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DO THE SAME TEAMS ALWAYS WIN?
GENDER DIFFERENCES IN THE CASE OF EUROPEAN HANDBALL

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#### Abstract

Competitive balance is one of the most critical issues in team sports competitions; in this case, the major problem of European handball is that the same teams repeatedly win. Here, the sport has traditionally been dominated by a few powerhouse nations, including Denmark, France, Spain, and Germany, while other countries have struggled to compete at the highest levels. There exist some reasons behind this fact. Therefore, this study aims to analyze this rationale using quantitative methods, taking into consideration the different teams from these countries, in order to study this inequality. The period to be analyzed is 2007-2008 to 2021-2022 ( $\mathrm{n}=15$ seasons). Gender differences are taken into consideration. A severe lack of uncertainty of outcome has crucial effects on rivalry and follower rates. In other words, the increased competitive imbalance should particularly interest those who manage national leagues.


Keywords: competitive balance, European handball, inequality, gender

## RESUMEN (Español)

El balance competitivo es una de las cuestiones más importantes en la competición de deportes de equipo; en este caso, el principal problema del balonmano europeo es que repetidamente ganan los mismos equipos. Tradicionalmente, este deporte ha estado dominado por unas pocas potencias, como Dinamarca, Francia, España y Alemania, mientras que otros países han tenido dificultades para competir al más alto nivel. Existen algunas razones detrás de este hecho. Por lo tanto, el objetivo de este estudio es analizar esta razón utilizando métodos cuantitativos teniendo en cuenta a los diferentes equipos de estos países, para estudiar la desigualdad. El periodo de tiempo a analizar es 2007-2008 to 2021-2022 ( $\mathrm{n}=15$ ). Se consideran las diferencias de género. Una grave falta de incertidumbre en los resultados tiene efectos cruciales en los índices de rivalidad y de seguidores. En otras palabras, el aumento del desequilibrio competitivo debería ser de especial interés a quienes gestionan las ligas nacionales.

Palabras clave: balance competitivo, balonmano europeo, desigualdad, género

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## 1. INTRODUCTION

During the last decades, the competitive balance has suffered a worrying tendency: the problem of the same teams repeatedly winning in multiple leagues. Sports commentators, fans, and economists are carriers of this fact (Sanderson \& Siegfried, 2003). In the case of European handball, this tendency has been evident over the last decades, whether in women's or men's competitions.

In order to give rise to the reasoning behind this fact, this research paper will focus on finding the best answer to the following question: do the same teams always win? The grade, improvement, or worsening over the time analyzed will be the subject of analysis. In fact, all other things being equal, increased demand should result from a stronger competitive balance (Humphreys, 2002).

As further explained, I will focus on comparing women's and men's national leagues across countries (Denmark, France, Germany, and Spain) in a specific time interval ( $\mathrm{n}=15$ seasons) to obtain quantitative indicators to secure a trustworthy database to analyze. The process of selecting these specific countries will be further explained in section 3, which gives rise to all the facts regarding antecedents and objectives.

Overall, this research paper aims to provide a valuable contribution to the ongoing discussions about the state of European handball and the measures that can be taken to improve its competitiveness. In addition, it can help the number of publications of empirical evidence about handball grow, given the fact that it is not very extensive (especially in the case of women). True as it is, "appropriate measurement of competitive balance is central to the economic analysis of professional sports leagues" (Owen \& King, 2014: p.1).

Conclusions and their respective discussion will be provided at the end of the document, followed by the limitations and the possible further research of the topic or potentially related ones.

## 2. LITERATURE REVIEW

### 2.1. What is the competitive balance?

Competitive balance stands for "the situation in which no one business of a group of competing businesses has an unfair advantage over the others" (Cambridge Dictionary, 2023). Thus, in sports economics, competitive balance refers to the equality of forces, chances, and probabilities that rival teams in a league or championship have to prevail over the rest. This is, the competitive balance would exist if, at the start of a season, every team would have equal possibilities to win a league or to classify into a specific championship, instead of always being some specific teams who happen to dominate. "Competitive balance, how evenly teams are matched, is a central feature of the economic analysis of professional sports leagues; consequently, its measurement has received considerable attention in the sports economics literature" (Owen \& King, 2014: p.1).

The majority of the scientific literature on competitive balance emphasizes the structure of the competition and how it works, which has focused on determining the possible factors that can affect competitive balance in different leagues. Some multiple factors or determinants set one league apart from another and may affect the balance of the competition (García-Unanue et al., 2014). The establishment of open or closed leagues, playoffs, and a greater number of national and international competitions are all examples of these elements.

Competitive balance is not easy to define or measure, but it is studied because it has major important implications for sport and its success and achievement. In fact, "appropriate measurement of competitive balance is central to the economic analysis of professional sports leagues" (Owen \& King, 2014: p.1). As Owen and King state, "simulation methods are used to evaluate the effects of changes in season length on the distributions of competitive balance measures for different distributions of the strengths of teams in a league" since it "provides an ideal approach to evaluate the effects of such changes on the distributions of competitive balance measures for prespecified and hence known distributions of the strengths (abilities) of the teams".

The main issue with competitive balance in handball is the following: there exists a major lack of uncertainty regarding which team will win different leagues.

As mentioned in the article "Does Competitive Balance Drive Interest In Sports?" (Badenhausen, 2015) "uncertainty of outcomes in competition is what drives fans, media, sponsors and dollars to the sports industry. If a single or a small collection of teams could sign all the best players then what excitement would these games provide?". Clear as it is, knowing in advance what the result will be can bore anyone in any sport or aspect of life. In other words, we need suspense to have interest and allure for something. Intrigue is key for captivation. Nonetheless, Badenhausen (2015) supports the idea that the possible cause for sports leagues being so successful nowadays may be due to few teams dominating most leagues, which calls the previous point into question.

If the competitive balance in a league is low, it is clear that fan interest in the weaker teams will fall and, eventually, fan interest in the stronger teams will also fall. Therefore, a higher competitive balance should lead to higher demand, all other things being equal (Humphreys, 2002).

Being this the case, there exists a crucial question to this matter: what are the possibilities for the improvement of competitive balance?

The potential stands predominantly in salary caps (maximum limit on total team salary expenditure), and revenue sharing (Kesenne, 2019). By penalizing teams that do not meet the specified requirements, they attempt to prevent the accumulation of the best players on a few teams and achieve a more balanced squad. Since these options have been the subject of numerous authors' publications, it is reasonable to assume that they are the most widely used. Howbeit, Kesenne (2019) does not recommend the aspiration of a transfer system aimed at limiting player mobility unless it pursues a real eradication, since it may not be enough. Nonetheless, other authors have different opinions about the effectiveness of these methods, thus this is not an undisputed truth.

### 2.2. Implications in different sports

Competitive balance is indeed addressed in different ways by the rules and norms of each sport. As a result, this section of the paper is devoted to providing readers with a brief overview of some leagues of the most popular sports. Considering that competitive
balance is expected to be measured in team sports, some of the overriding pieces of information about basketball and football will be given.

Taking glances at basketball, some findings indicate that the NBA (National Basketball Association) as a whole has a better balance of competition than the European leagues, but these differences disappear when the conferences are looked at separately (García-Unanue et al., 2014). It is true that the NBA places restrictions on the opposition that continue to favor the chance of making it more appealing to viewers. More specifically, the salary cap system is in place. Additionally, the NBA draft enables lower-ranked teams to acquire new players and thus compete for the top spots in subsequent seasons.

Regarding football in the case of "La Liga" in Spain, we can see that "The supremacy of a few teams over the other participants is a common factor in the major European football leagues. The Spanish First Division league is not an exception" (Montes et al., 2012, p.1). Given the possibility of having ties and the repartition of points in this sport, the competitive balance should be measured in terms of accumulated points at the end of the season instead of the percentage of wins. In this case, the most balanced tournament will be the one in which the points difference between the competitors is the smallest possible, as this reflects a better chance of winning the title or qualifying for continental tournaments for all clubs during a season (Gasparetto \& Barajas, 2016). In Spain's Liga BBVA, two teams frequently compete for a spot in the UEFA Champions League (FCB and Real Madrid), as well as three teams that are significantly stronger than the others in terms of results.

### 2.3. About handball

Gazing at the history of this sport, it was first played outdoors by 11 players in Scandinavia in the early 19th century (Saavedra, 2018) and slowly evolved to a 7-people-per-team indoor game that is played by around 19 million people worldwide (International Handball Federation, 2014). In 2021, 92,539 people were federated in this sport in Spain, only surpassed by football, hunting, golf, mountain and climbing, basketball, and paddle tennis (Statista Research Department, 2022). It is played in two 30-minute halves, in which two teams fight to score more goals than the opponent.

Nowadays, handball is one of the most popular indoor sports played worldwide, having
a special weight in Europe. This is why European Handball is among the main hubs of its competitive scene, as seen in the latest results of World Cups. It has been included as a sport to compete at the Olympic Games since 1972 (men) and since 1976 (women).

This sport is said to be considerably profound since it includes some "specific characteristics... frequent intensity changes, team-handball techniques, hard body confrontations, mental skills, and social factors specify the determinants of coordination, endurance, strength and cognition" (Wagner et al., 2014: p.1). In fact, "team handball is a complex sports game that is determined by the individual performance of each player as well as tactical components and interaction of the team", meaning that it is the talent of uniting individual strengths that makes a team outstanding. The previously mentioned research paper separates team-handball performance into two main components which are individual performance (coordination, strength, endurance, constitution-disposition, and nutrition) and team performance (cognition, social factors, and tactics), taking into consideration that external influences such as material and environmental conditions are crucial.

As stated by various research papers in the last decades, there is not enough research about this sport. "Although there are comprehensive studies examining individual performance in team-handball players of different experience level, sex, or age are published, there is a lack of training studies, particularly for team-handball specific techniques and endurance, as well as cognition and social factors" (Wagner et al., 2014: p.1) and "Despite the sport's popularity, scientific publications on handball have been scarce" (Saavedra et al., 2018: p.6) are some of the multiple examples that uncover this fact. Presently, if we take the case of the bibliographic database Scopus, we can see that there are just 1,898 documents that include the word "handball" in the article's title and 1,086 in the keywords, whereas for the case of "football" 17,153 and 22,356 documents can be found, respectively. If we search "competitive balance" and "handball", we will only face 8 results. This fact has had an impact on this paper since it has been forced to be further completed with opinion articles from official and well-known web pages because academic articles are more scarce than in other sports such as football, tennis, or basketball.

