

## Decision-Making Biases and Human Capital Employment: An Investigation on Italian Soccer Clubs

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### Abstract

*The research study aims to improve knowledge about biases in managers' decision-making processes, investigating the context of the soccer (football) industry and observing whether discrimination factors impact managers' decision-making about players' employment within professional soccer clubs. Using the population of the Top Italian Soccer League clubs, we design a research framework and conduct an empirical analysis to investigate if managers' decisions on footballers' salaries are affected by discrimination based on the status of foreign/domestic players or black/white players, taking in consideration the correlation between footballers' salaries and their performance. The results suggest that managers of professional football clubs apply a discrimination strategy, which sometimes affects their decision-making. Results provide practical implications on the types of discrimination errors committed by the management of big and small soccer clubs. Our results' theoretical and managerial implications and the issue of the extendibility of the findings to non-sport organizations are discussed.*

**Keywords:** decision-making; managers distortions; soccer; discrimination; performance

### 1. Introduction

Companies are run and managed by people, and the concept of bounded rationality proposed by Simon (1947) explained how the entirely rational model of decision-making belongs to someone else because of several factors that limit our rationality. Thus, cognitive distortions are frequent scenarios (Katz & Kahn, 1966; Abatecola et al., 2018). Cognitive biases are systematic errors in human judgment when dealing with uncertainty (Kahneman et al., 1982; Lombardi et al., 2014; Malos, 2015; Micelli et al., 2001). Cognitive misperceptions mainly arise from the systematically biased judgment emanating from heuristics, which simplifies strategies to cope with complex issues and problems (Canavesi and Minelli, 2021; Newell & Simon, 1972; Tversky & Kahneman, 1974).

The decision-making process for defining the compensation systems is commonly recognized as one of the main strategic issues in managing modern organizations, as it represents, at the same time, a significant operative financial cost, and an essential tool to influence employee behavior and improve organizational performance (Devinatz, 2022; Dulebohn and Werling, 2007; Gerhart et al., 2009; Haddad et al., 2019; Koys, 1988; Liefooghe, 2003; Milkovich et al., 2011; Mumtaz et al., Valenzuela et al., 2022). Understanding why and how cognitive distortions often affect managerial decision-making remains unaddressed from many angles (Auster, 1988; Collinson and Collinson, 1996; Klaas and Wheeler, 1992; Mujtaba and Sims, 2011; Zarei and Wong, 2014).

This research study enriches this debate by focusing the investigation on the soccer (football) industry as the relevant context of research because, as stated by many scholars (Beech and Chadwick, 2004; Söderman & Dolles, 2013), soccer, from being a simple sports competition, has become a sports-related environment (Shams & Lombardi, 2016) connected to a complex set of economic, social, and political structures and with enormous cultural and financial impact. Our study aims to analyse if managers' decision-making in professional soccer clubs systematically and unfairly discriminates regarding salary level against specific individuals or groups in favor of others. Soccer players represent the human capital in this type of enterprise (Tomé et al., 2014; Lardo et al., 2017), and, over the years, many studies have investigated player discrimination on multiple fronts using various indicators and have obtained results both affirming and negating the existence of discrimination (Reilly & Witt, 1995; Szymanski, 2000; Pedace, 2008; Frick, 2008; Szymanski, 2010; Gallo et al., 2013; Bullough & Mills, 2014; Posso et al., 2016; Tagliapietra, 2008; Trequattrini et al., 2017; Della Torre et al., 2018).

Sports teams represent 'performance' teams, understood as teams responsible for an organisation's primary product or service: a 'performance' (Crown, 2000) such as a stage play, a concert, or a game in sports. In this setting, ability based on human resources and the coordination of these resources through managerial ability appears to be particularly important for team performance (Wolfe et al., 2005).

Team sports focus on individual abilities to achieve a successful performance (Kern & Süßmuth, 2005; Carmichael et al., 2011; Tiedemann et al., 2011). However, it should be said that the value of any organization, including team sports, is not the sum of individual abilities, and managers are not able to forecast individual abilities in a new team, otherwise fully:

"If general managers were perfect judges of talent, there would be no need to play the league schedule to determine the league champion – we would simply award the title to the team with the highest payroll" (Quirk & Fort, 1999, p. 85).

From this perspective, it is relevant to study if salary discrimination occurs considering the performance, not of the individual but the group of players with legal status, to avoid errors related to specific valuations and understand the trends. Using the population of the Top Italian Soccer League clubs, we design a research framework and conduct an empirical analysis to investigate if managers' decisions on footballers' salaries are affected by discrimination based on the status of foreign/domestic players or black/white players, taking in consideration the correlation between footballers' salaries and their performance. 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 salary differences among Italian Soccer Serie A League players are compared to the performance of each group of players (organized by their nationality and race).

Results provide practical implications on the types of discrimination errors committed by the management of big and small soccer clubs. To reduce discrimination, clubs must correlate how much players are paid with their performance. It could be relevant because distortions in decision-making processes impact companies' performance. Some experts maintain that companies may drastically improve their performance by shifting to diligence-based decision-making (Ahmad et al., 2005; Lan, 2006; Powell, 2017; Wynne et al., 2006; Sperandio and Girard, 2010). Rather than focusing on the expansion of analytics, decision-makers should use existing data sets and avoid several cognitive distortions (Sibony et al., 2017).

