# Will He Stay or Will He Go? How Monetary and Non-Monetary Variables Affect the NBA Free Agents Decision Making

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## Resumo

Different factors influence the National Basketball Association (NBA) players on deciding to sign a contract during the free agency. Top players have more power of choice during this period and are expected to have more options to choose from it. The purpose of this paper is to analyze the relationship between monetary (salary and state income taxes) and non-monetary (states human development index (HDI) and team performance) variables on the decision made by NBA free agents, according to their salary. We employed scatter plots, scatter tables, alluvial plot, and correspondence analysis to verify the relationship between the variables of 595 players that signed a contract with any of the 30 NBA franchises between the start of the 2015/16 season to the beginning of the 2019/20 season. Results indicated that there is not a predominant variable that dictates where a player will sign. The results also indicated a tendency for top players to take off-court variables (team market value and state HDI) more into consideration than on-court variables (salary and team performance). However, there is not an advantage of monetary or non-monetary variables in the players? decision.

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## 1. Introduction

In the sports scenario, the team's sporting performance is critical. The management of the team, therefore, must seek positive sports results. On the other hand, however, there is a financial performance that needs to be addressed. The balance between these two is desirable (Guzmán, 2006).

Basketball is one of the most popular sports (Das, 2020). It is the biggest league, the National Basketball Association (NBA) attracts more attention and consequently benefits from an increase in its financial return, as brought by Gough (2020). The economic relevance of the NBA can be seen through teams' market values (Badenhausen, 2020a), solid sponsorships of world-renowned brands for athletes (Badenhausen, 2020b), and teams (Diven, 2017), in addition to the multimillionaire salaries for their athletes (Curcic, 2019).

The multimillionaire salary contracts are higher than any other sports leagues when comparing their average (Gough, 2019), but they cannot be negotiated freely. The NBA Collective Bargaining Agreement determines the rules.

These rules dictate the relationship among athletes and the NBA teams, such as minimum and maximum contract value and salary caps, for example (CBA, 2017). They were created to encourage competitiveness and equality among teams. Salary Cap was designed to prevent the wealthiest team from hiring all the best athletes and discourage equality among the teams (Goldrosen, 2018), similar to the financial Fair Play in soccer (Dima, 2015).

The CBA also dictates other rules like types of contracts and when they can sign the contracts. According to them, it can be signed in two periods. During their contract, but only with the same team that they play or during the free agency period, in which he can sign with any team.

The free agency period is when "the front office has the opportunity to reconstruct their teams" (Rosen, Arcidiacono, and Kimbrough, 2016, p. 4). Based on several variables, teams select the players that fit the best, for the best price, to build the best team possible, compete for better on-court performance, and have more financial returns, addressing the two primary goals. The success of a team is just going to be seen at the end of the year. They will look at team performance, the results on and off the court.

On the other hand, players try to find what is best for them, their best fit. Because of the player's short career, it is expected that they want to maximize their gains. Before the final decision, players will look at different variables when choosing where they will sign a contract. They will look at monetary variables, like net salary, off-court opportunities such as an advertisement, and non-monetary variables like the location of the new team, city life quality, expected playing time, and talent level team (Rosen, Arcidiacono, and Kimbrough, 2016). Different from the teams, just numbers cannot measure players' success. For some players, success equals money, for others, championships are more important, and some prioritize the quality of life.

The purpose of this paper is to analyze the relationship between monetary and non-monetary variables on the decision made by NBA free agents, according to their salary. We analyze the relationship of state income taxes and the team's market value (monetary variables) and states human development index (HDI) and team's performance (non-monetary variables).

Considering players with higher salaries will have more power of choice, we expect that they will choose lower or equal state income tax based on the results of Kopkin (2012), and teams with equal or higher market value. It is also expected that they choose a team with equal or better team record (Barajas and Rodriguez, 2010; Utgoff, 2002), and equal or higher HDI. On the other hand, players with lower salaries will not have this power of choice and end up signing with the rest of the teams.

This paper is organized into five sections, starting with this introduction: Literature Review, Methodological Procedures, Analysis of Results, and Conclusion. The referential presents a theoretical foundation that Labor Migration, Monetary influences, and Non-monetary influences for this fact. The third section explains the methodology used in the study. The results are discussed in the fourth section. Finally, in the fifth section, the conclusion about the subject's results and considerations are presented.

## 2. Literature Review

This section is divided into Labor migration, Monetary influences, and Non-monetary influences.