The previously mentioned problem of competitive balance in handball happens all across Europe; but if we focus on the case of masculine handball in Spain, it is known
that during the last few years, there is no doubt that FC Barcelona will win every ASOBAL league, year after year, repeatedly. Even if they have had some competitive opponents in previous years, they have been undefeated since 2009-2010, when CD Ciudad Real won the league (ASOBAL, 2023). Caja España Ademar (León) and Portland San Antonio (Navarre) are the other teams that have been able to surpass FCB in this century.

On the other hand, regarding female handball in Spain, there exists a little bit more uncertainty, since there have been different teams winning the league in the last century, even if there are still a few teams in real competition. Since the 2008-2009 sports year, S. D. Itxako (Navarre) has achieved the prize 4 consecutive times and Balonmano BeraBera (Basque country) 8 times, while Club Balonmano Atlético Guardés (Galicia) and Rocasa Gran Canaria are unusual winners (Almenzar, 2022). The presently named Liga Iberdrola has been called División de Honor Femenina (1982-2005), Liga Costa Blanca ABF (2005-2007), Liga ABF (2007-2011), División Honor Femenina (2011-2015) Liga Loterías de Balonmano Femenino (2015-2017) and finally Liga Guerreras Iberdrola (2017-present).

In addition, gender is present in this research, thus it is important to mention that gender inequality affects (almost) every detail of handball competition, and competitive balance is not an exception. One of the more relevant and obvious reasons may be budgeting. Comparing the examples previously used, FC Barcelona has won 20 ASOBAL leagues in the last century, being the referent team. In Iberdrola, Balonmano Bera Bera is in the same situation, having won 8 leagues in the same period. Iconic players have been part of both teams, but there happens to be a difference; FCB's annual budget stands at almost 9 million euros in 2021 (Izquierdo, 2021), whereas Bera Bera was $805.000 €$ in 2022-2023 (Soler Olcina, 2023). This results in the budget of the men's team with the most league wins in recent years being approximately 11 times that of the women's team. In other words, 1 annual budget of FCB is similar to 11 annual budgets of Bera Bera. The outcome is clear; it is not by chance that female players tend to search for better opportunities outside of our territory as soon as they acquire a reputation, as is the case of Nerea Pena, Lysa Tchaptchet, or Paula Arcos. "Budgets have increased in recent years, but the overall 6 million for elite handball in Spain is a far cry from the +25 million in Romania and the +30 million in France" states Soler Olcina (2023).

## 3. OBJECTIVES

After deciding what the theoretical framework would be, the decision was to study women's and men's handball national leagues across some European countries in a 15 -year time interval.

The reasoning behind having chosen European leagues was that it is the territory where more competition and high level there is regarding this specific sport. In fact, as an interesting point, winning a World Cup is considered to be easier than winning a European tournament, since being confronted by non-European teams is to some extent deemed to be an advantage compared to other possible opponents. Therefore, analyzing some of the most relevant countries forming this sportive apex was undoubtedly the best option. Even if analyzing national teams was an option, the decision was to do further research about teams in these countries.

Related to the previous fact, choosing the most appropriate samples was a tough task. To select relevant countries for both masculine and feminine leagues, national teams played an important role. Being among those who more often have won European (Diario AS, 2023) and World Tournaments (Diario AS, 2021) was a must taking into consideration that both genders should be contemplated.

The following table (Table 1) brings together which countries in general and what leagues specifically will be the sample to be analyzed across this research paper.

Table 1: Danish, French, German, and Spanish male and female handball leagues

| COUNTRIES | MEN'S LEAGUES | WOMEN'S LEAGUES |
| :---: | :---: | :---: |
| Denmark | Danish League <br> Association | Bambusa Kvindeligaen |
| France | Ligue Nationale de <br> Handball | Ligue Butagaz Énergie |
| Germany | Toyota <br> Handball-Bundesliga | Bundesliga |
| Spain | Asobal | Iberdrola |

Source: own elaboration
In a nutshell, the importance of this research stands in the evolution over time and the differences in gender concerning the competitive balance of European handball, putting special emphasis on the teams within each country instead of national teams.

## 4. DATA AND METHODOLOGY

With the aim of solving the question of "do the same teams always win?" and its evolution over time, a database has been created, putting together information from results in European handball (regarding Germany, Denmark, France, and Spain for both genders). The classifications of all the seasons per country and gender have been retrieved from flash score (flashscore.es).

Here, there exists one page for each country and gender; this is, one for German men, one for German women, etc. The 15 seasons considered (2007-2008 to 2021-2022) have been organized in the horizontal axis of each table, following a chronological order. Teams from each of the national leagues stand on the vertical axis. Of course, the number of teams participating in a national league may vary across countries and over time, since regulations have been different.

Each of the different categories has an independent page, which is organized the following way: Spanish women (Table 2), Spanish men (Table 3), Danish women (Table 4), Danish men (Table 5), French women (Table 6) French men (Table 7), German women (Table 8), and German men (Table 9).

Table 2: Spanish women's handball league's latest classifications









| 2012-2013 |  |  |
| :---: | :---: | :---: |
| POSmion | TEAM | POINTS |
| 1 | Bera Bera | 47 |
| 2 | Elche | 45 |
| 3 | Rocasa | 42 |
| 4 | Alcobendas | 38 |
| 5 | Guardes | 35 |
| 6 | Porino | ${ }^{27}$ |
| 7 | Cleba | 22 |
| 8 | Zuazo | 20 |
| 9 | Alcante | 19 |
| 10 | Valencia | 19 |
| 11 | 1 ltako | 17 |
| 12 | Kukullaga | 16 |
| 13 | Casteldeferels | 15 |
| 14 | Castro Uriciales | 2 |


| $2011-2012$ |  |  |
| :---: | :---: | :---: |
| Position | TEAM | POINTS |
| 1 | Itxako | 50 |
| 2 | Bera Bera | 45 |
| 3 | Parc Sagunt | 35 |
| 4 | Alcobendas | 32 |
| 5 | Alicante | 32 |
| 6 | Elche | 30 |
| 7 | Rocasa | 25 |
| 8 | Cleba | 22 |
| 9 | Elda | 22 |
| 10 | Murcia | 20 |
| 11 | Parrino | 20 |
| 12 | Castro Uriales | 16 |
| 13 | Kukullaga | 11 |
| 14 | La Calzada | 4 |


| 2010.2011 |  |  |
| :---: | :---: | :---: |
| POSITION | TEAM | POINTS |
| 1 | Itako | 50 |
| 2 | Elda | 39 |
| 3 | Parc Sagunt | 37 |
| 4 | Alicante | 34 |
| 5 | Bera Bera | 30 |
| 6 | Elche | 28 |
| 7 | Cleba | 23 |
| 8 | Castro Uridiales | 23 |
| 9 | Alcobendas | 21 |
| 10 | Murcia | 21 |
| 11 | Gran Monovar | 18 |
| 12 | Goya Koppert | 17 |
| 13 | Rocasa | 15 |
| 14 | Marina Park | 8 |


| 2009-2010 |  |  |
| :---: | :---: | :---: |
| POSITION | team | Points |
| 1 | 1 trako | 46 |
| 2 | Elda | 43 |
| 3 | Parc Sagunt | 39 |
| 4 | Alicante | 36 |
| 5 | Cleba | 31 |
| 6 | Bera Bera | 29 |
| 7 | Elche | 24 |
| 8 | Goya Koppert | 24 |
| 9 | Castro Urdiales | ${ }^{23}$ |
| 10 | Alcobendas | ${ }^{23}$ |
| 11 | Rocasa | 19 |
| 12 | Marina Park | 15 |
| 13 | La Calzada | 12 |
| 14 | Ribaroja | 0 |


| 2008-2009 |  |  |
| :---: | :---: | :---: |
| Position | TEAM | POINTS |
| 1 | Itako | 50 |
| 2 | Parc Sagunt | 43 |
| 3 | Elda | 42 |
| 4 | Bera Bera | 40 |
| 5 | Alicante | 36 |
| 6 | Elche | ${ }^{28}$ |
| 7 | Goya Koppert | 27 |
| 8 | Cleba | 23 |
| 9 | La Catzada | 22 |
| 10 | Acobendas | 14 |
| 11 | Rocasa | 13 |
| 12 | Ribaroja | 12 |
| 13 | Zuazo | 8 |
| 14 | Gran Monovar | 6 |


| 2007-2008 |  |  |
| :---: | :---: | :---: |
| POSTION | TEAM | POINTS |
| 1 | Valencia | 47 |
| 2 | Eda | 45 |
| 3 | Itrako | 43 |
| 4 | Bidebieta | 39 |
| 5 | Sagunto | 35 |
| 6 | Alcobendas | 33 |
| 7 | Granollers | 31 |
| 8 | Castro Urdiales | 27 |
| 9 | Porrino | 26 |
| 10 | La Calzada | ${ }^{23}$ |
| 11 | Parc Sagunt | 20 |
| 12 | Roquetas | 19 |
| 13 | Gijon | ${ }^{13}$ |
| 14 | Chapela |  |

Source: own elaboration

Table 3: Spanish men's handball league's latest classifications

| $2021-2022$ |  |  |
| :---: | :---: | :---: |
| POSITION | tem | POINTS |
| 1 | Barcelona | 57 |
| 2 | Granolers | 44 |
| 3 | Bidasoa lun | 42 |
| 4 | Benisom | 35 |
| 5 | Cuenca | 34 |
| 6 | Logrono La Rioja | 34 |
| 7 | Ademar Leosn | 30 |
| 8 | Analasuna | 29 |
| 9 | Huesca | ${ }^{28}$ |
| 10 | Puente Geril | 26 |
| 11 | Torelavega | ${ }^{26}$ |
| 12 | Morrazo | 26 |
| 13 | Avenico valasolid | 22 |
| 14 | Sinn | 21 |
| 15 | Nava | 20 |
| 16 | Antequera | 6 |


| 2020-2021 |  |  |
| :---: | :---: | :---: |
| POSITION | team | POINTS |
| 1 | Barceona | ${ }^{68}$ |
| 2 | Bicasoa lun | 53 |
| 3 | Logrono La Riota | 47 |
| 4 | Granolers | 47 |
| 5 | Huesca | 47 |
| 6 | Cuenca | 43 |
| 7 | Ademar Leeon | 39 |
| 8 | Puente Gend | 36 |
| 9 | Aluscoo vallesold | 35 |
| 10 | Analasuna | 33 |
| 11 | Benioam | 31 |
| 12 | Nava | 24 |
| 13 | Simfin | 24 |
| 14 | Morazo | 22 |
| 15 | Guasalajara | 22 |
| 16 | Pueto Sagunto | 18 |
| 17 | Cise | 12 |
| 18 | Viat de Aranca | 11 |


