (accessed 13 December 2012).

Ehrenberg, R., & Bognanno, M. (1990). The Incentive Effects of Tournaments Revisited: Evidence from the European PGA Tour. Industrial and Labor Relations Review, 43(3), 74-88.

Eriksson, T. (1999). Executive compensation and tournament theory: empirical tests on Danish data. Journal of Labor Economics, 17, 262–80.

Frick, B. (2007). The Football Players' Labor Market: Empirical Evidence From the Major European Leagues. Scottish Journal of Political Economy, 54(3), 422-446.

Haugen, K.K., A. Hervik. (2002). Estimating the value of the Premier League or the world's most profitable investment project. Applied Economics Letters, 9**,** 117-120.

Kahn, L. M. (2000). The Sports Business as a Labor Market Laboratory. Journal of Economic Perspectives, 14(3), 75-94.

Kesenne, S. (2007). The peculiar international economics of professional football in Europe. Scottish journal of political economy, 54(3), 388-400.

Kuethe, T. H., & Motamed, M. (2010). Returns to Stardom: Evidence From U.S. Major League Soccer. Journal of Sports Economics, 11(5), 567-579.

Lazear, E., & Rosen, S. (1981). Rank-order tournaments as optimum labor contracts. The Journal of Political Economy, 89(5), 841-864.

Lucifora, C., & Simmons, R. (2003). Superstar Effects in Sport: Evidence From Italian Soccer. Journal of Sports Economics, 4(1), 35-55.

Neale, W. (1964). The Peculiar Economics of Professional Sports. Quarterly Journal of Economics, 78 (1), 1-14.

Noll, R. G. (2002). The Economics of Promotion and Relegation in Sports Leagues: The Case of English Football. Journal of Sports Economics, 3(2), 169-203.

Pawlowski, T., Breuer, C., & Hovemann, A. (2010). Top Clubs' Performance and the Competitive Situation in European Domestic Football Competitions. Journal of Sports Economics, 11(2), 186-202.

Ribeiro, A.S. & Lima, F. (2011). Portuguese Football league efficiency and players' wages. Applied Economics Letters, 19(6), 599-602

Rosen, S. (1981). The economics of superstars. The American Economic Review, 71(5), 845–858.

Rottenberg, S. (1956). The baseball Player's Labor Market. Journal of Political Economy, 64 (3), 242-258.

Sloane, P. (1971). The economics of professional football: the football club as a utility maximiser. Scottish Journal of Political Economy, 17, 121-146.

Sunde, U. (2009). Heterogeneity and Performance in Tournaments: A Test for Incentive Effects using Professional Tennis Data. Applied Economics, 41(25), 3199-3208.
UEFA (2009). UEFA Executive Committee Nyon decisions. 101. Available at http://www.uefa.com/MultimediaFiles/Download/PressRelease/uefa/UEFAMedia/88/6 7/81/886781_DOWNLOAD.pdf (accessed 13 December 2012).

Zimbalist, A. (2010). Reflections on Salary Shares and Salary Caps. Journal of Sports Economics, 11(1), 17-28.