JENSEN'S GOVERNANCE PROBLEM REVISITED BY THE RELATIVE AGE EFFECT ON SPANISH FOOTBALL

EL PROBLEMA DE GOBERNANZA DE JENSEN REVISITADO POR EL EFECTO DE LA EDAD RELATIVA EN EL FÚTBOL ESPAÑOL

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Abstract

This study analyses Jensen's problem of governance by examining the Relative Age Effect (thereinafter RAE) on Spanish Football. We analysed the players of the top eight Spanish football academies (*n*=736). Four of the academies belong to clubs and four to Sport Stock Corporations (SSCs), all of them are playing in the top tier of Spanish football. We used the Poisson Regression analysis to identify the presence of the relative age effect. The existence of RAE is found to be significant (p<.001) in both clubs and SSCs. According to Jensen's governance theory, SSCs should be more efficient, and therefore the starting hypothesis would be that they would not be affected by the RAE bias whereas clubs should. The results of the study refute Jensen's problem of governance and are a new contribution to the stakeholder's theory. Policymakers should consider governance reforms, such as hybrid multi-stakeholder models, to counteract RAE. It is also evident that the RAE is a bias that notably affects football academies and other sports with a lot of participants.

Keywords: Football academies, Jensen's governance problem, Sport Stock Corporations, talent identification, theory of stakeholders.

Resumen

Este estudio analiza el problema de la gobernanza de Jensen examinando el Efecto de la Edad Relativa (ERA) en el fútbol español. Hemos analizado los jugadores de las ocho mejores academias de fútbol españolas (*n*= 736). Cuatro de las academias pertenecen a clubes y cuatro a Sociedades Anónimas Deportivas (SAD) y todas ellas juegan en la máxima categoría del fútbol español. Utilizamos la regresión de Poisson para identificar la presencia del ERA. La existencia del ERA es significativa (p<0.001) tanto en clubes como en las SADs. Según la teoría de la gobernanza de Jensen, las SADs deberían ser más eficientes, dado que la hipótesis de partida es que no se ven afectadas por el sesgo ERA, mientras que los clubes sí. Los resultados del estudio refutan el problema de gobernanza de Jensen y constituyen una nueva aportación a la teoría de los *stakeholders*. Los responsables políticos deberían considerar reformas de gobernanza, como modelos híbridos con múltiples *stakeholders*, para contrarrestar el RAE. También se pone de manifiesto que el ERA es un sesgo que afecta notablemente a las academias de fútbol y a otros deportes con muchos participantes.

Palabras clave: Academias de futbol, identificación del talent, problema de gobernanza de Jensen, Sociedades Anónimas Deportivas, teoría de los stakeholders.

Introduction

The multi-fiduciary theory of stakeholder developed byGoodpaster (1991) and Boatright (2008) establishes the relationship between various stakeholders—not just shareholders—who are the principals and the agent, who is the person with fiduciary responsibility in charge of the stakeholder group. After that, the agent will be under a reasonable duty to take stakeholders' interests into account. Other authors, like Jensen (2002), come to the conclusion that managing the interests of all stakeholders is impossible because no one has the authority to oversee the decision-making agent and because controllers, or multiple autonomous stakeholders, have disparate or even worse, incompatible interests (this is

referred to by the scientific community as Jensen's "problem of governance"). Because of this, the agent would essentially wield more authority than the principal and may behave egotistically in the absence of any justifiable oversight from the stakeholders. Consequently, it is anticipated that shareholder-controlled firms will perform better than institutions governed by stakeholders. The Spanish football organisations ought to follow the same pattern. The aim of this paper is to confirm if this is true as a contribution to the stakeholder's theory, contradicting the Jensen's problem of governance by means of the Relative Age Effect (hereinafter RAE) in the best eight football Spanish academies (Hernández-Beltrán et al., 2023).

The Spanish football system has entirely changed due to substantial modifications made since 1990. In the past, all football organisations were clubs that belonged to their members. However, in 1990 Sport Stock Corporations (thereinafter SSCs), were established by law in Spain (Ley 10/1990) as an alternative to regular stock corporations with the goal of giving professional football structures more control and transparency to boost their financial efficiency. Nonetheless, Fútbol Club Barcelona, Real Madrid Club de Fútbol, Athletic Club de Bilbao and Club Atlético Osasuna maintained their football club identity and were established as private, non-profit sports associations and were exempt from this requirement. This was an exceptional case because all four of these football teams were historically significant and had shown positive equity during the preceding four years. Unlike SCC, they are associative enterprises that have had a responsibility and guarantee regime for their members and their financial structure since 1990. For example, managers of professional football teams are required to pledge 15% of the entire budgeted expenses upon taking office (Besoccer, 2020).

