An Exploratory Data Analysis of Bowler's Performance in IPL

Aswini D, Guruprasath. J, Raghuselvapraveen. S

ABSTRACT: Indian premier league is one of the most popular cricket league. So, it attracts more cricket admirers. Bowlers are the one of key players for the every team especially in twenty – twenty cricket. Their performance change the match result. In this study, the bowler's performance is analysed in every season of the Indian Premier League (IPL). Performance parameters chosen are number of wickets, number of maiden overs bowled, economy rate and number of boundaries. Among the various parameters, economy rate and wickets are the significant for the match. We also analysed which bowler performed consistently and also whom performed well in good batting pitch.

Keywords: wickets taken, maiden overs bowled, economy rate, consistent, bowler's performance.

I. INTRODUCTION

The Board of Control of Cricket in India (BCCI) launched the franchise-based Twenty-20 Indian Premier League cricket competition on 13th September 2007. The first season was started during April 2008 in New Delhi. The BCCI Vice-President Lalitmodi, was the mastermind behind the idea of IPL. He described the franchise revenue system, tournament format, the prize money and squad composition rules. The owners for the IPL and total base prices were decided during the auction held on 24th January 2018. The total cost of the franchises was around $400 million. And also, the winning bidders and the cities were announced. The cities are: Chennai , Bangalore, Kolkata, Delhi, Mumbai, Mohali, Hyderabad and Jaipur.Around Rs.1,150 crore was contributed by IPL 2015 to India's Gross Domestic Product (GDP). With the reference [1], IPL 2015 is an event which consists of eight franchises with 193 world class cricketers, 13 host venues in 12 cities across the country, 60 matches over 44 match days and 1.71 million spectators at the venues. IPL matches directly affect the economy of India in a variety of ways through the key stakeholder groups, including participating franchises, organisers and spectators contributing in various ways through employment and purchases. The total economic output for IPL in India for 2015 is estimated at Rs2, 650 crore ($418 million). The report says that hosting an IPL match also adds revenue and the value to the economy of the state. The 2015 season, saw around 20 per cent of attendees visiting from various cities other than the host city. It should be noted that attendees includes international visitors, primarily from the Australia, United Kingdom and South Africa.

The study also highlighted the gains for India, other than economic benefits that are generally measurable in financial terms. The key benefits and opportunities identified includes employment generation across sectors, increased flow of tourists, and support for tier-2 cities providing key media exposure and development of cricket and sport participation across India. "It is inspiring to know that IPL has had such a positive impact on India's economy. It had contributed Rs11.5 Million to India's GDP through a 60-day event. It shows the tournament's success. IPL chairman Rajeev Shukla said that "We look forward to redefine these benchmarks through the upcoming seasons of the IPL and empowering the nation's economy through our future endeavours". KPMG's economic impact study highlighted the positive effect on employment generation across various sectors, tourism development, upliftment of the tier 2 cities through media exposure and development of cricket and other sport participation across India," added BCCI honorary secretary Anurag Thakur.

The objective is to find the bowler's performance by finding the number of wickets in the particular stadium for individual bowlers. Another objective is to find the whether the ground is batting friendly or bowling friendly by considering the types of dismissal's in that particular ground . If the bowled (types of dismissal) or LBW (leg before wicket) is higher than the ground, then it is bowling pitch, if type of dismissal caught is higher than the ground, then it is batting friendly else the type of dismissal is approximately equal then the pitch is neutral. Another objective is to find which bowler bowls the most number of extras such as wides, no balls.
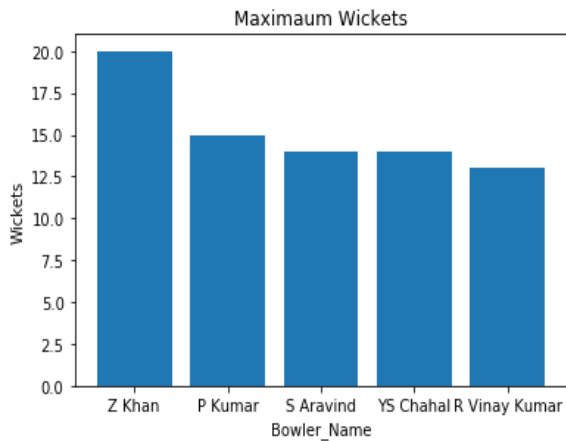
II. PERFORMANCE ANALYISIS

The performance of bowler is analysed and presented in graph form. Python is used for data set analysis. Bar graph is used to find the number of wickets taken by the bowler's individually in the particular pitch. Scatter graph is used to find the number of extra's bowled by bowler in the entire Indian Premier League. Table is used for describing the types of dismissal in every pitch to find whether the ground is batting pitch or bowling pitch.

