

DESCRIPTIVE ANALYSIS OF THE INDIAN PREMIER LEAGUE 2020 AUCTION

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ABSTRACT

The Indian Premier League (IPL) is the most popular sporting league in India. This paper will analyse the statistics of the players that were auctioned in the December 2019 for the Indian Premier League 2020 and will shed light on the desirable attributes that a player needs to have be valued highly in an auction. In addition to that, in this paper the IPL 2020 auction analysis is done using Statistical Analysis.

Keywords: *IPL, Sporting League, Auction, Statistical Analysis,*

INTRODUCTION

In India, Cricket is the most popular sport. Cricket is followed by Football tournament Indian Super League (ISL) and the Pro Kabaddi League (PKL). Since its inception, the IPL has grown into a megabrand outdoing itself compared to the previous year. Other leagues are taking a page out of their playbook and using the IPL format to structure their leagues. The IPL has become a major television property within India. Star India bagged the IPL media rights for televising and broadcasting it for Rs. 16,347.5 crore in 2017. This contract lasts for a period of 5 years.^[1]

The objective of the study is to analyze the 2020 IPL auction to understand how teams have spent on players compared to the rest. In addition to that, an analysis of the specific attributes is done to understand its influence on bidding prices of players. The study is descriptive in nature and discusses relationships between variables associated with players being auctioned for the 2020 IPL auction.

LITERATURE REVIEW AND METHODOLOGY

In the year 2008, the famous T20 cricket tournament; Indian Premier League (IPL) was organized for the first time ever. IPL was the brain-child of Mr. Lalit Modi and it was founded by the Board of Control for Cricket in India (BCCI). The league format was similar to the English Premier League (EPL) and the NBA. According to Duff and Phelps, the value of the IPL Ecosystem was estimated at 475 billion Rupees in the year 2019.^[2] The IPL is played by 8 teams which represent 8 different 8 major cities in India. These teams are owned by franchise owners who have bought the ownership rights. The tournament format is a double round-robin format: each team plays the other Home and Away. After that, the Top 4 teams, play the knockouts which is called playoffs and the winners of those games play the final match of the season to win the coveted IPL Trophy and prize money as well. In the playing 11 of every team, there can be a maximum of 4 Overseas

players and the rest have to be Indian Nationals. In 2019, the IPL ranked 4th in the Most Profitable Sports Leagues valued at \$6.3 billion. In the list is as follows:

League	Valuation
National Football League (NFL)	\$13 Billion
Major League Baseball (MLB)	\$10 Billion
National Basketball Association (NBA)	\$7.4 Billion
Indian Premier League (Cricket)	\$6.3 Billion
English Premier League	\$5.3 Billion
National Hockey League (NHL)	\$4.43 Billion
Australian Rules Football	\$2.5 Billion
La Liga (Spanish Football League)	\$2.2 Billion
Serie A (Italian Football League)	\$1.9 Billion
Ligue 1 (France/Monaco Football League)	\$1.5 Billion

Table 1. Top 10 leagues around the global based on their valuation

(Data Source: <https://apsportseditors.org/others/most-profitable-sports-leagues>)

As it is seen in the table above, IPL surpassed the famous EPL and La Liga which are football leagues that are extremely popular globally. Despite the fact that football leagues have been established for years now, and the IPL was initiated in the year 2008; it has managed to surpass those leagues. As the popularity of IPL is soaring as a TV property, there has been an increase in the number of brands that seek out higher visibility through this platform. The rapidly growing success of IPL made way for its inclusion as a separate window in the ICC's (International Cricket Council) FTP (Future Tour Program). This made more overseas participate in the league and thus making the tournament success every year. The IPL is for Indian Spectators to whom cricket is almost a religion.