One of the guiding principles of football teams is to resist being controlled by the capital of their shareholders. Thus, the property right paradigm—that regards capital as the foundation of governance—is the foundation upon which SSC are based. Conversely, clubs are based on a multi-fiduciary model that does not apply capital to the process of governing (Goodpaster, 1991; Boatright, 2008). In summary, the Professional National Football League consists of SSC that are governed by shareholders and clubs by members.

Consequently, the current study's goal is to examine the RAE of SSCs and football clubs. Our research has integrated these two bodies of literature by doing an empirical analysis of the relationship between RAE while accounting for the kind of institution football—football clubs versus SSC. The aim of this paper is to contribute to the current literature by utilizing RAE to show whether, when football clubs and SSC are compared, there is a substantial difference in RAE that supports the multi-fiduciary governance model in football institutions.

The results could significantly impact the promotion of stakeholders' multi-fiduciary involvement in football clubs (Senaux, 2008; García & Welford, 2015; García & Llopis-Goig, 2021). Although they are founded on property rights, SSCs are not always more effective than football teams, which have high levels of shareholder participation. By means of the establishment and reinforcement of stakeholder engagement and collaboration mechanisms, this could aid in the evolution of the Spanish sport ecosystem.

The structure of the article is as follows: in order to establish the basis for the discussion regarding the assumptions made in the study hypotheses, the following section examines prior studies about RAE, stakeholder's theory and Jensen's problem of governance, to conclude with the hypothesis to be tested. The sample and methods are explained in the third section. Thereafter, the results of the empirical analysis are displayed. The last two sectionsoffers a discussion of the findings as well as the conclusions and recommendations for additional study.

Theoretical Background

Relative age Effect

Chronological age is the most widely accepted criterion in the educational and sports context for establishing homogeneous groups of practitioners (Folgado et al., 2021). The purpose of this classification is to strive for the fairest possible criterion when offering equal opportunities to children based on their physical and psychological development (Stephen Cobley & Baker, 2008). However, this criterion, while essential for creating categories, seems not entirely effective. The main reason is the need to establish a cutoff point when defining the beginning and end of each segment, which may disadvantage children born later due to their maturation differences. This moment usually corresponds to the first month or quarter of the year in most countries, with some exceptions such as in England, where the cutoff is in September, Scotland (March), and Northern Ireland (July) (Broughton et al., 2023). Thus, the RAE is defined as a 'chronological age asymmetry phenomenon within a competitive age group in a specific context or domain' (Cobley et al., 2009). However, this effect is not always associated

solely with competitive environments, as recent research has observed it in the physical fitness of students (Folgado et al., 2021), language acquisition (Caldwell-Harris & MacWhinney, 2023), behavioural disorders (Wong, 2023), or mental health issues (Broughton et al., 2023).

RAE and Sport. State of the art

Arguably, the field of research where the effect of relative age has been most extensively analysed is competitive or developmental sports. Thus, there are current articles addressing the issues of this effect in both individual and team sports: football (Jackson & Comber, 2020), rugby, squash, cricket (Kelly et al., 2021), hockey (Lemoyne et al., 2021), alpine skiing (De Larochelambert et al., 2022) and long jump (Brustio et al., 2022). Most of these works approach the RAE as a limitation in athlete selection and promotion, as well as discrimination against young sports practitioners based on a characteristic independent of their performance. In the words of two previously mentioned authors: the RAE represents a "hill on top of the mountain," with this statement being a metaphor for the challenging competitive environment of sports (mountain), to which athletes affected by the RAE must add an extra handicap (the hill) (Jackson & Comber, 2020). The issue of relative age has been analysed in scientific literature from various perspectives. Thus, there are studies presenting descriptive data and comparative analyses (Bezuglov et al., 2023), others including regression analysis to demonstrate the effect (Doyle & Bottomley, 2019; Pérez-González et al., 2021), others incorporating the performance of analysed athletes (Jakobsson et al., 2021), and finally, those including anthropometric and/or physiological variables (Castillo et al., 2019).

In the same way, scientific literature has proposed solutions to the problem, highlighting the so-called bio-banding. This procedure involves grouping young athletes within a specific range of chronological age, from 11 to 15 years, into "bands" or groups based on the estimated biological maturity for specific competitions and/or training (Malina et al., 2019). This maturity level is generally based on the predicted percentage of height at the time of observation. However, these authors clarify that bio-banding methodologies should be applied in specific contexts and focused on the short term (training periods, experimental tournaments, etc.).

Another phenomenon recently observed in the literature on relative age in sports is the "underdog" figure (Schorer et al., 2009), established as a hypothesis in other studies (Gibbs et al., 2012; Morganti et al., 2023). This theory suggests that relatively younger players are challenged by older teammates. The hypothesis reverses the RAE by indicating that what truly makes an elite player is overcoming the odds of not reaching the optimal level, including the RAE. To support this, the studies not only observe the effect but also track the progression and career of players from the early stages.

