

*Full Length Research Paper*

## Exploring human capital: Discrimination factors and group-specific performance in the football industry

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Received 3 March, 2017; Accepted May 8, 2017

The aim of the study is to investigate whether discrimination factors exist within professional football clubs, concerning the management of their human capital, by analysing the correlation between the footballers' wages and their performance. An analysis was conducted to show that discrimination, based both on nationality and race, can affect the strategies adopted by football club managers and in the professional footballer labour market, where players are considered to be the human capital of football enterprises. The research framework consists of an analysis of the existing literature on discrimination in sports and of a quantitative analysis based on an exploratory approach, where the wage differences among Italian Serie A league footballers are compared to the performance of each group of players (organised by race or nationality). The results of the analysis of data for all Italian Serie A clubs show that discrimination (in pay) exists against Italian and white players. In contrast, when small and big clubs are considered separately, the findings relating to small clubs highlight that foreign and black players face such discrimination. The results suggest that managers of professional football clubs apply a discrimination strategy. In addition, the results provide practical implications on the types of discrimination errors that are committed by the management of big and small football clubs. Big clubs tend to overrate the contributions of foreign and/or black players compared to those of Italian and white players, while small clubs tend to overrate the contributions of Italian and white players compared to those of foreign and black players. To reduce discrimination, clubs have to correlate how much players are paid with their performance. Further research is recommended to identify the impact of wage inequality on the football labour market and on professional team management.

**Key words:** Human capital, discrimination, wages differences, performance, team management, labour market, football clubs.

### INTRODUCTION

According to many studies on sports teams, leagues, and federations, the global sports industry is growing much

faster than gross domestic product (GDP) rates around the world, and football remains the main sports business

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in terms of global revenues, with an annual income of more than 20 billion euros (Collignon et al., 2011).

Some researchers (Beech and Chadwick, 2004; Ššderman and Dolles, 2013) highlight that football, from being a simple sports competition, has become a sports-related environment (Shams and Lombardi, 2016) connected to a complex set of economic, social, and political structures and with huge cultural and financial impact.

In this context, the aim of the study is to investigate whether discrimination factors exist within professional football clubs, concerning the management of their human capital (Dana et al., 2005; Reisi et al., 2013; Shammot, 2014; Owor, 2016) by analysing the correlation between the footballers' wages and their performance (Makris et al., 2012).

Footballers represent the human capital in this type of enterprise (Tomé et al., 2014; Lardo et al., 2017), and, from this perspective, there are very few studies on management strategies that are based on conscious and/or unconscious discrimination on the part of professional football clubs in the pursuit of their aims, such as increase attendance, profitability, and chances of winning.

The issue of discrimination is of serious concern to the governing bodies of football movements at both the European and global levels. During the XXXVII Ordinary Union of European Football Associations (UEFA) Congress held in London in May 2013, the UEFA and its member associations adopted a resolution to achieve its objective of eliminating racial discrimination within football. This initiative brought significant financial support to Football Against Racism in Europe (FARE). The UEFA and FARE are working together to stage events and publish materials, and they have also sent out a message of zero tolerance against all forms of racism and discrimination, and have instead promoted respect for diversity during Europe's biggest football matches.

For this reason, one purpose of the research is to contribute to the debate arising in the international sports landscape (Dongfeng, 2013; Hrisanta et al., 2013; Ukpere and Slabbert, 2009). The research focused on analysing discrimination based on race or country of origin in the professional football players' labour market. The analysis was carried out on a group representing 90% of Italian Serie A football players over the 2010 to 2011, 2011 to 2012, and 2012 to 2013 seasons. The results of the research provide important implications in terms of the behaviour of professional football club managers, whose strategies can be influenced by systematic errors arising from discrimination at a conscious and/or unconscious level. In light of the arguments presented in this section, the research questions are:

RQ<sub>1</sub>: Does discrimination based on nationality and/or race affect management strategies concerning the human

capital of Italian football clubs?

RQ<sub>2</sub>: Does a relationship exist between discriminatory behaviour against football players and strategies implemented by football clubs?

## LITERATURE REVIEW

Studies on discrimination in sports can be organised according to the sports discipline and forms of discrimination (Eitzen and Sage, 1978). With regards to sports, numerous studies have been carried out on baseball and basketball in the USA, albeit they have produced mixed results.

Looking at baseball, Medoff (1975) and Raimondo (1983) found no statistically significant differences in the wage distribution of black and white players. However, in studying the salaries and premiums of 212 non-pitchers, Christiano (1986) noted that, in some cases, the premiums paid to older players were influenced by race. In a second study, however, Christiano (1988) concluded that the discrimination that was found from the analysis of the 1977 season was not found for the subsequent season.

