Impact of Heuristics on Player Markets in Professional Sports

Aditya Lankapalli[1*]

[1]The International School Bangalore, Bangalore, India
*Corresponding Author: adityalankapalli7@gmail.com

Advisor: Dr. Edoardo Gallo, edo@econ.cam.ac.uk

Abstract

Professional sports are very performance-driven and put a high premium on selecting the right players and having the right combination of players on the team. The common belief is that in modern times, player selection is entirely scientific and data-driven. While that is true to an extent, heuristics plays an outsized role in how professional teams and their management select and trade their players. This paper attempts to answer the question: Does heuristics have a significant influence in professional sports player selection, and what are the common ways in which it manifests itself? The paper presents a review of heuristics and its impact on professional team management and selection of players and as a result, how it influenced the performance of the teams. The paper looks at previous research in this field and analyzes trends and specific occurrences in the following sports to articulate how each of these heuristics plays a role: Football, American football, Basketball, and Cricket. The focus is specifically on 3 types of heuristics: Availability Bias, Endowment Effect, & Anchoring and their influence on the composition of professional sports. For each of these heuristics, a comprehensive methodology was used to analyze the impact. The methodology included a combination of recorded player transfers and moves from four of the biggest sports leagues in the world, empirical data from peer review journals, and analysis of sporting analytics databases, and previous trade records. An interpretive approach to the synthesis of existing work and real case studies was employed to understand the existence of cognitive bias in professional sporting markets. For each heuristic, the paper provides detailed explanation and possible hypothesis, followed by indepth analysis of recent examples. This analysis leads to the conclusion that availability bias, endowment effect and anchoring all prominently impact and influence decision making in player selection in professional sports. The teams do indeed heavily rely on data for their selection decisions, but these heuristics also play a major role in selection and the teams' performance. In conclusion, understanding behavioral economics and common biases plays a key role in analyzing how player transfers are made in professional sports. This understanding can, in turn, help design solutions to counter the effects of these biases in the market.

Keywords: Heuristics, Player markets, Availability bias, Endowment effect, Anchoring bias

1. Introduction

Player selections and transfers in professional sports teams are a massive undertaking both from a human and a financial perspective. In the National Football League (NFL) alone, more than 250 rookies are selected each year and the total salary of a typical NFL team roster could exceed $250M. In the National Basketball League (NBA) for instance, 71 players were traded in the 2023-2024 season alone. These players' selections and transfers have big financial values associated with them and the teams are counting on their decisions being successful. For example, the top 5 highest paid team sport athletes in the world earn an aggregate of $849 million per year (Forbes).

In such a high-stakes environment, the way players are selected and how they are perceived is as much an art form as it is a finely tuned science. As national and franchise sports teams become increasingly more professional, their player selection decisions are increasingly scientific and driven by data. Backroom staff deploys sophisticated

data models to make these decisions. That said, heuristics and unconscious biases still play a major role in player selection and management. In sports, heuristics is a form of behavioral economics that drives decision making based on biases that are not easily visible or understood. Heuristics can therefore have a profound effect on player selections and related decisions. This doesn't necessarily have a negative connotation, but it is important that sports administrators understand the heuristics impact, so that they can be better informed as they make decisions.

This paper will establish the link between heuristics and decision making. In order to answer the research question: "Does heuristics have a significant influence in professional sports player selection, and what are the common ways in which it manifests itself?", it will test the hypothesis that heuristics has a meaningful affect on the way managers and teams view their players and their contributions, and thus impact the decision making on player selections and transfers. The major heuristics in this analysis include:

- Availability Effect
- Endowment Effect
- Anchoring Effect

The paper looks at previous research in this field and analyzes trends and specific occurrences in the following sports to articulate how each of these heuristics plays a role: Football, American football, Basketball, and Cricket. For each heuristic, the paper will do a detailed analysis and connect each to the market for athletes. The analysis for the heuristics will start with a baseline hypothesis, and then use data from previous research, recent history. In each instance, we will analyze the factors leading up to the decision, identify specific ways in which heuristics was involved, and review the final outcomes. The conclusions for the paper will be based on whether the analysis and data can show a direct link between each heuristic and outcomes or decisions made in each instance or example.

