

DISCUSSION PAPER SERIES

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League in India**

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## ABSTRACT

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# Measuring Customer Discrimination: Evidence from the Professional Cricket League in India

Research in the field of customer discrimination has received relatively little attention even if the theory of discrimination suggests that customer discrimination may exist in the long run whereas employer and employee discrimination may not. This paper examines customer discrimination considering a unique dataset from the most popular sports industry in India, i.e., cricket. Relying on Playing XI vote in the Indian Premier League (IPL), we analyze whether supporters have a different personal preference towards players based on their location of origin and religion. In contrast to the often-heated rhetoric surrounding discrimination, the often-unfounded assertions surrounding diversity, and the previous literature, we overall do not find any discrimination in voting. Our overall findings suggest that supporters treat players equally irrespective of nationality, place of origin or religious background while selecting their favorite players. However, our results also suggest that examining discrimination by controlling for proxy productivity characteristics may produce bias results as certain included or excluded characteristics may be systematically different. Our findings further suggest that political conflict may lead to customer discrimination. And finally, in line with Heckman's (1998) argument, our results suggest that customer discrimination may exist on the margin.

**JEL Classification:** Z22, J71, L83

**Keywords:** customer discrimination, professional sports, cricket, India

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## **I. Introduction**

Measuring discrimination in the labor market is difficult mainly due to data limitations. First, it is hard to control for all observable and unobservable characteristics to measure the difference based on race, ethnicity, religion or color. In general, it would be very difficult to find example of such organization where all the data are publicly available. Second, identifying the real source of discrimination can be challenging as discrimination can arise from the employer, co-worker or the customer side (Becker 1971). To evaluate the real source, it is important to isolate one source by limiting other forms of discrimination. Third, evaluating discrimination in the labor market suffers from social desirability bias (Bertrand and Duflo 2017). In general, social desirability bias is the tendency for people to present a favorable image of themselves on the questionnaire especially while answering sensitive questions. Therefore, it is difficult to evaluate discrimination through general questionnaire surveys correctly.

Most empirical literature on discrimination in the labor market has focused on employer discrimination. It appears that identifying customer discrimination in the labor market has received relatively little attention (Bar and Zussman 2017) even if the theory of discrimination suggests that customer discrimination may exist in the long run whereas employer and employee discrimination may not. Furthermore, to our surprise, little attention is given to analyzing customer discrimination in developing countries considering the fact that developing countries could be prone to racism and discrimination due to imperfect markets, cultural legacies, poor institutions, and so on.<sup>1</sup> This paper addresses customer discrimination in developing countries in general and India in particular.

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<sup>1</sup> As an example, consider regional gender gap index as a measure of discrimination. On average, Western Europe and North America have a remaining gender gap of 25% and 28% whereas Sub-Saharan Africa, South Asia and the Middle East and North Africa have a remaining gender gap of 32.5%, 33%, and 40% respectively.

There are several appealing features to study customer discrimination in India. First, India is known for its caste system as well as cultural, linguistic and religious diversity across the country. Second, both anecdotal and empirical evidence suggests that discrimination within Indian and against foreigners is also prevalent (Banerjee and Knight 1985; Modi and D'silva 2016; Rao 2013). For example, discrimination against people from North Eastern states of India, Bihar, and African nationals frequently reported in the newspaper media and television<sup>2</sup> Thorat et al. (2015) and Datta and Pathania (2016) additionally found discrimination against Muslim applicants in the housing market. Third, after the 2014 Prime minister election in India, television, and media claimed that India is becoming more and more nationalistic especially Hindu nationalist.<sup>3</sup> They argue that there has been a steady rise in the number of religious-communal incidents in India.<sup>4</sup> Fourth, previous studies have pointed out the existence of employer discrimination in India (Banerjee et al. 2009; Siddique 2011). Considering these situations and motivated by earlier findings, we examine whether customer discrimination exists in India or not based on the location of origin and religion.

To address the first obstacle to measuring discrimination, we consider dataset from sports labor market. There are several merits of considering sports labor market to evaluate customer discrimination. First, detailed statistics measuring individual characteristics, experience, and performance are publicly available. Kahn (2000) considered sports as a labor market laboratory stating that there is no research setting other than sports where we know the name, face and life history of every production worker and supervisor in the industry. Second, the sports statistics are much more detailed and accurate than conventional microdata samples such as Census data or the Current Population Survey. Finally, sports labor market is

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<http://reports.weforum.org/global-gender-gap-report-2016/rankings/>

<sup>2</sup> <http://www.aljazeera.com/indepth/features/2014/02/voices-from-india-northeast-201421811314600858.html>

[https://www.huffingtonpost.com/the-conversation-africa/how-india-can-stem-the-ri\\_b\\_11715858.html](https://www.huffingtonpost.com/the-conversation-africa/how-india-can-stem-the-ri_b_11715858.html)

<sup>3</sup> <http://www.newsweek.com/modis-india-caste-inequality-and-rise-hindu-nationalism-356734>

<sup>4</sup> <https://timesofindia.indiatimes.com/india/Communal-violence-up-17-in-2015/articleshow/51131055.cms>

[http://www.huffingtonpost.com/aparna-pande/secular-india-v-hindu-nat\\_b\\_6397778.html](http://www.huffingtonpost.com/aparna-pande/secular-india-v-hindu-nat_b_6397778.html)

competitive where a players' selection to a team as well as to a specific match are mostly decided by their previous experience and performance.

In this paper, we consider cricket, the most popular sports in India.<sup>5</sup> Cricket fan base in India is huge. For example, according to 'The Economist,' 400 million people watch the game on television when the national side plays a big game.<sup>6</sup> Cricket is popularly considered as a religion in India as well.<sup>7</sup> As we are considering the discrimination from the customers' side, our setting is more likely to cover a majority of the population in India.