The remainder of this paper is organized as follows: Section 2 provides the literature overview. Section 3 explains the research design and methodology. Section 4 displays the findings of the empirical analysis. Section 5 discusses the main results. Section 6 concludes the paper, explains the study's significant limitations and suggests future research developments.

## **2. Literature review**

The study of the performance of athletes and teams is particularly relevant for understanding the problems of inequality associated with the distribution of remuneration levels. Sport is a labor-intensive sector, and human capital is crucial for organizational results (Lechner and Gudmundsson, 2012). Team sports, especially football (soccer), focus on individual abilities to achieve a successful performance (Kern and Süßmuth, 2005; Carmichael et al., 2011; Tiedemann et al., 2011). European competitions have a multi-ethnic organization, especially with European players since the legislation enables them to move freely within the European Union. Indeed, the 1995 Bosman ruling allows EU players to move from one club to another at the end of their contract without a transfer fee. As a result, the number of foreign players has increased exponentially in the top European leagues: England, France, Germany, Italy and Spain (Simmons, 1997; McCutcheon, 2002; Menke, 2014).

Considering the present multi-ethnicity of sports clubs, studies on discrimination in sports according to the sports discipline and forms of discrimination can be organized (Eitzen and Sage, 1978). Littlewood et al. (2014) analyzed trends in recruiting non-indigenous players from 2005-2009 in the top five European leagues. They found that the Italian Serie A had a 33.4% percentage of non-indigenous players during the period, and only The Bundesliga German had more non-indigenous than indigenous players.

During the 2013-2014 season, the share of foreign players in the top Italian league was 53%, second only to the English Premier League, which included over 60% of foreign players (CIES, 2014). In addition to the purely statistical aspect of diversity, many papers have studied how the diversity of teams is translated in terms of results and performance. Maderer et al. (2014) noted that a marked multi-ethnicity only sometimes translated into positive effects on performance. Consequently, the globalization of the job market in football has not been unequivocally received. This has often generated a passionate public debate on the proportion of international players and their potential adverse effect on the preparation of domestic talent, particularly in the English Premier League and Italian Serie A. The above debates have also focused on the salary levels of footballers, which appear to be influenced by their status as domestic or foreign players.

The literature on the topic has often focused also on discrimination linked to gender inequalities (O Grada et al., 2015; Mahdi Abaker et al., 2022; Yeganeh and May, 2011; Yesilirmak et al., 2023). Studies have highlighted the existence of two types of discrimination in the workplace: direct and systemic (Kohout and Singh, 2018). Direct discrimination is usually intentional, where individuals are treated negatively due to stereotyped attitudes directed towards their group membership, while systemic discrimination can be more subtle through procedures that discriminate against certain groups (Johnson, 2006). Early studies of workplace diversity focused primarily on gender equality, creating a large body of knowledge about how women and men interact in the workplace (Hite, 2004). Studies of workplace barriers for racialized workers reveal that they face challenges throughout the work cycle, including hiring and promotions (Günther, 2015; Pio, 2007; Suárez et al., 2022). This workplace discrimination is often subtle and, therefore, not always obvious, or easily corrected. Scholarships have also suggested that organizational structures significantly contribute to workplace inequality, where internal policies and practices have disproportionately negative impacts on women and marginalized workers (Morrison & Von Glinow, 1990). Acker (2006, p. 443) refers to these work experiences as regimes of inequality, which she defines as “related practices, processes, actions, and meanings that determine and maintain class, gender, and racial inequalities within particular organizations.” Although women have risen to management and leadership positions in many organizations, the pace of this change has been slow, and the lower-paid classes of workers, including secretaries and clerical workers, are still predominantly women (Acker, 2006; Benschop and Doorewaard, 2012; Booyen and Nkomo, 2010; Smith et al., 2012). Marginalized women are more likely to face systemic discrimination on two fronts: first, because they are women and second because they belong to a marginalized group within society. Belonging to a disadvantaged group can have long-term and widespread economic and social repercussions when workplace dynamics inhibit female workers' productive and earning capacity (Cornish, 2012). Given the papers offered by the existing literature, our study seeks to expand the concept of discrimination, not only on gender inequalities but also on other forms perceived within society, and to extend these studies to the economics of professional football clubs as this sector needs to be analyzed more in the discrimination's field. Our study aims to fill this gap in the literature.

The football media regularly highlighted evidence showing that foreign players earn more than their domestic counterparts - the ten highest-paid footballers in Europe in the 2013-2014 season provide a poignant example. Aside from England striker Wayne Rooney who played in the English Premier League, the remaining nine highest-paid players have yet to play for their home countries (This Is Money, 2014). A considerable number of foreign players have brought discrimination issues to the fore. For example, racial discrimination in European football leagues has been repeatedly highlighted in terms of fan behavior and institutionalized barriers (Bradbury, 2013; Cleland and Cashmore, 2014; Dixon et al., 2016; Kilvington, 2013; Van Deusen et al., 2022). However, over the years, especially the American sports recruitment systems, through the system of engagement through university scholarships, have tried to invest in eliminating the ethnic discrimination of athletes. This was implemented using various indicators of performance and technical ability of athletes, but the results led to affirm, for some, the existence of discrimination, while others have to deny it (Reilly and Witt, 1995; Szymanski, 2000; Pedace, 2008; Frick, 2008; Gallo et al., 2013; Bullough and Mills, 2014; Can et al., 2016). However, most studies have yet to focus on salaries and the relationship between salary and performance as the crucial point in assessing inequalities.