2. Materials and Methods

This research utilizes a qualitative, cross-sport comparative case study in behavioral economics to examine the role of heuristics in shaping player markets. The approach involved studying previous research in this field and trends. The methodology is a review of recorded player transfers, draft moves, and team choices in the four biggest sports leagues—National Basketball Association (NBA), National Football League (NFL), International football leagues (soccer), and Cricket—focusing on specific cases where heuristics such as availability bias, endowment effect, and anchoring can be seen to have affected outcomes. These specific leagues were chosen because they are highly popular, the volume of player selections and transfers is very high, the stakes involved in making the right player selections are very high, and finally the quality of available data on these leagues is also very high.

Empirical data from peer-reviewed journals, sporting analytics databases, and previous trade records was surveyed to identify patterns by heuristic-influenced choices. The four leagues that were chosen have well documented records and data, which provided for highly reliable analysis. An interpretive approach to the synthesis of existing work and real case studies was employed to understand the existence of cognitive bias in professional sporting markets.

The approach used in the paper was data driven and empirical, but considering that we are studying heuristics, there is a certain element of inherent bias in day to day operations and decision making in sports, it does present a limitation in that it will not be possible to fully account for the inherent biases throughout the analysis.

3. Availability Heuristics

Availability, defined by Tversky and Kahnemann in 1973, is the heuristic that causes people to rely on the most salient information about a topic to judge its frequency and probability. The availability heuristic is a mental shortcut that is used to evaluate the frequency or determine the likelihood of a particular event happening based on the ease with which it comes to mind. This reliance on the availability heuristic could lead to systematic errors. For example, in an experiment conducted by Tversky and Kahneman, participants heard a recorded list of famous men and women. Some were more famous than others. After listening to the list, one group was asked to write down the names that they remembered. The other participants were asked to determine whether the list contained more men or more women. The participants recalled 12.3 of the 19 famous names and 8.4 of the 20 less famous names, and the participants in the

other group incorrectly determined that the gender consisting of more famous names was more frequent. This demonstrates how the availability heuristic can bias judgments by relying on the ease with which information is salient or comes to mind (Tversky and Kahneman, 1973).

Availability is a heuristic that is largely relevant in the world of sports and sports trading. Players receiving a lot of media coverage may seem more likely to succeed. Traders could rely on this rather than actual statistical data. Additionally, the recent player performance might be more salient in the traders' minds rather than player performance over the long run. This could skew their perceptions of how well a player is likely to perform. Players could also overestimate the likelihood of certain events happening again. The availability heuristic can also make recently dramatic or prominent events covered in the media seem more likely to occur in the future, from the perspective of a person hearing it.

In sports trading, there are extremely vivid examples of the heuristic, all of which act as a clear bias that impacts the team's management and performance. For avid sports followers, these examples can be comfortably recounted from memory.

3.1 Results of Availability Heuristics

Availability Heuristics can be analyzed in the four sports leagues with the following prominent examples: Pablo Sandoval had a strong postseason performance with the San Francisco Giants in 2014, helping them win the World Series. The Boston Red Sox signed him to a five-year, $95 million contract. Sandoval underperformed with the Red Sox, struggling with injuries and weight issues, and was eventually released before the end of his contract.

Jeremy Lin, an NBA player, had a remarkable few weeks, famously known as "Linsanity," where he performed exceptionally well and became a media sensation. The Houston Rockets signed him to a substantial contract, expecting him to maintain that level of play. While Lin had a decent career, he never replicated the extraordinary performance of those few weeks with the Knicks.

James Rodríguez had an outstanding World Cup with Colombia in 2014, winning the Golden Boot as the tournament's top scorer. Real Madrid signed him for a significant fee of €80 million. Although Rodríguez had some good moments, he struggled with consistency and injuries and was eventually loaned out to other clubs.

Nick Foles led the Philadelphia Eagles to a Super Bowl victory in the 2017 season, earning Super Bowl Most Valuable Player (MVP) honors. The Jacksonville Jaguars signed him to a four-year, $88 million contract. Foles suffered a broken collarbone in his first game with the Jaguars and struggled upon his return, eventually being replaced and traded.

Ville Leino had a standout playoff run with the Philadelphia Flyers in 2010, scoring 21 points in 19 games. The Buffalo Sabres signed him to a six-year, $27 million contract. Leino's performance dropped significantly, and he never lived up to his contract, eventually being bought out by the Sabres.