| 2019-2020 |  |  |
| :---: | :---: | :---: |
| Position | TEAM | Points |
| 1 | Barceiona | 38 |
| 2 | Ademar León | ${ }^{33}$ |
| 3 | Logrono La Rioia | 30 |
| 4 | Bilasoa lun | ${ }^{27}$ |
| 5 | Cuenca | ${ }^{23}$ |
| 6 | Granollers | 21 |
| 7 | Guadalajara | 16 |
| 8 | Puente Genil | 15 |
| 9 | Nava | 14 |
| 10 | Aleetice Valasolid | 14 |
| 11 | Puero Sagunto | 14 |
| 12 | Benicom | 14 |
| 13 | Anallasuna | 13 |
| 14 | Sinfin | 13 |
| 15 | Huesca | 11 |
| 16 | Cangas | , |


| 2018-2019 |  |  |
| :---: | :---: | :---: |
| POSTIION | team | POINTS |
| 1 | Barcebna | 59 |
| 2 | Bicasoa 1un | 45 |
| 3 | Logrofo La Rióa | 42 |
| 4 | Ademar Leenn | 37 |
| 5 | Granolers | 37 |
| 6 | Huesca | ${ }^{3}$ |
| 7 | Alescos Vallasolid | ${ }^{33}$ |
| 8 | Cuenca | 33 |
| 9 | Benioam | 30 |
| 10 | Analtasuna | 25 |
| 11 | Simfin | 24 |
| 12 | Guacalagara | ${ }^{23}$ |
| 13 | Puente Gend | 19 |
| 14 | Morazo | 18 |
| 15 | Albarel Teucro | 13 |
| 16 | Acobencas | 9 |


| 2017.2018 |  |  |
| :---: | :---: | :---: |
| Position | team | POINTS |
| 1 | Barcelona | 57 |
| 2 | Ademar Leon | 43 |
| 3 | Granoters | 42 |
| 4 | Logono La Rióa | 41 |
| 5 | Cuenca | 37 |
| 6 | Anatasuna | 36 |
| 7 | Huesca | 33 |
| 8 | Guadasjara | 29 |
| 9 | Anelico valusdolis | ${ }^{28}$ |
| 10 | Bidasoa Iun | 27 |
| 11 | Benidorm | 25 |
| 12 | Puente Cenil | 19 |
| 13 | Morrazo | 19 |
| 14 | Albarei Teucro | 18 |
| 15 | Puero Segunto | 13 |
| 16 | Zamora | 13 |


| $2016-2017$ |  |  |
| :---: | :---: | :---: |
| Position | team | POINTS |
| 1 | Barcelona | ${ }^{60}$ |
| 2 | Ademar Leon | 51 |
| 3 | Logrofo La Rioja | 42 |
| 4 | Granolers | 37 |
| 5 | Analasuna | 32 |
| 6 | Cuenca | 31 |
| 7 | Huesca | 30 |
| 8 | Auetico Valasolid | ${ }^{28}$ |
| 9 | Puente Geril | 25 |
| 10 | Guadajara | 24 |
| 11 | Bidasoa lun | 23 |
| 12 | Pueno Sagumto | 23 |
| 13 | Benisorm | 21 |
| 14 | Morrazo | 20 |
| 15 | Vila de Avanda | 20 |
| 16 | Snnn | 13 |


| 2015-2016 |  |  |
| :---: | :---: | :---: |
| Position | TEAM | POINTS |
| 1 | Barceona | 56 |
| 2 | Logoro La Rica | ${ }^{43}$ |
| 3 | Ademar León | 38 |
| 4 | Granolers | 37 |
| 5 | Morazo | 28 |
| 6 | Vila de Aranca | 27 |
| 7 | Analasuna | 26 |
| 8 | Beniocm | 24 |
| 9 | Pueto Sagumo | 22 |
| 10 | Huesca | 22 |
| 11 | Cuenca | 22 |
| 12 | Guasalajara | 21 |
| 13 | Simfin | 19 |
| 14 | Puente Genil | 19 |
| 15 | Abarel Teucro | 16 |
| 16 | Aragon | 0 |


| $2014-2015$ |  |  |
| :---: | :---: | :---: |
| Position | TEAM | POINTS |
| 1 | Barceona | 60 |
| 2 | Logrofo La Roja | 48 |
| 3 | Granolles | 43 |
| 4 | Analasuna | ${ }_{3}$ |
| 5 | Cangas | 32 |
| 6 | Benicom | 32 |
| 7 | Ademar | 31 |
| 8 | Vila cee efanda | ${ }^{28}$ |
| 9 | Huesca | 27 |
| 10 | Puente Genil | 24 |
| 11 | Guadalajara | 24 |
| 12 | Puero Segunto | 24 |
| 13 | Aragon | 23 |
| 14 | Cuenca | 21 |
| 15 | zamera | 19 |
| 16 | Juantersa | 8 |









Source: own elaboration

Table 4: Danish Women's handball league's latest classifications

| 2021-2022 |  |  |
| :---: | :---: | :---: |
| Position | TEAM | POINTS |
| 1 | Odense | 50 |
| 2 | Esberj | 45 |
| 3 | Herring | 39 |
| 4 | Viborg | 39 |
| 5 | Nyk | 29 |
| 6 | Silkeborg | 27 |
| 7 | Horsens | 26 |
| 8 | Copenhagen | 24 |
| 9 | Aartus | 22 |
| 10 | Ajax | 16 |
| 11 | Skandertorg | 15 |
| 12 | Randers | 14 |
| 13 | Ringkoting | 12 |
| 14 | Holstebro | 6 |


| 2020-2021 |  |  |
| :---: | :---: | :---: |
| Position | TEAM | POINTS |
| 1 | Esbjerg | 46 |
| 2 | Odense | 46 |
| 3 | Viborg | 44 |
| 4 | Heering | 35 |
| 5 | Copenhagen | 32 |
| 6 | Nyk | 32 |
| 7 | Aathus | 24 |
| 8 | Silkeborg | 22 |
| 9 | Holstero | 21 |
| 10 | Ajax | 19 |
| 11 | Randers | 19 |
| 12 | Horsens | 15 |
| 13 | Skandertorg | 6 |
| 14 | Vensyssel | 3 |


| 20192020 |  |  |
| :---: | :---: | :---: |
| POSITION | TEAM | Points |
| 1 | Essjierg | 40 |
| 2 | Odense | 36 |
| 3 | Viborg | 35 |
| 4 | Copenhagen | 35 |
| 5 | Sikeborg | 30 |
| 6 | Heming | 30 |
| 7 | Aathus | 26 |
| 8 | Randers | 23 |
| 9 | Nyk | 22 |
| 10 | Ajax | 13 |
| 11 | Holsebro | 12 |
| 12 | Horsens |  |
| 13 | Skanderitorg | 7 |
| 14 | Aalborg | 7 |


| 2018-2019 |  |  |
| :---: | :---: | :---: |
| Position | team | POINTS |
| 1 | Odense | 47 |
| 2 | Essjerg | 44 |
| 3 | Heming | 40 |
| 4 | Copenhagen | 40 |
| 5 | Nyk | 37 |
| 6 | Aatius | 31 |
| 7 | Viborg | 26 |
| 8 | Holsterro | 21 |
| 9 | sllkeborg | 21 |
| 10 | Skandertorg | 16 |
| 11 | Ajax | 14 |
| 12 | Randers | 14 |
| 13 | Aalborg | 7 |
| 14 | Ringkobing | 6 |


| $2017-2018$ |  |  |
| :---: | :---: | :---: |
| POSITION | TEAM | POINTS |
| 1 | Copenhagen | 35 |
| 2 | Odense | 33 |
| 3 | Heering | 30 |
| 4 | Nyk | 29 |
| 5 | Esbjerg | 28 |
| 6 | Viborg | 27 |
| 7 | Silkeborg | 24 |
| 8 | Randers | 20 |
| 9 | Holstero | 18 |
| 10 | Aatrus | 12 |
| 11 | Ringkebing | 5 |
| 12 | Ajax | 3 |


| 2016-2017 |  |  |
| :---: | :---: | :---: |
| POSITION | TEAM | POINTS |
| 1 | Herning | 39 |
| 2 | Nk | 30 |
| 3 | Viborg | 29 |
| 4 | Copenhagen | 28 |
| 5 | Sikeborg | 27 |
| 6 | Odense | 26 |
| 7 | Esbjerg | 24 |
| 8 | Rancers | 20 |
| 9 | Aartus | 17 |
| 10 | Holstebro | 10 |
| 11 | Ringkobing | 9 |
| 12 | Skandertborg | 5 |


| 2015-2016 |  |  |
| :---: | :---: | :---: |
| POSIITION | TEAM | POINTS |
| 1 | Esbjerg | 34 |
| 2 | Heering | 32 |
| 3 | Viborg | 28 |
| 4 | Holstebro | 27 |
| 5 | Randers | 27 |
| 6 | Nyk | 24 |
| 7 | Copenhagen | 21 |
| 8 | Silieborg | 21 |
| 9 | Odense | 20 |
| 10 | Aartus | 16 |
| 11 | Ringkobing | 14 |
| 12 | Sendefiyske | 0 |



| 2011-2012 |  |  |
| :---: | :---: | :---: |
| POSITON | TEAM | POINTS |
| 1 | Viborg | 38 |
| 2 | Holstero | 37 |
| 3 | Randers | 34 |
| 4 | Herring | 34 |
| 5 | EEsbierg | 24 |
| 6 | Flif | 19 |
| 7 | Aarlus | 16 |
| 8 | Aalborg | 15 |
| 9 | Vejen | 14 |
| 10 | Odense | 14 |
| 11 | Slagelse | 10 |
| 12 | Silkeborg | 9 |


| 2010-2011 |  |  |  |
| :---: | :---: | :---: | :---: |
| POSITION | TEAM | POINTS |  |
| 1 | Randoers | 40 |  |
| 2 | Viborg | 36 |  |
| 3 | Herring | 30 |  |
| 4 | Vejen | 29 |  |
| 5 | Esbierg | 25 |  |
| 6 | Holstero | 23 |  |
| 7 | Aarus | 19 |  |
| 8 | FIIF | 18 |  |
| 9 | Odense | 17 |  |
| 10 | Aalborg | 16 |  |
| 11 | Roskide | 9 |  |
| 12 | Senderiyske | 2 |  |


| 2009-2010 |  |  |
| :---: | :---: | :---: |
| POSITION | TEAM | POINTS |
| 1 | FIF | 38 |
| 2 | ViFory | 36 |
| 3 | Heming | 31 |
| 4 | Randers | 31 |
| 5 | Vejen | 30 |
| 6 | Esbjerg | 25 |
| 7 | Aalbora | 23 |
| 8 | Holstebro | 16 |
| 9 | Odense | 15 |
| 10 | Aartus | 13 |
| 11 | Senderiyse | 3 |
| 12 | Horsens | 3 |


| 2008-2009 |  |  |
| :---: | :---: | :---: |
| Position | TEAM | Points |
| 1 | Viborg | 44 |
| 2 | FIF | 36 |
| 3 | Aartus | 31 |
| 4 | Heming | ${ }^{28}$ |
| 5 | Aalborg | 25 |
| 6 | Vejen | 22 |
| 7 | Essjerg | ${ }^{21}$ |
| 8 | Randers | 19 |
| 9 | Horsens | 18 |
| 10 | Gudme | 12 |
| 11 | Senderiyske | 6 |
| 12 | Slagelse | 2 |


| 2007-2008 |  |  |
| :---: | :---: | :---: |
| POSITION | TEAM | POINTS |
| 1 | Viberg | 39 |
| 2 | Herring | 35 |
| 3 | FIF | 30 |
| 4 | Slagelse | 29 |
| 5 | Vejen | 29 |
| 6 | Randers | 19 |
| 7 | Aatrus | 18 |
| 8 | Gudme | 18 |
| 9 | Esbjierg | 14 |
| 10 | Aalborg | 12 |
| 11 | Horense | 11 |
| 12 | Team Nord | 10 |