Bellemore (2001) surveyed the years from 1960 to 1990, and found that while there were established forms of discrimination against black players, they diminished during the seasons when there was an increase in the number of teams taking part in the most important leagues. On the basis of Major League Baseball official data for black baseball batsmen between 1990 and 2004, Groothuis and Hill (2008) did not detect any significant correspondence between their race and the length of their careers.

On the other hand, several conflicting results have been detected in the sector of professional basketball. In various empirical studies, it has been shown that, given the same level of productivity, black players are paid less than white players (Kahn and Sherer, 1988). In this regard, Bodvarsson and Brastow (1999), in their empirical study based on Becker (1971) approach, concluded that the level of racial discrimination in the National Basketball League has lowered as a result of the loss of monopoly in 1988, when new teams joined the league.

In other studies (Kanazawa and Funk, 2001), the difference in wages for black players has been linked to the greater number of spectators who, apparently, attend matches with more white players. This tendency results in white players' wages marginally exceeding those of black players. Brown et al. (1991) found no empirical evidence to support the assumption that fan attendance is inversely proportional to the minutes of a game during which black basketball players play, reaching the conclusion that black players must perform better than white players in order to join the National Basketball Association. While the theme of racial discrimination has been widely investigated in

North American basketball and baseball leagues, only a small part of the literature has dealt with the impact of racial discrimination in American football and in football/soccer.

Mogull (1981) carried out several studies concerning wage discrimination in the National Football League (NFL) in the United States of America (USA), and found no empirical evidence supporting wage discrimination among NFL players. Kahn (1991) conducted a survey on a sample of over 1000 players for the 1989-90 season, and from the results of his statistical regression, he concluded that the wages of African-American football players are 4% lower than those of white players. Gius and Johnson (1998), in their analysis of the NFL, identified the first case of wage discrimination against white players. They used log-linear wage regression and the Chow test on a sample of 938 players for the 1995 to 1996 season and observed that white players were paid 10% less than African-American players.

Referring to racial discrimination in professional football in Europe and, particularly, within the English Premier League, Maguire (1988) noted that many black English players experienced explicit and/or implicit discrimination. In his analysis of data from the Rothmans Football League Directories, he concluded that, during the 1985 to 1986 season, there was discrimination within English football.

Based on his analysis of data from 39 football clubs over the seasons from 1978 to 1993, Szymanski (2000) confirmed that discrimination was present in English professional football, which the market was unable to avoid. He highlighted one important result—on average, a club without black players paid a premium of 5% compared to a club that did not discriminate. In other words, racial discrimination is more expensive for clubs at the top of the ranking, because the total expenditure for players is higher.

In a further study, Preston and Szymanski (2000) investigated the cause of racial discrimination in English football for the seasons between 1974 and 1993 and found no evidence of a link between selecting black players and match attendance, concluding that discrimination can be attributed to the prejudice of some club owners. Frick (2007) found a slight and insignificant form of wage discrimination against foreign footballers.

In another study, an innovative test was used to evaluate discrimination in English football and the effect of race on the probability of a player joining the market from 1968 to 2001 (Goddard and Wilson, 2009). The results of the test revealed that the most talented black players were likely to be hired in clubs belonging to the highest divisions, and that talented black players had less probability of becoming professional players than white players.

In a further study, Dobson and Goddard (2011) highlighted that racial discrimination has decreased in English professional football over the years, concluding that discrimination may have remained because of a

continuing distortion in the market for black footballers.

Other studies (Frick et al., 2003) have analysed the relation between pay inequality and economic outcomes in the North American team sports industry, and the results differed considerably between the four major leagues, suggesting that the relative importance of high-powered incentives and cooperation in football and hockey differed from that in basketball and baseball.

This review of previous studies shows that no results can emphatically support (or reject) the existence of discrimination in sports in general and in professional football in particular. Moreover, many studies do not investigate whether professional football clubs apply discriminatory strategies to achieve their objectives.

From this perspective, it is clear that there is a lack of research on the correlation between forms of discrimination against football players and the strategies implemented by football clubs. To help address this gap in the research and the absence of results in the international literature that can be interpreted univocally, in this study, we investigated discrimination's role in influencing wages of premier league Italian footballers for the 2010 to 2011, 2011 to 2012, and 2012 to 2013 seasons, and how discriminatory behaviour can be related to the strategies of football clubs.

## METHODOLOGY

The research used a quantitative method (Anderson et al., 2012; Waters, 2008), applying an exploratory approach (Hair et al. 2003) to answer the research questions identified in the previous section and, therefore, to fill the gap in literature. First, the analysis was based on the hypothesis that there is a positive linear correlation between the total wages paid in a professional football club and the team's performance. This is given by the formula:

$$P = f(W)$$

Where

W represents the total cost of salaries, and  
P is the team's annual performance.