These examples demonstrate how the availability heuristic can lead teams to make decisions based on recent or memorable performances, often resulting in overvalued contracts and disappointing outcomes. In addition, the presence of availability heuristic with retail investors in capital markets. Many investors tend to invest in new IPOs (Initial Public Offering) in the hopes that the stock price will increase significantly, as they have heard of a few high-profile IPOs where people became rich. They rely on this anecdotal information as it has been widely covered in the news, rather than analyzing the company's fundamentals. Although it has been shown that most IPOs underperform, investors tend to overestimate the chances of landing a successful IPO based on these isolated but very popular examples. This can very easily be compared to the case of Jeremy Lin, as his recent performances were prominently covered in news outlets and sports websites, and became the most prominent piece of information for team managers. Thus, it led to his signing, and availability can be considered as the heuristic which impacted it. The same is the case for James Rodriguez, whose performance in the World Cup was prominently spoken about in the news and media, and Real Madrid ended up signing him.

In the "Impact of Heuristic-Driven Availability Bias on Investment Decision-Making in the Indian Stock Market: An Empirical Study" by Umar Sadeeq, Khursheed A Butt, (Butt & Sadeeq, 2024) several examples support the following hypothesis: Heuristic-driven availability bias is positively related to investment decision making, such that

more the bias more the irrationality in decision making:

According to Ravi and Harris (2005), investors' preferences are influenced by the availability of new information, leading them to consider even seemingly unrelated data in their decisions. Grable et al. (2004) found that investors' risk-taking behavior and stock choices are affected by newly accessible information, increasing the likelihood of irrational decision-making. Bowers (2014) showed that investors' desire to beat the market prompts them to react quickly to available information, often relying on mental shortcuts like the availability heuristic, resulting in illogical conclusions and influencing investment decisions.

Ganzach (2000) highlighted the impact of heuristics on investor choices, where stocks with strong profits may be perceived as less risky and those with poor earnings as very risky, leading to suboptimal decisions. Barber and Odean (2000) discovered that investors often base their investment decisions on advertisements rather than thorough research, posing increased risk during market downturns, as noted by Goodman and Marcus (1991).

Kudryavtsev et al. (2013) observed that the availability heuristic pushes investors towards extremes in decision-making, while Moradian et al. (2013) found that it significantly influences poor investment choices in the Tehran stock exchange. Weber (2010) emphasized the detrimental impact of availability bias on investment decisions, leading investors to rely on irrelevant information. These findings align with the works of Steen (2002), Massa et al. (2005), and Waweru et al. (2008), indicating the pervasive influence of availability bias on risk attitudes and investment choices.

3.2 Discussion on Availability Heuristic:

The wide range of examples from various sports teams and leagues clearly show that the availability heuristic can lead teams to make decisions based on recent or memorable performances, often resulting in overvalued contracts and disappointing outcomes. The analogies with investors in capital markets further illustrate how such decision making can be impacted by availability.

Since the presence of the heuristic has been clearly illustrated with the examples and previous research, each team and their leadership should find nuanced solutions that work for them, as leagues and governing bodies cannot make regulations regarding the decision process of franchises. Thus, from the perspective of teams, the first step would be to acknowledge the presence of availability as an influencing factor, and then to agree on appropriate solutions. One potential solution to the bias could be to conduct an equal and comparable analysis of the skills and history of all prospective players of their franchise, regardless of how much information is available to them from news coverage, recent performance, or popularity and recognition. Such an analysis would assess the same factors for all players, ensuring a fair selection and decision process by teams on what players should be traded for or signed.

4 Endowment Effect

The endowment effect was defined by Richard Thaler in 1992 as when a consumer overvalued something that they own. In other words, there is a disparity between the accepted selling price and buying price, with the selling price being higher (Thaler et al., 1992) due to the overvaluation of objects that one possesses. This is closely related to and linked with the description of loss aversion in 1984 by Daniel Kahnemann and Amos Tversky, which says that the loss of giving up an object is felt to be greater than the benefit of gaining it.

The endowment effect is significantly relevant in the market for sports players, especially in terms of draft picks. Each team in American sports leagues are assigned specific rounds in the draft when they can select their preferred players. A pick essentially means which player the team has identified their choice for each draft round. During entry drafts of American sports leagues, transactions and trades of players take place frequently (Hobbs & Singh, 2022). In this type of trade, the priority of being able to pick a new rookie player is traded from one team to another. Hobbs and Singh analyzed the effect of endowment on this across three American sports leagues. The overall results revealed that:

Teams that held high-priority picks were held for a long time, causing the owners to experience a greater endowment effect regarding these picks. On the other hand, teams that held lower-priority picks traded them more

often, and once they were traded - they were likely to be traded again, which indicates that the owners did not experience an endowment effect with these picks.

