Literature Survey

There was some good literature available for our research area, which gives us a headstart going into implementing our project. Broadly speaking, two kinds of approaches were seen, one being player pricing on various attributes(hedonic pricing) while the other approach tried to evaluate useful metrics to compare players, so that appropriate price analysis could be carried out. Some papers also tried to predict the auction prices of players, using the hedonic pricing approach. Machine Learning techniques like neural nets are generally used for such predictions(classification problems).

"*Player Pricing and Valuation of Cricketing Attributes: Exploring the IPL Twenty-Twenty Vision*" by Siddhartha K. Rastogi and Satish Y. Deodhar analyses the hedonic pricing of players using linear regression on the varied dataset mined from Cricinfo and Wikipedia. Directly available variables as well as dummy variables generated(like 'Indian player') were used for doing the regression. As a result, they assigned coefficients(in Dollars) to every variable used.

"A Hedonic Model of Player Wage Determination from the Indian Premier League Auction: Further Evidence" by Liam Lenten, Wayne Geerling, and Laszlo Konya focussed on analysing the inaugural 2008 IPL auctions, and commented on the efficiency of investments in a player. Similar kind of regression has been applied to the direct and derived variables, and the most important variables, have been explained in detail. They have also removed the correlated variables(to avoid the multicollinearity) before applying regression, using dimensionality reduction.

"Player valuations in the Indian Premier League" by David Parker, Phil Burns and Harish Natarajan is a very well-written paper in this area. It analyses all aspects discussed so far, in a well-defined manner. It also discusses the aspect of marketability of a player being a factor in

determining team decisions in auctions. It goes on to explain certain events like English players getting a different paycheque from the others, and the “icon” players having a different set of variables.

“*Optimising Player Valuations in the Indian Premier League”* by Ryan Stephen goes a little more deep into the mathematics involved using SAS for analytics, and does a really good job explaining the details. The objective of the paper remains the same as above ones, but with detailed explanation using experimental data and plots produced in the experiments.

Some papers like *“Analysis of Performance of Bowlers using Combined Bowling Rate”* by Dibyojyoti Bhattacharjee and Darshan G Pahinkar explain how bowlers can be compared using metrics like combined bowling rate(harmonic mean of economy, strike rate, and average of bowler). They found some really good insights into what factors constitute a good bowler, one of them clearly being experience. They also analysed how variation in the delivery speed affects his performance.

“*A MCDM Approach for Evaluating Bowlers Performance in IPL”* by Pabitra Kumar Dey , Dipendra Nath Ghosh and Abhoy Chand Mondal , a highly mathematical paper uses MCDA(multiple criteria decision analysis) to generate a ranking of players, based on the multiple criteria available. The weights to the criteria are assigned through TOPSIS (Technique for Order Preference by Similarity to Ideal Solution). A lot of mathematical study needs to be done to understand the whole process used in this paper.

Our main aim should lie in between all such strategies, to use the metrics available in such researches, and find out the Return of Investment for each player in the auction pool. If we can, our own metrics can be defined, and later whole strategies can be developed for auctions, given the price constraints.