### 2.1 Labor migration

"Labor migration is defined as the movement of persons from their home State to another State for the purpose of employment." (International Organization for Migration, 2008, p. 1). In sports leagues, the labor migration of players is widespread, and in the NBA, it is nothing different. According to MacIntosh, Bravo, and Li (2020), globalization is one of the most important reasons for the crescent of migration.

The globalization is an essential part of the basketball because, as brought by MacIntosh, Bravo, and Li (2020), before the 1990s, the NBA did not have many international players when compared to the more than 100 players from 38 different countries playing in the NBA currently (NBA, 2019). Some even being top players of the league like Giannis Antetokounmpo and Luka Dončić (Favele, 2019).

Many players start migrating when they sign their first contract with a team at the beginning of their careers. During their careers, players can move to different places for different reasons, most of them are related to finding better opportunities for themselves, most of the time for economic reasons, as most migrations outside the sports world as brought by Rubenstein (2017).

During NBA players' careers, they can migrate to different teams via trades (when it is not just their choice of where they will play, because most of the time, this decision belongs to the teams) or via free agency (when players can sign wherever they want).

The trades can happen because of a team option, seeking their primary goals (financial and/or sports performance) or because of a desire of a player that has become more common, as brought by Wright (2020), especially the top athletes that have more power of choice, because more teams want them. This player's desire to change is similar to those that influence their decision during the free agency period.

From the player's perspective, reasons to change teams can be because of the amount of money received through the contract, location of the new team (off-court market opportunities, cities quality of life), expected playing time, talent level of the new team (Rosen, Arcidiacono and Kimbrough, 2016). So, the decision is based on monetary and non-monetary reasons, and it changes from player to player, because of different priorities as explained by cognitive psychology and brought by Correa (2011).

## 2.2 Monetary influences

Because the career of a high-performance athlete is short, it is expected that he wants to maximize his earning potential during this period (Rosen, Arcidiacono, and Kimbrough, 2016). The maximization of his earnings is the junction between what he earns with salaries during his career and his gains in off-court opportunities, for example, advertising, movies, and sponsorship. Sherry (1998) shows the importance of an athlete's marketing outside the court in maximizing his value, and Pickerell and Neault (2019) show the importance of engagement even after the career is over since athletes' careers are shorter than most professions.

Financially, athletes must seize opportunities and plan their financial careers (Neumann, 1988). The opportunities come more frequently for the best athletes of the league because their range is more significant when comparing to more unknown athletes. For a team, better athletes worth larger salaries because they are more likely to help the team reach their goals (financial or sports performance). For a sponsor, better-known athletes are worth more because of the reach of the advertising, for example is more prominent and will have a better impact on the company. Thus, performance and recognition influence the values received in a player's career

### 2.2.1 Salary and Taxes

"Based on lots of previous research, the salary in the National Basketball Association is determined by both personal characteristics and on-court performance" (Li, 2014, p.2). Players' salaries are tied to the financial and sports performance return that franchises expect them to bring for the organization. According to Lyons Jr, Jackson Jr, Livingston (2015), points per game, and rebounds are the most positively correlated variables of their performance to the salary. Teams and players negotiate their salaries based on the expected return, but this negotiation is not entirely free. There are some rules, dictating all the players and franchises relationships (CBA, 2017).

There are two salary scales on the NBA. The rookie scale is predetermined, and usually, players and franchisees do not negotiate too much. On the other hand, the veteran scale is where players and franchises negotiate more because there are a minimum and max values tied to the salary cap (CBA, 2017).

"The salary cap is comprised of Basketball Related Income (BRI), which consists of revenue generated from ticket sales, national and local broadcast deals, in-arena concession sales, signage, stadium naming rights, and merchandise sales" (Lyons Jr, Jackson Jr, Livingston, 2015, p. 2). Salary Cap tries to prevent the wealthiest team from hiring all the best

athletes and discourage equality among the teams (Goldrosen, 2018), just like the financial Fair Play in soccer (Dima, 2015).

Even though the gross values are the same for all teams, since cities/states have different taxes, the net amount received by the player varies according to the team he is playing on, as shown by Rovell and Marks (2017). Thus, as a state by Heath & Crenshaw (2003) relocating to tax-free states is more benefic for the players. If the player wants to maximize his net amount received, he will prefer the team that can pay him the most, with the least amount of taxes (Kopkin, 2012).

### 2.2.2    Teams Market Value

Salaries play a considerable part in player earnings, but most of their money can be made off the court. Money earned on the court is limited by the salary cap (CBA, 2017), but the money earned outside the court is "unlimited". The power of the athletes' brand dictates how much money he is worth for companies in sponsorships. His behavior, image (Mason, 2005), and the amount of engagement, interactions with fans, amount of likes in his photos (Lipsman et al., 2012) will determine the value of his brand.