### A. Analysis of leading wicket taker

Let us consider the following graphs with which x-axis represents name of the bowler and the y-axis represents wickets taken by the bowlers. In this dataset, bowler who picked more wickets at a particular venue is analysed .

Retrieval Number: E2013017519/2018©BEIESP
Journal Website: www.ijrte.org

403

Published By:
Blue Eyes Intelligence Engineering and Sciences Publication (BEIESP)
*© Copyright: All rights reserved.*

Zaheer khan took most wickets than anyone else. He played with bangalore, mumbai, and delhi franchise. Though he played with several franchise, his performance was consistent at chinnaswamy stadium as shown in figure 2.1. He took 21 wickets at chinnaswamy stadium which is the highest wickets taken by the bowler in IPL till 2016.
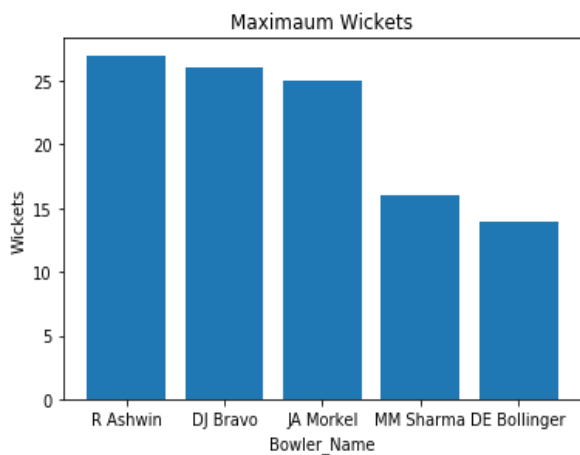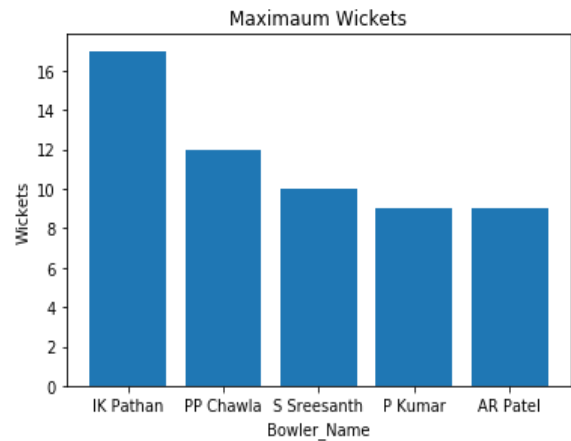

Fig 2.1 Wicket taker's in Chennai

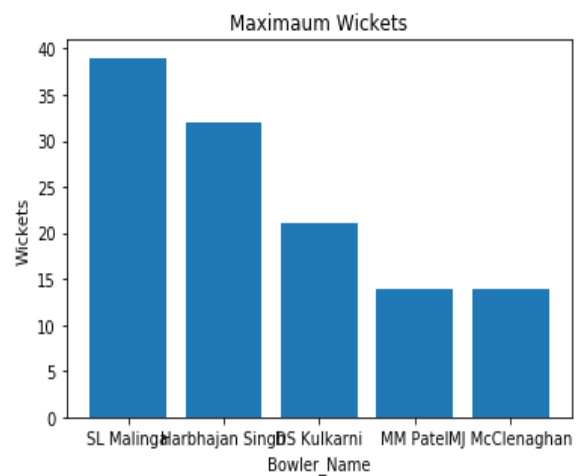In figure 2.1 ,R.Ashwin took most wickets. He played chennai super kings from 2010 to 2015 .
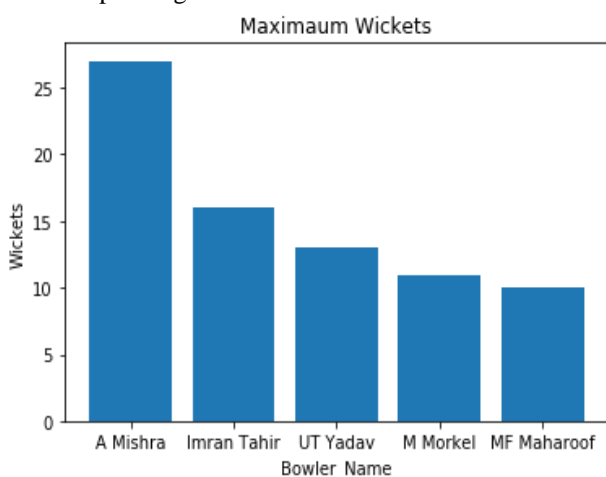
Fig 2.2 Wicket taker's in Delhi