To address the second and third obstacles, we focus on an externally generated direct measure of customers' personal preference as a natural experiment. We consider "Playing XI vote" in the Indian Premier League (IPL) as our measure of "customers' personal preference."<sup>8</sup> IPL is a cricket league played in India since 2008. Playing XI is a voting platform introduced by the IPL organizing committee for the first time in 2015 where people participate and vote for their favorite 11 players from a team every time it plays a match.

The IPL was chosen for three reasons. First, it recruits both Indian and foreign players to play together. Second, these foreign players are recruited from all over the world, thus are different from Indian players based on race, culture, and ethnicity. Third, IPL is the most popular sports league played in India. In addition to stadium viewers, it is also live broadcasted on television and various online platforms thereby widely watched in India. For example, 185.7 million viewers watched the first three matches in the 2017 IPL season.<sup>9</sup> As all most all the supporters are Indian, and around one-third of total players played in the 2015 IPL season are foreign players, we first examine the difference in supporters' voting between

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<sup>5</sup> We discuss cricket in detail in section II

<sup>6</sup> <https://www.economist.com/blogs/economist-explains/2014/02/economist-explains-1>

<sup>7</sup> <https://www.theguardian.com/cities/2014/nov/27/india-cricket-football-sport-isl-mumbai-kolkata>

<sup>8</sup> We use the term 'voter,' 'supporter' and 'customer' interchangeably.

<sup>9</sup> <http://www.livemint.com/Sports/zl4J49jm41HS6WFhLXiGjP/IPL-2017-sees-40-jump-in-viewership-over-last-year.html>

Indian and foreign players. Then, we also examine the difference in supporters' preference in voting within the specific group of players based on their place of origin and religion.

The setting is unique in various ways. First, voting participants individually select their players through the Internet with full anonymity, so there is no social desirability bias. They have the absolute power to discriminate if they wish to, as there is no internal or external pressure involved. Additionally, there is no monetary cost or reward involved in voting that might influence voters' preferences. Therefore, voting can be viewed as a direct revelation of voters' preference.

Second, the characteristics of voting participants in our setting are different from the composition of a team. If the characteristics are similar on average, there is a possibility that it may contaminate the findings, as there is a chance that customer may segregate. For example, consider a complete segregated labor market where black and white employers employ only black and white workers respectively. Furthermore, black and white people prefer services from their ethnic group. If the proportion of black/white firm were equal to its proportion of its population, conditional on other things being similar, we would not find discrimination (consider the difference in sales or difference in customer visit as an outcome) where there exists complete segregation. In our setting, almost all the supporters are Indian, but around one-third of the players are foreigners. As Indians are quite different from the foreigners playing in the IPL based on race, culture and geographical proximity, we can correctly identify customers' preference towards foreign players.

Third, we have direct and accurate information about each and every player including the direct performance record of each match, which is difficult to evaluate in general survey design or census data. As Heckman (1998) argues:

*“Estimating the extent and degree of discrimination, whether at the individual or the market level, is a difficult matter. In the labor market, for example, a worker's productivity is rarely observed directly, so the analyst must instead use available data as a proxy in controlling for the relevant productivity characteristics. The major controversies arise over whether relevant omitted characteristics differ between races, and between genders, and whether certain included characteristics systematically capture productivity differences or instead are a proxy for race or gender.” (Page 103)*

Our setting allows us to directly observe productivity of players including their immediate previous performances. Furthermore, individual performance in cricket is directly identifiable in comparison with other group level sports like soccer or hockey. For example, in cricket, run scored by a batsman or wicket taken by a bowler is mostly valued as their individual effort. However, a goal scored by a player in soccer is hardly attributed only to his/her individual effort.

We analyze match-by-match Playing XI voting results of each player in 2015 IPL season to examine voters' personal preferences based on players location of origin and religion. We summarize the main findings below. First, we estimate the model without controlling for players' direct productivity characteristics while examining customer discrimination between Indian and foreign players. We find that voters positively prefer Indian to foreign players. Our findings suggest that customer discrimination exists against foreign players. However, when we control for players' direct productivity in our model, we find no evidence of discrimination in voting between Indian and foreign players. Furthermore, we overall do not find any discrimination within Indian and foreign players based on the location of origin and religion. Second, our finding suggests that political

conflict may lead to customer discrimination. We find that Sri Lankan players are 10-12 percent less likely to be preferred due to the past political conflict between India and Sri Lanka. Third, in line with Heckman's (1998) argument, our results also suggest that customer discrimination may exist on the margin. We find that supporters prefer Indian marginal players to foreign marginal players even if the expected performance of foreign marginal players is high.

This study makes a number of contributions. Foremost, to the best of our knowledge, our paper is the first to address the question of customer discrimination considering dataset from a developing country. Previous empirical studies on customer discrimination are based in developed countries in general (Combes et al. 2016; Bar and Zussman 2017) and US labor market in particular (Kahn and Sherer 1988, Holzer and Ihlanfeldt 1998; Leonard et al. 2010). Our findings can provide valuable insight on labor market discrimination in developing countries. We also contribute to the limited literature on considering a direct approach to identify customer discrimination (Nardinelli and Simon 1990; Depken and Ford 2006; Bar and Zussman 2017). The externally generated dataset that we use can be argued as a natural experiment. Additionally, our setting has minimum social desirability bias, which could be a severe problem while measuring discrimination. The problem of social desirability bias has been widely discussed in social psychology literature, and methods like list randomization have been developed to minimize it.<sup>10</sup> However, there has been very limited literature in economics that controls for social desirability bias (Bertrand and Duflo 2017). And finally, we contribute to the literature that tries to examine the overall discrimination in the labor market as well as discrimination on the margin.