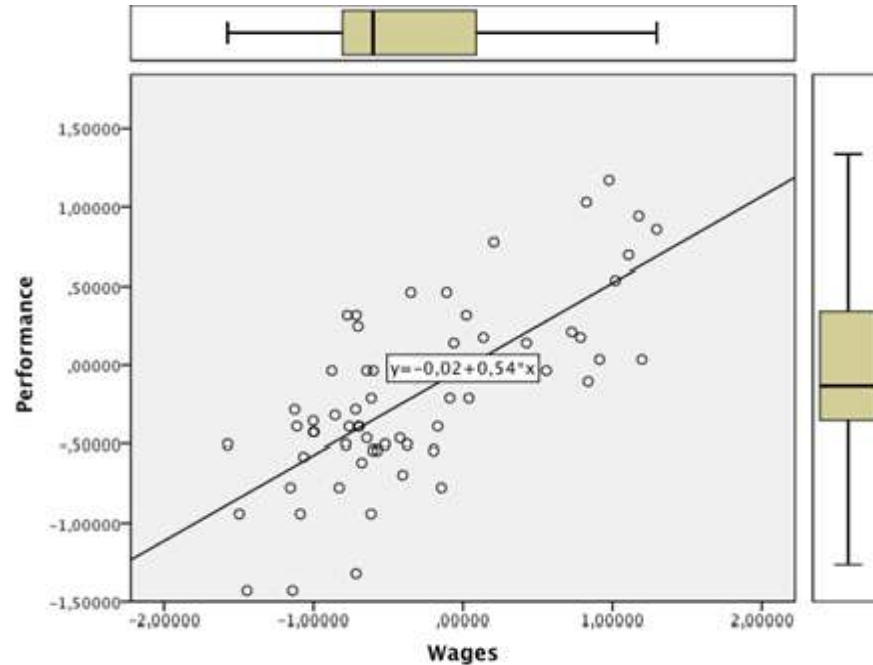
The hypothesis, which has been supported in other works concerning British football (Szymanski, 2010), was verified for the Italian market. Figure 1 shows that this correlation exists to a moderate degree (Pearson's coefficient is equal to 0.71) for the seasons surveyed.

As in other studies, the performance values were calculated using the natural logarithm of the logit function applied to the points won by a team out of the total points available. The values of the total cost of wages were calculated as the natural logarithm of the ratio between the total cost of wages for each team and the average for the current season. Over the three championships, the Pearson's coefficient was estimated as 0.75 for the first and second seasons and 0.69 for the third.

## Theoretical discrimination hypothesis

To understand the methodology used in this survey, a theoretical discrimination hypothesis is needed.

Assuming that each team is composed of  $n$  players— $n_a$  players



**Figure 1.** Correlation (wages; performance) for Italian Serie A football clubs (Source: Authors' analysis using SPSS).

have a certain characteristic and  $n_b$  players do not—the formula is:

$$N = N_a + N_b$$

Where

$N$  represents the total number of football players,  
 $N_a$  represents the share of players with the given characteristic ( $N_a/N$ ),  
 $P_N$  represents the team's overall performance, and  
 $P_{Na}$  represents the contribution of group A to this performance.

*H<sub>p</sub>*: If it is possible to demonstrate statistically that, in a given season, teams with a higher  $N_a$  performed better, it should follow that the average of the wages of group A players ( $\mu_a$ ) should be significantly higher than the averages of the wages of group B players ( $\mu_b$ ).

From this perspective, there should be no discrimination if:

- (1) The positive impact on performance by group A determines a higher retribution, on average,
- (2) The insignificant impact on performance by group A does not determine any difference in retribution, and
- (3) The negative impact on performance by group A determines a significant difference in retribution in favour of group B.

In contrast, there is evidence of discrimination if:

- (1) The positive impact on performance by group A does not determine any difference in retribution or determines a significant difference in retribution in favour of group B (discrimination against A),
- (2) The negative impact on performance by group A does not determine any difference in retribution to the detriment of A or

determines a difference in retribution in its favour (discrimination against B), and

- (3) The insignificant impact on performance by group A determines a difference in retribution in its favour (discrimination against B) or a difference in retribution in favour of B (discrimination against A).

Figure 2 summarises all the cases hypothesised. The analysis was carried out on two characteristics (race and nationality) over three consecutive seasons (2010 to 2011, 2011 to 2012, and 2012 to 2013) and with reference to all the championship teams (T), the cluster of big teams (B), and that of small teams (S). Table 1 shows the cases that were subjected to critical analysis.

For the calculation of the means, a sample survey was carried out, since the data concerning the retributions of all players in group A was incomplete. This meant that it was possible to accept or refuse the hypothesis for equality of the means, referring to the wages of footballers belonging to the categories surveyed.