In figure 2.2 Amit Mishra is the leading wicket taker in this pitch . He is the first wrist spinner to take hatrick wickets in the Indian premier league.
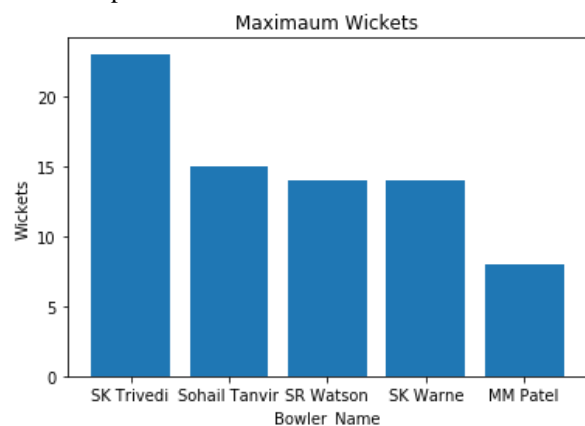

Fig 2.3 Wicket taker's in Punjab

In figure 2.3 Irfan pathan is the most wicket taker in this pitch.
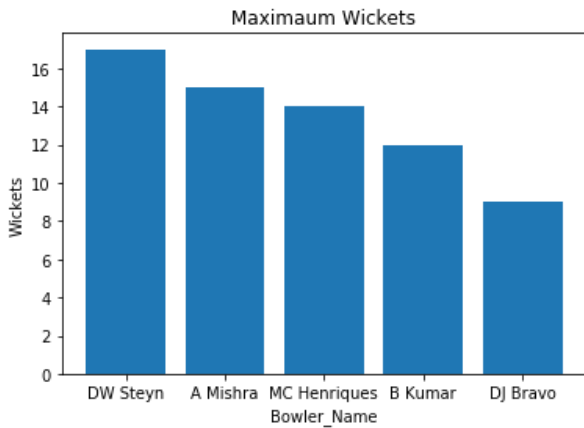

Fig 2.4 Wicket taker's in Mumbai

In figure 2.4 lasith malinga is the leading wicket taker in this pitch as well as in the entire IPL.
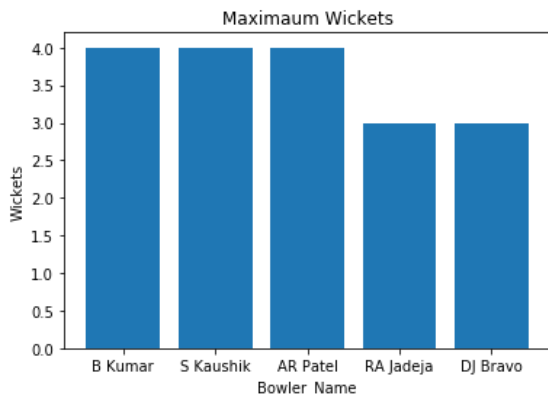

Fig 2.5 Wicket taker's in Rajasthan

In figure 2.5 , SK Trivadi is the leading wicket taker in this pitch . Sohail Tanvir , he is a pakistan player although he played only one Indian premier league he is a second most wicket taker in this ground

Fig 2.6 Wicket taker's in Hyderabad

In figure 2.6 Dale Steyn a south african player , he is the leading taker in the IPL. In this pitch amit mishra is the second most in hyderabad and first in delhi because he played for two franchise.

Fig 2.7 Wicket taker's in Rajkot

In figure 2.7 , Bhuveneswar Kumar is the leading wicket taker but he did not played this franchise. He is the only bowler to take most wickets in other ground .
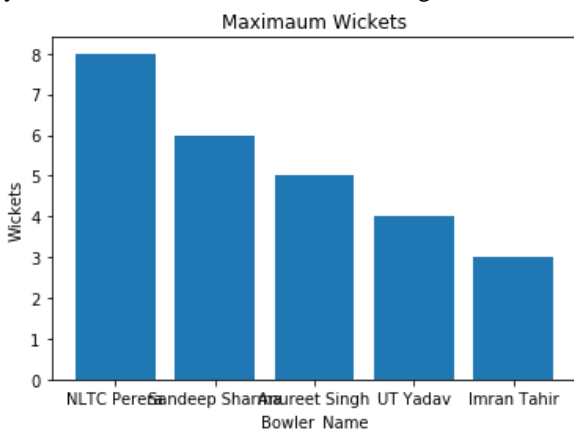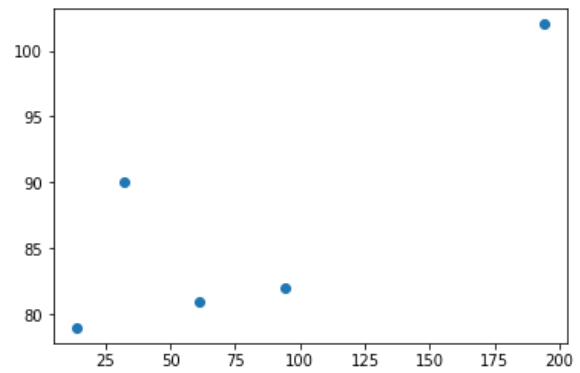