Compensation is positively correlated with performance on many parameters, such as organizational learning (Arthur and Aiman-Smith, 2001), employee turnover (O'Halloran, 2012), increased sales (Banker et al., 2013) and cost-effective operations (Gaynor et al., 2004). In football, players are likely to put in more effort when higher remuneration is expected and may also engage in riskier behavior on the pitch when the stakes are higher (Del Corral et al., 2010). On an individual level, Torgler and Schmidt (2007) found a clear positive relationship between a player's annual salary and performance. Carmichael et al. (2011) concluded that, at the team level, salary growth improved sporting results. Similarly, Della Torre et al. (2014) established a positive link between the salary level (absolute and relative) and an individual's salary dispersion and performance. These results show that the reward levels offered to employees, or players, in performance-oriented settings are closely related to subsequent performance. Salary discrimination against migrants is a phenomenon that has become prominent in many parts of the world in recent years (Nicodemus and Ramos, 2012; Tong and Al Awad, 2014; Cai and Liu, 2015).

In many industries, foreign employees were offered lower rates than domestic employees for the same skill level and experience (Barrett et al., 2012; Siebers and Gastel, 2015).

Discrimination is a well-reported phenomenon in the professional sports sector (Kahn, 1991). In this context, "it is argued that discrimination occurs when the individual characteristics of a player (such as his race or nationality) that are irrelevant to his productivity influence salary, transfer fees, playing time, game and career length" (Frick, 2007: 439). The academic debate around this phenomenon has grown, focusing on the salary discrimination experienced by specific ethnicities in sports (e.g. Palmer and King, 2006; Berri and Simmons, 2009; Bruggink and Williams, 2009). Racial discrimination, predominantly against non-white athletes, is the most common topic and covers American football (Berry and Simmons, 2009) and baseball (Palmer and King, 2006), among others. While many researchers have found evidence of discrimination against black players in these sports (Palmer and King, 2006; Berry and Simmons, 2009), others have found the opposite true (Gius and Johnson, 2000). In this regard, Bodvarsson and Brastow (1999), in their empirical study based on Becker's (1971) approach, concluded that racial discrimination in the National Basketball League dropped due to the loss of the monopoly in 1988 when the new teams joined the league. In other studies (Kanazawa and Funk, 2001), the salary difference for black players has been linked to the greater number of spectators who watch games with more white players. This trend translates into slightly higher salaries for white players than for black players. Marrone et al. (1991) found no empirical evidence to support the hypothesis that fan participation is inversely proportional to the minutes of a game in which black basketball players play, concluding that black players must perform better than white players to join the National Basketball Association (NBA). Different from racial issues, concerns stemming specifically from the country of origin are less studied in the sports literature, and the results are only sometimes consistent. Yang and Lin (2012) studied the salary differences between American and foreign players in the National Basketball Association (NBA). They concluded that all things being equal, international players earned less than their American counterparts. However, a similar study conducted in the context of Canadian hockey found no evidence of salary discrimination against European players (Bruggink and Williams, 2009).

Contradictory findings on discrimination were also found in the football field, which is particularly true in the European context. For example, Reilly and Witt (1995) found no evidence of undue disparity vis-à-vis foreign players in transferring fees paid in the English league. Szymanski (2000), on the other hand, found evidence of discrimination against black players in the English Premier League between 1978-1993. Pedace (2008) attempted to determine the existence of nationality discrimination in English football, using regional categories (African, South American and Northern European). The results provided evidence of preferential labor market treatment for South American actors.

Interestingly, it was also shown that more of these players reduced team performance but increased fan participation and hence club revenue. Goddard and Wilson (2008) reported an advantage for black players in career progression and preservation in English professional football. Frick (2008) found that in professional football in Germany, South American players enjoyed a higher price than their peers, yet Gallo et al. (2013) found evidence of discrimination by referees against non-white players in the English Premier League. Bullough and Mills (2014) reported a decline over twenty years in the appearance of English players in the English Premier League, indicating diminishing opportunities for indigenous players. However, Can et al. (2016) obtained mixed results by analyzing the playing time of the attackers in the Champions League of the European Union Football Federations in the twenty years from 1991 to 2011.

Bryson et al. (2014) studied Serie A and Serie B in the Italian football market, focusing on the superstar effect of migrant players (e.g. Franck and Nuesch, 2008), and discovered salary discrimination to the detriment of Italian national players. Furthermore, the popular press specializing in European football repeatedly stresses the fact that the reputation of migrant players is overestimated and overcompensated compared to their national peers (La Gazzetta dello Sport, 2014). This review of previous studies shows that no finding can strongly support (or dismiss) the existence of discrimination in sports, in general, and professional football, in particular. Furthermore, many studies need to investigate whether professional football teams apply discriminatory strategies to achieve their goals.