The rest of the paper is organized as follows. Section II presents a preliminary introduction to cricket, the IPL and Playing XI vote. Section III provides the possible source

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<sup>10</sup> For literature reviews see Tourangeau & Yan (2007)

of customer discrimination in the IPL. Section IV presents our empirical model of discrimination and description of our datasets. Section V analyzes the main results. Section VI describes the discrimination on the margin. Section VII reports the robustness of our findings, and finally, section VIII concludes.

## **II. Introduction to Cricket, IPL and Playing XI Vote**

Cricket is a bat and ball game started in England and spread all over the world during the British Empire. In general, cricket is played in three formats. Test Cricket is the longest format, which can be played over five days. One Day Cricket (ODI cricket) format lasts for 8-9 hours where each team plays for a maximum of 50 overs.<sup>11</sup> Twenty-twenty (T20) is the shortest format of cricket introduced recently in the 2000s. It is played for 3-4 hours, and each team plays a maximum of 20 overs. The IPL is played in T20 cricket format.

Cricket is played between two teams constituting eleven players each. There are three aspects of cricket: batting, bowling, and fielding. In general, cricket is similar to baseball and the desired skills needed are quite similar as well. In T20 cricket format, the desired skill required for a batsman (similar to batters in baseball) is to score as many runs as possible with high strike rate.<sup>12</sup> A bowler similar to a pitcher in baseball needs to take as many wickets (outs in baseball) as possible by giving minimum runs. All the fielding members need to restrict the batsman in scoring runs.

Cricket is the most popular sports in India. The enormous success of inaugural T20 world cup in 2007 led to the evolution of first official professional cricket league in India i.e. Indian Premier League (IPL).<sup>13</sup> Eight teams participate in the league at present spreading all

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<sup>11</sup> One over constitute six balls

<sup>12</sup> Strike rate= (Total run scored / total ball faced)\*100

<sup>13</sup> Indian Cricket League (ICL) was started earlier in 2007 but was not supported by the Board of Control for Cricket in India (BCCI) and International Cricket Council (ICC).

over India.<sup>14</sup> All the teams are based in the major Indian cities. Both Indian and foreign players are recruited to play in the IPL.

The IPL organizing committee introduced a Playing XI voting method on their website for the first time in the 2015 IPL season. In Playing XI voting, supporters can participate and choose their favorite 11 players for a team to play in the next match. Figure 1 shows the advertisement for one of the matches in the 2016 edition of Playing XI vote posted on the IPL website. To examine customer discrimination in IPL considering voting preference towards a player, we focus on the percentage of the vote for each player obtained out of the total votes for a team collected from the official website of the IPL (See figure 2).<sup>15</sup>

There is one restriction for voting participants while choosing their players from a team: they can choose a maximum of four foreign players among their 11 favorite team members (See figure 3). However, supporters can choose as many as 11 Indian players. So choosing Indian players is not binding. This rule is also applied to the real selection process for a team to play a match. Each team also recruits their players accordingly. They buy more Indian players than foreign players in absolute terms. However, their relative substitution rate of players to play in a match is quite equal among Indian and foreign players.

Foreign players are displayed with explicit visual marks (airplane mark) on the voting platform as can be seen in Figure 3. This may throw some doubts about the real comparison between Indian and foreign players. This is one of the limitations of our dataset. However, one advantage of these explicit marks could be that it avoids confusion for foreign players

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<sup>14</sup> IPL started with eight teams, and in 2011 two more teams were added. One of the added teams (Kochi) was terminated after one season because of breach of the agreement. The other added team (Pune) withdrew after the 2013 season over financial differences with the board of Control of Cricket in India (BCCI).

<sup>15</sup> There is a big difference in vote between eleventh and twelfth ranked player as can be seen from Figure 2. In one way, this may suggest that team-specific playing eleven is largely fixed. However, only 17.6 % of total players (35 out of 200 players) have played all the matches, and 73.33% of total players (147 out of 200 players) have played at least one matches in the 2015 IPL season. The variation within team level is 8-30% and 68-87% respectively. These results suggest that the team-specific playing eleven is quite flexible.

with Indian sounding names especially players from neighboring countries like Sri Lanka, Pakistan and Bangladesh. Voters may confuse foreign players with Indian sounding names as Indian players and vice versa. For example, Dominic Joseph and Sheldon Jackson are foreign sounding names but are Indian players where as Gurinder Sandhu and Azhar Mahmood are Indian sounding names but are foreign players. To mitigate the limitations that may arise due to the restriction of foreign players and visual mark attached to them we will also compare the differences in voting behavior within foreign players based on their country of origin.

### **III. Possibility of Customer Discrimination in the IPL**

Indian Premier League (IPL) is very popular in India and currently broadcasted on television in five different languages. Along with television broadcasting, it is also live streamed on various online websites and mobile applications.<sup>16</sup> Almost all the fan base also concentrates in India. A Viewertrack report published by Future Sports+Entertainment shows that 96% of viewership concentrates in India.<sup>17</sup>

As almost all the IPL viewers are Indian, we assume that nearly all the voting participants are Indian. If voters have a personal preference towards Indian players, they might prefer Indian to foreign players. Additionally, voters' personal preference may vary within Indian players. Some players who were born in the same state or in the neighboring state play for the IPL team of that state/region (we refer them to 'Home players' from now on).<sup>18</sup> As almost all the supporters are from India, we further assume that majority of fans for a team come from home or neighboring states. Therefore, there could be a possibility that voters might prefer players with these characteristics to other Indian players who play for the same team. Additionally, the Muslim population is the largest minority in India based on

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<sup>16</sup> The 2015 IPL season was live streamed in Hotstar website and mobile application by Star India Private Limited

<sup>17</sup><http://www.dnaindia.com/sport/report-ipl-loses-its-global-viewership-1283851>

<sup>18</sup> We include neighboring state players in the home state players if the neighboring state does not have an IPL team. If two states having IPL teams are connected to a state where there is no IPL team, we add the players from the state with no IPL team in both IPL home state players.

religion constituting roughly 14% of the population.<sup>19</sup> Previous literature found discrimination against Muslim people in India (Thorat et al. 2015 and Datta and Pathania 2016). Furthermore, the rise of Hindu-nationalism might also create discrimination against Muslim players. Therefore, we further check whether supporters discriminate against players with Muslim sounding names.<sup>20</sup>

Another kind of discrimination may arise within foreign players. Foreign players from 8 different countries participated in the 2015 edition of the IPL.<sup>21</sup> They also differ by ethnicity. For example, all New Zealand players playing in the IPL are ethnically white, whereas almost all West Indies players are ethnically black. If voters have a personal preference towards the players from a particular country or ethnicity, they will vote for them irrespective of their experience and performance thereby discriminating players from other countries.