A team can affect players' brand in many ways. A small market team does not have many nationally televised games, so the reach of a player's image can be affected (Dubin, 2019). According to NBA (2020), of the top 15 selling jerseys, only two are from players that play for a small market team and of the top 10 most popular team merchandise, just one is considered to be a small market team. The market value of a team is calculated by Forbes (Badenhausen, 2020a) based on values shown in its financial statements and helps to see how big the market is, and it is range.

The team can affect not just in their reach. It can also affect the player's image, like a losing team, which can translate to the players' image. Not necessarily a monetary variable, but it will influence the value of the player.

### 2.3 Non-monetary influences

"Money cannot buy everything." This is a quote from a Mastercard commercial, a song from Brave Combo, and even the main inspiration for the central question in an article (Gillespie, 2019). Gastal and Pilati (2016) explain the feeling of belonging, and Reker, Peacock, and Wong (1987) explain the importance of meaning, purpose in life, and psychological well-being. Those are feelings that money cannot buy and play a part in an athlete's life. So, there are non-monetary variables that can influence a player's decision of where he will play.

### 2.3.1    Teams sports performance

The primary purpose of a professional athlete, while he is playing, is seeking wins, championships, awards. Gill, Dzewaltowski, and Deeter (1988) show the difference in competitiveness between professional athletes and nonprofessional. The desire to become better players and to win are some reasons to why players work harder, sometimes even "creating" their mentality like Kobe Bryant (Jeffries, 2020) and sometimes even switching teams to seek achievements, like Kevin Durant when he joined the Golden State Warriors (Ibarrola, 2020).

Besides this purpose, for players well-being and feeling of belonging is essential for them to play alongside someone they enjoy, for an organization and city that they like and trust (Kumar and Meenakshi, 2009), even better when you combine this with a competitive team like Lebron James, Chris Bosh and Dwyane Wade did in 2010 (Tjarks, 2010).

Furthermore, there is the quality of life of an athlete and his close ones, which changes from city to city. The changes can be because of natural factors of the place, like weather, or related to public policy that affects their lives, like security, health, and education.

### 2.3.2 States quality of life (HDI)

The Human Development Index (HDI) is a synthetic measure from zero (no human development) to 1 (total human development) used to classify the degree of economic development and quality of life. At present, the three dimensions that form HDI are Health, Education, and Income (UNDP, 2019). It can be measured by city, state, or country.

As shown by Butler (2019), the decision of a player to migrated does not influence just the player, and there are several people involved that are influenced by his decision (family, friends, coaches). So, the quality of life of a city can influence a player's verdict of where he will play, just like it influenced one of the NBA's best players, Lebron James, according to Zillgitt (2018).

## 3. Method

To analyze the relationship between monetary and non-monetary variables on the decision made by NBA free agents, between the start of the 2015/16 season to the beginning of the 2019/20 season. The sample consisted of 595 players that signed a contract with any of the 30 NBA franchises during the free agency period during the research period. Players who did not have a previous team were eliminated from the sample, as they always increase the variables.

All the data collection consists of secondary data. Information about the NBA free agents was collected at the website Basketball Reference, and players' salaries were bestowed at the website Hoops Hype. Forbes provided NBA teams' market value, Tax Foundation granted taxes related information, Global Data Lab provided HDI information, and Players and team performance sources were the official website of the NBA. For teams and players' performance, it was used the results from the regular season.

Regarding methodological procedures, we analyze the data with four different focuses. For the first part, we use a scatter plot and table analyzing the relationship between state income taxes and salary. We use the same approach to examine the relationship between team market value, the team wins in the previous season, and States HDI with salary. To all the analyses, we subdivided the players according to their salaries in four groups based on their quartiles.

We also use the alluvial plot to analyses the relationship between salary, state income taxes, team wins in the previous season and HDI altogether. The alluvial plot groups categorical data and shows the flows of the data in a diagram. Finally, we apply a correspondence analysis to verify the relationship between the variables. We transform the quantitative data into categorical data through quartile distribution. Before applying the correspondence analysis, the chi-square test was executed. If there is a relationship between variables at a significance of 1%, the graphs are performed. The alluvial plot was made in the R software in the alluvial package and the correspondence analysis in the Ca package.

## 4. Research Results and Findings

The results section is divided into four parts. All parts are discussing the influence on the decision of NBA free agents. The first part being state income taxes, then teams' market value, after that, the performance of the teams and, last but not least, states HDI.