From this point of view, it is evident that the present work seeks to implement studies on the correlation between forms of discrimination against players and the strategies implemented by football clubs. In this study, we investigated the role of discrimination in influencing the salaries of top-flight Italian footballers for the 2016-2017, 2017-2018 and 2019-2020 seasons and how discriminatory behaviors can be related to clubs' strategies and decision-making processes. Therefore, this work aims to answer to following questions:

RQ<sub>1</sub>: Does discrimination based on the status of foreign/domestic players or black/white players affect management strategies concerning the human capital of the Top Italian Soccer League?

RQ<sub>2</sub>: Does a relationship exist between discriminatory distortions against soccer players and managers' decision-making applied by football clubs?

### 3. Methodology

The present research uses a quantitative method (Anderson et al., 2012; Waters, 2008), applying an exploratory approach (Hair et al., 2003) to satisfy the research questions identified in the previous section and, therefore, implement the results of the existing literature. First, the analysis was conducted based on the following hypothesis: the existence of a positive linear correlation between the total salaries paid in a professional football club and the performance of the team. The formula gives this:

$$P = f(W)$$

Where:

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

The hypothesis, supported in other works on football (Szymanski, 2010, Della Torre et al., 2014, 2017), has been verified for the Italian market. Based on the studies conducted on the subject, there is a correlation to a moderate extent 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 scored by a team out of the total points available. The total cost of salary values was calculated as the natural logarithm of the ratio of each team's total cost of salary to the current season average.

#### Theoretical discrimination hypothesis

To understand the methodology applied to this survey, a theoretical hypothesis of discrimination is needed.

Assuming that each team is composed of  $n$  players -  $n_a$  players have a particular characteristic and  $n_b$  players do not - the formula is:

$$N = N_a + N_b$$

Where:

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

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

From this point of view, there should be no discrimination if:

- (1) The positive impact on the performance of group A determines an average higher remuneration
- (2) The insignificant impact on the performance of group A does not result in any difference in remuneration, and
- (3) The negative impact on the performance of group A results in a significant difference in remuneration in favor of group B.

Conversely, there is evidence of discrimination if:

- (1) The positive impact on the performance of group A does not lead to any difference in remuneration or leads to a significant difference in remuneration in favor of group B (discrimination against A),
- (2) The negative impact on the performance of group A does not result in a remuneration pay difference to the detriment of A or result in a remuneration difference in her favor (discrimination against B), and
- (3) The insignificant impact on the performance of group A results in a pay difference in its favor (discrimination against B) or a pay difference in favor of B (discrimination against A).

Figure 1 summarizes all hypothesized cases. The analysis was conducted on two characteristics (race and nationality) in three consecutive seasons (from 2016 to 2017, from 2017 to 2018 and from 2018 to 2019) and concerning all the teams in the championship (A), the cluster of big (B), and that of small teams (S).

**Figure 1. Theoretical discrimination hypothesis**

		Retribution		
		$\mu_a > \mu_b$	$\mu_a = \mu_b$	$\mu_a < \mu_b$
Impact on the performance of A	Negative	No discrimination	Moderate discrimination vs A	Discrimination vs A
	Non-significant	Moderate discrimination vs B	No discrimination	Moderate discrimination vs A
	Positive	Discrimination vs B	Moderate discrimination vs B	No discrimination

Table I shows the cases that were subjected to critical analysis.

**Table I: Symbols for cases that were analysed to determine discrimination behaviour.**

Symbol	Description
2016/17 (A/F)	Foreign footballers investigated in the 2016-17 season with reference to all clubs
2016/17 (M/F)	Foreign footballers investigated in the 2016-17 season with reference to major clubs
2016/17 (S/F)	Foreign footballers investigated in the 2016-17 season with reference to small clubs
2016/17 (A/D)	Domestic footballers investigated in the 2016-17 season with reference to all clubs
2016/17 (M/D)	Domestic footballers investigated in the 2016-17 season with reference to major clubs
2016/17 (S/D)	Domestic footballers investigated in the 2016-17 season with reference to small clubs
2016/17 (A/B)	Black footballers investigated in the 2016-17 season with reference to all clubs
2016/17 (M/B)	Black footballers investigated in the 2016-17 season with reference to major clubs
2016/17 (S/B)	Black footballers investigated in the 2016-17 season with reference to small clubs
2016/17 (A/W)	White footballers investigated in the 2016-17 season with reference to all clubs
2016/17 (M/W)	White footballers investigated in the 2016-17 season with reference to major clubs
2016/17 (S/W)	White footballers investigated in the 2016-17 season with reference to small clubs
2017/18 (A/F)	Foreign footballers investigated in the 2017-18 season with reference to all clubs
2017/18 (M/F)	Foreign footballers investigated in the 2017-18 season with reference to major clubs
2017/18 (S/F)	Foreign footballers investigated in the 2017-18 season with reference to small clubs
2017/18 (A/D)	Domestic footballers investigated in the 2017-18 season with reference