RAE and Variables of Economic Efficiency and Management

Another trend in the study of RAE in recent years has been its analysis based on other variables more related to management and sociology. The most significant example is found in the analysis of the potential effect of RAE on the market value of professional football players (Bezuglov et al., 2023; Gyimesi & Kehl, 2023; Pérez-González et al., 2020). These studies start from the hypothesis that players born in any quarter of the year have a market value that shows no significant differences, demonstrating that club policies based on RAE are ineffective. However, these studies have major limitations in using the public Transfermarkt perceived player value database, which generates controversy for scientific use, with both supporters (Herm et al., 2014; Peeters, 2018) and critics demanding more realistic data based on a greater number of variables (Müller et al., 2017).

However, there are not many references to RAE in the field of management. The phenomenon has been studied from a qualitative perspective, identifying reasons why scouts or managers are influenced by RAE limitations when selecting players and proposing possible solutions such as training (Andronikos et al., 2016). A similar analysis addresses both the qualitative perspective—through coach interviews—and the quantitative perspective, examining whether RAE exists in their academies and identifying causative factors such as the pursuit of long-term results and parental pressure (Hill & Sotiriadou, 2016). There are also studies outside of sports that evaluate the skills of financial managers based on RAE, observing that those born in the first months of the year achieve better results in deposit profitability and stock selection due to greater self-confidence (Bai et al., 2019).

To our knowledge, there is only one previous study analysing the impact of the ownership model on the RAE (Pérez-González et al., 2023). This is a fundamental aspect since club ownership can have a significant impact on decisions or

policies implemented both in performance teams and their academies (where the RAE can be most observed). In Premier League, Serie A and Ligue 1 the whole are private stakeholders' companies. In the Bundesliga, with the exception of two clubs, the 50+1 rule is followed (Bundesliga, 2023). The name of the rule refers to the need for the members of a club to hold 50 percent, plus one more vote, of voting rights—i.e. a majority. In short, it means that clubs—and, by extension, the fans—have the ultimate say in how they are run, not an outside influence or investor (Bundesliga, 2023). In LALIGA, there are two ownership models: the figure of SSCs, privately owned companies—a ownership adopted by all professional football clubs, with the exception of Athletic Bilbao, Club Atlético Osasuna, FC Barcelona and Real Madrid CF. These four clubs continue to operate as "Sports Clubs, that is, as member clubs," which are the legitimate owners and elect their board based on elections after a certain term.

The Theory of Stakeholders Against the Jensen's Problem of Governance

In this sense, the relationship between several stakeholders—principals and actors—is established by the multi-fiduciary theory of stakeholders (Goodpaster, 1991; Boatright, 2008). As a result, the agent will have a legal obligation to consider the interests of the stakeholders. However, Jensen (2002) argues that in the absence of a legitimate person to supervise the decision-making agent, it is impossible to manage the interests of all stakeholders due to the controllers' divergent and competing objectives. Researchers refer to this as Jensen's "problem of governance". Spanish football clubs are prime examples of Jensen's "problem of governance" because they are built on the non-shareholder governance model. Do they operate less efficiently than SCC, which follows the shareholders' model, in regard to RAE?

This analysis is particularly noteworthy because it covers non-shareholder governed clubs, such as the two most successful teams in Spain (FC Barcelona and Real Madrid CF), a historic club (Athletic Club, the only football team outside FC Barcelona and Real Madrid CF that has never been relegated to the Spanish second division), and a club that has gone through several relegations and promotions in recent years (Club Atlético Osasuna). Owing to their diverse sizes and profiles, these institutions are a great example to compare to SSCs and to confirm whether Jensen's "problem of governance" is refuted once more, as is the case when comparing savings banks to commercial banks (Torres-Pruñonosa et al., 2012; San-Jose et al., 2014; 2018; 2020).

Research Hypotheses

Our concern is determining whether there is evidence to suggest that multi-stakeholder governance negatively affects football institutions' efficacy. To address it, we have employed the hypothetical-deductive method in conjunction with statistical hypotheses testing. The synthetic analytical approach was used to first identify the components of the problem before they were transferred to a system to analyse the RAE.

Based on all the aforementioned, the existence of the RAE effect in the top 8 youth academies in Spain, segmenting Clubs and SSC, is analysed. In this last regard, if the Jensen's governance problem would exist (Jensen, 2002), football teams' managerial performance would be far less impressive than what SSCs were able to do. As a result, RAE should have an impact on Clubs but not on SSCs. Therefore, the hypotheses to be tested are the following:

- (H_1) "SSCs are not affected by RAE".
- (H_2) "Clubs are affected by RAE".