### 4.1 Salary and State Income Taxes

Figure 1 shows the results of the relationship between salaries and state income taxes. The results related to the distribution in the scatter plot shows that player's distribution is roughly the same, independent of the taxes and salary. This result shows that, in general, players will not go to a team just because they have lower tax rates. They will spread all over the teams trying to find better opportunities, not just trying to find the team that will give them the most net value.



**Figure 1: State Income Taxes and Players' Salaries (2015/16-2019/20).**
Notes: Data in thousands of dollars. Blue = 1Q, Red = 2Q, Green = 3Q and Purple = 4Q

Table 1 shows the labor migration of the athletes subdivided into quartiles based on their salaries, staying in teams with the same tax rate, or going to lower or higher tax rate teams.

It shows that most of the players that are in the quartile with bigger salaries (fourth quartile) stay with teams that have the same amount of tax rate. Just about 18,94% goes to teams with a lower tax rate, and 29,07% goes to teams with a higher tax rate. The same conclusion goes for players that gain more than the median salary, most of them stay at teams with the same tax rate, and just some players go to lower tax rate teams. For the players that receive beneath the median salary, they look more often for teams with a lower tax rate and less to stay at the same tax rate.

Table 1:
**State Income Taxes and Players' Salaries by quartile (2015/16-2019/20).**

| Salary Quartile | Increase in tax | Decrease in tax | Same tax |
|---|---|---|---|
| Quartile 1 | 9,24% | 8,24% | 7,56% |
| Quartile 2 | 7,39% | 8,40% | 10,42% |
| Quartile 3 | 7,56% | 6,72% | 9,58% |
| Quartile 4 | 7,23% | 4,71% | 12,94% |
| Total | 31,43% | 28,07% | 40,50% |

According to these results, the difference between players going to teams with higher tax rates and lower tax rates is small. Players that are in lower quartiles tend to switch teams more times than players in the higher quartile. There is a tendency for all players to maintain their tax rate, and not seek just the lower tax rate teams (the ones that will give them the most amount of net value). They will try to find better opportunities, but they will spread all over the teams, independently of tax rates.

## 4.2 Salary and Team Market Value

The results of the relationship between salaries and teams' market value are shown in Figure 2. The graphic distribution shows there is a notable discrepancy between higher-paid athletes and lower-paid athletes. Notably, players who earn the most amount of money tend to move away from the smaller market teams, concentrating on medium to high market value teams. The distribution between lower-paid players is more balanced, tending to play more for smaller market teams than high-paid athletes.



**Figure 2: Team Market Value and Players' Salaries (2015/16-2019/20)**
Notes: Team market value in billions and salaries in thousands of dollars. Blue = 1Q, Red = 2Q, Green = 3Q and Purple = 4Q

Table 2 shows the labor migration of the athletes subdivided in the same way as Table 1, but now, based on the team's market value. Furthermore, looking at Table 2, 72,75% of players that receive more than the median salary stay with the team or goes to a team with a more significant market value. When looking at the fourth quartile (higher-paid players), the percentage of players that stay or go to higher market teams increases to 79,05%. In the same analysis, players that receive less than the median, the percentage goes to 66,91%, and when looking at players at the quartile that receives the least amount of salary, the percentage falls to 61,1%. These results show a preference for the players to stay or go to higher market value teams. Those that are getting paid the most are more likely to go to those teams.

Moreover, players that receive more than the median salary tend to stay with the same market value teams (45,18%). This percentage increases to 52,03% when looking at the top 25% paid players. On the other hand, if players are below the median salary, they tend to change teams more (68,22%). This percentage goes up when looking at the quartile that gets a lower amount of money tends to change teams (74,52% of the cases). They mostly go to teams with less market value than they were before (38,94% of all cases).

Table 2:
**Team Market Value and Players' Salaries by quartile (2015/16-2019/20)**

| Salary Quartile | Increase in TMV | Decrease in TMV | Same TMV |
|---|---|---|---|
| Quartile 1 | 8,91% | 9,75% | 6,39% |
| Quartile 2 | 9,08% | 7,23% | 9,92% |
| Quartile 3 | 6,72% | 8,07% | 9,08% |
| Quartile 4 | 6,72% | 5,21% | 12,94% |
| Total | 31,43% | 30,25% | 38,32% |

Note: TMV is an abbreviation for Teams Market value

Remarkably, players with more power of choice tend to stay with the team that they are or go high market value teams more often than players with less choice power. Players in the first quartile of salaries are more likely to play for smaller market teams. Another noteworthy analysis is that low-paid players are more susceptible to change, seeking opportunities to stay in the league.