There are 8 teams in the IPL. Players for the teams can be acquired in multiple ways. One is by trading the players in the trading window just before the Auction and the other is by partaking in the IPL auction. In this auction, bidding starts at a base price. Teams bid for a player and the price may increase until no other team bids higher than the last. Then the players go to the highest bidder. The following rules are set regarding the auction

- 1) The squad size should be between 18 and 25
- 2) Maximum of 8 overseas players can be on the team
- 3) The salary cap of the team is 85 crores.
- 4) In the playing 11, a maximum of 4 overseas players are allowed.

The probable factors affecting the decision of bidders:

- 1) A bidder can decide how many batsman and bowlers he requires to form his team. In T20 Cricket batsmen have a bigger role to play.
- 2) How many top quartile players would he like in his team and how much money is he willing to spend on them.
- 3) If he wants to create the "team of future" then he may select younger players.
- 4) To what extent the bidder wants to give opportunities to local players.
- 5) A team can have maximum 8 foreign player and only 4 can be in the playing 11. ^[3]

Since the Indian Premier League is most popular in India, the spectators love to see Indian players on the field. Thus, Team owners might place a premium on Indian Capped Players over foreign players. Non

cricketing attributes contribute to pricing of players as well. Regional popularity of players increases the entertainment factor of games. Thus, teams like have iconic players to boost a team's value. ^[4]

To analyze the spending in the IPL 2020 auction the following statistical measures are used.

1. Graphical Analysis

Graphs and Charts have been used to discuss factors associated with the 2020 auction. Bar graphs, Boxplots, Scatter Plots are all used for discussing the data.

2. Point Biserial Correlation

Point Biserial Correlation is used when Finding the correlation between a Binary Variable and a continuous variable. It is denoted by r_{pb}

$$r_{pb} = \frac{\bar{x}_1 - \bar{x}_2}{s_n} \sqrt{\frac{n_1 n_2}{n^2}}$$

where \bar{x}_1 denotes the mean of group 1 and \bar{x}_2 denotes the mean of group 2. n_1, n_2 are the sizes of group 1 and group 2 respectively. n is the total sample size. And s_n is the standard deviation.

3. Chi Square test of Independence

This test is used to find dependency between two variables that are nominal in nature.

This test is used for testing the following hypothesis:

H_0 : The variables are independent

H_1 : The variables are dependent

The test statistic for the Chi square test is given below:

$$\chi^2 = \sum_1^n \frac{(O_i - E_i)^2}{E_i}$$

O_i stands for observed frequency, E_i stands for expected frequency. To find these frequencies, a contingency table is drawn up based on the result and the pvalue we conclude if the Null or the Alternate Hypothesis is accepted.

4. Phi Coefficient

Using Chi Square test statistic we can determine the extent of the relationship between two binary variables using the Phi Coefficient.

$$\phi = \sqrt{\frac{\chi^2}{n}}$$

Based on this value we conclude if the strength of relationship is strong, moderate or weak.

THE DATA

The data for analysis of the auction has been pulled from cricbuzz.com and from cricinfo.com

This data is pertaining to player details and IPL auction details. Using this data further analysis has been done using R Programming Software and Microsoft Excel.

THE ANALYSIS

Based on the data regarding the IPL 2020 Auction the following analysis has been found.