4.1 Results of Endowment Effect:

This endowment effect in sports draft picks trading can impact teams' access to certain players, and thus, their availability in the market. Data was collected on player drafts and their long term outcomes over a period of several years to ensure outliers don't impact the analysis. They hypothesis was that later picks will be traded more frequently, while higher quality, early picks will see greater durations in any given team. If this endowment effect is proven, perhaps those teams that have selected a highly regarded player will possess more consistent, stable rosters over time, leading to greater long-term strength. The teams with later picks, and less endowment effect, will see frequent trades and it may lead to a less unified team and disparity between teams that builds over time.

A similar study was conducted by Chandrakumaran et al. in the paper "Compounding Endowment Effects When Trading Draft Picks in the Australian Football League." The results of this study can be seen in the figures below. Figure 1 shows the relationship between the percentage of players released and the time since they were drafted. Figure 2 shows the relationship between the percentage of players who exited and the time since they were drafted.
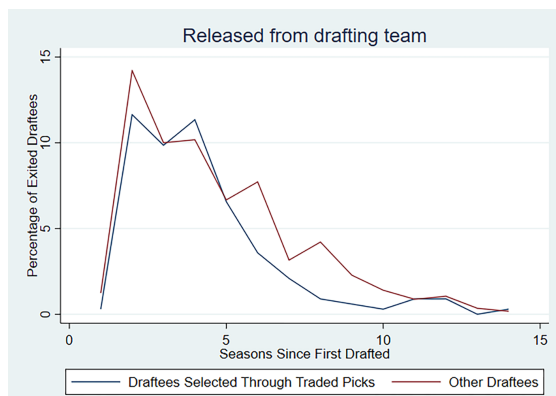

Figure 1: Graph of the Relationship between the percentage of players released and time since they were drafted
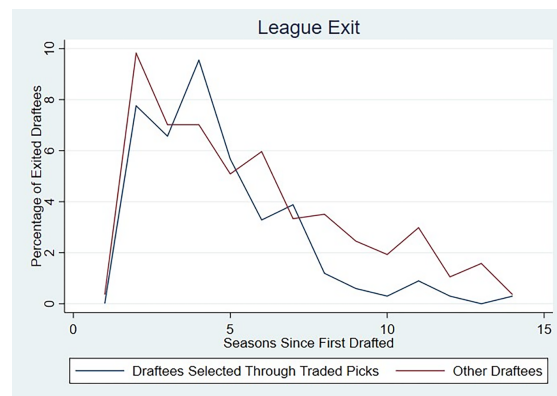
Figure 2: Graph of the Relationship between the percentage of players who exited and time since they were drafted

It is very clear for Figures 1 and 2, that players who were held for longer by their teams benefited from an endowment effect from their teams, did not want to lose them, and were less likely to be traded or exited from the league. The teams felt a stronger sense of ownership for these players, which created an unconscious bias towards them and valued them more, which, in all likelihood, created a stronger affinity. Also, an overall endowment effect is seemingly present, as less than 50% of picks are traded overall, as well as for each bracket of pick numbers designated in the study.

4.2 Discussion on Endowment Effect:

The data clearly shows that there is a natural connection between endowment effect and player retention. While this can yield positive results for the team as it drives stability and consistency, teams need to be conscious of this possible impact, so that they can plan for it and avoid a "too much of a good thing" situation.

A possible solution for teams to consider is to trade players not picks i.e. minimize trading of picks and do it only when it is necessary: Once a player is picked, it allows them to judge their value in a more accurate way (based on a factual and in-depth understanding of the player's ability, as opposed to just having a general idea) and make better decisions in terms of whether to trade, so the heuristic doesn't have a large impact. This is because when a team has information about the actual player they have, rather than the general level of their talent or quality, teams can use that information to make better, more appropriate decisions about trading.

The other solution is to relook at how draft rounds are sequenced. Often, teams with lower reputations and lower records of success, are given the ability to pick players earlier than more successful teams. This leaves the less

successful teams to have a stronger sense of endowment to the early-round picks, creating an unconscious bias towards those picks/players instead of relying purely on facts and performance data. A solution to this would be to relook at the order of the draft so that less regarded teams are not impacted by the effect as much. This solution needs to be implemented carefully, as less successful teams still need the early-rounds to get access to better-quality players.