## 4.3 Salary and Team performance

The discrepancy in distribution is substantial when looking at the scatter plot of salaries x team record (Figure 3), just like the team market value. The distribution of points representing players from the lower quartiles is more similar than that of players from the higher quartiles. Notoriously players who earn more money with salaries tend to play for better record teams and avoid the teams with the least number of wins. After the 25 million dollars' salaries mark, teams with less than 30 wins in the previous season do not attract the highest-paid players, as shown in Figure 3.
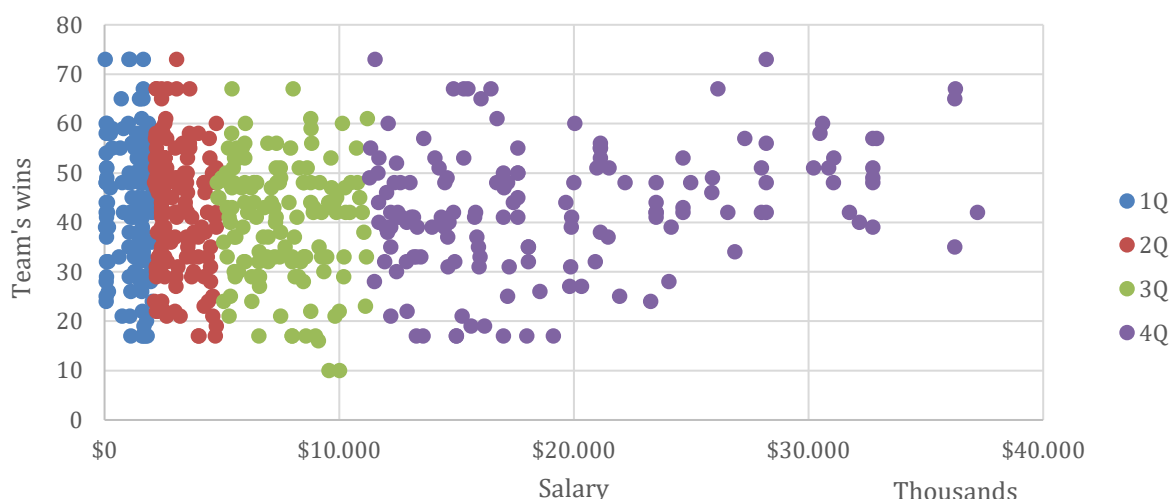


**Figure 3: Team Record and Players' Salaries (2015/16-2019/20)**
Notes: Blue = 1Q, Red = 2Q, Green = 3Q and Purple = 4Q

Even though players of the fourth quartile tend to avoid the teams with lowest wins, when they change teams, most of the time, they go to teams with the same or worst record (85,16%) as Table 3 shows. The critics behind a top player in the league going to a better record team (Tornoe, 2016) is a possible reason behind this. Other analysis is as the quartile increase, the percentage of players staying with the same record teams goes up and players going to better record teams goes down.

Table 3 also shows the difference between athletes going to a better record team and worst record teams is roughly the same. They change teams more often than stay with the team, with this statement not being true just for players of the fourth quartile.

Table 3:
**Team Record and Players' Salaries by quartile (2015/16-2019/20)**

| Salary Quartile | Increase in Record | Decrease in Record | Same Record |
|:---:|:---:|:---:|:---:|
| **Quartile 1** | 11,93% | 6,89% | 6,22% |
| **Quartile 2** | 9,24% | 7,39% | 9,58% |
| **Quartile 3** | 6,05% | 8,57% | 9,24% |
| **Quartile 4** | 3,70% | 7,90% | 13,28% |
| **Total** | 30,92% | 30,76% | 38,32% |

The results reveal a tendency of more changing of teams for players that receive less than the median salary. Furthermore, they look for better record teams more times than players that receive more than the median salary. Players that are top paid, tend to avoid the worst record teams, but they also avoid going to teams with better record than they were before.