Materials and Methods

The participants (n = 736) were players from the top eight football academies in Spain (see Table 1) as of January 2024 (2023/24 season). These academies were selected based on the number of academy-trained players competing in major European leagues (Pelayo, 2023). Open-access data on academy players aged U15 to U23 was collected from official team websites and the specialised platform Transfermarkt (2024). Both sources were used to cross-check the data and ensure its accuracy. As is standard in RAE studies (e.g., Bezuglov et al., 2023; Castillo et al., 2019; Doyle & Bottomley, 2019; Gyimesi & Kehl, 2023; Hill & Sotiriadou., 2016; Pérez-González et al., 2023), the only variable used to conduct the analysis was the players' birth date, namely their day and month of birth.

Table 1

Sample Segmented by Teams

Team	Ownership model	Players
Real Madrid CF	Club	128
FC Barcelona	Club	134
Valencia CF	SSC	45
Athletic Club	Club	91
Real Sociedad	SSC	82
Atlético de Madrid	SSC	147
Villarreal	SSC	73
CA Osasuna	Club	36

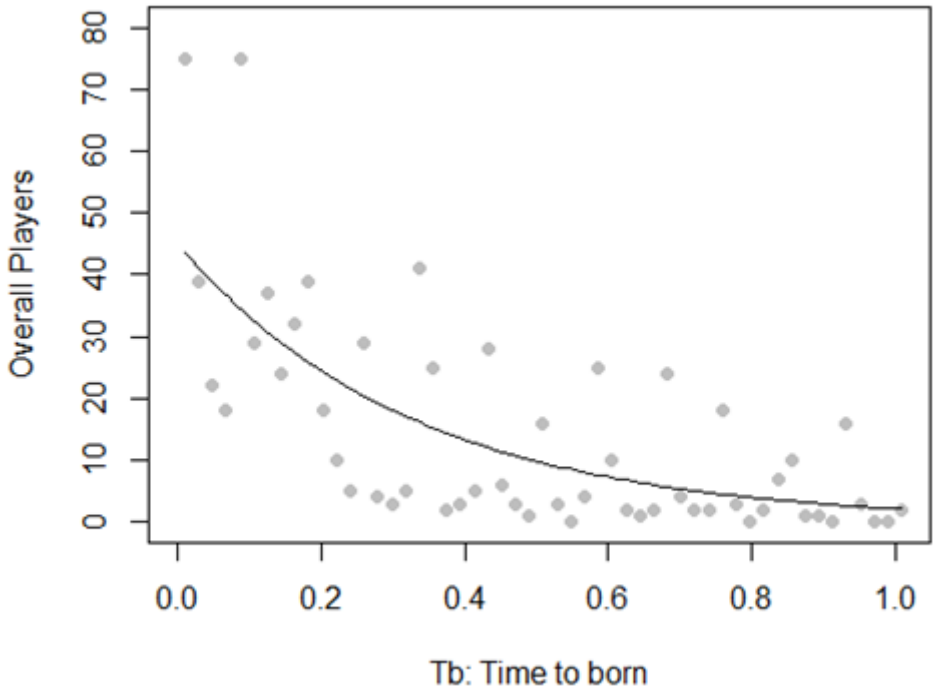
The RAE was detected through Poisson regression (Doyle & Bottomley, 2018, 2019). The Poisson regression formula y = e (b0 + b1x) serves to explain the frequency count of an event (y) by an explanatory variable x. The data used for Poisson regression were week of birth (WB) whereby the first week in January was designated WB 1, and time period of birth (Tb) describing how far from the beginning of the year a player was born. This last index ranging between 0 and 1 was calculated as Tb = (WB −.5)/52. In the Poisson regression, the event (y) was the frequency of birth in a givenweek, and the explanatory variable (x) was Tb. We also calculated the index of discrimination (ID) according to Doyle and Bottomley (2019) as e-b1. This index measures the relative odds of a player born on day 1 versus day 365 of the competition year being selected. The likelihood ratio D2 was determined according to Cohen et al. (1996). All statistical tests, including descriptive analysis, were performed using the software package R (version 4.3.2). Significance was set at $p < .05$. The cut-off date for classifying categories is January 1.

Results

Figure 1 shows the frequency of week of birth for all players analysed in the sample. A higher frequency of players born in the first weeks of the year is noted with a lower presence of those born at the end of it. Later we will check that these differences are statistically significant and, therefore, there is a RAE on the sample as a whole (n= 736).