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	to all clubs
2017/18 (M/D)	Domestic footballers investigated in the 2017-18 season with reference to major clubs
2017/18 (S/D)	Domestic footballers investigated in the 2017-18 season with reference to small clubs
2017/18 (A/B)	Black footballers investigated in the 2017-18 season with reference to all clubs
2017/18 (M/B)	Black footballers investigated in the 2017-18 season with reference to major clubs
2017/18 (S/B)	Black footballers investigated in the 2017-18 season with reference to small clubs
2017/18 (A/W)	White footballers investigated in the 2017-18 season with reference to all clubs
2017/18 (M/W)	White footballers investigated in the 2017-18 season with reference to major clubs
2017/18 (S/W)	White footballers investigated in the 2017-18 season with reference to small clubs
2018/19 (A/F)	Foreign footballers investigated in the 2018-19 season with reference to all clubs
2018/19 (M/F)	Foreign footballers investigated in the 2018-19 season with reference to major clubs
2018/19 (S/F)	Foreign footballers investigated in the 2018-19 season with reference to small clubs
2018/19 (A/D)	Domestic footballers investigated in the 2018-19 season with reference to all clubs
2018/19 (M/D)	Domestic footballers investigated in the 2018-19 season with reference to major clubs
2018/19 (S/D)	Domestic footballers investigated in the 2018-19 season with reference to small clubs
2018/19 (A/B)	Black footballers investigated in the 2018-19 season with reference to all clubs
2018/19 (M/B)	Black footballers investigated in the 2018-19 season with reference to major clubs
2018/19 (S/B)	Black footballers investigated in the 2018-19 season with reference to small clubs
2018/19 (A/W)	White footballers investigated in the 2018-19 season with reference to all clubs
2018/19 (M/W)	White footballers investigated in the 2018-19 season with reference to major clubs
2018/19 (S/W)	White footballers investigated in the 2018-19 season with reference to small clubs

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A sample survey was carried out for the calculation of the average, as the data relating to the salaries of all the players in group A needed to be completed. This meant that it was possible to accept or reject the hypothesis of equality of means, referring to the players' salaries. It was belonging to the categories surveyed.

The comparison between the average salaries was made based on the individual salaries of the players. Using this approach to estimate the contribution of group A members to team performance was not possible. The contribution of group A to the performance cannot be calculated as the sum of the contributions of each member of group A to the performance of the team mainly for two reasons:

- (1) Today, there is not adequately reliable and general indicator of a player's performance that can be applied to every position held on the pitch, and
- (2) A team's performance cannot always be defined as the simple sum of each player's performance.

Therefore, in the present study, the contribution to the team performance of each player was determined by assigning to each athlete a share of the team result according to the number of games played by the player in the seasons in question; therefore, the specific performance of the group was considered.

### **Empirical analysis framework**

The research was carried out following two phases:

(1) The first phase consisted of analysing the annual salaries of a group of Serie A footballers divided by nationality and race, concerning the seasons from 2016 to 2017, from 2017 to 2018 and from 2018 to 2019. To carry out this analysis, we used a database provided by the Gazzetta dello Sport, the leading Italian sports newspaper.

(2) The second stage consisted of comparing the players' salaries with the team's performance in the matches played by the players. For team attendance and performance data, we used the database available through the transfer market website, <http://www.transfermarkt.com>.

As for the first step, the selected group of players includes all the athletes under contract with the clubs of Italian Serie A.

As there is a significant correlation between the players' net salaries level and their clubs' total salary expenditure (Carmichael et al., 2011; Cai and Liu, 2015; Della Torre et al., 2014; Nicodemo and Ramos, 2012; Tong and Al Awad, 2014), once the overall salaries of each company were calculated for each sporting year taken into consideration, the average payroll of the companies for each year was calculated. Subsequently, once the overall salaries of each company were calculated for each sporting year taken into consideration, the average payroll of the companies for each year was calculated. Determined the result, the virtual population was divided into two sub-groups: the big clubs, which exceeded the average league payroll for each year, and the small clubs, which had a payroll below the league average. Small clubs are clubs that spend less than 25 million euros each year on their players' payroll. Big clubs are clubs that spend more than 25 million euros each year on their players' payroll.

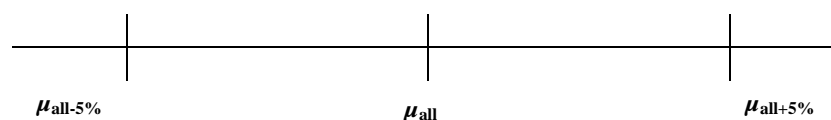
Table II shows the composition of the football clubs in terms of the two football features being analysed.

**Table II: Composition of footballer groups.**

Variable	2016-17 season			2017-18 season			2018-19 season		
	Small Clubs	Major Clubs	All Clubs	Small Clubs	Major Clubs	All Clubs	Small Clubs	Major Clubs	All Clubs
Domestic players (D)	181	49	230	202	51	253	183	52	235
Foreign players (F)	190	116	306	179	103	282	313	106	419
<b>Total</b>	371	165	536	381	154	535	496	158	654
Black players (B)	55	45	100	50	33	83	67	30	97
White players (W)	316	120	436	331	121	452	323	128	451
<b>Total</b>	371	165	536	381	154	535	390	158	548

The analysis of the groups involved comparing the mean of the salaries 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 2). In practice, the value of the range is calculated as the difference between 5% more and 5% less than the mean for all players.