The comparison between the average retributions was carried out starting from the players' individual wages. It was not possible to use this approach to estimate the contribution of group A members to the team's performance. The contribution of group A to performance could not be calculated as the sum of the contributions of each member in group A to the team's performance mainly for two reasons:

- (1) Nowadays, there is no suitably reliable and general indicator of a footballers' individual performance that can be applied to every position covered on the pitch, and
- (2) A team's performance cannot always be defined as the simple sum of the performances of every footballer.

Therefore, in the present study, the contribution to team performance by each footballer was determined by allocating to each a share of the team's result according to the number of matches the footballer played during the seasons under examination; therefore, group-specific performance was considered.

		Retribution		
		$\mu_a > \mu_b$	$\mu_a = \mu_b$	$\mu_a < \mu_b$
Impact on the performance of A	positive	No discrimination	Moderate discrimination vs A	Discrimination vs A
	insignificant	Moderate discrimination vs B	No discrimination	Moderate discrimination vs A
	negative	Discrimination vs B	Moderate discrimination vs B	No discrimination

Figure 2. Theoretical discrimination hypothesis.

Table 1. Symbols for cases that were analysed to determine discrimination behaviour.

Symbol	Description
2010-11 (T/F)	Foreign footballers investigated in the 2010-11 season with reference to all clubs
2010-11 (B/F)	Foreign footballers investigated in the 2010-11 season with reference to big clubs
2010-11 (S/F)	Foreign footballers investigated in season 2010-11 season with reference to small clubs
2010-11 (T/C)	Black footballers investigated in the 2010-11 season with reference to all clubs
2010-11 (B/C)	Black footballers investigated in the 2010-11 season with reference to big clubs
2010-11 (S/C)	Black footballers investigated in the 2010-11 season with reference to small clubs
2011-12 (T/F)	Foreign footballers investigated in the 2011-12 season with reference to all clubs
2011-12 (B/F)	Foreign footballers investigated in the 2011-12 season with reference to big clubs
2011-12 (S/F)	Foreign footballers investigated in the 2011-12 season with reference to small clubs
2011-12 (T/C)	Black footballers investigated in the 2011-12 season with reference to all clubs
2011-12 (B/C)	Black footballers investigated in the 2011-12 season with reference to big clubs
2011-12 (S/C)	Black footballers investigated in the 2011-12 season with reference to small clubs
2012-13 (T/F)	Foreign footballers investigated in the 2012-13 season with reference to all clubs
2012-13 (B/F)	Foreign footballers investigated in the 2012-13 season with reference to big clubs
2012-13 (S/F)	Foreign footballers investigated in the 2012-13 season with reference to small clubs
2012-13 (T/C)	Black footballers investigated in the 2012-13 season with reference to all clubs
2012-13 (B/C)	Black footballers investigated in the 2012-13 season with reference to big clubs
2012-13 (S/C)	Black footballers investigated in the 2012-13 season with reference to small clubs

**Empirical analysis framework**

The research was carried following two steps:

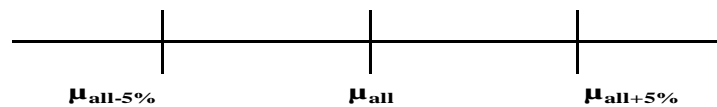
- (1) The first step consisted of analysing the annual wages of a group of Serie A football players divided by nationality and race, with reference to the 2010 to 2011, 2011 to 2012, and 2012 to 13 seasons. To carry out this analysis, we used a database provided by the *Gazzetta dello Sport*, the leading Italian sports newspaper.
- (2) The second step consisted of comparing the footballers' wages with the team's performance in matches played by the footballers. For data relating to attendance and team performance, we used the database available through the transfer market website, <http://www.transfermarkt.com>.

With regards to the first step, it is important to specify that the group of players was selected from among all the footballers who played in at least ten matches over each season analysed. This group is representative of about 90% of the total population of footballers who played at least one game over each season.

Since there is a significant correlation between the level of the footballers' net wages and their clubs' total expenditure on wages (the Pearson's coefficient for the three championships was estimated as 0.75 for the first and second seasons and 0.69 for the third), the virtual population was divided into two subgroups—big and small clubs. Small clubs are clubs that spend less than 30 million euros on their players' wages annually. Table 2 shows the composition of the football clubs in terms of the two football features

**Table 2.** Composition of footballer groups.

Variable	2010-11 season			2011-12 season			2012-13 season		
	Small clubs	Big clubs	All clubs	Small clubs	Big clubs	All clubs	Small clubs	Big clubs	All clubs
Italian players (I)	125	73	198	128	60	188	127	45	172
Foreign players (F)	93	67	160	95	86	181	107	75	182
<b>Total</b>	<b>218</b>	<b>140</b>	<b>358</b>	<b>223</b>	<b>146</b>	<b>369</b>	<b>234</b>	<b>120</b>	<b>354</b>
Black players (C)	25	20	45	22	19	41	27	22	49
White players (W)	193	120	313	201	127	328	207	98	305
<b>Total</b>	<b>218</b>	<b>140</b>	<b>358</b>	<b>223</b>	<b>146</b>	<b>369</b>	<b>234</b>	<b>120</b>	<b>354</b>

**Figure 3.** Range used for comparing mean value of footballers' wages.

being analysed.