Fig 2.8 Wicket taker's in Maharashtra

In figure 2.8 Thisara perera a srilankan player , he is the leading wicket taker in this ground .

B. Analysis of Extras

This analysis is for finding the bowler who contains more extras with which x-axis represents the bowler name and y-axis represents extra runs given by the bowler .

Fig 2.9 Extras conceding in IPL

In figure 2.10, Lasith malinga is the bowler who gave more runs through extras (wide, no ball) in IPL league. Though he is the leading wicket taker, he give more extra runs to the opponent team. So at pressure situation he surely bowls some extras. At that time we can avoid this bowler.

C. Analysis of Pitch

Table 2.1 Number of wickets

PITCH NAME	BOWLED AND LBW	CAUGHT
M Chinnaswamy Stadium, Bengaluru	132	302
Feroz Shah Kotla , Delhi	125	266
Eden Gardens , Kolkata	144	257
Rajkot	15	27
MaharastraCricket Association Stadium , Pune	23	57
Rajiv Gandhi International Stadium , Hyderabad	83	228
Sawai Mansingh Stadium , Jaipur	56	125
MA Chidambaram Stadium Chennai	85	262
Punjab Cricket Association IS Bindra Stadium , Mohali	80	172
Wankhede Stadium , Mumbai	96	294

In IPL, cricket pitch is considered as a bowling pitch or batting pitch by taking wickets either by bowled or catch. Taking wickets by bowled or lbw is considered as the bowling pitch because batsman was difficult to predict the ball and give his wicket to the bowler .Taking wickets by catch is considered as the batting pitch because batsman try to hit the ball and also he can able to predict the ball, sometimes it gone for a maximum or sometimes the catch may be dropped .And also taking wickets by catch depends on both the bowler and the fielder. Average of wickets fallen by both bowled and catch is considered as neutral pitch because catch was taken behind the stumps.

The Table 2.1 shows that the pitches which are used in the Indian Premier League is mostly batting friendly. There would be no uneven bounce and swing.

III. CONCLUSION

The bowler's performance and the pitch is analysed and the data can be used for future team selection. These discussed analysis if were taken into serious consideration and if initiative to make changes are done according to the analysis of bowler's performance, the winning percentage of that team is high

REFERENCES

1. Prakash, C. D., Patvardhan, C., & Lakshmi, C. V. (2016). MAYO Index for Deep Analytics of Price and Performance of IPL Players. International Journal of Computer Applications, 150(2).
2. Saikia, H., Bhattacharjee, D., & Lemmer, H. H. (2012). Predicting the performance of bowlers in IPL: an application of artificial neural network. International Journal of Performance Analysis in Sport, 12(1), 75-89.
3. Kumar, A., & Sindhu, R. (2014). Reflecting Against Perception: Data Analysis of IPL Batsman.
4. Dey, P. K., Ghosh, D. N., & Mondal, A. C. (2011). A MCDM approach for evaluating bowlers performance in IPL. Journal of emerging trends in Computing and Information Sciences, 2(11), 563-73.
5. Sankaran, S. (2014). Comparing Pay versus Performance of IPL Bowlers: An application of Cluster Analysis. International Journal of Performance Analysis in Sport, 14(1), 174-187.
6. Khan, U. M., Kabir, Z., & Malik, A. W. (2015). Perception Model to Analyze Football Players' Performances. In PACIS (p. 146).
7. www.howstat.com/cricket/Statistics/Players/PlayerHomeAway.asp?
8. https://en.wikipedia.org/wiki/Indian_Premier_League
9. https://en.wikipedia.org/wiki/List_of_Indian_Premier_League_records_and_statistics
10. https://en.wikipedia.org/wiki/Icon_player
11. https://www.iplt20.com/
12. https://timesofindia.indiatimes.com › News › Sports News
13. www.cricbuzz.com/cricket-series/2430/indian-premier-league-2016/matches