Figure 1

Frequency of Week of Birth (WB) for all Players and Poisson Regression



Birth date distributions by quartile (Q) and semester (Se) for the players, are showed by ownership model in Table 2. In addition, the same analysis is performed by age group in Table 3 and by club in Table 4

Table 2

Birth Date Distributions According to Their Quartile (Q) or Semester (Se) of Birth by Ownership Model

		Q1	Q2	Q3	Q4	Se 1	Se 2
All Players (*n*=736)	n	423	155	95	63	578	158
	%	57	21	13	9	79	21
Sport Stock Corporations (*n*=347)	n	196	78	45	28	274	73
	%	56	22	13	8	79	21
Clubs (*n*=389)	n	227	77	50	35	304	85
	%	58	20	13	9	78	22

Table 3

Birth Date Distributions According to Their Quartile (Q) or Semester (Se) of Birth by Ages Ranges

		Q1	Q2	Q3	Q4	Se 1	Se 2
All Players	n	423	155	95	63	578	158
	%	57	21	13	9	79	21
U20-23	n	106	38	23	21	144	44
	%	56	20	12	11	77	23
U17-19	n	208	86	49	33	294	82
	%	55	23	13	9	78	22
U15-16	n	109	31	23	9	140	32
	%	63	18	13	5	81	19

Table 4

Birth Date Distributions According to Their Quartile (Q) or Semester (Se) of Birth by Club

		Q1	Q2	Q3	Q4	Se 1	Se 2
All Players	n	423	155	95	63	578	158
	%	57	22	12	9	79	21
Atlético de Madrid	n	88	28	19	12	116	31
	%	60	19	13	8	79	21
Athletic Club	n	46	19	14	12	65	26
	%	51	20	15	14	71	29
FC. Barcelona	n	92	22	14	6	114	20
	%	69	16	10	5	85	15
Real Madrid CF	n	72	26	19	11	98	30
	%	56	21	14	9	77	23
Real Sociedad	n	39	25	12	6	64	18
	%	48	30	15	7	78	22
Valencia CF	n	26	11	6	2	37	8
	%	58	24	13	5	82	18
Villarreal CF	n	43	14	8	8	57	16
	%	59	19	11	11	78	22
CA Osasuna	n	17	10	3	6	27	9
	%	47	28	8	17	75	25

Poisson's regression analysis showed by ownership model is displayed in Table 5 and Figures 2 and 3, by age group and by club in the appendix (respectively in Tables 6 and 7).

Table 5

Poisson Regression Analysis of RAE by Frequency for all Youth Players by Ownership Model of Football Club

Overall (*n*=736)	W_B	15 ± 13
	t_B	.28 ± .24
	b_0	3.80
	b_1	-3.02
	ID=exp(b_0)/exp(b_0+b_1)	20.57
	D^2 (McFadden)	.50
	P value	**<.001**
Sport Stock Corporations(*n* =347)	W_B	15 ± 14
	t_B	.28 ± .24
	b_0	3.05
	b_1	-3.01
	ID=exp(b_0)/exp(b_0+b_1)	20.38
	D^2 (McFadden)	.47
	P value	**<.001**
Clubs(*n* = 389)	W_B	15 ± 13
	t_B	.28 ± .24
	b_0	3.16
	b_1	-3.03
	ID=exp(b_0)/exp(b_0+b_1)	20.75
	D^2 (McFadden)	.42
	P value	**<.001**

W_B: week of birth; t_B: time of birth; ID: index of discrimination.

Table 6

Poisson Regression Analysis of RAE by Frequency for all Youth Players by age Group

Overall (*n* = 736)	W_B	15 ± 13
	t_B	.28 ± .24
	b_0	3.80
	b_1	-3.02
	ID=exp(b_0)/exp(b_0+b_1)	20.57
	D^2 (McFadden)	.50
	P value	<.001
U 20-23 (*n* = 188)	W_B	21 ± 14
	t_B	.39 ± .26
	b_0	2.48
	b_1	-3.03
	ID=exp(b_0)/exp(b_0+b_1)	6.81
	D^2 (McFadden)	.30
	P value	<.001

Table 6 (continued)

Poisson Regression Analysis of RAE by Frequency for all Youth Players by age Group

U 17-19 (n = 376)	W_B	18 ± 14
	t_B	.34 ± .26
	b_0	2.97
	b_1	-2,26
	ID=exp(b_0)/exp(b_0+b_1)	9.54
	D^2 (McFadden)	.34
	P value	<.001
U 15-16 (*n* = 172)	W_B	13 ± 12
	t_B	.24 ± .22
	b_0	2.76
	b_1	-2.68
	ID=exp(b_0)/exp(b_0+b_1)	14.66
	D^2 (McFadden)	.65
	P value	<.001

W_B: week of birth; t_B: time of birth; ID: index of discrimination.

Table 7

Poisson Regression Analysis of RAE by Frequency for all Youth Players by Team

Overall (*n* = 736)	W_B	15 ± 13
	t_B	.28 ± .24
	b_0	3.80
	b_1	-3.02
	ID=exp(b_0)/exp(b_0+b_1)	20.57
	D^2 (McFadden)	.50
	P value	<.001
Atlético de Madrid (*n* = 147)	W_B	7 ± 5
	t_B	.13 ± .09
	b_0	2.28
	b_1	-1.20
	ID=exp(b_0)/exp(b_0+b_1)	3.31
	D^2 (McFadden)	.28
	P value	<.001
Athletic Club (*n* = 91)	W_B	18 ± 15
	t_B	.34 ± .28
	b_0	1.73
	b_1	-1.41
	ID=exp(b_0)/exp(b_0+b_1)	4.09
	D^2 (McFadden)	.32
	P value	<.001

W_B: week of birth; t_B: time of birth; ID: index of discrimination.