### 4.4 Salary and State HDI

The United States is one of the top 15 highest HDI countries in the world, according to UNDP (2019). It is expected that all the states have high HDI indicators as well. Even though this expectation is confirmed, states HDI are different, which can impact a player's decision. Figure 4 shows the scatter plot of the relationship between salaries and states HDI. According to the results, the distribution is almost the same for every quartile. There is a little difference between the fourth quartile and the others, which is fewer players below the 0,9 HDI mark, showing a discrepancy and a tendency to move away from the bottom.
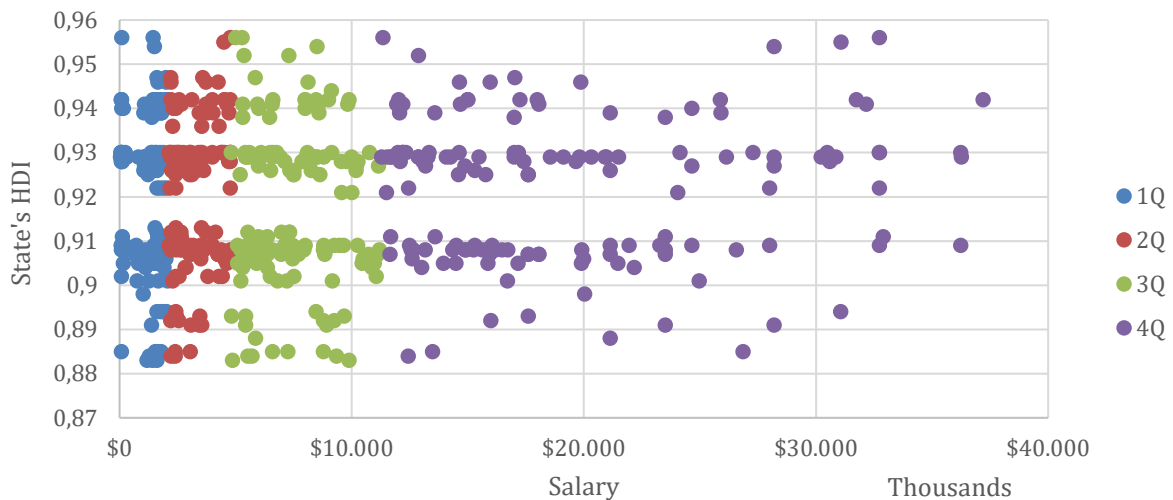


**Figure 4: State's HDI and Players' Salaries (2015/16-2019/20)**
Notes: Blue = 1Q, Red = 2Q, Green = 3Q and Purple = 4Q

Confirming the observation above, the decrease in HDI decreases as the salaries quartile increases, like Table 4 shows. At the same time, players that receive less than median compensation are more likely to find teams with higher HDI than they were before. Players who receive more than median are more likely to stay with teams that have the same HDI that they were before.

The athletes that are categorized as the higher quartiles tend to stay or increase the HDI (73,45%), which percentage even increases when looking at players of the top quartile (79,05%). The opposite goes for players in the lowest quartiles when observing players who

earn less than the median salary. They stay or increase the HDI just 65,57% of the time, and the percentage drops to 64,42% when considering the players from the lowest quartile.

Table 4:
**State's HDI and Players' Salaries by quartile (2015/16-2019/20)**

| Salary Quartile | Increase in HDI | Decrease in HDI | Same HDI |
|---|---|---|---|
| Quartile 1 | 8,57% | 8,91% | 7,56% |
| Quartile 2 | 7,06% | 8,74% | 10,42% |
| Quartile 3 | 6,39% | 7,73% | 9,75% |
| Quartile 4 | 6,55% | 5,21% | 13,11% |
| Total | 28,57% | 30,59% | 40,84% |

The results show a noticeable difference between low-paid and high-paid players. There is a tendency for high paid players to go to teams that are located in higher HDI states than lower-paid players.