#### IV. Empirical Model and Data Description

We analyze voters' preferences towards players through a simple econometric model. Specifically, we estimate

$$Y_{itm} = \beta_1 + \beta_2 D'_i + \beta_3 I'_{it} + \beta_4 E'_{it} + \beta_5 Ex_{itm} + \beta_6 Pc'_{it} + \sum_{k=1}^{k=3} \beta_7 P'_{it(m-k)} + \gamma X'_{itm} + v_i + u_{itm} \quad (1).$$

In the above model,  $Y_{itm}$  represents the percentage of voting for player  $i$  in team  $t$  received for match  $m$  as reported on the IPL website.  $D_i$  is the indicators of players characteristics based on the location of origin and religion.  $I_{it}$  includes a set of match-

<sup>19</sup> [http://www.censusindia.gov.in/2011census/Religion\\_PCA.html](http://www.censusindia.gov.in/2011census/Religion_PCA.html)

<sup>20</sup> We do not have any information regarding players' religion. However, as Muslim names are clearly identifiable, we considered Muslim sounding names as our control variable to elicit customers' preference. Furthermore, it is very difficult for us to divide Indian players based on lower caste and upper caste as the last name based on caste differs from region to region. Additional bias may arise as people from all over India participate in the Playing XI vote. Therefore, we limit our analysis on religion to Muslim sounding names only.

<sup>21</sup> They include Australia, South Africa, New Zealand, West Indies, Sri Lanka, England, Bangladesh, and Netherland.

invariant individual characteristics of player  $i$  of team  $t$ .  $E_{it}$  and  $Ex_{itm}$  include match-invariant and match variant experiences of player  $i$  in team  $t$  at match  $m$ . The term  $P_{Cit}$  includes the IPL match-invariant career performances of player  $i$  in team  $t$  up to 2014 seasons.  $P_{it(m-k)}$  includes the direct performance of player  $i$  in team  $t$  up to last three matches to properly identify voters' behavior.  $X_{itm}$  includes other characteristics that voter may consider while selecting a player. Finally,  $v_i$  and  $u_{itm}$  are the individual effect and the time-variant stochastic error terms, respectively. All the variables included in the equation are described in details in Table A1 in the appendix. Our parameter of interest is  $\beta_2$ . If the parameter  $\beta_2$  is statistically significant, then voters have a personal preference, or in other words, customer discrimination exist.

Our dataset comprises of players who participated in the 2015 edition of the IPL. Information and statistics of all the players have been referenced from the IPL official website ([www.iplt20.com](http://www.iplt20.com)) and [www.espncricinfo.com](http://www.espncricinfo.com). A complete list of 200 players is available for empirical analysis. We present the summary statistics in Table 1.

There is a wide variation between Indian and foreign players by their individual characteristics, experience, and performance in the IPL. For example, foreign players' share of ALL-ROUNDER is higher in comparison with Indian players whereas, the proportion of BOWLER is higher in the case of Indian players. Foreign players are more likely to have international playing experience on an average in comparison with Indian players (UNCAPPED). Furthermore, a higher number of foreign players have previous IPL experience compared with Indian players (DEBUT).

There are variations within foreign players as well. Among foreign players around 36% and 25% are from Australia and South Africa respectively whereas only one player each from Bangladesh and the Netherlands. Australia and South Africa are the strongest teams in

cricket whereas Bangladesh, and the Netherlands are weak in comparison with players from other countries that represent in the IPL.

Relative performance of a player compared with other playing members in a match is a better measurement than absolute performance. For example, one wicket against a strong team has a higher value than one wicket against a weak team. Similarly, 50 runs in a very crucial match have a higher value than 50 runs in a not-so-competitive match. To control for recent performances (M-1 to M-3) we, therefore, use the proportion of runs scored and wickets taken instead of using actual run scored and wicket taken by a player in a particular match.

## **V. Estimation Results**

We begin to present our results considering voters' personal preferences between and within Indian and foreign players. Furthermore, we examine the customer discrimination on the margin. And finally, we provide several robustness tests of our findings, including voters' preferences based on team, players' individual characteristics, and experience.

### **A. Preference Between Indian and Foreign Players**

We present the results on voters preference between Indian and foreign players in Table 2. First, we estimate the coefficients without controlling for players' direct productivity characteristics. We present the results in model 1-5 with various specifications. Then we estimate the coefficients including direct productivity characteristics in model 6 and model 7. In model 6, we estimate the coefficients by including players' direct performances in the previous IPL seasons and the M-1 match (immediate previous match). Furthermore, in model

7, we estimate by additionally controlling for players' performance in the M-2 and M-3 matches.<sup>22</sup> The standard errors are clustered at the players' level.

The coefficient estimate of the INDIAN variable in model 1 shows no statistically significant effect on voters' personal preferences. After including the team and match fixed effects in model 2, the coefficient estimate remains unchanged. The results do not change when we further include players' individual characteristics in model 3. However, the INDIAN coefficient estimate becomes statistically significant in model 4 when we additionally control for players' relevant experience. It remains statistically significant even after including other variables that may affect players' voting results in model 5. The results in model 4 and 5 suggest that voters have a positive personal preference towards Indian players and discriminate against foreign players. However, when we additionally control for players' direct performances in model 6 and 7, the statistical significance of INDIAN variable goes away. Overall our analysis shows no statistically significant evidence of customer discrimination against foreign players.<sup>23</sup> However, the findings would have different results if we do not control for players' direct productivity.