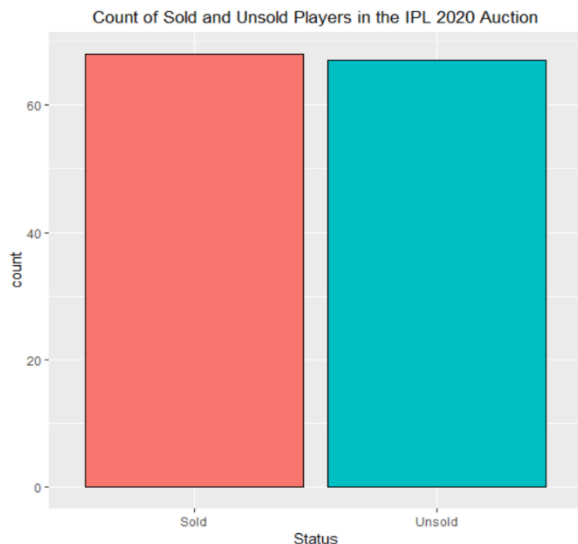
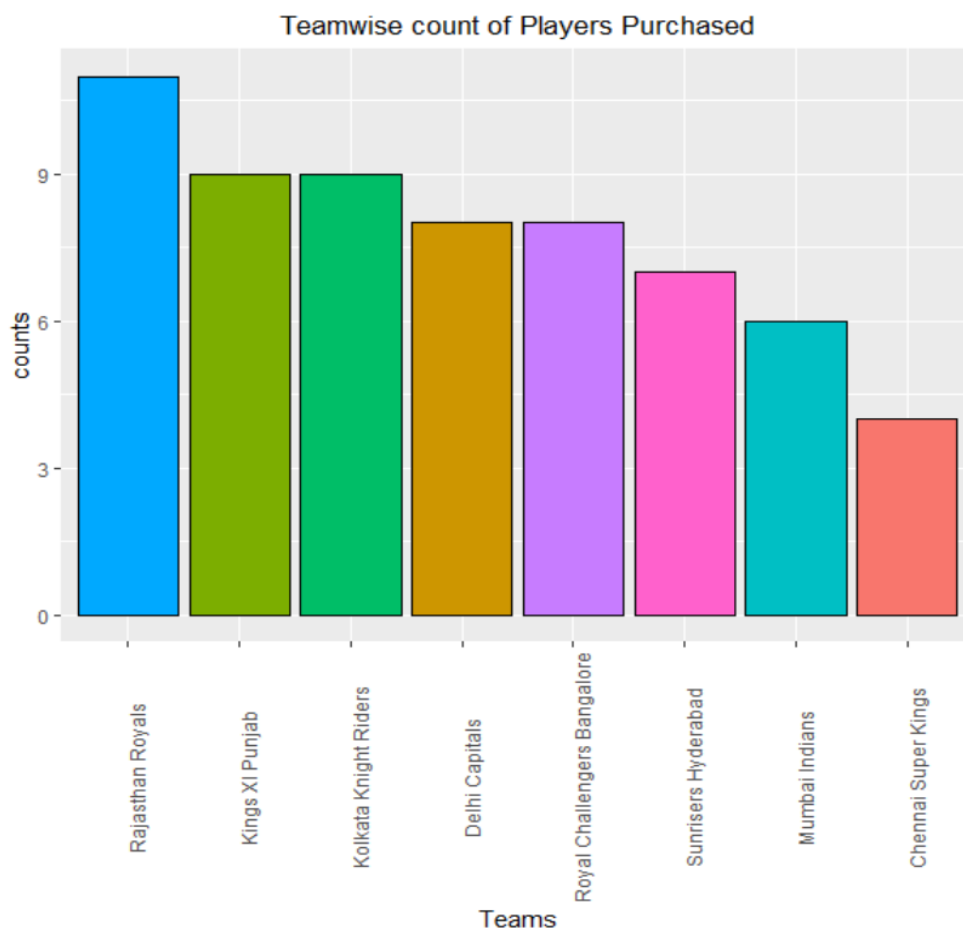


Figure 1. Number of Sold and Unsold in the IPL 2020 Auction

Out of a total of 127 players in the auction 62 were purchased by teams and the rest were not. From the bar graph seen in Fig. 1, it can be seen that almost equal number of players were sold and unsold.

Figure 2. Teamwise Distribution of number of players purchased.

Rajasthan Royals bought the most players during the transfer window, followed by Kings XI Punjab and Kolkata Knight Riders. The number of players purchased by the rest of the teams can be seen in the visualization in the Fig. 2.