The analysis of the groups involved comparing the mean of the wages of footballers belonging to the groups. The difference between the means of groups A and B is significant if it is 5% above the mean of all players (Figure 3). In practice, the value of the range is calculated as the difference between 5% more and 5% less than the mean for all players.

## FINDINGS

### Evidence from first step

Applying the methodology explained in the previous section, Table 3 gives the results for the population of all the Serie A clubs for the three seasons. With reference to nationality, for all the seasons, the mean of the retribution for foreigner footballers was higher than that for Italian players, and all the differences in the means were significant because they were greater than the 5% range.

The result was the same with reference to race of footballers, except for the 2012 to 2013 season, when there was a relevant reduction in the wage gap, as indicated by the insignificance in the differences. When foreign footballers received a higher wage than their Italian counterparts, it can be explained through the specific characteristics of the Italian football labour market. Clubs are generally prepared to pay a premium to a foreign footballer based on the conviction that he will have a greater influence on the clubs' results during that season.

It is important to point out that the differences between the wages of black and white footballers and between Italian and foreign footballers decreased rapidly between the 2010 to 2011 and 2012 to 2013 seasons, and this

reduction can be partially explained by the reduction in Italian football clubs' total investment in talented players caused by the general economic situation. The analysis of the group of small clubs is summarised in Table 4.

With reference to nationality, an opposite trend seemed to emerge, with the wages of Italian footballers constantly above those of other players. The difference was significant, however, only for the 2012 to 2013 season. In the 2012 to 2013 season, for the other characteristics under examination (race), there was an inversion in the trend—on average, the wages of white footballers were lower than those of black footballers. After analysing the significance of the wage difference, we found that this had occurred for the last two seasons. Table 5 presents the results of the analysis for the group of big clubs.

Looking at the group of all Serie A clubs, the mean of the black players' wages was higher than that of the white players. Similarly, the average of the wages of foreigner players was higher than that of Italian players, with the exception of the 2012 to 2013 season. Concerning nationality, in all seasons, the difference between the wage means for the groups of players was significant.

In the 2012 to 2013 season, the wages of Italian players were, on average, higher than those of foreign players and the wages of black players were, on average, lower than those of white players. With reference to the latter group, in the 2012 to 2013 season, the difference between the two wage means was not greater than 5% of the mean of all players.

In summary, the results of the first phase led to the following main conclusions:

- (1) In the 2010 to 2011 and 2011 to 2012 seasons, for all clubs and big clubs, there was a significant difference in

**Table 3.** Results for all clubs (wages in millions of euros).

Variable	2010-11 season				2011-12 season				2012-13 season			
	PI.	Mean	Mean of all pl.	5% range	PI.	Mean	Mean of all pl.	5% range	PI.	Mean	Mean of all pl.	5% range
Foreign players	160	1.1259	-	-	181	1.0773	-	-	182	0.89	-	-
Italian players	198	0.8917	-	-	188	0.7895	-	-	172	0.801	-	-
<i>Differences</i>	-	0.2342	0.9964	0.0996	-	0.288	0.9307	0.0931	-	0.089	0.8469	0.0847
Black players	45	1.3638	-	-	41	1.1471	-	-	49	0.901	-	-
White players	313	0.9436	-	-	328	0.9036	-	-	305	0.838	-	-
<i>Differences</i>	-	0.4202	0.9964	0.0996	-	0.244	0.9307	0.0931	-	0.0631	0.8468	0.0847

**Table 4.** Results for group of small clubs (wages in millions of euros).

Variable	2010-11 season				2011-12 season				2012-13 season			
	PI.	Mean	Mean of all pl.	5% range	PI.	Mean	Mean of all pl.	5% range	PI.	Mean	Mean of all pl.	5% range
Foreign players (F)	93	0.4543	-	-	95	0.4062	-	-	107	0.4175	-	-
Italian players (I)	125	0.4545	-	-	128	0.4338	-	-	127	0.4672	-	-
<i>Differences</i>	-	-0.0002	0.4544	0.0454	-	-0.0275	0.4220	0.0422	-	<b>-0.05</b>	0.4445	0.0444
Black players (C)	25	0.4148	-	-	22	0.3641	-	-	27	0.4539	-	-
White players (W)	193	0.4595	-	-	201	0.4284	-	-	207	0.3726	-	-
<i>Differences</i>	-	-0.0447	0.4544	0.0454	-	<b>-0.064</b>	0.4221	0.0422	-	<b>0.0813</b>	0.3820	0.0382