[^0]Table 5: Danish men's handball league's latest classifications

| 2021-2022 |  |  |
| :---: | :---: | :---: |
| Position | TEAM | POINTS |
| 1 | GOG | 52 |
| 2 | Aalborg | 47 |
| 3 | Skjerm | 37 |
| 4 | Skandertorg | ${ }^{36}$ |
| 5 | \|erringtrosisikebol | 33 |
| 6 | Fredericia | 29 |
| 7 | Mars | 26 |
| 8 | Ribe-Esbjerg | 24 |
| 9 | Lemvig | 22 |
| 10 | Norrsjielland | 21 |
| 11 | Senderiyske | ${ }^{21}$ |
| 12 | Kolding | 19 |
| 13 | Holstero | 19 |
| 14 | Ringsted | 19 |
| 15 | Skive | 15 |


| 2020-2021 |  |  |
| :---: | :---: | :---: |
| POSIITON | team | POINTS |
| 1 | GOG | 42 |
| 2 | Aalborg | 41 |
| 3 | Holstero | 38 |
| 4 | Bjerringbro/Silikel | 35 |
| 5 | Senderiyske | 29 |
| 6 | Skjern | 29 |
| 7 | Skandertorg | 27 |
| 8 | Kolding | 24 |
| 9 | Ribe-Esbjerg | 20 |
| 10 | Fredericia | 20 |
| 11 | Mors | 19 |
| 12 | Aatus | 18 |
| 13 | Lemvig | 11 |
| 14 | Ringsted | 11 |


| 2019-2020 |  |  |
| :---: | :---: | :---: |
| POSITION | TEAM | Points |
| 1 | Aalborg | 42 |
| 2 | GOG | 34 |
| 3 | Holstebro | ${ }^{3}$ |
| 4 | Bjeringtro/Silikel | 29 |
| 5 | Skjem | 28 |
| 6 | Skandertorg | 27 |
| 7 | Ribe-Esbjerg | 24 |
| 8 | Mars | 24 |
| 9 | Senderiyske | 22 |
| 10 | Aartus | 22 |
| 11 | Frederica | 16 |
| 12 | Kolding | 13 |
| 13 | Lemvig | 13 |
| 14 | Norcsjelland | 9 |


| 2018-2019 |  |  |
| :---: | :---: | :---: |
| Position | TEAM | Points |
| 1 | Aalborg | 41 |
| 2 | gog | 40 |
| 3 | Bjerringtra/isiket | 37 |
|  | Holsterro | 35 |
| 5 | Skjem | 34 |
| 6 | Skandertorg | 32 |
| 7 | Aatus | 29 |
| 8 | Senderiyske | 23 |
| 9 | Ribe-Esbjerg | 23 |
| 10 | Mors | 17 |
| 11 | Norrsjemiland | 17 |
| 12 | Lenvis | 13 |
| 13 | Kolding | 12 |
| 14 | Ringsted | 11 |


| 2017-2018 |  |  |
| :---: | :---: | :---: |
| Position | TEAM | POINTS |
| 1 | Skjem | 43 |
| 2 | GOG | 42 |
| 3 | Bjeringtro/Siket | 40 |
| 4 | Aalborg | 32 |
| 5 | Hostebro | 31 |
| 6 | Kolding | 25 |
| 7 | Nardsjimland | 24 |
| 8 | Aartus | 23 |
| 9 | Mors | 23 |
| 10 | Ribe-Esbjerg | 22 |
| 11 | Senderiyse | 17 |
| 12 | Skandertorg | 17 |
| 13 | Miditilland | 13 |
| 14 | Tonder | 12 |


| 2016-2017 |  |  |
| :---: | :---: | :---: |
| Position | TEAM | POINTS |
| 1 | Aalborg | 41 |
| 2 | \|erringtro/Sİkebol | ${ }^{38}$ |
| 3 | Holstero | ${ }^{37}$ |
| 4 | Skjem | 34 |
| 5 | GOG | 32 |
| 6 | Mars | ${ }^{27}$ |
| 7 | Ribe-Esbjerg | 27 |
| 8 | Kolding | 26 |
| 9 | Aartus | 23 |
| 10 | Senderiyske | 21 |
| 11 | Midtuland | 20 |
| 12 | Skandertorg | 16 |
| 13 | Tender | 13 |
| 14 | Randers | 9 |








| 2009-2010 |  |  |
| :---: | :---: | :---: |
| Position | TEAM | POINTS |
| 1 | eringbro/Silkebol | 46 |
| 2 | FCK | 39 |
| 3 | Aalborg | 36 |
| 4 | Kolding | 34 |
| 5 | Nordsjimland | 32 |
| 6 | Skjem | 27 |
| 7 | Viborg | 22 |
| 8 | Holstebro | 21 |
| 9 | Mars | 19 |
| 10 | Aatus | 13 |
| 11 | Frederida | 9 |
| 12 | Lemvis | 8 |
| 13 | Ringsted | 6 |
| 14 | GOG | 0 |


| 2008-2009 |  |  |
| :---: | :---: | :---: |
| Position | TEAM | Points |
| 1 | Aalborg | 41 |
| 2 | FCK | 40 |
| 3 | eringtra/ Sikebor | 39 |
| 4 | Kolding | 38 |
| 5 | Skjem | 33 |
| 6 | Viborg | 30 |
| 7 | Hostebro | 29 |
| 8 | GOG | 25 |
| 9 | Aatus | 22 |
| 10 | Nordsjelland | 21 |
| 11 | Mors | 15 |
| 12 | Fredericia | 15 |
| 13 | Ringsted | 11 |
| 14 | A Aax | 5 |


| 2007-2008 |  |  |
| :---: | :---: | :---: |
| Position | TEAM | POINTS |
| 1 | FCK | 44 |
| 2 | Aartus | 36 |
| 3 | GOG | 36 |
| 4 | eringtro/Silikebon | 35 |
| 5 | Kolding | 35 |
| 6 | Skjem | 34 |
| 7 | Aalborg | 30 |
| 8 | Holsterro | 26 |
| 9 | Fredericia | 24 |
| 10 | Viborg | 21 |
| 11 | Nardsjimeland | 21 |
| 12 | Mors | 13 |
| 13 | Ringsted | 7 |
| 14 | Skandertorg | 2 |

Source: own elaboration

Table 6: French women's handball league's latest classifications


|  |  |  |  | 2020-2021 |
| :---: | :---: | :---: | :---: | :---: |
| POSITION | TEAM | POINTS |  |  |
| 1 | Brest | 37 |  |  |
| 2 | Metz | 37 |  |  |
| 3 | Nantes | 31 |  |  |
| 4 | Paris | 30 |  |  |
| 5 | Niza | 29 |  |  |
| 6 | Besancon | 29 |  |  |
| 7 | Chambay | 28 |  |  |
| 8 | Bourg de Peage | 26 |  |  |
| 9 | Fleury Loiret | 21 |  |  |
| 10 | Toulon | 21 |  |  |
| 11 | Saint Amand | 20 |  |  |
| 12 | Dion | 20 |  |  |
| 13 | Merignac | 18 |  |  |
| 14 | Plande Cuques | 17 |  |  |


| 2019-2020 |  |  |
| :---: | :---: | :---: |
| Position | TEAM | POINTS |
| 1 | Brest | 51 |
| 2 | Metz | 51 |
| 3 | Fleury Loiret | 43 |
| 4 | Nantes | 43 |
| 5 | Paris | 42 |
| 6 | Niza | 39 |
| 7 | Besancon | 38 |
| 8 | Dion | 36 |
| 9 | Bourg de Peage | 33 |
| 10 | Toulon | 32 |
| 11 | Chambray | 29 |
| 12 | Merignac | 19 |


| 2018-2019 |  |  |
| :---: | :---: | :---: |
| POSITION | TEAM | Points |
| 1 | Metz | 63 |
| 2 | Brest | 59 |
| 3 | Niza | 55 |
| 4 | Besancon | 49 |
| 5 | Nantes | 48 |
| 6 | Fleury Loiret | 44 |
| 7 | Chambray | 40 |
| 8 | Toulon | 39 |
| 9 | Paris | 38 |
| 10 | Dijon | 34 |
| 11 | Bourg de Peage | 32 |
| 12 | Saint Amand | 27 |


| 2017-2018 |  |  |
| :---: | :---: | :---: |
| POSITION | TEAM | POINTS |
| 1 | Merz | 65 |
| 2 | Brest | 55 |
| 3 | Paris | 53 |
| 4 | Niza | 53 |
| 5 | Nantes | 50 |
| 6 | Besancon | 42 |
| 7 | Fleury Loiret | 40 |
| 8 | Chambray | 37 |
| 9 | Toulon | 37 |
| 10 | Bourg ge Peage | 36 |
| 11 | Have | 30 |
| 12 | Dijon | 25 |


| 2016-2017 |  |  |  |
| :---: | :---: | :---: | :---: |
| POSITION | TEAM | POINTS |  |
| 1 | Metz | 57 |  |
| 2 | País | 50 |  |
| 3 | Brest | 46 |  |
| 4 | Besancon | 42 |  |
| 5 | Nantes | 40 |  |
| 6 | Chambray | 40 |  |
| 7 | Toulon | 38 |  |
| 8 | Dijon | 37 |  |
| 9 | Fleur Loiret | 32 |  |
| 10 | Niza | 32 |  |
| 11 | Celles | 26 |  |