The above results are due to the difference in composition of Indian and foreign players based on their experience and performance. As can be seen from the summary statistics, more than 60 percent Indian players have no international playing experience (UNCAPPED) whereas in the case of foreign players it is only seven percent. Furthermore, a team selects more Indian UNCAPPED players in comparison with foreign UNCAPPED players to play a match due to the limited supply of Indian players who have international playing experience and maximum four foreign players restriction. As voters select players by

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<sup>22</sup> To check the robustness of our results, we estimated the model by including players' individual performances in last four matches and found similar results. Similarly, we estimated by including different weights (1, 0.67 and 0.33 to M-1, M-2, and M-3 matches respectively) and found similar results. We present the results with above restrictions because of simplicity.

<sup>23</sup> Additionally, we estimated using pooled OLS and found similar results. Individual performances (run scored and wicket taken) in M-1, M-2, and M-3 matches are measured as a proportion of all players' performance in a match of a team in our main findings. We also estimated using actual performance and found similar results.

observing both previous experience and performance, the Indian coefficient becomes significant when we only control for experience (especially UNCAPPED variable). This implies that Indian is proxy partially for players being UNCAPPED, which weakened voters' preference towards Indian players when both previous experience and performance were not controlled as seen in model 3 in Table 2. This is in line with Heckman's (1998) argument suggesting that examining discrimination by controlling for proxy productivity characteristics may produce bias results as certain included or excluded characteristics may be systematically different based on race or gender.

The empirical results presented in Table-2 also suggest that players' previous performances are positively correlated to voters' selection. Further evidence suggests that players' performance in the M-1 match (immediate last match) is more important for voters selection than M-2, M-3 matches, and their earlier seasons' performance. Additionally, MATCH PLAYED coefficient estimate suggests that players' experience in the season has a positive and statistically significant impact on voters' selection. These results are expected as previous performances and experience reveal players' ability.

The coefficient estimates of CAPTAIN and WICKET KEEPER are positive and statistically significant among players' individual characteristics. Each team needs at least one captain and wicket-keeper to play a match. Aware of this, voters are choosing a captain and a wicket-keeper irrespective of their previous experience and performance. Finally, we find a negative and statistically significant relationship between a player's injury (INJURED) and voting. We also find a negative relationship between replaced players (REPLACED) and their voting percentage. These results are also expected as an injured or withdrawn player is less likely to play the next match, and a player who is replacing in the squad is more likely to be less experienced.

### **B. Preference Within Indian and Foreign Players.**

To test whether customer discrimination exists within Indian and foreign players, we present the results in Table 3. Along with the full set of variables included in model 7 of Table 2, we estimate by additionally controlling for players' locational and religious characteristics in equation 1 to see any difference in voters' preferences. In model 1 we include variables indicating if the player is a home player (HOME PLAYER) and if he has a Muslim sounding name (MUSLIM). In model 2, we add country dummy variables for foreign players.<sup>24</sup> In model 3, we only consider Indian players' datasets to see any difference in voting. Similarly, we only consider foreign players' datasets model 4 and control for their nationalities and religion.

The coefficient estimates of the INDIAN variable in model 1 and 2 are not statistically significant. This is similar to our main findings in Table 2. Similarly, the coefficient estimates of HOME PLAYER in model 1 and 2 do not show any statistically significant effect on voters' preferences towards home players. While considering Indian players' datasets only in model 3, the coefficient estimate is still statistically insignificant. From these results, we do not find any personal preference by voters within Indian players based on the location of origin. Furthermore, contrary to our expectation, the coefficient estimates of MUSLIM variable are not statistically significant. When we considered Indian and foreign players separately in model 3 and 4 respectively, the results remain unchanged. So, we do not find any discrimination against players with Muslim sounding names. The results are similar for both Indian and foreign players.

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<sup>24</sup> Only one player each from Bangladesh and the Netherland represented in the 2015 IPL season. Therefore, we exclude Bangladesh and the Netherland variable while estimating discrimination within foreign players. Australia is considered as the reference group among foreign players.

Sri Lankan players are negatively preferred in comparison with players from other foreign countries. The coefficient estimate of Sri Lankan players is statistically significant at 5% level in model 2 and 1% level in model 4. These results suggest that voters discriminate against Sri Lankan players. The main reason could be as follows. There was a serious conflict between India and Sri Lanka because of alleged atrocities on ethnic Tamils in Sri Lanka under the previous Regime.<sup>25</sup> Because of the serious conflict, protests carried out throughout India especially in the state of Tamil Nadu. Even, Sri Lankan players were not allowed to play in one of the IPL venues (Chennai the capital of Tamil Nadu state) in 2013 and 2015.<sup>26,27</sup> This negative causal impact on voters' selections of Sri Lankan players might be due to the political conflict between India and Sri Lanka. This interpretation is consistent with the existing literature (Bar and Zussman (2017)) suggesting that political conflict leads to customer discrimination.

## **VI. Discrimination on the Margin**

In our sample dataset, supporters choose their favorite players consecutively around two to three times a week for one and a half to two months. Furthermore, the IPL started in 2008, and we used the dataset from 2015 IPL season as playing XI vote started only in 2015. Therefore, one could argue that players' popularity over time is driving our findings. However, as Heckman (1998) argues, discrimination might be there on the margin. To analyze the customer discrimination on the margin, we compare a certain cohort of Indian and foreign players in the IPL who are likely to be less popular or less experienced. They include players who are playing in the IPL for the first time (DEBUT) or players who do not have any international experience (UNCAPPED) or both.