**Figure 2. Range used for comparing mean value of footballers' wages.**



In a world of global mobility, it should be noted that for our study, the player's nationality (by birth or immigration) was what established domestic status.

### 3. Findings

#### Evidence from the first step

Applying the methodology explained in the previous section, Table III reports the results for the population of all Serie A clubs for the three seasons. Concerning nationality, for all seasons, the average remuneration of foreign players was higher than that of Italian players, while as regards the second subcategory, in "all clubs" and "small clubs", black players receive on average a higher remuneration than white players, in "big clubs" instead the exact



opposite is true. All the differences in the averages were significant because they were above the 5% range, except for i) the difference in remuneration in the "all clubs" for both sub-categories considered in the 2018-19 season; ii) the difference in remuneration, between the "small clubs", in the black players/white players category of the 2016-17 and 2017-18 seasons; iii) the difference in remuneration, in the "big clubs", for both sub-categories considered in the 2018-19 season.

**Table III. Results for All Clubs (wages in millions of euros).**

Variable	2016-17 season				2017-18 season				2018-19 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 player (F)	306	0,97	-	-	282	1,04	-	-	419	1,21	-	-
Domestic players (D)	230	0,63	-	-	253	0,72	-	-	235	0,78	-	-
<b>Differences</b>	-	<b>0,34</b>	0,83	0,083	-	<b>0,32</b>	0,89	0,089	-	<b>0,43</b>	1,02	0,102
Black players (B)	100	0,98	-	-	83	1,00	-	-	97	1,05	-	-
White players (W)	436	0,80	-	-	452	0,87	-	-	451	1,02	-	-
<b>Differences</b>	-	<b>0,18</b>	0,83	0,083	-	<b>0,13</b>	0,89	0,089	-	0,03	1,02	0,102

Consequently, it is possible to state that the specific characteristics of the Italian football labor market determine a higher remuneration of foreign footballers than their Italian counterparts. Clubs are generally willing to pay a premium to a foreign footballer based on the belief that he will significantly influence the club's results during that season. It is important to note that the salary differences between black and white players decreased in the seasons considered in the "all clubs", increased slightly in favor of black players in the "small clubs", and increased in favor of white players in the "big clubs". As for the salary differences between Italian and foreign players, the salary differences in the three subgroups see a constant better remuneration by foreign players than Italians. The analysis of "small clubs" and "big clubs" is summarised in Tables IV and V.

**Table IV. Results for group of Small Clubs (wages in millions of euros).**

Variable	2016-17 season				2017-18 season				2018-19 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 player (F)	190	0,50	-	-	179	0,49	-	-	313	0,64	-	-
Domestic players (D)	181	0,40	-	-	202	0,44	-	-	183	0,49	-	-
<b>Differences</b>	-	<b>0,10</b>	0,45	0,045	-	0,05	0,47	0,047	-	<b>0,15</b>	0,50	0,050
Black players (B)	55	0,47	-	-	50	0,50	-	-	67	0,55	-	-
White players (W)	316	0,45	-	-	331	0,46	-	-	323	0,49	-	-
<b>Differences</b>	-	0,02	0,45	0,045	-	0,04	0,47	0,047	390	<b>0,06</b>	0,50	0,050

**Table V. Results for group of Major Clubs (wages in millions of euros).**

Variable	2016-17 season				2017-18 season				2018-19 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 player (F)	116	1,75	-	-	103	1,99	-	-	106	2,57	-	-
Domestic players (D)	49	0,41	-	-	51	1,79	-	-	52	1,83	-	-
<b>Differences</b>	-	1,34	1,67	0,167	-	<b>0,20</b>	1,92	0,192	-	<b>0,74</b>	2,32	0,232
Black players (B)	45	1,54	-	-	33	1,77	-	-	30	2,19	-	-
White players (W)	120	1,72	-	-	121	1,96	-	-	128	2,35	-	-
<b>Differences</b>	-	<b>-0,18</b>	1,67	0,167	-	-0,19	1,92	0,192	-	0,16	2,32	0,232

The results of the first phase led to the following main conclusions:

- (1) the salaries received by foreign and black players are, on average higher than Italian and white players;
- (2) In the 2016-2017, 2017-18 and 2018-19 seasons for "all clubs" and "small clubs", there is a salary difference between the salaries of foreign players and Italian players, and black players and white players, in favor of foreign players and black players;
- (3) In the 2018-19 season, for "all clubs", as regards the salary difference between black players and white players, and foreign players and Italian players, despite the higher salary received by black and foreign players, the difference between the two average salaries was not more than 5% of the average salary of all players.
- (4) In the 2016-17 and 2017-18 season, for "small clubs", as regards the salary difference between black and white players, despite the higher salary received by black players, the difference between the two average salaries is not it was more than 5% of the average salary of all players.
- (5) In the 2016-2017, 2017-18 and 2018-19 seasons for the "big clubs", there is a salary difference between the salaries of foreign players and Italian players, and black players and white players, in favor of the players foreigners and white players;
- (6) In the 2018-19 season, for the "big clubs", as regards the salary difference between black and white players, and foreign players and Italian players, despite the higher salary received by white players and foreign players, the difference between the two salary averages it was no more than 5% of the average salary of all players.