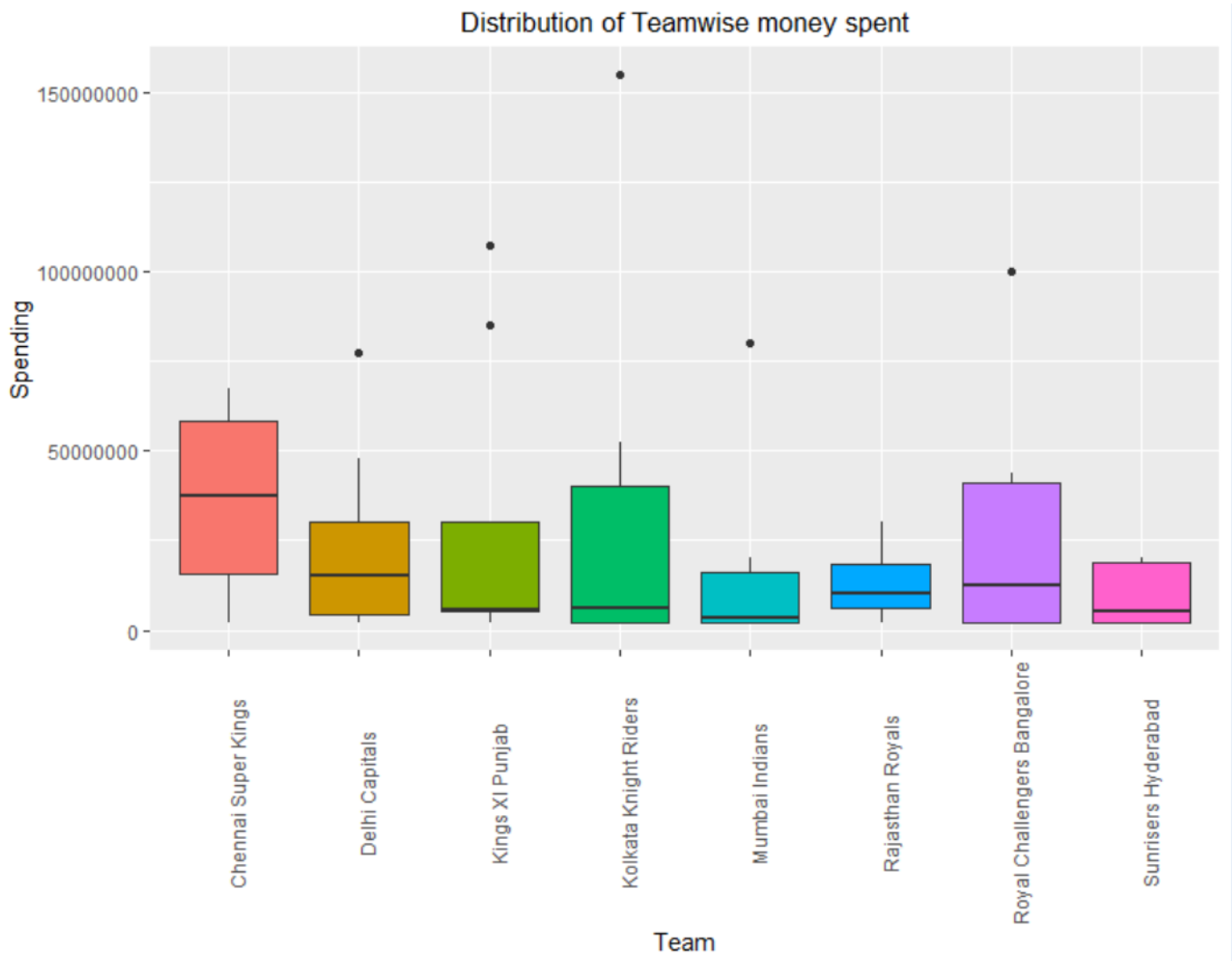


Figure 3. Distribution of Teams Spending in the Auction using Boxplots

From the Boxplots seen above, the median Spending of Chennai Super Kings is the highest and is followed by the Delhi Capitals. For the rest of the teams, the Median Spending is almost the same. The Dots above the Boxes denote Outliers. These outliers refer to cases where they've spent on Star Players. Consider Kolkata Knight Riders where Pat Cummins is their exception where a whopping 15.5 crores was spent to purchase him. Kings XI Punjab have two outliers, they spent a whopping 10.75 crores for Glenn Maxwell and 8.5 crores on Sheldon Cottrell. Royal Challengers Bangalore spent 10.75 crores on Chris Morris. Mumbai Indian's outlier is Bowler Nathan Coulter-Nile for whom they spent 8 crores. Delhi Capitals' outlier is Shimron Hetmyer who they spent 7.75 crores on. Sunrisers Hyderabad spent 2 crores on Mitchell Marsh.

For Chennai Super Kings they spent on 6.75 crores on an Indian Bowler Piyush Chawla. For Rajasthan Royals 3 crores was spent on Indians, Robin Uthappa and Jaydev Unadkat. When we draw a comparison between Top Buys for Teams, it is noticed that if the player purchased is Foreign, he gets bought for a much higher price relative to the Indian Top Buys. This might tell us that either there was an extremely high demand for these Foreign players and teams had to outbid each other. In comparison, Indian Players aren't priced as high.