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<sup>25</sup> <http://www.espnricinfo.com/indian-premier-league-2013/content/story/626858.html>

<sup>26</sup> <http://www.thehindu.com/sport/cricket/ipl/ipl8-sri-lankan-players-out-of-ipl-games-in-chennai/article7078357.ece>

<sup>27</sup> Chennai did not host any game in the 2014 IPL season.

On average, foreign players are better in comparison with Indian players in the IPL as the supply of good foreign players is much larger than their demand. It can be clearly observed from the performance record presented in summary statistics.<sup>28</sup> In particular, foreign players with above characteristics are much better in comparison with similar Indian players. For example, some foreign players who are playing in the IPL for the first time (DEBUT) have experience of playing international matches. Foreign players are also allowed to play in multiple leagues played in other countries similar to the IPL. In contrast, no DEBUT Indian player has experience of playing international matches. Furthermore, Indian players are not allowed to play in other leagues due to the rule set by the Board of Control for Cricket in India (BCCI). As these players are playing in the IPL for the first time (DEBUT PLAYERS and DEBUT AND UNCAPPED PLAYERS in particular), if there is no discrimination on the margin, we would expect a positive preference towards foreign players with these characteristics based on their expected performance in the IPL at least in the beginning of the season.

We present the results in Table 4. We estimate the coefficients considering players who are playing for the first time in model 1-4. Furthermore, we estimate the coefficients considering players who do not have any international playing experience in model 5-8. And finally, in model 9-12, we considered players who are playing the IPL for the first time and do not have international playing experience. Model 1, 5 and 9 estimates the coefficients with other controls considered in Table 2. We consider the very first match, first three matches, and first five matches as the beginning period in our model in order to examine whether there is any difference in supporters behavior in the season. In model 2, 6 and 10, we control for Indian variable interacted with the very first match of the season. Additionally, in model 3, 7

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<sup>28</sup> In particular, the performance in the immediate previous matches is significantly different between Indian and foreign players. The overall performances in the earlier season are somewhat ambiguous. The main reason is due to the difference in hiring and firing rate between Indian and foreign players in the IPL. Indian players are less likely to be fired in comparison with foreign players because of the higher demand and lesser supply-side factor.

and 11, we further include Indian variable interacted with first three matches. And finally, in model 4, 8 and 12, we additionally control Indian variable interacted with first five matches.

The results in model 1, 5 and 9 do not show any statistically significant effect of players' characteristics on supporters' voting. The results show that the popularity of a player is not driving our results. However, we find that the coefficient estimate of INDIAN interacted with the first match; first three matches and first five matches are also not statistically significant. Our findings suggest that supporters' voting are not different between Indian and foreign players with above characteristics at the beginning of the season. Even though the expected performance of foreign players are higher than comparable Indian players, supporters are indifferent in choosing between Indian and foreign players. These findings are in contrast with our hypothesis stating that if there is no discrimination, foreign players are more likely to be preferred over Indian players with these characteristics. These results indicate the existence of customer discrimination on the margin, especially for the first and third group.<sup>29</sup>

## **VII. Robustness**

We alternatively estimate various models to test the robustness of our main results. For the remainder of the paper, we estimate the models including the full set of controls considered in model 7 of Table 2 in our equation unless otherwise specified.

**A. Preference at Match Level.** There is a possibility that discrimination may also exist at the match level. For example, supporters may discriminate at the beginning of the season. To check voters' preference at match level, we present the results in Table 5. In addition to other controls, we further include INDIAN variable interacted with match variable in model 1. In model 2, we include MUSLIM variable interacted with match variable. In model 3, we

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<sup>29</sup> However, it is difficult to quantify the extent of discrimination on marginal players

include HOME PLAYERS variable interacted with match variable. The results in Table 5 do not support the hypothesis of taste-based discrimination at the match level. These results also support our main findings.<sup>30</sup>

**B. Preferences at the Team Level.** The IPL teams are spread all over India. As India is a diverse country, there is a possibility that preferences might differ based on region. To evaluate its impact, we additionally include the team level interaction term with the INDIAN variable in equation 1. We present the results in Table 6. The coefficient estimates of the INDIAN variable are not statistically significant. These results are similar to our main findings. Similarly, the interaction terms are also statistically insignificant. So our results do not support any evidence of voters' personal preferences at the team level. These results additionally support our main findings.

**C. Preferences Based on Players' Individual Characteristics.** As can be seen from the summary statistics, Indian and foreign players differ on a broad range of individual characteristics. To evaluate the possibility of voters' personal preferences based on players individual characteristics, we additionally include various interaction variables in equation 1. We present the results in Table 7. The INDIAN coefficients estimated in Table 7 are not statistically significant. The results are similar to our main findings. Similarly, we do not find any statistically significant effect of players' skills (bowler, all-Rounder, and wicket-keeper) on voters' personal preferences towards Indian players. However, we find a negative preference towards Indian players who are captain in the IPL. This variable is significant at the margin. Foreign players who are a captain or were a captain for their national side at international stage also play and act as a captain for the IPL teams. Voters might favor these

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<sup>30</sup> There are some countries where very few players play in the IPL. Therefore, it is difficult to examine each country in each match as the bias may arise due to small sample size. However, we examined first three countries from which majority foreign players play in the 2015 IPL season. We did not find any statistically different results underlying taste-based discrimination. The results will be available upon request.

players in comparison with the Indian players who had never served as a captain for the national team before but served as a captain in the 2015 IPL season.

### **VIII. Discussions and Conclusion**

We took advantage of a natural experiment revealing a direct measure of customers' personal preference thereby limiting other sources of discrimination and social desirability biases. Furthermore, we used accurate information and direct productivity characteristics to properly identify the customer discrimination. Relying on a match-by-match panel dataset of Playing XI vote in the Indian Premier League (IPL), we analyzed whether supporters have a different personal preference towards players based on their location of origin and Muslim sounding names.