Table 7 (continued)

Poisson Regression Analysis of RAE by Frequency for all Youth Players by Team

FC Barcelona(*n* = 134)	W_B	13 ± 11
	t_B	.24 ± .20
	b_0	2.37
	b_1	-2.06
	ID=exp(b_0)/exp(b_0+b_1)	7.87
	D_2 (McFadden)	.50
	P value	<.001
Real Madrid CF (*n* = 128)	W_B	15 ± 14
	t_B	.28 ± .26
	b_0	2.26
	b_1	-1.40
	ID=exp(b_0)/exp(b_0+b_1)	4.06
	D^2 (McFadden)	.35
	P value	<.001
Real Sociedad (*n* = 82)	W_B	17 ± 13
	t_B	.32 ± 0.24
	b_0	1.43
	b_1	-1.52
	ID=exp(b_0)/exp(b_0+b_1)	4.59
	D^2 (McFadden)	.26
	P value	.001
Valencia CF (*n* = 45)	W_B	14 ± 13
	t_B	.26 ± .24
	b0	1.32
	b_1	-1.83
	ID=exp(b_0)/exp(b_0+b_1)	6.23
	D^2 (McFadden)	.24
	P value	.01
Villarreal CF	W_B	15 ± 14
	t_B	.28 ± .26
	b_0	1.53
	b_1	-1.41
	ID=exp(b_0)/exp(b_0+b_1)	4.13
	D^2 (McFadden)	.22
	P value	.002
CA Osasuna	W_B	18 ± 15
	t_B	.34 ± .28
	b_0	.53
	b_1	.47
	ID=exp(b_0)/exp(b_0+b_1)	1.59
	D^2 (McFadden)	.08
	P value	.45

W_B: week of birth; t_B: time of birth; ID: index of discrimination.

Figure 2

Frequency of Week of Birth (WB) for Sport Stock Corporations and Poisson Regression

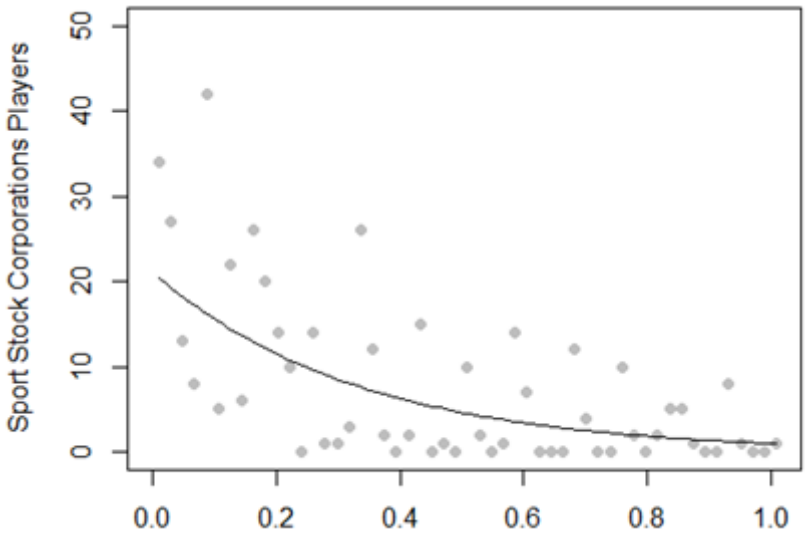
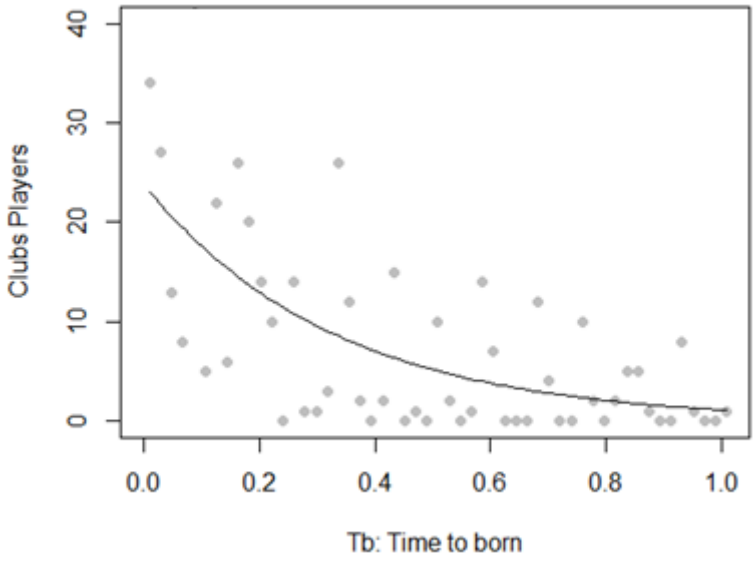


Figure 3

Frequency of Week of Birth (WB) for Clubs and Poisson Regression



To test the robustness of the analysis, we conducted the Poisson regression excluding FC Barcelona and Real Madrid, given their distinct characteristics and potential influence on the outcomes. The results remained consistent (p<.001), reinforcing the reliability of our findings.