### 4.5 Correspondence Analysis

The alluvial plot (Figure 5) shows the flow of the players according to the variables. It clusters all the previous analyses in one graphic. The purpose of the alluvial plot is to follow the groups' variations when looking at different variables. It is divided into two groups, in red, the group of players who receives more than the median salary (third and fourth quartile of salaries), and in blue, the group that receives less than the median salary (first and second quartile of salaries).
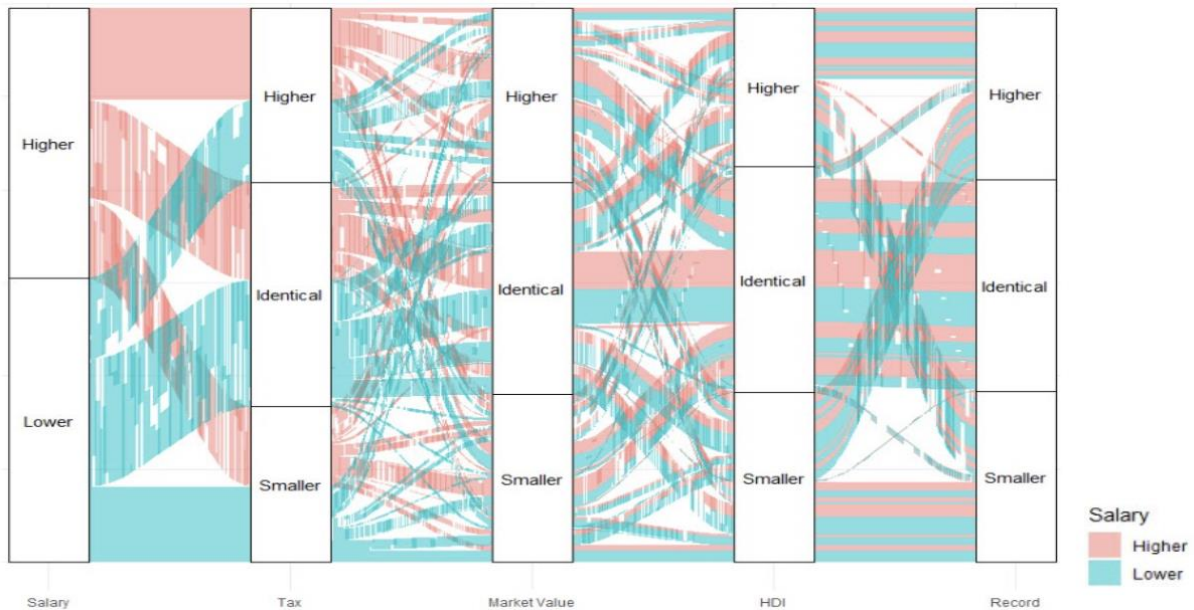


**Figure 5: Alluvial plot (2015/16-2019/20)**
Notes: Red = Higher than the median salary. Blue = Lower than the median salary.

We can see that there is not just one tendency that a specific group follows. Add to the results of the previews analysis, we can conclude that different variables can influence the players' decisions.

After calculating the chi-square test with 1% significance, 7 of 10 possible simple relationships are significant. The relationships between salary and record, salary and HDI and