| 2015-2016 |  |  |
| :---: | :---: | :---: |
| POSITION | TEAM | POINTS |
| 1 | Meetz | 38 |
| 2 | Fleury Loiret | 34 |
| 3 | Paris | 29 |
| 4 | Nza | 28 |
| 5 | Besancon | 28 |
| 6 | Nantes | 27 |
| 7 | Toulun | 22 |
| 8 | Dion | 18 |
| 9 | Nimes | 0 |
| 10 | Mios Biganos | 0 |


| 2014-2015 |  |  |
| :---: | :---: | :---: |
| POSITION | TleaM | POINTS |
| 1 | Fleury Loiret | 48 |
| 2 | Paris | 45 |
| 3 | Metz | 44 |
| 4 | Nimes | 39 |
| 5 | Nantes | 34 |
| 6 | Niza | 34 |
| 7 | Toubon | 32 |
| 8 | Have | 31 |
| 9 | Dion | 28 |
| 10 | Mios Biganos | 25 |


| 2013-2014 |  |  |
| :---: | :---: | :---: |
| Position | team | POINTS |
| 1 | Metz | 51 |
| 2 | Flieur Loiret | 51 |
| 3 | Pans | 45 |
| 4 | Toulon | 36 |
| 5 | Have | 34 |
| 6 | Mios Biganos | 32 |
| 7 | Niza | 29 |
| 8 | Nantes | 28 |
| 9 | Besancon | 28 |
| 10 | Nimes | 26 |


| 2012-2013 |  |  |
| :---: | :---: | :---: |
| POSITION | TEAM | POINTS |
| 1 | Melz | 51 |
| 2 | Fleur Loiret | 45 |
| 3 | Nimes | 42 |
| 4 | Have | 37 |
| 5 | Paris | 36 |
| 6 | Mios Biganos | 34 |
| 7 | Toulon | 31 |
| 8 | Besancon | 29 |
| 9 | Niza | 28 |
| 10 | Dīon | 27 |



| 2010-2011 |  |  |
| :---: | :---: | :---: |
| POSITION | TEAM | POINTS |
| 1 | Metz | 55 |
| 2 | Havor | 53 |
| 3 | Toulon | 48 |
| 4 | Nimes | 48 |
| 5 | Mios Biganos | 41 |
| 6 | Have | 40 |
| 7 | Fleury Loiret | 36 |
| 8 | Paris | 34 |
| 9 | Dijon | 31 |
| 10 | Besancon | 28 |
| 11 | Cergy-Pontoise | 26 |


| 2009-2010 |  |  |
| :---: | :---: | :---: |
| Position | TEAM | POINTS |
| 1 | Metz | 51 |
| 2 | Have | 45 |
| 3 | Mios Biganos | 40 |
| 4 | Nimes | 40 |
| 5 | Toubn | 34 |
| 6 | Dion | 33 |
| 7 | Fleury Loiret | 29 |
| 8 | Toulouse | 27 |
| 9 | Anor | 26 |
| 10 | Igouleme Charen | 22 |


| 2008-2009 |  |  |
| :---: | :---: | :---: |
| Position | TEAM | Points |
| 1 | Metz | 35 |
| 2 | Have | 31 |
| 3 | Nimes | 28 |
| 4 | Paris | 26 |
| 5 | Mios Biganos | 24 |
| 6 | Besancon | 22 |
| 7 | Dipn | 20 |
| 8 | Fleury Loiret | 13 |
| 9 | ngouleme Charen | 9 |
| 10 | Toulon | 6 |
| 11 | Anor | 6 |



Source: own elaboration

Table 7: French men's handball league's latest classifications

| 2021--2022 |  |  |
| :---: | :---: | :---: |
| POSITTON | TEAM | POINTS |
| 1 | PSG | 60 |
| 2 | Nantes | 49 |
| 3 | Aix | 44 |
| 4 | Montellier | 41 |
| 5 | Chambery | 39 |
| 6 | Nimes | 36 |
| 7 | Toulouse | 32 |
| 8 | St Raphael | 31 |
| 9 | Cesson | 27 |
| 10 | Chartres | 22 |
| 11 | Cretei | 21 |
| 12 | Dunkerque | 20 |
| 13 | Limoges | 18 |
| 14 | Istas | 17 |
| 15 | Saran | 12 |
| 16 | Nancy | 11 |


| 2020-2021 |  |  |
| :---: | :---: | :---: |
| POSITION | TEAM | POINTS |
| 1 | PSG | 55 |
| 2 | Montrellier | 50 |
| 3 | Nantes | 47 |
| 4 | Aix | 40 |
| 5 | Nimes | 38 |
| 6 | Toulouse | 32 |
| 7 | Chambery | 31 |
| 8 | St Raphael | 28 |
| 9 | Limoges | 27 |
| 10 | Dunkerque | 24 |
| 11 | Chatres | 22 |
| 12 | Creteil | 22 |
| 13 | Istes | 20 |
| 14 | Cesson | 18 |
| 15 | Ivy | 16 |
| 16 | Tremblay | 8 |


| 2019-2020 |  |  |  |
| :---: | :---: | :---: | :---: |
| POSITION | TEAM | POINTS |  |
| 1 | 29 | 35 |  |
| 2 | Nantes | 29 |  |
| 3 | Nimes | 26 |  |
| 4 | Montpelier | 22 |  |
| 5 | Touluse | 20 |  |
| 6 | Aix | 18 |  |
| 7 | Dunkerque | 15 |  |
| 8 | SR Raphasel | 15 |  |
| 9 | Chambery | 14 |  |
| 10 | Chastres | 14 |  |
| 11 | Istes | 13 |  |
| 12 | Iwy | 13 |  |
| 13 | Tremblay | 9 |  |
| 14 | Creteil | 9 |  |


| 2018-2019 |  |  |
| :---: | :---: | :---: |
| POSITION | TEAM | POINTS |
| 1 | PSG | 49 |
| 2 | Montpellier | 43 |
| 3 | Chambery | 41 |
| 4 | Nantes | 39 |
| 5 | Nimes | 36 |
| 6 | Aix | ${ }^{28}$ |
| 7 | St Raphael | 25 |
| 8 | Toulouse | 23 |
| 9 | Tremblay | 22 |
| 10 | Dunkerque | 19 |
| 11 | Istres | 14 |
| 12 | Ivy | 10 |
| 13 | Cesson | 9 |
| 14 | Pontault | 6 |


| 2017-2018 |  |  |  |
| :---: | :---: | :---: | :---: |
| POSITION | TAM | POINTS |  |
| 1 | PSG | 45 |  |
| 2 | Montpelier | 45 |  |
| 3 | Nantes | 37 |  |
| 4 | St Raphael | 34 |  |
| 5 | AAx | 33 |  |
| 6 | Dunkerque | 32 |  |
| 7 | Nimes | 27 |  |
| 8 | Totiouse | 27 |  |
| 9 | Chambery | 23 |  |
| 10 | IVy | 16 |  |
| 11 | Tremblay | 14 |  |
| 12 | Cesson | 13 |  |
| 13 | Saran | 12 |  |
| 14 | Massy Essone | 6 |  |


|  |  |  |  | 2016-2017 |
| :---: | :---: | :---: | :---: | :---: |
| POSTrion | TEAM | POINTS |  |  |
| 1 | PSG | 48 |  |  |
| 2 | Nantes | 45 |  |  |
| 3 | Montellier | 40 |  |  |
| 4 | St Raphael | 35 |  |  |
| 5 | Chambery | 26 |  |  |
| 6 | Dunkerque | 26 |  |  |
| 7 | Toulouse | 25 |  |  |
| 8 | Aix | 22 |  |  |
| 9 | Niy | 22 |  |  |
| 10 | Nimes | 22 |  |  |
| 11 | Cesson | 16 |  |  |
| 12 | Saran | 16 |  |  |
| 13 | Ceratel | 16 |  |  |
| 14 | Selestat | 5 |  |  |


| 2015-2016 |  |  |
| :---: | :---: | :---: |
| Position | TEAM | POINTS |
| 1 | PSG | 46 |
| 2 | St Raphael | 36 |
| 3 | Nantes | 34 |
| 4 | Montpellier | 32 |
| 5 | Chambery | 31 |
| 6 | Creteil | 28 |
| 7 | Dunkerque | 26 |
| 8 | Cesson | 25 |
| 9 | Toulouse | 24 |
| 10 | Nimes | 22 |
| 11 | Ivy | 19 |
| 12 | Aix | 17 |
| 13 | Chatres | 12 |
| 14 | Tremblay | 11 |


| $2014-2015$ |  |  |
| :---: | :---: | :---: |
| POSITION | TEAM | POINTS |
| 1 | PSG | 45 |
| 2 | Montellier | 44 |
| 3 | St Rapheel | 34 |
| 4 | Chambery | 33 |
| 5 | Dunkerque | 32 |
| 6 | Nantes | 31 |
| 7 | Cesson | 24 |
| 8 | Nimes | 23 |
| 9 | Cretell | 21 |
| 10 | Toulouse | 20 |
| 11 | Tremblay | 20 |
| 12 | Aix | 19 |
| 13 | Selestat | 10 |
| 14 | Istres | 8 |




| 2011-2012 |  |  |
| :---: | :---: | :---: |
| Position | TEAM | Points |
| 1 | Montellier | 47 |
| 2 | Chambery | 39 |
| 3 | St Raphael | ${ }^{36}$ |
| 4 | Nantes | 31 |
| 5 | Dunkerque | 31 |
| 6 | Toulouse | 24 |
| 7 | Selestat | 22 |
| 8 | Cretel | 21 |
| 9 | wry | 20 |
| 10 | Cesson | 20 |
| 11 | Tremblay | 20 |
| 12 | PSG | 18 |
| 13 | Istres | 18 |
| 14 | Nimes | 17 |


| 2010-2011 |  |  |
| :---: | :---: | :---: |
| POSITION | TEAM | POINTS |
| 1 | Montpellier | 50 |
| 2 | Chambery | 44 |
| 3 | Dunkerque | ${ }^{37}$ |
| 4 | Nantes | 30 |
| 5 | St Raphael | 27 |
| 6 | Istes | 26 |
| 7 | Tremblay | 26 |
| 8 | Touraine | 20 |
| 9 | Nimes | 18 |
| 10 | Toulouse | 18 |
| 11 | PSG | 17 |
| 12 | Cesson | 16 |
| 13 | Ivy | 16 |
| 14 | Dijon | 15 |