**Table 5.** Results for group of big clubs (wages in millions of euros).

Variable	2010-11 season				2011-12 season				2012-13 season			
	PI.	Mean	Mean of all pl.	5% range	PI.	Mean	Mean of all pl.	5% range	PI.	Mean	Mean of all pl.	5% range
Foreign players (F)	67	2.058	-	-	86	1.818	-	-	75	1.564	-	-
Italian players (I)	73	1.640	-	-	60	1.548	-	-	45	1.744	-	-
<i>Differences</i>	-	0.418	1.840	0.184	-	0.27	1.708	0.1708	-	-0.18	1.632	0.163
Black players (C)	20	2.122	-	-	19	2.054	-	-	22	1.55	-	-
White players (W)	120	1.449	-	-	127	1.656	-	-	98	1.6498	-	-
<i>Differences</i>	-	0.673	1.545	0.155	-	0.398	1.708	0.1708	-	-0.0998	1.632	0.163

**Table 6.** Index of impact on performance.

Variable	2010-2011 season		2011-2012 season		2012-2013 season	
	Non-Italian players (S)	Black players (C)	Non-Italian players (S)	Black players(C)	Non-Italian players (S)	Black players (C)
All clubs (T)	<b>0.51</b>	<b>0.71</b>	0.07	0.36	0.31	0.38
Small clubs (S)	0.32	0.49	0.16	0.44	<b>0.50</b>	<b>0.61</b>
Big clubs (B)	<b>0.73</b>	<b>0.89</b>	<b>-0.57</b>	0.28	<b>-0.81</b>	-0.29

the wage means in favour of foreign and black players, compared to Italian and white players;

(2) In the 2011 to 2012 season, for small clubs, there was a significant difference between the wages of black and white players, in favour of white players;

(3) In the 2012 to 2013 season, for big clubs, there was a significant difference in wage means in favour of foreigner players for all clubs, and in favour of Italian footballers;

(4) In the 2012 to 2013 season, for both small and big clubs, there was a significant difference in wage means favouring foreigner players, compared to Italian footballers;

(5) In the 2012 to 2013 season, for small clubs, there was a significant difference in wage means between black and white players, in favour of black footballers;

(6) In all other cases, we were not able to verify any significant wage mean differences for the groups of footballers.

### Evidence from second step

In the second step of the research, the study aim was to measure the contribution of each group to the performance of their clubs.

An estimation was carried out on the impact of foreign and black players on the results of each team. This estimation first involved establishing

the total number of the players present on the pitch for each team and, subsequently, calculating the share of performance/success that can be allocated to foreign and black players. Performance was determined as the share of points won in relation to the total points to be won throughout the 20-team championship.

Based on the aforementioned data, the index of impact on performance was calculated as the Pearson's coefficient between the share in attendance that can be attributed to foreign and black players, respectively, and the result achieved by their clubs over the three seasons.

In terms of the first part of the research, the analysis was carried out after making the distinction between big and small clubs. Table 6 shows the results of the analysis for the clubs in the Italian Premier League (Serie A) for the 2010 to 2011, 2011 to 2012, and 2012 to 2013 seasons.

Of the 18 cases, 6 had an index that was greater or equal to 0.5 and 2 that had an index that was less than -0.5. This means that, in 8 of the 18 cases, the higher number of foreign and black players seemed to have influenced the teams' results, up to a point. In particular, for the 2010 to 2011 season, foreign and black players had a significant influence on team performance, especially in big clubs. For the 2011 to 2012 season, a radical change of direction took place, where in big clubs, an increase in foreigner

players seemed to have caused a drop in team results. In the 2012 to 2013 season, more small clubs chose foreign players than the larger, richer clubs.

### DISCUSSION

Having verified the hypothesis that, in Italian professional football, higher pay tends to correspond to better team performance, it should follow that, in the presence of a significant contribution by foreign and black players to club performance, these groups of players should receive a higher share of the clubs' expenditure on wages. In Figure 4, the results relating to black and foreign players are classified according to the three seasons.

The central column of the matrix shows the cases where the wage differences were not considered significant. With reference to the analysis by race group for the 2012 to 2013 season, the insignificant contribution by black players to the teams' performance corresponded to a non-significant difference in wages. We can, therefore, avoid any assumption that this is a case of discrimination.