In contrast to the often-heated rhetoric surrounding discrimination, the often-unfounded assertions surrounding diversity, and the previous literature, we overall did not find any personal preference by voters while choosing between Indian and foreign players. Additionally, we did not find any causal impact in support of voters' preferences within Indian players. Furthermore, we did not find any discrimination against players with Muslim sounding names. These findings are consistent with Banerjee et al. (2015) where they did not find any employer discrimination in highly skilled software jobs in India. We extended the discrimination literature by considering customer discrimination in a highly skilled labor market in India.

However, we found that examining discrimination by controlling for proxy productivity characteristics may produce bias results as certain included or excluded characteristics may be systematically different. We found that voters positively preferred Indian to foreign players when we did not control for direct productivity characteristics.

However, when we controlled for players' direct productivity in our model, we found no evidence of discrimination in voting between Indian and foreign players.

Furthermore, we found a negative preference towards players from Sri Lanka within foreign players. Sri Lankan players were 10-12 percentage point negatively favored in comparison with other players. It is possibly due to the past political conflict between India and Sri Lanka. Our result provides additional evidence to earlier research by Bar and Zussman (2017) showing that regional conflict leads to customer discrimination. They could not be able to differentiate whether the discrimination was arising due to taste based or statistical. Our results provide direct evidence of taste-based discrimination against Sri Lankan players. And finally, in line with Heckman's (1998) argument, our results are indicative of customer discrimination on the margin. We find that supporters prefer Indian marginal players to foreign marginal players even if the expected performance of foreign marginal player is high.

Our results are different from the general findings in the literature that mostly find customer discrimination in the labor market. Our results are different possibly due to the following reasons. First, our setting has a direct measure of customers' preference and direct and accurate information about players including the productivity records of each match. Therefore, we properly identify customer discrimination by controlling for a wide range of variables including immediate previous experience and performance. The second possibility could be that indeed there is no customer discrimination in the IPL. The IPL is very popular in India and has a strong brand value as well. Therefore, it is more likely that supporters do not discriminate and instead choose players based on their expected productivity. Furthermore, there is no evidence that the team captains or coaches consider Playing XI voting while selecting players for a match as the voting closes just before the starting of the

game. Due to the fantasy nature of voting, supporters can completely discriminate and still do not lose their entertainment value, as the captains or coaches are more likely to choose the best players in the team to win a match. This additionally suggests that there is no customer discrimination in the IPL even if there exists incentive for voters to discriminate.

There might be a concern that our findings have limited external validity as we consider sports labor market for our analysis. However, sports are an important part of the entertainment industry. In addition, we are considering discrimination from the supporters' side, which is huge in the case of cricket in India. In India, cricket along with Bollywood are two most popular entertainment industries. IPL is a multi billion-dollar industry and has a strong brand value.<sup>31</sup> Therefore, we believe that our results do have a broader implication. For example, our findings can be generalized to popular sectors like other sports, entertainment industries, (like film, television and music) popular product brands and so on. In particular, as players are highly skilled in sports labor market, our results can be applied to the highly skilled labor market in a competitive environment.

It is also important to note some boundary conditions of our findings. We have all the information about players but don't have any information about voters' individual characteristics as they vote through the Internet with anonymity. This setting is good to avoid social desirability bias. However, we have no idea who is the real voter. Lack of information about the customer is quite standard in customer discrimination literature. Future research in this field could address these limitations.

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<sup>31</sup> According to Duff & Phelps, the brand value of IPL was 4.16 billion US dollar in 2016.  
<https://economictimes.indiatimes.com/industry/services/advertising/ipl-brand-valuation-soars-to-4-16-billion-duff-phelps/articleshow/52930766.cms>

## REFERENCES

Banerjee, Abhijit, Marianne Bertrand, Saugato Datta, and Sendhil Mullainathan. "Labor market discrimination in Delhi: Evidence from a field experiment." *Journal of Comparative Economics*, 37, no. 1 (2009): 14-27.

Banerjee, Biswajit, and John B. Knight. "Caste discrimination in the Indian urban labour market." *Journal of Development Economics*, 17, no. 3 (1985): 277-307.

Bar, Revital, and Asaf Zussman. "Customer Discrimination: Evidence from Israel." *Journal of Labor Economics* 35, no. 4 (2017): 1031-1059.

Becker, Gary S. *The economics of discrimination*. University of Chicago press, 1971.

Bertrand, Marianne, and Esther Duflo. "Field experiments on discrimination." *Handbook of Economic Field Experiments* 1 (2017): 309-393.

Combes, Pierre-Philippe, Bruno Decreuse, Morgane Laouenan, and Alain Trannoy. "Customer discrimination and employment outcomes: theory and evidence from the French labor market." *Journal of Labor Economics*, 34, no. 1 (2016): 107-160.

Datta, Saugato, and Vikram Pathania. "For whom the phone does (not) ring? Discrimination in the rental housing market in Delhi, India." UNU-WIDER *Working Paper*, Helsinki, Finland. (2016)

Depken, Craig A., and Jon M. Ford. "Customer-based discrimination against Major League Baseball players: Additional evidence from All-star ballots." *The Journal of Socio-Economics*, 35, no. 6 (2006): 1061-1077.

Heckman, James J. "Detecting discrimination." *The Journal of Economic Perspectives* 12, no. 2 (1998): 101-116.

Holzer, Harry J., and Keith R. Ihlanfeldt. "Customer discrimination and employment outcomes for minority workers." *The Quarterly Journal of Economics*, 113, no. 3 (1998): 835-867.

Kahn, Lawrence M. "The sports business as a labor market laboratory." *The Journal of Economic Perspectives*, 14, no. 3 (2000): 75-94.

Kahn, Lawrence M., and Peter D. Sherer. "Racial differences in professional basketball players' compensation." *Journal of Labor Economics*, 6, no. 1 (1988): 40-61.