#### **Evidence from the second step**

In the second phase of the research, the study's objective was to measure each group's contribution to the performance of their clubs. An estimate was made of the impact of foreign and Italian players, black and white players, on each team's results. This estimate first involved determining the total number of players on the pitch for each team and calculating the performance/success share attributable to foreign and black players. Performance was determined as the share of points earned about the total points to be earned during the 20-team championship.

Based on the data above, the performance impact index was calculated as the Pearson coefficient between the percentage of appearances attributable to foreign and black players, respectively, and the result obtained by the respective clubs in the three seasons.

Regarding the first part of the research, the analysis was conducted after distinguishing between large and small clubs. Table VI shows the analysis results for the Italian Serie A clubs for the 2016-2017, 2017-2018 and 2018-2019 seasons.

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

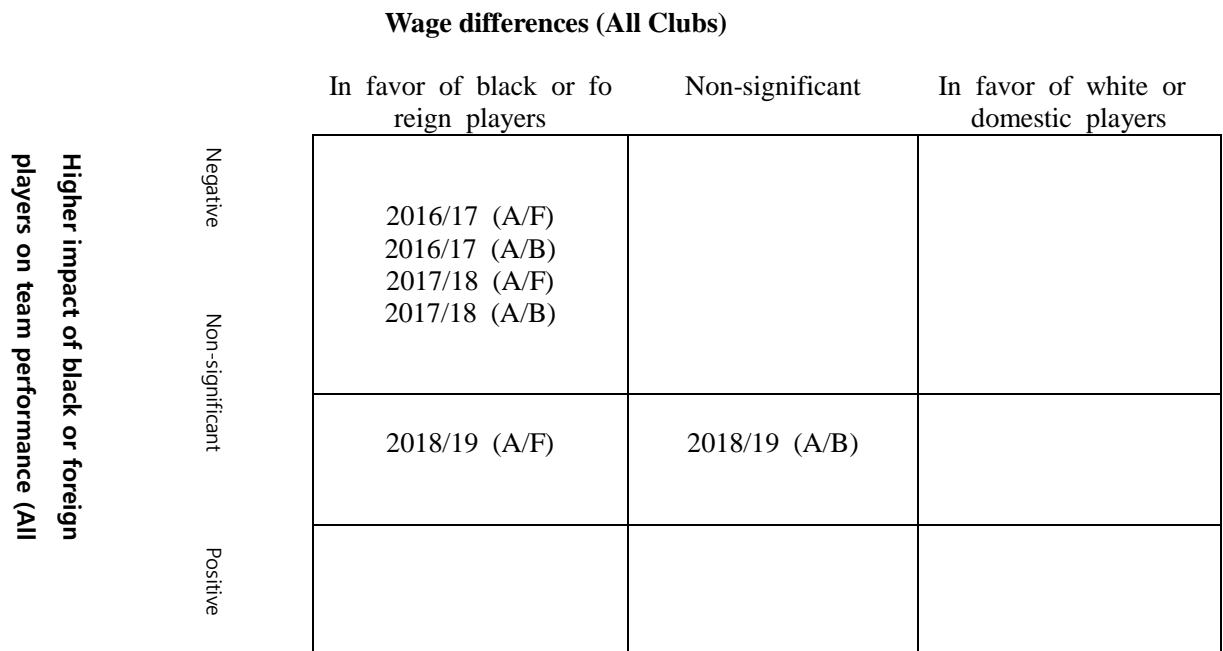
Variable	2016-17 season				2017-18 season				2018-19 season			
	Domestic Players	Foreign Players	Black Players	White Players	Domestic Players	Foreign Players	Black Players	White Players	Domestic Players	Foreign Players	Black Players	White Players
All clubs	0,54	0,61	0,57	0,60	0,54	0,61	0,57	0,60	0,51	0,40	0,47	0,42
Small clubs	0,50	0,51	0,41	0,52	0,50	0,51	0,41	0,52	0,52	0,45	0,55	0,49
Major Clubs	0,60	0,49	0,55	0,53	0,60	0,49	0,55	0,53	0,58	0,13	0,45	0,38

Of the 36 cases, 21 had an index greater than or equal to 0.5. In particular, the results obtained from the analysis carried out are: i) a greater number of Italian players had a significant influence on the performance of the "all clubs" and "small clubs" in all the sporting seasons considered, and in the "big clubs" in the 2017-18 seasons and 2018-19; ii) a greater number of foreign players had a significant influence on the performance of "all clubs" and "small clubs" in the 2016-17 and 2017-18 seasons; iii) more black players had a significant influence in the 2016-17 and 2017-18 seasons in the "all clubs" and "big clubs", and in the 2018-19 season in the "small clubs"; iv) a greater number of white players had a significant influence on each sub-category of the population considered in the 2016-17 and 2017-18 seasons.

**4. Discussion**

Considering that in literature is extensively demonstrated that a higher amount of total salaries tends to correspond to better team performance, this empirical analysis has investigated if in the presence of a significant contribution to overall club performance by groups of players divided according to their status (foreign/domestic – black/white), these groups of players receive a higher share of the clubs’ expenditure on salaries. We organize the results into three matrixes showing differently the results of discrimination distortions considering all clubs, major clubs, and small clubs. In Figure 3, the results related to all clubs concerning black and foreign players are classified according to the three seasons.