Finally, the main solution that can solve the endowment effect heuristic is to have a clear investment strategy: build a clear, articulate strategy upfront, make objective decisions, and stay true to the strategy. This will avoid getting influenced by the endowment heuristic and straying from the defined strategy.

5. Anchoring Heuristics

The anchoring bias is a cognitive bias that causes us to rely heavily on the first piece of information we are given about a topic. When we are setting plans or making estimates about something, we interpret newer information from the reference point of our anchor instead of seeing it objectively. This can skew our judgment and prevent us from updating our plans or predictions as much as we should.

This is visible in all forms of life. The anchoring effect is seen in negotiations with the tendency to give too much weight to the first number that is put on the table and try to use that as the baseline. Most financial metrics like revenue, expenses, and even stock price get anchored on their current state actuals, which will result in all decisions being based on that, as opposed to starting with what the actual value should be. A senior executive of an automotive company will use the success they had in launching a certain car model in one country as their anchor point and try to replicate the same process in other countries and not account for the nuances and differences in that markets.

5.1 Results of Anchoring Bias

To dive deeper into how anchoring impacts sports player management, we can explore how the ratio of players getting drafted changes as we go up in the Recruiting Services Consensus Index (RSCI) rankings. In theory, players with a higher listing should get drafted more often, as such placements suggest that these players possess superior basketball skills. Therefore, these talents should provide more long-term value for NBA teams and should be picked earlier in a draft scenario. Still, the question is whether the RSCI ranking is the best indicator of the extent of their ability. We will look at answering the following 3 questions on how anchoring on RSCI data impacts the NBA draft process:

- Does getting a better RSCI rank increase the chances of getting drafted?
- Does getting a better RSCI rank help get drafted earlier in the drafting cycle?
- After getting drafted, do players with higher RSCI ranks perform better in the NBA than lower-ranked players?

Does a better RSCI rank increase the chances of getting drafted

Table 1 shows that the RSCI identifies basketball talent in HS players while assuming NBA managers have some skill in selecting the players. The higher the RSCI rank of a player, the higher the general chance of being selected by a franchise decision-maker. This conclusion aligns well with our expectations. Though the link between RSCI rank and draft status does not seem to follow a linear correlation, it rather appears to be exponential. The difference between the ranks regarding getting drafted increases only slowly at first but seems to grow more steeply moving up the list.

The NBA entry draft is a place where the anchoring bias can be very prominent. This can be considered a major example of an area where there is the presence of anchoring in sports trading and player markets. RSCI releases an HS ranking, which ranks the ability and talent of players who have just finished high school and are available for selection in the NBA entry draft. Even though all NBA teams have analysts and scouts who look at

Table 1: Relationship between RSCI rank and amount of players drafted.

RSCI rank	Players with draft status "drafted"	Percentage with draft status "drafted"
100–80	45	11.9
79–60	50	13.9
59–40	62	17.2
39–20	120	33.3
19–10	102	56.7
9–1	134	82.7

comprehensive information to select players, Daumann and Berger hypothesized that this ranking may act as an anchor (Daumann & Berger, 2021), leading to bias in the way managers of teams decide to select their players.

Between 1998 and 2015, 513 RSCI-ranked HS players (N = 1800) were drafted. If we consider that only 60 draft spots are available every year and that, on average, 13.6 non-American players (who cannot appear in the US-based RSCI) got drafted annually over the observed period, players from high schools with RSCI rankings filled about 62% of all available draft spots.

Managers may believe that those players ranked higher would have superior basketball skills than those ranked lower, and thus they would be more valuable to teams. There was evidence that 82.7% of those in ranks 1-9 were drafted. The percentage decreased in a trend, and only 11.9% of those in rank 80-100 were drafted. (Data was collected through averaging).

Does getting a better RSCI rank help get drafted earlier in the drafting cycle?

Berger, Tobias, and Daumann, Frank, next examined whether HS praise through ranking services not only helps talents get drafted but also leads to being selected earlier in a draft scenario. Table 2 shows the relationship between the average RSCI rank and the draft sport.

Table 2. Relationship between the averages RSCI rank and draft spot *(with corresponding values of minimum and maximum draft spot included as well).*

Rank	N	Average RSCI-Rank	Average Draft Spot	Minimum Draft Spot	Maximum Draft Spot
100–80	45	91.4	32.5	2	60
79–60	50	69.6	29.3	2	58
59–40	62	49.4	28.2	2	58
39–20	120	28.0	29.3	3	58
19–10	102	14.5	27.8	1	58
9–1	134	4.7	15.2	1	49

The analysis in Table 2 clearly indicates that higher-ranked players were also drafted sooner. The 1-9 rank bracket had an average draft spot of 15.2. This further validates that RSCI ranking was a major determining factor in a high school player getting drafted.