| 2009-2010 |  |  |
| :---: | :---: | :---: |
| Position | TEAM | POINTS |
| 1 | Montellier | 50 |
| 2 | Chambery | 43 |
| 3 | Tremblay | 33 |
| 4 | St Rapheel | 32 |
| 5 | wry | 29 |
| 6 | Dunkerque | 29 |
| 7 | Istes | 26 |
| 8 | Nimes | 20 |
| 9 | Nantes | 20 |
| 10 | Dipon | 19 |
| 11 | Cesson | 18 |
| 12 | Toulouse | 16 |
| 13 | Aunilica | 16 |
| 14 | Creteil | 13 |


| 2008-2009 |  |  |
| :---: | :---: | :---: |
| Position | TEAM | Points |
| 1 | Montpellier | 48 |
| 2 | Chambery | 41 |
| 3 | Trembay | 27 |
| 4 | Dunkerque | 31 |
| 5 | Ivy | 30 |
| 6 | StRaphael | 25 |
| 7 | Creteil | 24 |
| 8 | Istes | ${ }^{23}$ |
| 9 | Nimes | 21 |
| 10 | Aurlilac | ${ }^{21}$ |
| 11 | Toulouse | 20 |
| 12 | Nantes | 19 |
| 13 | PSG | 17 |
| 14 | Selestat | 7 |


| 2007-2008 |  |  |
| :---: | :---: | :---: |
| POSITION | TEAM | POINTS |
| 1 | Montpellier | 49 |
| 2 | Chambery | 45 |
| 3 | VVy | 36 |
| 4 | Dunkerque | 31 |
| 5 | Nimes | 29 |
| 6 | Tremblay | 26 |
| 7 | St Raphael | 26 |
| 8 | PSG | 25 |
| 9 | Cretel | 25 |
| 10 | Toulouse | 24 |
| 11 | Selestat | 18 |
| 12 | Istres | 17 |
| 13 | Pontault | 7 |
| 14 | Vilefenche | 6 |

Source: own elaboration

Table 8: German women's handball league's latest classifications

| 2021-2022 |  |  |
| :---: | :---: | :---: |
| Position | TEAM | POINTS |
| 1 | Bieitigheim | 52 |
| 2 | BVE Dortmund | 44 |
| 3 | Buxtehuder SV | 38 |
| 4 | Thuringer | 34 |
| 5 | Metzingen | 31 |
| 6 | Blomberg-Lippe | 28 |
| 7 | Neckarsulmer | 26 |
| 8 | Halle-Neustadt | 21 |
| 9 | Leverkusen | 19 |
| 10 | ensheim-Averbac | 17 |
| 11 | Bad Widurgen | 17 |
| 12 | Oidenburg | 16 |
| 13 | Zwickau | 11 |
| 14 | Rosengatn | 10 |
| 15 | rpfalz Baren Kets | 4 |
| 16 | Mainz | 4 |


| 2020-2021 |  |  |
| :---: | :---: | :---: |
| Position | TEAM | POINTS |
| 1 | BVE Dortmund | 60 |
| 2 | Bietigheim | 53 |
| 3 | Metzingen | 44 |
| 4 | Thuringer | 43 |
| 5 | Blomberg-Lippe | 43 |
| 6 | Neckarsulmer | 37 |
| 7 | Oldenburg | 30 |
| 8 | Leverkusen | 29 |
| 9 | ensheim-Avertac | 29 |
| 10 | Buxtehuder | ${ }^{28}$ |
| 11 | Bad Wildungen | 22 |
| 12 | Halle-Neustadt | 20 |
| 13 | Rosengatn | 18 |
| 14 | Goppingen | 16 |


| 2019-2020 |  |  |
| :---: | :---: | :---: |
| POSITION | team | points |
| 1 | BVB Dortmund | 34 |
| 2 | Bietigheim | 33 |
| 3 | Metzingen | ${ }^{3}$ |
| 4 | Blomberg-Lippe | 26 |
| 5 | Thuringer | 24 |
| 6 | Leverkusen | 23 |
| 7 | Buxtehuder | 18 |
| 8 | ensheim-Auertac | 15 |
| 9 | Neckarsulmer | 12 |
| 10 | Oldenburg | 11 |
| 11 | Goppingen | 10 |
| 12 | Bad Widungen | 7 |
| 13 | Mainz | 4 |
| 14 | upfalz Baren Kets | 3 |


| 2018-2019 |  |  |
| :---: | :---: | :---: |
| Position | team | Points |
| 1 | Bietigheim | 50 |
| 2 | Thuringer | 50 |
| 3 | Metzingen | 40 |
| 4 | Buxtenuder | 33 |
| 5 | Leverkusen | 28 |
| 6 | Blomberg-Lippe | 28 |
| 7 | BVE Dortmund | 27 |
| 8 | Goppingen | 22 |
| 9 | ensheim-Avertac | 20 |
| 10 | Oidenburg | 20 |
| 11 | Bad Wiidungen | 18 |
| 12 | Neckarsulmer | 13 |
| 13 | Halle-Neustadt | 8 |
| 14 | Nellingen | 7 |


| 2017-2018 |  |  |
| :---: | :---: | :---: |
| POSITION | TEAM | Points |
| 1 | Thuringer | 48 |
| 2 | Bietigheim | 40 |
| 3 | Buxtenuder | 35 |
| 4 | BVE Dotrmund | 34 |
| 5 | Metzingen | 33 |
| 6 | Leverkusen | 33 |
| 7 | Goppingen | 33 |
| 8 | Blomberg-Lippe | 32 |
| 9 | Oidenturg | ${ }^{21}$ |
| 10 | Nellingen | 16 |
| 11 | Bad Wiliungen | 16 |
| 12 | ensheim-Auerbac | 12 |
| 13 | Neckarsulmer | 10 |
| 14 | Rodertal | 1 |


| 2016-2017 |  |  |
| :---: | :---: | :---: |
| Position | TEAM | POINTS |
| 1 | Bietgheim | 52 |
| 2 | Thuringer | 44 |
| 3 | Metzingen | 38 |
| 4 | Buxtehuder | 33 |
| 5 | Oidenburg | 32 |
| 6 | Dortmund | 28 |
| 7 | Leipzig | 26 |
| 8 | Leverkusen | 22 |
| 9 | Biomberg | 20 |
| 10 | Goppingen | 20 |
| 11 | Bad Wildungen | 15 |
| 12 | Neckarsulmer | 13 |
| 13 | Nellingen | 10 |
| 14 | SVG Celle | 7 |


| 2015-2016 |  |  |
| :---: | :---: | :---: |
| Position | TEAM | POINTS |
| 1 | Thuringer | 43 |
| 2 | Metzingen | 41 |
| 3 | Leipzig | 41 |
| 4 | Bietgheim | 41 |
| 5 | Oidenburg | 34 |
| 6 | Dortmund | 26 |
| 7 | Buxtenuder | 26 |
| 8 | Leverkusen | 26 |
| 9 | Blomberg-Lippe | 22 |
| 10 | Fuchse Beriin | 21 |
| 11 | Bad Widungen | 20 |
| 12 | Gsppingen | 16 |
| 13 | sva Celle | 15 |
| 14 | Rosengaten | 8 |


| 2014-2015 |  |  |
| :---: | :---: | :---: |
| POSITION | TEAM | POINTS |
| 1 | Thuringer | 47 |
| 2 | Buxtehuder | 46 |
| 3 | Metzingen | 41 |
| 4 | Oldenburg | 34 |
| 5 | Leipzig | 34 |
| 6 | Leverkusen | 33 |
| 7 | Biomberg-Lippe | 31 |
| 8 | Fuchse Betin | 21 |
| 9 | Bietgheim | 17 |
| 10 | Bad Wildungen | 17 |
| 11 | Goppingen | 12 |
| 12 | svg Celle | 12 |
| 13 | Trier | 10 |
| 14 | KoblenzWeibern | 9 |


| 2013-2014 |  |  |
| :---: | :---: | :---: |
| POSITION | TEAM | POINTS |
| 1 | Thuringer | 43 |
| 2 | Leipzig | 37 |
| 3 | Leverkusen | 30 |
| 4 | Buxtehuser | 29 |
| 5 | Oldenburg | 27 |
| 6 | Metzingen | ${ }^{26}$ |
| 7 | Bietgheim | 18 |
| 8 | Goppingen | 16 |
| 9 | Biomberg-Lippe | 16 |
| 10 | KoblenzWeibern | 12 |
| 11 | Trier |  |
| 12 | Bensheim | 4 |



| 2011-2012 |  |  |
| :---: | :---: | :---: |
| Position | TEAM | points |
| 1 | Thuringer | 32 |
| 2 | Buxtenuder | 32 |
| 3 | Leipzig | 30 |
| 4 | Oidenburg | 29 |
| 5 | Leverkusen | 22 |
| 6 | Frankurt | 21 |
| 7 | Goppingen | 17 |
| 8 | Blomberg-Lippe | 16 |
| 9 | Bad Wildungen | 14 |
| 10 | Trier | 5 |
| 11 | svg Celle | 2 |


| 2010-2011 |  |  |
| :---: | :---: | :---: |
| POSITION | TEAM | POINTS |
| 1 | Thuringer | 39 |
| 2 | Leipzig | 35 |
| 3 | Buxtehuder | 34 |
| 4 | Leverkusen | 32 |
| 5 | Oilenburg | 28 |
| 6 | Frankurt | 20 |
| 7 | Sindelfingen | 20 |
| 8 | Blomberg-Lippe | 19 |
| 9 | Gobpingen | 15 |
| 10 | Trier | 10 |
| 11 | Rosengaten | 9 |
| 12 | Biefigheim | 3 |


| 2009-2010 |  |  |
| :---: | :---: | :---: |
| Position | team | POINTS |
| 1 | Leipzig | 39 |
| 2 | Leverkusen | 35 |
| 3 | Oidenburg | 32 |
| 4 | Biomberg-Lippe | ${ }^{28}$ |
| 5 | Buxtehuder | ${ }^{23}$ |
| 6 | Goppingen | 20 |
| 7 | Frankutrer | 19 |
| 8 | Thuringer | 18 |
| 9 | Tier | 14 |
| 10 | Sindelfingen | 14 |
| 11 | Dortmund | 11 |
| 12 | svg Celle | 11 |


| 2008-2009 |  |  |
| :---: | :---: | :---: |
| POSITION | TEAM | POINTS |
| 1 | Leverkusen | 33 |
| 2 | Leipzig | 28 |
| 3 | Buxtehuder | 26 |
| 4 | Frankur | 25 |
| 5 | Oidenturg | 24 |
| 6 | Nurnberg | 22 |
| 7 | Blomberg-Lippe | 19 |
| 8 | Goppingen | 19 |
| 9 | thein-Main Biener | 19 |
| 10 | Trier | 18 |
| 11 | Thuringer | 16 |
| 12 | Dortmund | 11 |


| 2007-2008 |  |  |
| :---: | :---: | :---: |
| POSITION | team | POINTS |
| 1 | Lepizig | 46 |
| 2 | Leverkusen | 43 |
| 3 | Buxtehuder | 41 |
| 4 | Frankurt | 38 |
| 5 | Bayer | ${ }^{36}$ |
| 6 | Oidenturg | 33 |
| 7 | Trier | 23 |
| 8 | Dortmund | 22 |
| 9 | Halle-Neustatt | 20 |
| 10 | Blomberg-Lippe | 18 |
| 11 | Bieigheim | 18 |
| 12 | Maitz-Bretzenheir | 17 |

Source: own elaboration

Table 9: German men's handball league's latest classifications


Source: own elaboration

Once the database has been set up, the procedure is all about obtaining different indicators in order to evaluate competitive balance and draw conclusions.