The first quadrant presents the results relating to black and foreign players for the 2010 to 2011 season, with reference to all teams (T). In this case, there was no discrimination, because the



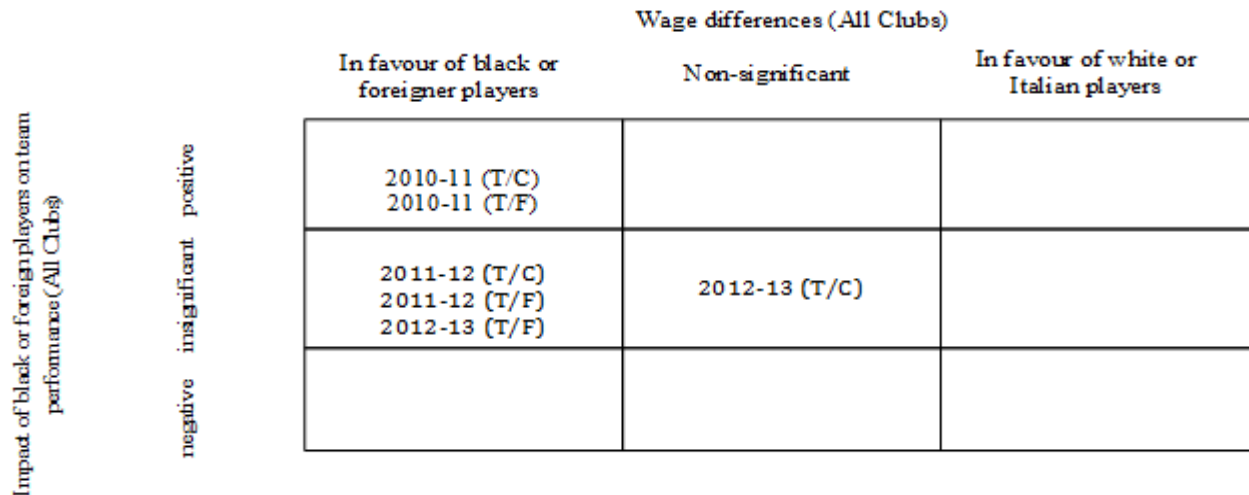


Figure 4. Discrimination cases in all clubs.

significant presence of black players (C) and foreign players (F) corresponded to a significant wage difference for the group (higher than the 5% range of the mean for all players).

For the remaining cases, moderate discrimination was observed in the fourth quadrant, where significant wage differences existed in favour of black and foreign players and the higher wages for black and foreign players had no significant influence on the teams' results. It can therefore be stated that there was moderate discrimination against white footballers for the 2011 to 2012 season, and against Italian footballers for the 2011 to 2012 and 2012 to 2013 seasons.

Subsequently, to focus the study analysis on the behaviour of big and small clubs, we investigated the two groups separately, and the results are clarified in Figure 5.

The results presented on Figure 5 show that, in Italy, the professional football labour market did not show any indication of discrimination in 67% (8 out of 12) of the cases, but it existed in 33% (4 out of 12) of the cases. According to the study analysis, this 33% included:

- (1) Two cases of moderate discrimination—one against white players and the other against Italian players, with reference to big and small clubs, respectively—for the 2011 to 2012 season (that is, a significant wage difference was linked to an insignificant impact on the club's performance); and
- (2) Two cases of strong discrimination—one against Italian players in big clubs for the 2011 to 2012 season (that is, a negative impact of the group of Italian players on performance corresponded to a significant wage difference in favour of foreign players), and the other against foreign players in small clubs for the 2012 to 2013 season (that is, a positive impact of the group of

foreign players on performance corresponded to higher wages for Italian players).

Overall, the empirical analysis has identified the following: strong discrimination against Italian footballers for the 2011 to 2012 season with reference to big clubs, and strong discrimination against foreign players for the of 2012 to 2013 season with reference to small clubs; moderate discrimination against white footballers for the 2011 to 2012 season with reference to all clubs and big clubs, against black players for the 2011 to 2012 season with reference to small clubs, and against Italian footballers for the 2012 to 2013 season with reference to all clubs.

The findings of this study can be useful in future investigations on the possibility that the behaviour of professional football club managers is subject to systematic errors (Lombardi et al., 2014) that are related to some kind of conscious and/or unconscious discrimination (Ohlert, 2016). In addition, with regards to the difference between big and small clubs, there is evidence that big club managers make the same number of discrimination errors as small club managers.

Interesting considerations can be made in connection with the types of error involved. Big clubs tend to overestimate the contribution of foreign and black players to the disadvantage of Italian and white players. In contrast, small clubs are inclined to overrate the contribution of Italian and white players to the disadvantage of foreign and black footballers.