After getting drafted, do players with higher RSCI ranks perform better in the NBA than lower-ranked players?

Now, the analysis proceeds to determine whether the higher RSCI-ranked players deliver better performance in the league post-drafting. The two parameters used are performance levels (classified by Berger, Tobias & Daumann, Frank as Average WS/year) and the number of years they play in the league. Logically, players with higher RSCI ranks should perform better and play longer. Table 3 highlights, that is not quite the case. Table 3 provides a clear relationship between RSCI rank, average WS score per yearWhile the players ranked 1-9 have a much higher average WS rating and play much longer in the league, it doesn't quite follow the trend for players ranked 10-100, in certain brackets, players ranked lower had better performance/WS ratings and played longer

Players ranked 1-9 are likely superstars, and even outside of their RSCI rankings, they likely had great performance metrics and a track record in high school. However, when you go past those very top players, it is clear that the RSCI ranking does not relate to strong or sustained performance in the NBA.

NBA teams, like most professional teams, have expert scouts and analysts who use in-depth data and performance history before selecting a player. However it is very clear from Berger, Tobias & Daumann, and Frank's analysis that the RSCI ranking becomes an anchor bias for them when selecting high school players. The data clearly shows that apart from the top 10 players, the RSCI ranking does not imply strong or sustained performance in the NBA. While the RSCI ranking should be one of the inputs the team management should use in picking high school players, it seems that they unconsciously use it as their primary anchor metric, leading to unintended results.

In the case of the RSCI ranking acting as an anchor in player drafting, a

Table 3. Relationship between RSCI rank, average WS score per year, and average years of experience in the league(with corresponding values for minimum and maximum WS per year)

SCI Rank	N	Average WS/Year	Minimum WS/Year	Average years in the league
100–80	43	1.67	−0.25	4.95
79–60	47	1.67	−0.45	5.49
59–40	60	1.90	−0.18	6.38
39–20	117	1.31	−0.37	5.68
19–10	100	1.94	−0.55	6.26
9–1	134	3.02	−0.35	8.10

standout potential solution would be to incorporate more elements and parameters into the ranking. This would make it a piece of information that more accurately represents the skill and ability of a player. It would make it better able to predict the performances of players in their future careers, such as in the NBA. Thus, the RSCI ranking would be much more reliable as information, and the problem of bias would be eradicated for decision-makers of teams.

6.   Conclusion

Player transfers/trades are an integral component of modern-day professional sports, and have a major impact on teams' success and financials, with players frequently costing large sums of money. The managers of sports teams are aided by back-room staff who use complex and scientific data modeling and statistics to help in their talent decisions, however, considering that sport can often be a very emotive topic, they are also prone to cognitive biases in their decision making. Thus, the concepts of behavioral economics can help examine in detail the reasons for decisions made by managers that are influenced by such biases and are not always based on sound data.

The availability heuristic frequently influences team managers' decision-making. A thorough analysis has shown that any prominent news about a player's performance, fame, and recent achievements is often prevalent in the managers' minds and influences their transfer/trade decisions. However, such a bias can be mitigated by the teams' management committing to data-based decision-making and following a well-constructed analysis of statistics and history about a player's performances and abilities instead of recent developments or incidents regarding a player.

The endowment effect is another prominent bias that is relevant to athlete transfers, especially in draft picks. Teams who have a greater endowment(with greater priority picks) may tend to keep their players in comparison to teams who get lower draft picks and tend to trade more of their players. This leads to disparity in the strength of the teams. This can be addressed to a great extent by allowing pick or player trades to happen only after the pick is made, or the player to be traded is known, as it allows teams to judge their value more accurately.

Another significant heuristic involved in the market for athletes is the anchoring bias. As is evident in cases such as the NBA, certain metrics and statistics about players may be more prevalent in the minds of team managers than others, which sway their thoughts and decisions on which players to pick. However, this issue can be mitigated by combining more appropriate longer-term metrics with the commonly available statistics that teams normally tend to pay attention to; this would enable them to use such metrics to better judge the value and ability of players they plan to pick.

In conclusion, understanding behavioral economics and common biases plays a key role in analyzing how player transfers are made in professional sports. This understanding can, in turn, help design solutions to counter the effects of these biases in the market.

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