Measuring competitive balance is trivial, as it "constitutes a key aspect of empirical research" (Humphreys, 2019: p.1), which concords with previously mentioned data. According to Humphreys, these measurements can be classified into two main groups, which are static and dynamic. For the first group, some main instruments are the win ratio per team, those based on the standard deviation, the Record test, and the Herfindahl-Hirschman index (HHI). On the other hand, Competitive Balance Ratio (CBR) and Markov transition probabilities could be examples of dynamic assessments.

Some of the previously mentioned measurements will be used in this paper. However, it may make more sense to categorize the instruments differently, so that it is more consistent and easier. Elseway, our indices would appear the following way.

Two categories will be taken into consideration: dispersion and concentration. For the first classification, the Gini index (Gini) will be our innovative instrument in comparison to what Humphreys proposed. Nevertheless, we will use the standard deviation to obtain Pearson's variation coefficient (CV). On the other hand, for the concentration group, we will keep the Herfindahl-Hirschman Index (HHI) and we will use the win ratio per team in relation to the concentration ratio $(\mathrm{Cn})$. It can be noticed that none of Humphreys' dynamic measurements will be considered, nor the static Record test.

With the aim of gaining a sense of understanding of the functioning and analysis of this work, the formulas of each of them will be stated in this section.

All of the previous instruments are briefly summed up in the following table (Table 10) to have a more visual and outstanding view of the data.

Table 10: Categories of instruments to measure competitive balance

| DISPERSION | CONCENTRATION |
| :---: | :---: |
| Pearson's variation coefficient <br> $(\mathrm{CV})$ | Herfindahl-Hirschman Index <br> (HHI) |
| Gini index (Gi) | Concentration ratio (Cn) |

Source: own elaboration

As previously stated, the instruments' respective formulas will be discussed in this part of the section.

Firstly, regarding dispersion measurements, Pearson's variation coefficient (CV) is explained in the following way (formula 1 ):

Formula 1: Pearson's variation coefficient (CV)

$$
C V=\frac{\sigma}{\bar{x}}
$$

## Source: own elaboration

Where $\sigma$ stands for the standard deviation and $\overline{\mathrm{x}}$ for the arithmetic mean. The result of the CV will always be between 0 and 1 unless it is put in percentage points by multiplying it by 100 . This is, it is expressed as the ratio of the standard deviation to the mean of the dataset.

Secondly and in the same category, the Gini index looks as follows (formula 2):

Formula 2: Gini index (Gi)

$$
\begin{gathered}
\text { Gini }=1+\left(\frac{1}{n}\right)-\left(\frac{2}{n^{2} \bar{x}}\right) *\left(x_{1}+x_{2} * 2+x_{3} * 3+x_{4}^{*} 4 \ldots\right) \\
\text { Source: own elaboration }
\end{gathered}
$$

Where n is the number of teams, $\overline{\mathrm{x}}$ is the mean points obtained by the teams, and xi is the points obtained by team i. Again, this index will result in values between 0 and 1 where 0 would stand for perfect equality and 1 for perfect inequality.

Hereafter, concerning concentration instruments, Herfindahl-Hirschman Index (HHI) is stated in the subsequent expression (formula 3):

Formula 3: Herfindahl-Hirschman Index (HHI)

$$
H H I=\sum_{i=1}^{n} s_{i}^{2} \quad i=1,2,3, \ldots, n
$$

Source: own elaboration
Where Si stands for the market share of each team, i.e. the points obtained in relation to the total points of the league. The higher the value of the HHI, the higher the concentration and the less competitive the market.

Finally, the Concentration ratio $(\mathrm{Cn})$ is expressed below (formula 4):
Formula 4: Concentration ratio (Cn)

$$
C n=\sum_{i=1}^{r} s_{i} \quad i=1,2,3,4,5 \quad S_{i}=\frac{q_{i}}{Q}
$$

Source: own elaboration

Where n is the number of teams to be analyzed and Si is the market share of each team (points obtained in relation to the total points of the league). The computations for this index have been calculated considering just 5 teams per season, thus $n=5$ and $C(5)$, no matter the total number of participants in a league.

After gathering information about the classifications of male and female handball leagues of Spain, Denmark, France, and Germany in the years 2007-2008 to 2021-2022 (Tables 2 to 9 ), the next step was to compute the calculations to obtain the results of the previously mentioned indices for each of the seasons selected: Pearson's variation coefficient (CV), Gini index (Gini), Herfindahl-Hirschman Index (HHI) and Concentration Ratio (Cn).

## 5. RESULTS

In the first instance, the tables with all the results for each of the categories and genders will be given, in the same order as for the data from the previous point. This is, Spanish women (annex 1), Spanish men (annex 2), Danish women (annex 3), Danish men (annex 4), French women (annex 5) French men (annex 6), German women (annex 7), and German men (annex 8 ), as can be seen hereunder.

Here, as has been previously mentioned, multiple numbers and calculations appear. First, there exists a copy of the simple tables ( 2 to 9 ) where just the yearly classifications of each league appear. Then, some of the intermediate calculations are present, followed by the final indices (CV, Gini, HHi , and Cn ).

### 5.1. Results per index

As it will be later seen, in order to simplify interpretations and to give a more general view, mean computations of each of the indices have been calculated and put together. These will be given and interpreted hereafter. Nevertheless, some insights are given about the particular calculations of these indices, per country, gender, and season.

The results will be analyzed in the following order: regarding dispersion indicators: first, the Pearson's Variation Coefficient (CV) and next the Gini index; and concerning concentration indicators, Herfindahl-Hirschman (HHI) will be explained before the Concentration Ratio (Cn). As an introduction to the values, Table 11 gives an insight into the mean values of each of the indices.

Table 11: mean values of each indicator for every country and gender

|  | CV | Gini | HHI | C(5) |
| :--- | :---: | :---: | :---: | :---: |
| SPAIN WOMEN | 0,4949 | 0,2689 | 880,2381 | 54,3602 |
| SPAIN MEN | 0,4436 | 0,2373 | 735,6390 | 47,3579 |
| DENMARK WOMEN | 0,5044 | 0,2731 | 991,7981 | 59,7480 |
| DENMARK MEN | 0,4366 | 0,2364 | 837,3232 | 51,5690 |
| FRANCE WOMEN | 0,2911 | 0,1550 | 975,8180 | 56,6007 |
| FRANCE MEN | 0,4383 | 0,2337 | 828,8555 | 51,7057 |
| GERMANY WOMEN | 0,4820 | 0,2626 | 939,1134 | 57,3015 |
| GERMANY MEN | 0,4514 | 0,2464 | 656,7815 | 43,6754 |

Source: own elaboration

Therefore, Pearson's Variation Coefficient (CV) is the first of all indices to be analyzed. As previously mentioned, this statistical measure is used to express the degree of variation between a set of data points and their mean value. Taking a worth somewhere in the range of 0 and 1 , the higher the value of the coefficient, the more heterogeneous the upsides of the variable will be, as well as conversely.

In the case of the Spanish women's league, the mean of this value stands at 0.4949 . This is, it has high variability. This case is similar to the Spanish men's league, where the mean stands at 0.4436 . If we take a look at The female league in Denmark, the mean of this measure is 0.5044 , whereas for men it is 0.4366 . Regarding French women, 0.2911 is 0.4383 . Finally, regarding Germany, the female league has a mean CV of 0.4820 whereas the male one is 0.4514 . Put together, the following graph (Graph 1 ) reflects this information. It reveals that the French nation is the only one from this selection where male leagues rank higher than female leagues in terms of punctuation usage.

Additionally, taking a look at the particular CVs per country, gender, and season, it can be observed that some of the highest punctuations are present in Spanish women and Danish women whereas some of the lowest can be spotted in French women.

Graph 1: mean Pearson's coefficient of variation per country and gender


Source: own elaboration

As can be seen in Graph 2 about the different Gini indicators for the considered
countries for both genders, there seem to be considerable differences, even if all of them stand between 0.15 and 0.28 . In general, France has the lowest points; especially for women ( 0.155 ). In addition, this country is also the exception regarding the tendency of female leagues to have higher punctuations, as it is the only one where the male league is higher.

Regarding the particular Gini index results per country, gender, and season, Danish men have had large changes over the years (decrease), whereas French women have in general some of the lowest indices, contrary to German men.


Source: own elaboration

Graph number 3 reflects the mean Herfindahl-Hirschman index results per country and gender. As it is known, the HHI score is a number between 0 and 10,000 . The market is more concentrated the higher the score. Therefore, having a look at the following graph, it can be stated that as a general rule, male leagues are less concentrated than female ones, leading to the German league for men being the least concentrated in this market (656.7815) followed by the Spanish league for men (735.639).

Concerning the individual HHIs per country, gender, and season, it can be stated that the Spanish women's league is the owner of some of the lowest results together with

German men's one, whilst Danish and French women own the highest, in general.


Source: own elaboration

Finally, Graph 4 shows the results for the mean Concentration Ratio of each country and gender, considering the top 5 teams of each league. It is important to remember that Concentration Ratios are market focus proportions that show the market share held by the top n teams in a given league, in this case. As is shown in percentage points, a concentration ratio of $100 \%$ would indicate that the top 5 teams in the league hold a monopoly, compared to a concentration ratio of $0 \%$ which would indicate perfect competition, with each team having an equal market share. In general, women's leagues show higher concentration. Nevertheless, this may be biased because in general, these leagues have a lower number of participant teams, thus the top 5 takes a higher proportion of total teams for women than it does for men.

Concerning the specific $C(5)$ s per country, gender, and season, the Danish female league is one of the leagues with the highest punctuations together with German women, very contrary to the German male league.