Focusing the study attention on the temporal distribution of the errors, we find that they were concentrated in the 2011 to 2012 and 2012 to 2013 seasons, when the well-documented economic crisis started to affect the entire professional football sector (from the 2011 to 2012 season to the 2012 to 2013

Wage Differences (Big and Small Clubs)

		In favour of black or foreign players	Non-significant	In favour of white or Italian players
Impact of black or foreign players on performance (Big and Small Clubs)	positive	2010-11 (B/C) 2010-11 (B/F) 2012-13 (S/C)		2012-13 (S/F)
	insignificant	2011-12 (B/C)	2010-11 (S/F) 2010-11 (S/C) 2011-12 (S/F) 2012-13 (B/C)	2011-12 (S/C)
	negative	2011-12 (B/F)		2012-13 (B/F)

**Figure 5.** Discrimination cases for big and small clubs.

season, the expenditure for wages dropped from 875.5 million euros to 866.3 million euros). For the 2010 to 2011 season, no evidence of discrimination was observed for any of the groups. It would appear, therefore, that in periods of crisis, discrimination processes tended to worsen.

On the one hand, big clubs, despite reducing the wage differential between Italian and foreign footballers, continued to favour the international market, still acquiring players who were not able to bring a definitive competitive advantage (their contribution to their team's performance was negative).

On the other hand, small clubs worked harder in scouting the emerging markets, gaining the greatest profit from the difference in wages between foreign and black players and their contribution to the team's performance, which tended to transform into an economic advantage.

## Conclusion

The aim of this work was to investigate whether there are strategies that discriminate against human capital within professional football, particularly the Italian Football Premiership (Serie A), which is one of the top five European leagues.

The analysis focused on the wages of Serie A footballers and involved three aspects. Wages were examined from the perspective of the players' race and country of origin (perspective on the type of discrimination) over three consecutive seasons (temporal perspective) for all clubs in the league and, in a different way, for big and small clubs (perspective on the size of clubs in the league).

As in other research on the topic, the study used a

theoretical framework in which it was assumed that a positive correlation exists between a player's wage level and the contribution of each category of players to the total performance of the club in which they play. Subsequently, we analysed the cases where there was a significant difference between the level of wages for the group and the contribution to the group's performance. This inconsistency was interpreted as providing evidence of discrimination and was subjected to a critical examination to verify whether the reasons for this can be included among the possible strategies put in place by professional football club managers.

The analysis produced the following main results. No systematic form of discrimination existed within the Italian Premier League, because discrimination factors were only identified in 33% of the cases. However, from the perspective of type of discrimination, we found evidence of discriminatory behaviour either to the advantage or disadvantage of the categories, verifying that big clubs tended to overrate the contribution of foreign and black players, to the disadvantage of Italian and white players, while small clubs tended to overrate the contribution of Italians and white players, to the disadvantage of foreign and black players. Considering all clubs, the impact of discriminatory behaviour on the part of big clubs was greater than that of small clubs. From the temporal perspective, there has been an increase in episodes of discrimination over the past two years, when, for the first time, league clubs reduced their total expenditure on wages.

Furthermore, this research provided an answer to its second question, because it demonstrated that processes of discrimination were strictly connected to the strategies implemented by Italian football club managers and these differed according to the size of the club:

(1) Big clubs seemed to prefer famous foreign and black footballers, incurring high costs and paying large salaries, to increase their relational capital value (Trequattrini et al., 2014), exploit the effect of these negotiations in the media, and increase their income from stadium tickets, merchandising, and TV rights; and

(2) Small clubs preferred to acquire unknown foreign and black footballers from emerging markets, containing costs and paying lower wages, to improve their financial performance by exploiting the potential future recognition of the players acquired.

To avoid these discrimination strategies carried out by the managers of professional football clubs, there should be a higher correlation between the wages of players and their contribution to their team's performance, and this correlation may be imposed by football bodies on football clubs (Trequattrini et al., 2015).

Discrimination can be interpreted as a form of underhanded imperfection in the Italian footballer labour market, since it exists in the function of the economic objectives of the clubs in the industry. This consideration underlines the limits of the present research and opens the field to future analyses. If the hypothesis that discrimination is in the function of the strategic aims of professional football clubs is correct, it follows that wage differences between footballers should be correlated not only to their match performance, but also to the financial results of these clubs, putting into the discussion the theoretical models that assume that they have a single objective in the form of either maximising profits or maximising wins.

Finally, the research has some limitations. First, a footballer's performance is a complex variable that cannot be represented by one index, and future studies can aim to improve upon this aspect by considering other variables beyond match attendance. Moreover, the research focuses only on Italian Serie A clubs and it could be expanded considering all the European leagues.

## CONFLICT OF INTERESTS

The authors have not declared any conflict of interests.

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