**Figure 3. Discrimination cases in All Clubs**



Concerning both 2016/2017 season and the 2017-18 season, the results divided by foreign/domestic and black/white status groups show that the higher impact of black players on performance corresponds to a high salary level, as in the first quadrant on the left. We can, therefore, assert that no cases of discrimination are present.

Concerning the 2018-19 season, for the black status group, salary difference was not considered significant, and its impact on performance was also insignificant. While considering foreign groups a moderate discrimination was observed. Subsequently, to focus the study analysis on the behavior of big and small clubs, we investigated the two groups separately, and the results are clarified in Figures 4 and 5.

**Figure 4. Discrimination cases in Major Clubs**

		<b>Wage differences (Major Clubs)</b>		
		In favor of black or foreign players	Non-significant	In favor of white or domestic players
<b>Higher impact of black of foreign players on team performance (Major Clubs)</b>	Negative		2017/18 (M/B)	2016/17 (M/B)
	Insignificant	2017/18 (M/F) 2018/19 (M/F)	2016/17 (M/F) 2018/19 (M/B)	
	Positive			

**Figure 5. Discrimination cases in Small Clubs**

		<b>Wage differences (Small Clubs)</b>		
		In favor of black or foreign players	Non-significant	In favor of white or domestic players
<b>Higher impact of black of foreign players on team performance (Small Clubs)</b>	Negative	2016/17 (S/F) 2017/18 (S/F) 2018/19 (S/B)		
	Insignificant	2018/19 (S/F)	2016/17 (S/B) 2017/18 (S/B)	
	Positive			

Starting from big clubs (Figure 4), the central column of the matrix shows the cases where the salary differences were not considered significant. In particular, the results are not significant both in terms of salary and impact on the performance of the groups of foreign players for the season 2016-17 and black players for the 2018-19 season. A case of substantial discrimination distortion was observed during the season 2016-17 against black players group because even black-status players have a higher impact on team performance. They have a lower salary level compared to white players. Two cases of moderate discrimination are identified for both domestic players for the season 2017/18 and 2018-19. Even domestic players have a more significant impact on performance, the salary level is lower than foreign players. Figure 5 highlights the results for small clubs during the three seasons. The only case of moderate discrimination identified for the season 2018-19 is against the group of domestic players because foreign players have a high salary level and lower effect on team performance compared to domestic players (see also table VI). The findings of this study can be helpful 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 conscious and/or unconscious discrimination (Ohlert, 2016).

In addition, about the difference between big and small clubs, there is evidence that big club managers make more discrimination errors compared to small club managers. Interesting considerations can be made in connection with the types of errors involved. Big clubs tend to overestimate the contribution of foreign and white players to the disadvantage of domestic and black players.

### 5. Conclusions, limitations and future research

This work aimed 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 salaries of Serie A footballers and involved three aspects. Salaries were examined from the perspective of the players' country of origin (foreign/domestic) and race (black/white) 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). The pay equity discussion is complicated because the problem doesn't exist in isolation. Any attempt to correct the salary gap requires a widespread and long-term effort to address the underlying social, political and economic factors that disadvantage certain occupational groups (Kohout and Singh, 2018). Therefore, it is possible to state that salary inequalities in the workplace are not addressed only to gender issues but, as far as the particular economic sector analysed, also to the recruitment capacity of clubs and the spending capacity that professional football clubs have, factors lead the football companies to discriminate against certain workers rather than others (McDonald et al., 2019). Results provide practical implications on the types of discrimination errors committed by the management of big and small soccer clubs. Big clubs tend to overrate the contributions of foreign players compared to those of domestic players. In contrast, small clubs tend to overrate the contributions of foreign and white players compared to those of other players. Clubs within the top European leagues focus not only on the domestic but also on the international market to acquire outstanding talent. Top league clubs compete to hire the best football players in a globalized market characterized by a very high degree of mobility (Kessenne, 2007; Littlewood et al., 2011).

While top clubs within the league tend to recruit foreign superstars, there is also a tradition of attracting young, promising talents from around the world, especially from South America and, more recently, from Africa. The resultant team diversity has not always translated into positive effects on performance (Maderer et al., 2014). Thus, the globalization of the labor market in football has not been unequivocally welcomed. This has often generated a passionate public debate regarding the proportion of international players and their potential adverse effect on the grooming of domestic talents, especially in the English Premier League and the Italian Serie A.

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 salary level and the contribution of each category of players to the total performance of the club in which they play. Subsequently, we analyzed the cases where there was a significant difference between the level of salaries for the group and the contribution to the group's performance. This inconsistency was interpreted as providing evidence of discrimination. It was subjected to a critical examination to verify whether the reasons for this can be included among the possible strategies by professional football club managers. This study presents several limitations. In football, besides assists and goals, which are more relevant for the more offensive role a player can be in (very relevant for a forward, not at all for a goalkeeper), no other measures in research have practically been used at the individual level to complement those measurable at the team level (season ranking and won trophies). To cope with this problem, in our study, we have used the minutes of a game played by each soccer player.

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