Graph 4: mean Concentration Ratio (5) per country and gender


Source: own elaboration

### 5.2. Changes over time

Even if the main focus of this research is not the changes over time that happen in the competitive balance of leagues from different countries, it is true that analyzing some of the indices and their progress is not undue. For this section, only the HHI results have been taken into consideration, since it is possibly the index that best captures the reality, as I will later explain. Thus, the question to be answered in this part of the research is the following: for each of the leagues to be analyzed, has competitive balance suffered an improvement or a worsening over time?

As can be seen in Graph 5, in the case of female leagues, their results are quite different and changing, especially for countries like France and Germany. Both of these countries have had a decadence of the HHI value, meaning that these leagues have had a more competitive league over the years due to their lower concentration. In the case of France, it is the country with the highest and the lowest values over time compared to the rest of the nations, with considerable differences. On the other hand, Spain seems to be the most constant one, even if it also has ups and downs. In this case, it seems that this country has a higher concentration than some years ago, leading to less competition.

Graph 5: HHI over time for female leagues in Spain, Denmark, France, and Germany

- Spain - Denmark - France - Germany


Looking at Graph 6 about men, the interpretation of the results is quite different from those of women. Even if each of the countries has its peaks, they are very different compared to each other. This is evident if we consider that only Denmark and France touch each other, whereas the rest of the nations have such different values that their tendencies in the graph do not touch each other. These two countries have decreased their concentration level, thus now have higher competition than 15 years ago. Additionally, it is to say that, in general, the values are quite constant.

Graph 6: HHI over time for male leagues in Spain, Denmark, France, and Germany - Spain - Denmark - France - Germany


Source: own elaboration

## 6. CONCLUSIONS AND DISCUSSION

### 6.1. Differences per gender

In order to compare what the differences may be regarding gender in each of the leagues per country, the conclusions of this research paper can be separated into two main parts, in concord with the type of indices used to obtain the results of the different leagues per country and gender: dispersion and concentration.

Firstly, putting together both of the dispersion indicators used in this paper, some conclusions can be obtained jointly. For example, it can be stated that due to its low CV and Gini coefficient, France has the most equitable distribution of points among women's leagues. This same trend happens for Denmark among the men's leagues. Contrarily, Denmark has the highest CV and Gini index for women's teams, leading to the conclusion of an unequal distribution of punctuation acquired among groups. Nevertheless, the important point of this section is that in general women's leagues have a higher degree of dispersion than men's leagues.

As a first breakdown of the previous conclusion, comparing the results of Graph 1 about the mean coefficients of variation (CV) for women's and men's handball associations in Spain, Denmark, France, and Germany, it can be noted that the CV of the women's leagues in Spain, Denmark, and Germany is higher than that of the men's leagues. This suggests that the women's leagues in those three countries have a higher degree of inequality or dispersion than the men's leagues. In the case of France, the CV is higher in the men's league than in the women's league. This suggests that the men's league in that nation has greater inequality indications than the women's league. In general, we can conclude that the men's and women's leagues in the four nations are significantly different in terms of dispersion.

However, it is important to keep in mind that the CV is only one measure of inequality and does not take into account other significant aspects, thus it is advisable also to analyze other indices such as the Gini index. In this case, the mean Gini coefficients for the women's and men's handball leagues in Spain, Denmark, France, and Germany can be compared using Graph 2 . When compared to men's leagues, we notice that the results are typically higher for women's leagues. This suggests that teams in women's leagues are more unequal. There are, however, a few exceptions. As it has been mentioned in
the previous point, in the case of France, the men's league has a higher Gini coefficient than the women's league. This suggests that the men's league has more inequality than the women's league in that country. In general, the conclusion may be that men's and women's leagues in the four nations are significantly different in terms of dispersion.

Secondly, the main outcome of the concentration measures mentioned, ( HHI and Cn ) is that the German male handball league is the least concentrated one compared to France, Spain, and Denmark. The mean results obtained over the last 15 years bring up the conclusion that this league has a close to optimal competitive balance. Even if its dispersion measure punctuations are more similar to the rest, it can be seen that watching a male German handball match is more intriguing than for example a French one, as a general rule. Briefly, the main outcome of this is that female handball is more concentrated than male, thus the league's top teams get a larger share of the points they earn, as will further be explained hereunder.

Due to this last mentioned fact, I personally consider that HHI has been the more representative of reality compared to the rest of the indices, for the case of German male handball. Nevertheless, I do not consider women's handball as the results show. This is, I think that as a general rule, male handball has a larger issue with competitive balance than female handball does.

In order to find the conclusion mentioned, if we take a glance at each of the concentration measures used starting with the Herfindahl-Hirschman Index, the clearest outcomes are that in general women's leagues are more concentrated than men's, as can be seen in Graph 3. In other words, there exists a greater concentration of wins among a small number of teams. This is particularly evident in the Danish and French women's leagues compared to the German men's league. The Danish female league has the highest concentration, which means that the league's top teams get a larger share of the points they earn.

Finally, the last index to compare is the Concentration Ratio, which has been computed considering 5 teams per league and season. When we compare the results in Graph 4, we can see that Denmark has the highest concentration ratio in both gender leagues, followed by Spain and France. Germany has the most outstanding result for its male league since it is very low compared to the rest of the countries.

After analyzing these differences, it can be concluded that the gender differences in competitive balance are remarkable in relation to the results obtained in this study. In general, men have larger issues with competitive balance than women do. Both dispersion and concentration measures are a reflection of this fact. This will be mentioned below as one of the many general conclusions.

### 6.2. General conclusions

As the general conclusion of the paper, it is important to state that in general, the results show a relevant lack of competitive balance. The Spanish leagues are a perfect example of this, since Barcelona (men) and Bera Bera (women) are leaders in the last couple of years, due to multiple factors where budgeting takes an important role.

Nevertheless and as I previously mentioned, I think that in general, male handball has more problems with competitive balance than female handball does. In addition, HHI has been a good reflection of this fact.

Even so, there are exceptions, such as German handball, which is an example to follow for the rest of the European handball leagues analyzed in this study. This league is the most competitive one of the ones here analyzed. Therefore, this research supports the fact that nowadays those who are banal about the lack of competitive balance in Spanish handball leagues opt for following German leagues.

This fact is backed by the reference "The Strongest League in the World? German Handball Bundesliga at the Top of the EHF Ranking", which states that regarding the EHF Championship "the Bundesliga, meanwhile, has additionally scored reliably in the EHF European League in recent years away from the titles, in some cases with three participants in the Final4" (handball world, 2022). In addition, "France recently fell behind Spain to rank 3". Here, the French player Nikola Karabatic states that "this kind of Champions League is pretty cool for clubs like Barcelona, Kielce or Veszprem, because their national leagues are very weak" due to the problem analyzed throughout this paper: "this context also the problem of differently balanced national leagues with only one top team in Spain or two in Poland and Hungary".

In addition, it is relevant to mention that differences between genders are present all
along the results of this study and generally disfavor women more than men. Due to budgeting and other multiple factors, women are (once again) undermined and harmed in sports, compared to facts regarding men. This has overall analyzed objective data rather than subjective, thus it may not be by chance that this trend is repeatedly present in empirical research.

Now, the question is: is there a way out of the problem of competitive balance? The easy answer would be negative, with the reasoning behind explaining that this is simply what it is, and these large industries are hard to change. Nevertheless, even if it is true that this is not an easy nor a fast task, there may be some actions that can help this inequality be reduced. In order to look for solutions, we would have to analyze the causes. So, why do the same teams always win? Is it due to budgeting, competition format, or even fear? In any of the cases, changes in the causes lead to changes in the results. Therefore, some of the possible solutions could be the improvement of an equal budget repartition, salary caps, the regulation of the transfer market, and so on.

### 6.3. Limitations

There exists not enough empirical evidence regarding handball and competitive balance in handball, thus recent data was hard to find. This leads to a limited literature review and limited possible sources for the rest of the research.

In addition, the conclusions of this paper may be biased since only the classifications of each league and its respective punctuations have been taken into consideration. In other words, there may be many other factors that affect and lead to competitive balance in handball that have not been considered throughout this work. Examples of this may be player skills, team sponsorships, results of other sports for the same clubs, etc.

Also, especially for female handball, I consider that analyzing a general picture of the last 15 seasons has not been as effective. This sport has suffered multiple changes during this period of time, thus the given conclusions may not be as accurate as possible. For example, if we take the case of female Spanish handball, we can see that from 2008-2009 to 2011-2012 Itxako team was clearly the leader, but due to budgeting issues, this team rapidly disappeared, handing success over to Bera Bera. Of course, this
event is not reflected in the numbers and calculations inspected here.

As the season 2019-2020 was not completed in most countries due to the Covid-19 pandemic, the indicators are not as realistic as in the rest of the years, leading to possible biases in general for different indicators.

Related to the previous points, handball is a sport that is rapidly changing norms inside each country and across borders, which makes it difficult to compare across seasons. One example can be that the number of teams participating in each league and season varies year after year as well as across borders, leading to difficulties in obtaining comparable results in indices such as the Concentration Ratio.

### 6.4. Further research

The main point to include in this section of the research paper is to solve the limitations mentioned. In fact, the results may be limited and biased by the factors that have been previously mentioned. Even if a comprehensive picture of market concentration and inequality in the handball industry can be obtained by comparing the HHI, Cn, Gini index, and CV, if the objective is to arrive at meaningful conclusions, it is essential to take into account any other variables that might have an impact on these measures.

If this is solved, the results obtained and the judgments about them may be used to find areas for improvement in the sport's promotion of greater parity and competitiveness. Of course, the ways of putting solutions into practice and their effects should also be further analyzed, which could consequently be a potential concept for a future research paper.

Furthermore, extensive research could be carried out regarding solutions to the issue of competitive balance, whether it is for handball or not. As I previously mentioned, changes in the causes of this problem could improve the results.

In addition, I would like to include further research on gender inequality in handball, as I consider that this has a major impact on the results of competitive balance in handball across genders. Even if I have briefly mentioned this fact in these conclusions, it may be interesting to deepen this topic.

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## ANNEXES

Annex 1: Spanish women's handball league's latest classifications and calculations


Source: own elaboration

Annex 2: Spanish men's handball league's latest classifications and calculations

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Source: own elaboration

Annex 3: Danish women's handball league's latest classifications and calculations


Source: own elaboration

Annex 4: Danish men's handball league's latest classifications and calculations


Source: own elaboration

Annex 5: French women's handball league's latest classifications and calculations


Source: own elaboration

Annex 6: French men's handball league's latest classifications and calculations


Source: own elaboration

Annex 7: German women's handball league's latest classifications and calculations


Source: own elaboration


Source: own elaboration


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