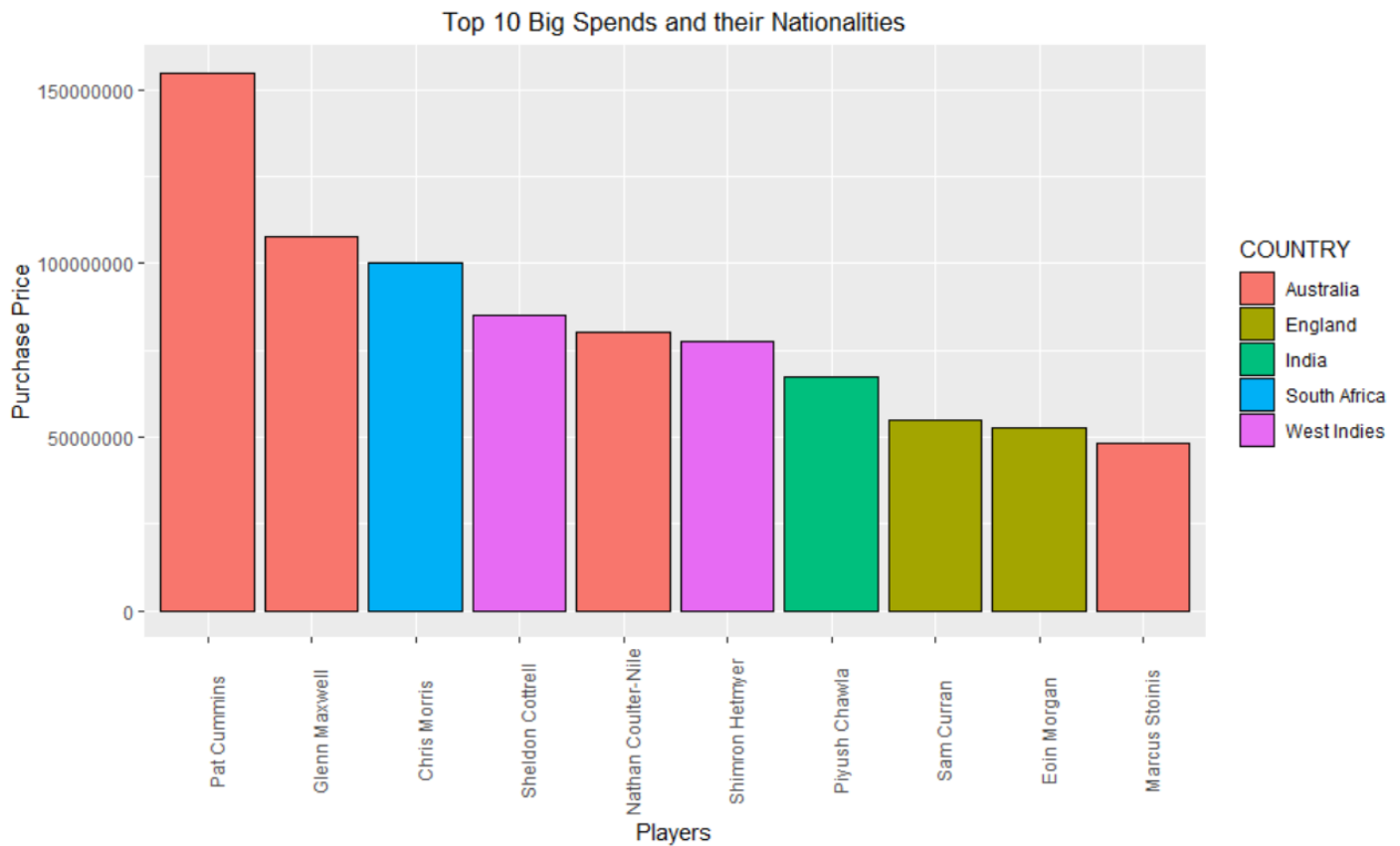


Figure 4. Top 10 Biggest Buys in the IPL

From the 10 Biggest Buys in the IPL; 4 are Australians, 2 are West Indies Players, 1 South African, 2 English and 1 Indian Player. The Indian Player that was purchased by Chennai Super Kings is Piyush Chawla who was purchased at 6.75 crore. Australian Bowler Pat Cummins was priced at 2 crore as Base Price and was finally sold at a whopping 15.5 crore to Kolkata Knight Riders. He is followed by Glenn Maxwell who is also Australian was bought by Kings XI Punjab. His Base Price was 2 crore and Sold Price was 10.75 crore. South African Chris Morris was sold for 10 crore to Royal Challengers Bangalore. Sheldon Cottrell to Kings XI Punjab for 8.5 crore. Nathan Coulter-Nile was bought by Mumbai Indians for 8 crore. Shimron Hetmyer was bought by Delhi Capitals for 7.75 crore.

Teams need to be careful in their spending during auctions. Marquee players fetch prices in crores. Player costs swallow up profits of teams, especially when a single franchise approximately 23 players at a time. It is recommended to buy reliable performers at a bargain rather than spend exorbitant amounts of money on players that are exceptionally popular due to their skills and personality. ^[5] On the same lines cricinfo columnist Amrit Mathur said: “In the early days of the IPL, franchises paid serious money to hire top players in order to attract attention towards their brands and engage with fans. Later, faced with financial losses, and alive to the danger of rising players cost that could damage the balance sheet and permanently cripple their business, teams got smarter in picking players. They are still a distance away from the Moneyball levels, but a clear understanding now exists that the player salary expense, unless capped, can wreak havoc.” ^[6]