salary and taxes were not significant. We plot the graphs with the significant relationships in Figure 6.
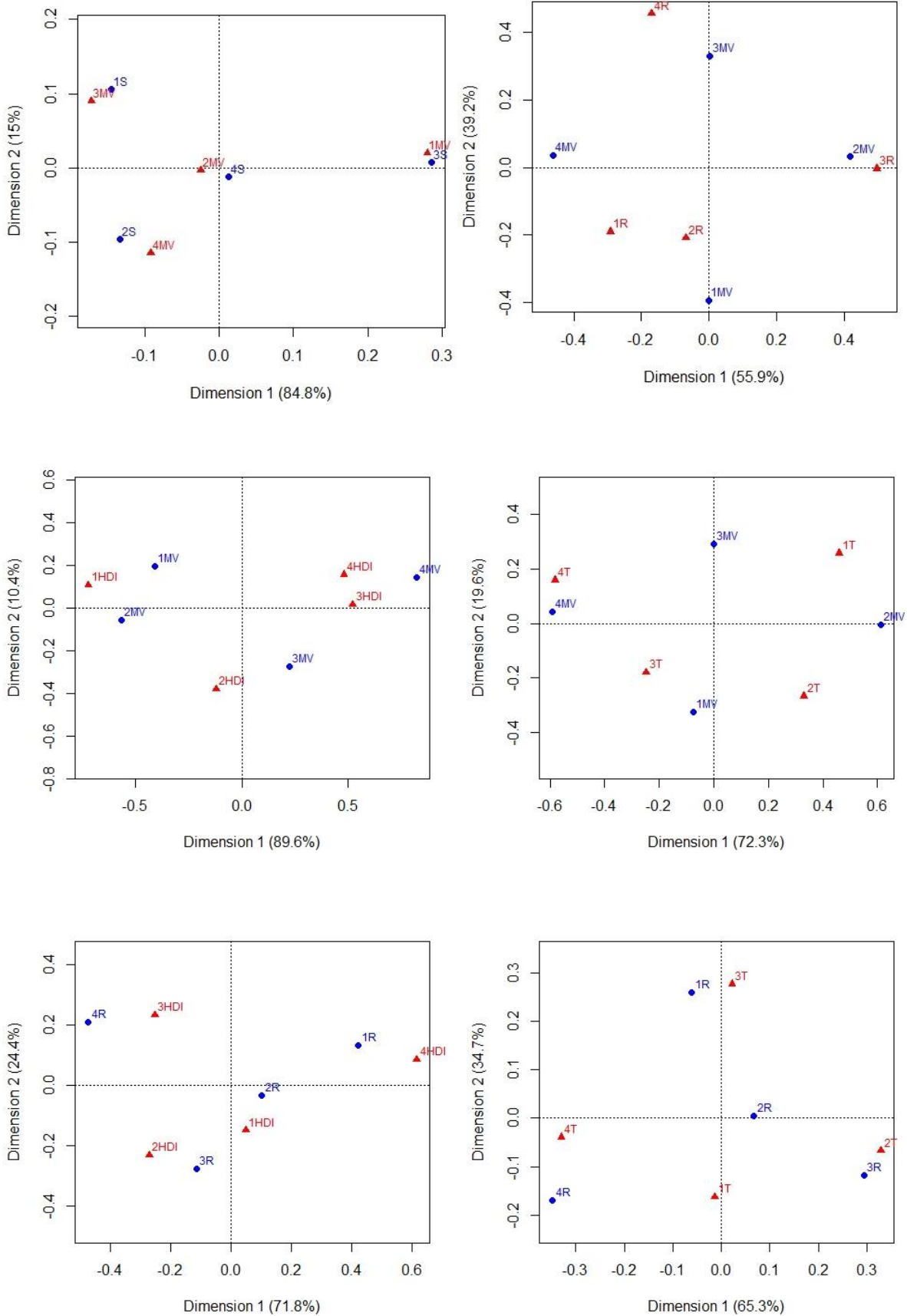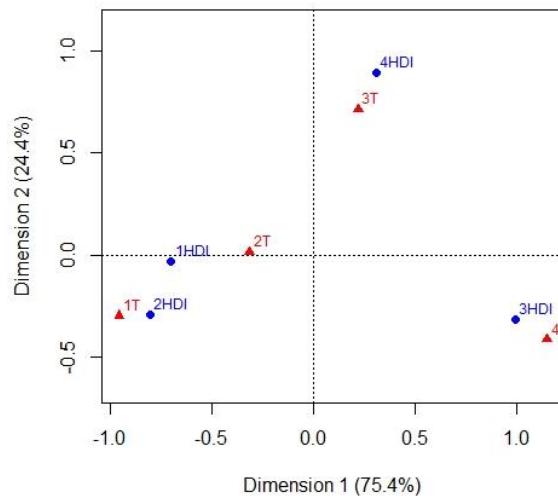
**Figure 6: Correspondence Analysis Graphs**
Note: Plots from left to right, Salary and Market Value; Market Value and Record, Market Value and HDI, Market Value and Taxes; Record and HDI; Record and Taxes; HDI and Taxes.

Based on plots from Figure 6, especially the percentual related to the dimensions, it is possible to reject the null hypothesis of independent variables of the chi-square test. The results indicate that teams with the best wins record are associated with higher market values and higher-income states taxes. Consequently, players should consider that it is difficult to sign to a high-market value team, with a good win's record and low-income state taxes. Accordingly, the results suggest that states with HDI higher than the median are associated with higher income state taxes than the medium. Thus, states with a higher quality of life, based on HDI, are associated with higher income state tax, and it will be difficult to consider those two as separate situations.

## 5. Conclusions and recommendations

The goal of this paper was to analyze the relationship between monetary and non-monetary variables on the decision made by NBA free agents, according to their salary. The results indicated no preference for monetary or non-monetary variables. There is evidence that shows both influences a player's decision.

According to the results, the salary cap show efficiency. Despite the state's tax rates being different for the teams (players do not receive the same amount in net value), it works because a team cannot sign all the best players. The same goes for team performance. High paid players tend to avoid the lowest wins teams, but no evidence shows that a player decision is based mostly on the team record. There is a roughly similar distribution between the players in every salary category and teams.

Higher team market value corresponds to better off-court opportunities, and higher HDI corresponds to a better quality of life. These variables seemed to play a significant role in players' decisions, especially for players who receive a higher salary. They tend to avoid smaller values of these variables. It is notable the players' inertia, that is, the tendency of players to stay in the club, especially those who earn higher salaries. Off-court variables, the ones that are more related to outside opportunities, like team market value and quality of life (HDI), appear to have more influence than on-court variables, the ones more related to players performance, salary (tax) and team performance.

The restrictions of this article are the period of analysis and state-only analysis (income taxes and HDI). Future studies could increase the period of analysis to have a larger sample. It could analyze different sports (football, hockey, baseball) and other countries, thus being able to make comparisons. It could include local tax rates and local HDI. It could include player performance variables to explore the part of salaries being related to the players' performance.

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