In summary, the results show that, given the suggested hypotheses:

- (H_1) "SSCs are not affected by RAE". The hypothesis is rejected, given that the RAE is significant in SSCs.
- (H_2) "Clubs are affected by RAE". The hypothesis cannot be rejected, because in the same way that SSCs, the RAE is significant in clubs.

Discussion

Our Poisson regression by frequency analysis revealed the presence of a significant overall RAE in players of the best eight academies in Spain. The results align with previous studies that have identified significant RAE in soccer globally (Pérez-González et al., 2021), across Europe (Bezuglov et al., 2023; Augste & Lasme, 2011; Helsen et al., 2005) and specifically in

Spain (Salinero et al., 2013, 2014; Lesma et al., 2011). A sufficient critical mass is essential for RAE to occur, which explains its absence in Spain for sports like padel (Muñoz Moreno et al., 2021) and handball (Gómez-López et al., 2017).

When analysed by ownership model (Table 5), the effect was significant (p<.001) in both clubs and SSCs. These results confirm the findings of Pérez-González et al. (2023), which indicate that only clubs owned by public shareholders remain unaffected by RAE. In lieu of the hypotheses results, both SSCs and clubs are affected by the RAE. Therefore, there is no better governance by shareholders-based models (SSCs) in comparison with non-shareholders models (clubs). More significantly, the results reject Jensen's theory that the "governance problem" stems from the multi-fiduciary stakeholder paradigm.

This is new evidence that the Jensen's problem of governance (Jensen, 2002) needs to be revisited many more times, given that sport industry (by means of the present paper) along with banking industry shows no superiority of shareholder's model (Torres-Pruñonosa et al., 2012; San-Jose et al., 2014; 2018; 2020).

These theories presuppose that groups such as clubs, with their diverse membership and intricate management, would be far less successful than SSCs. As Jensen (2002) points out, clubs ought to have disappeared a few years after they were established. Conversely, clubs that have been in existence for almost a century have reached the same difficulties (i.e. RAE) that are on par with SSCs. As a result, football teams are a prime example of a multi-fiduciary governance structure that works well and provide real-world evidence that Jensen's "problem of governance" is overstated.

This highlights the relevance of stakeholder participation as well as the obstacles that arise when they refuse to participate in the decision-making process in a lethargic manner. Consequently, especially in light of the results, defining the governing body effectively, keeping positive relationships with stakeholders, professionalism and commitment to the clubs' interests and managing the sporting and financial aspects are among the important concerns.

The results indicate that neither member-owned nor shareholder-owned sports legal structures counteract the RAE. Focusing solely on one aspect of the win/profit maximisation dilemma—where clubs prioritise winning and SSCs focus on profits—(Garcia-del-Barrio & Szymanski, 2009; Terrien et al., 2017) perpetuates discrimination against players born later in the year. Although clubs operate as stakeholder-governed institutions, their primary objective remains winning, as they prioritise the interests of their members over those of other stakeholders (Pérez-González et al., 2023). Therefore, policymakers should explore hybrid governance models to counteract RAE. Football—and sports institutions more broadly —could reduce this form of age-based discrimination by adopting multi-stakeholder governance structures. Allocating different voting rights to various stakeholder groups, including parents of youth academy players, would help balance diverse interests and mitigate RAE. Given that parents prioritise the athletic and social development of their children over short-term competitive success, granting them a voice in decision-making could promote policies that foster long-term player growth and well-being, rather than those that inadvertently reinforce selection biases based on relative age (Bonal et al., 2020). While implementing such an alternative governance model may be challenging for elite sports institutions, it would be significantly more feasible at lower competition levels, where RAE first emerges and takes root.

Good governance should foster management strategies in sports academies that prioritise the physical and athletic development of young athletes, regardless of their starting skill level (Nuviala & Casajus, 2005). These strategies include revising recruitment and selection policies with a holistic, long-term perspective (Cobley et al., 2009; Brazo-Sayavera et al., 2017; Romann et al., 2018), raising awareness among coaches and managers about the existence of RAE (Arrieta et al., 2016), implementing measures such as bio-banding—grouping athletes based on physical and mental development rather than chronological age (Kelly et al., 2020; Bradley et al., 2019)—and maintaining a fixed quota of players from each quarter of the birth year. Federations must mandate this final policy if football institutions fail to implement it voluntarily; alternatively, restructuring competitions so that young athletes compete based on birth semester rather than calendar year could provide a viable solution.