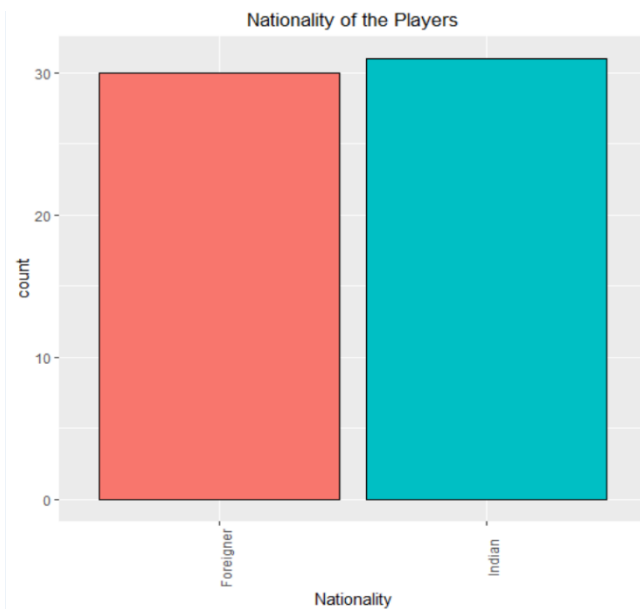


Figure 5. Count data of Indians and Foreign Players Sold in the Auction

The IPL rule states that a maximum of 4 overseas players in their playing 11. The rest have to be of Indian origin. A maximum of 8 overseas players can be part of

		Sold	Unsold
Indian	FALSE	29	33
	TRUE	22	23

Table 2. Contingency Table for Variables- Nationality vs. Whether Player is sold in the Auction

Pearson's Chi-squared test with Yates' continuity correction

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data: tab
X-squared = 0.00040621, df = 1, p-value = 0.9839
> phi(tab)
[1] -0.02
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Figure 6. Results of Chi square test of Independence and Phi Coefficient Value

Using Chi square Test of Independence with the following hypotheses:

H₀: Being Indian and Sold Status are Independent

H₁: Being Indian and Sold Status are Dependent

Based on the p-value of .9839 we can conclude that our Null Hypothesis H₀ is true. By observation of Table 2, the distribution of frequencies across all cells are similar and thus we arrive at the conclusion that there is a Balance between Indian and Oversees players versus their sold status in the Auction. The Phi Coefficient of -0.02 helps us conclude that there is close to No Correlation between Nationality and Sold Status.

The demand for Uncapped Indian Players is the reason for many Indian Youngsters being auctioned to teams. For example, Team like Rajasthan Royals always has kept the practice of buying young Indian players in the auction and grooming these players for a better sustainability of the team. This year too Rajasthan Royals had the joint highest number of uncapped Indian players (5) purchase along with Sunrisers Hyderabad.

Players	Base Price	Price	Status	Team	Position	Country
Anirudha Joshi	₹ 2,000,000	₹ 2,000,000	Sold	Rajasthan Royals	Batsman	Indian
Yashasvi Jaiswal	₹ 2,000,000	₹ 24,000,000	Sold	Rajasthan Royals	Batsman	Indian
Kartik Tyagi	₹ 2,000,000	₹ 13,000,000	Sold	Rajasthan Royals	Bowler	Indian
Anuj Rawat	₹ 2,000,000	₹ 8,000,000	Sold	Rajasthan Royals	Wicketkeeper	Indian

Akash Singh	₹ 2,000,000	₹ 2,000,000	Sold	Rajasthan Royals	Bowler	Indian
Digvijay Deshmukh	₹ 2,000,000	₹ 2,000,000	Sold	Mumbai Indians	All-rounder	Indian
Lalit Yadav	₹ 2,000,000	₹ 2,000,000	Sold	Delhi Capitals	All rounder	Indian
Ravi Bishnoi	₹ 2,000,000	₹ 20,000,000	Sold	Kings XI Punjab	Bowler	Indian
Deepak Hooda	₹ 4,000,000	₹ 5,000,000	Sold	Kings XI Punjab	Batsman	Indian
Ishan Porel	₹ 2,000,000	₹ 2,000,000	Sold	Kings XI Punjab	Bowler	Indian
Prabhsimran Singh	₹ 2,000,000	₹ 5,500,000	Sold	Kings XI Punjab	Wicketkeeper	Indian
Nikhil Naik	₹ 2,000,000	₹ 2,000,000	Sold	Kolkata Knight Riders	Wicketkeeper	Indian
Prince Balwant Rai Singh	₹ 2,000,000	₹ 2,000,000	Sold	Mumbai Indians	All rounder	Indian
Mohsin Khan	₹ 2,000,000	₹ 2,000,000	Sold	Mumbai Indians	Bowler	Indian
R Sai Kishore	₹ 2,000,000	₹ 2,000,000	Sold	Chennai Super Kings	Bowler	Indian
Pravin Tambe	₹ 2,000,000	₹ 2,000,000	Sold	Kolkata Knight Riders	Bowler	Indian
Rahul Tripathi	₹ 2,000,000	₹ 6,000,000	Sold	Kolkata Knight Riders	Batsman	Indian
Varun Chakarvarthy	₹ 3,000,000	₹ 40,000,000	Sold	Kolkata Knight Riders	Bowler	Indian
Shahbaz Ahmad	₹ 2,000,000	₹ 2,000,000	Sold	Royal Challengers Bangalore	All-rounder	Indian
Tajinder Dhillon	₹ 2,000,000	₹ 2,000,000	Sold	Kings XI Punjab	Batsman	Indian
M Siddharth	₹ 2,000,000	₹ 2,000,000	Sold	Kolkata Knight Riders	Bowler	Indian
Tushar Deshpande	₹ 2,000,000	₹ 2,000,000	Sold	Delhi Capitals	Bowlers	Indian
Pavan Deshpande	₹ 2,000,000	₹ 2,000,000	Sold	Royal Challengers Bangalore	Batsman	Indian
Virat Singh	₹ 2,000,000	₹ 19,000,000	Sold	Sunrisers Hyderabad	Batsman	Indian
Sanjay Yadav	₹ 2,000,000	₹ 2,000,000	Sold	Sunrisers Hyderabad	All rounder	Indian
Abdul Samad	₹ 2,000,000	₹ 2,000,000	Sold	Sunrisers Hyderabad	All rounder	Indian
B Sandeep	₹ 2,000,000	₹ 2,000,000	Sold	Sunrisers Hyderabad	Batsman	Indian
Priyam Garg	₹ 2,000,000	₹ 19,000,000	Sold	Sunrisers Hyderabad	Batsman	Indian

Table 3. Table of Information regarding Indian uncapped Players at IPL Auction 2020

In Table 3 we can see the youngsters and Indian uncapped players that aren't established in International Cricket. Due to the rule of maximum 4 overseas players in the playing XI, teams have to make sure they have enough depth of Indian players in the squad and thus lesser known Indian cricketers get the opportunity to play in the IPL.

To check the relationship between age and selling price of a player we used Pearson's correlation coefficient. The results of which are 0.27. We can conclude that there is weak correlation between age and Selling Price. Age can be a factor that captures the Cricketing Experience a Player has. Though it might play a small role, there is a high possibility of experience and past player performance contributing to the final price at the auction. Using Biserial Point Correlation to determine the correlation between Nationality and Purchase Price of a player, we get a value of 0.3499. There is a moderate correlation between the two variables. If we notice, majority of the players in the auction who are overseas players, have been purchased at a higher price compared to Indians (usually newcomers).

CONCLUSION

Teams need to be smart with their buying decisions. Maintaining the core group of the team is important and that is one of the reasons why teams like Mumbai Indians and Chennai Super Kings have been so successful. With, the modern game in the favor of batsmen, teams need to find a good counter attack in the form of impactful, lethal bowlers. Along with expensive purchases of 'Marquee' Players, teams should look for a 'Team for the Future' just like how Rajasthan Royals and Sunrisers Hyderabad have done. Grooming young players for a better sustainability is the way forward.

ACKNOWLEDGMENT

We would like to extend our gratitude International Institute of Sports Management (IISM) for its unending support in furthering our careers. We would also like to thank the co-founders of IISM, Mr. Nilesh Kulkarni and Mrs. Rasika Kulkarni; for this platform to publish our work. We would like to extend our gratitude to the Associate Dean-Mr. Amitava Pal and Head of Academics Mr. Mustafa Sapatwala for their unending support in this research.

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