Moreover, the study again confirms the high incidence of RAE in football academies in Spain (Castillo et al, 2019; Salinero et al., 2013). This latest discovery indicates that RAE requires more studies and reconsideration. A birth distribution that is skewed, disproportionately favouring those born early in the selection year, has been extensively documented across various sports, such as rugby, tennis, baseball and ice hockey, in numerous countries. This phenomenon is prevalent in both youth and senior competitions and persists even at the highest levels (Pérez-González et al.,2020; 2021).

It is important to note that talent is not inherently linked to someone's birth date, yet the talent identification process consistently demonstrates a significant bias toward relative age. This bias is understandable, but what remains puzzling is its persistence (Palacios-Huerta, 2022).

Conclusions

This paper's findings include several noteworthy and intriguing discoveries. We have examined if RAE has an impact on SSCs and clubs. Our investigation leads us to the conclusion that the different RAE levels of football organisations does not depend on the Spanish teams' belonging to a stakeholder or a shareholder model. There is not any evidence that the football institution model driven by shareholders is more efficient than clubs. Furthermore, it proves that Jensen's (2002) "problem of governance" argument is exaggerated and, at least, one additional example—Spanish football clubs—demonstrates that a stakeholder-based strategy is equally effective as a shareholder-based model (SSCs). Our empirical results, we believe, are important for a stakeholder-based football institution model. Clubs continue to be a system of sport organisation, with a governance body that involves a wide range of stakeholders in the decision-making process. Members of the club include players, coaches, staff and supporters. Their choices are more complicated, maybe as a result of the previously described stakeholder dilemma or the potential for a governance issue (Jensen's "problem of governance"). Though the clubs' management of stakeholders' interests and essential regard for them do not preclude them from being comparatively less efficient than SSCs.

We wish to draw attention to the importance of the stakeholder dilemma, which affects not just aims but also systems that impact results and, in turn, efficiency, even though it was not thoroughly examined in this study. Future studies must, thus, examine the governing bodies of each type of sport institution studied in this paper, including clubs and SSCs.

The limitations of the paper include several aspects that should be considered when interpreting the results. First, the sample is limited to only eight football teams, all located in Spain. This relatively small sample size may limit the generalisability of the findings, especially in the context of other countries with different structures and governance models. Additionally, the study uses cross-sectional data from a single season (2023/24), which restricts the ability to assess long-term trends in the RAE. A longitudinal approach that tracks players over multiple seasons could provide more robust insights.

Nonetheless, the sample of the eight most prominent Spanish academies offers a unique advantage in that it includes an equal representation of two distinct ownership models—four academies from clubs and four from SSCs. This allowed us to directly compare these two types of football organisations within the same context, facilitating the analysis of RAE across different governance structures. Future research could build on these findings by expanding the sample to include additional academies or by considering more diverse international contexts. For example, examining other national European situations where shareholder and stakeholder governance models coexist could provide valuable insights. A comparative analysis of football organisations in European countries with different governance structures would offer a broader perspective. Specifically, future studies might explore shareholder-governed football clubs, given that teams such as Athletic Club, FC Barcelona, and Real Madrid regularly compete in European football championships like the UEFA Champions League. This could enrich the understanding of the relationship between governance models and the RAE across diverse competitive environments.

Overall, as both football teams and SSC are impacted by RAE, demonstrating inefficiency, the implications for managers and policy makers are that should not be converted into SSCs to promote efficiency.

Ethics Committee Statement

Not applicable.

Conflict of Interest Statement

The authors declare no conflicts of interest. The affiliating entities or institutions had no influence on the design of the study, the analysis of the data, or the interpretation of the results.

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Authors' Contribution

ConceptualizationJ.T.-P. & B. P.-G.; Methodology B. P.-G.; Software B. P.-G.; Validation B.P.-G.; Formal Analysis B. P.-G.; InvestigationJ.T.-P., A.F.-L. & B. P.-G.; Resources J. T.-P., A. F.-L. & B. P.-G.; Data Curation B. P.-G.; Writing – Original Draft J. T.-P., P. B., A. F.-L. & B. P.-G.; Writing – Review & Editing J.T.-P., A. F.-L. & B. P.-G.; Visualization J. T.-P., P. B., A. F.-L. & B. P.-G.; Supervision J .T.-P. & B. P.-G.; Project Administration J. T.-P., A. F.-L. & B .P.-G.; Funding Acquisition J. T.-P. All authors have read and agreed to the published version of the manuscript.

Data Availability Statement

Data available uponrequest from the corresponding author: jose.torresprunonosa@unir.net

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