Modi, Renu, and Rhea D'Silva. "Liminal Spaces." *Economic & Political Weekly*, 51, no. 41 (2016): 19.

Leonard, Jonathan S., David I. Levine, and Laura Giuliano. "Customer discrimination." *The Review of Economics and Statistics*, 92, no. 3 (2010): 670-678.

Nardinelli, Clark, and Curtis Simon. "Customer racial discrimination in the market for memorabilia: The case of Baseball." *The Quarterly Journal of Economics*, 105, no. 3 (1990): 575-595.

Rao, Gautam. "Familiarity does not breed contempt: Diversity, discrimination and generosity in Delhi schools." *Job Market Paper* (2013).

Siddiqui, Kalim. A Critical Study of 'Hindu Nationalism' in India. *Journal of Business and Economic Policy*, 3 (2) (2016): 9-28.

Siddique, Zahra. "Evidence on caste based discrimination." *Labour Economics*, 18 (2011): S146-S159.

Thorat, Sukhdeo, Anuradha Banerjee, Vinod K. Mishra, and Firdaus Rizvi. "Urban Rental Housing Market." *Economic & Political Weekly*, 27 (2015): 47-53.

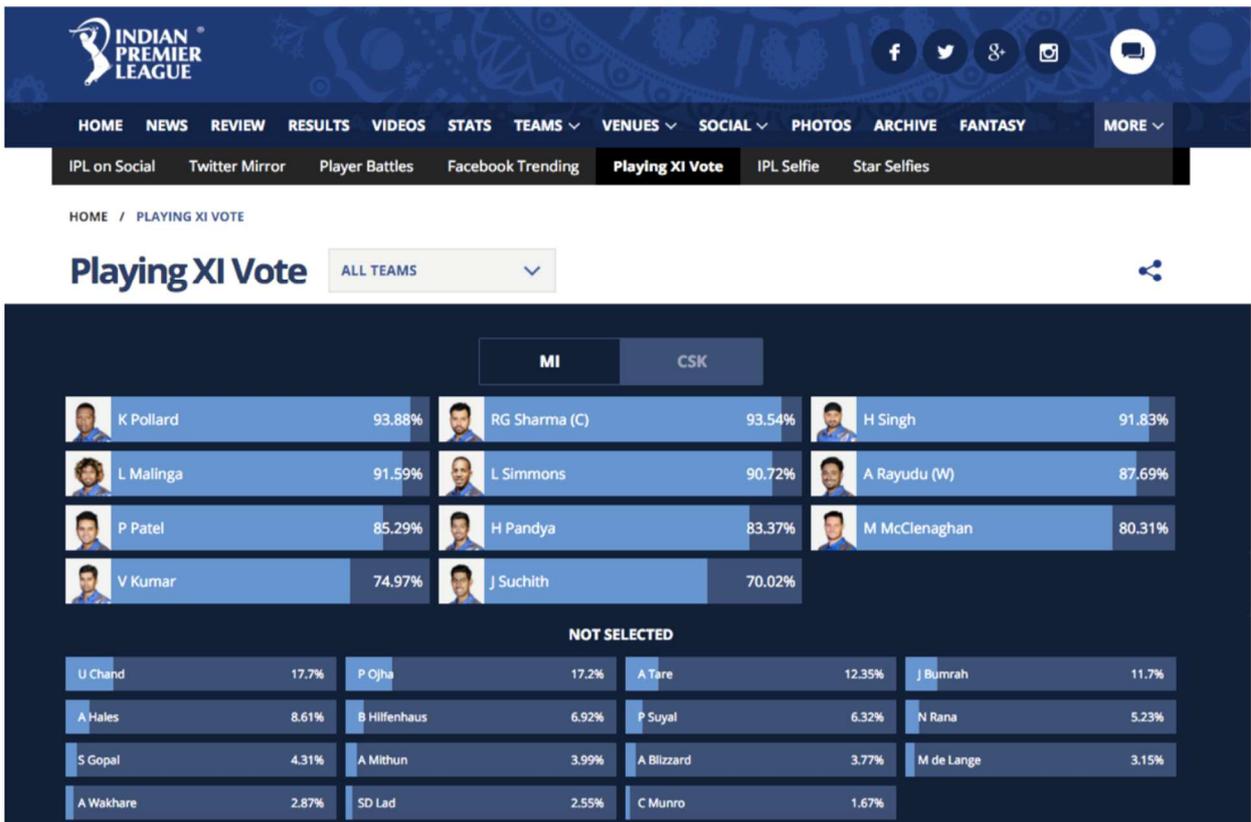
Tourangeau, Roger, and Ting Yan. "Sensitive questions in surveys." *Psychological bulletin*, 133, no. 5 (2007): 859

Figure 1. Playing XI votes advertisement at IPL website



Source: <http://www.iplt20.com>

Figure 2: Percentage of Vote Received by Player at Playing XI Voting



Source: <http://www.iplt20.com>

Figure 3: Selection Restriction in Playing XI Vote.

Playing XI Vote		Playing XI Vote	
<b>SELECT UP TO 11 PLAYERS</b>		<b>SELECT UP TO 11 PLAYERS</b>	
D Miller 	K Abbott 	<input checked="" type="checkbox"/> D Miller 	K Abbott 
<input checked="" type="checkbox"/> Anureet Singh	<input checked="" type="checkbox"/> A Jaffer	Anureet Singh	A Jaffer
 F Behardien	<input checked="" type="checkbox"/> KC Cariappa	<input checked="" type="checkbox"/> F Behardien 	KC Cariappa
R Dhawan	<input checked="" type="checkbox"/> GM Singh	R Dhawan	GM Singh
 M Johnson	 S Marsh	<input checked="" type="checkbox"/> M Johnson 	<input checked="" type="checkbox"/> S Marsh 
 G Maxwell	<input checked="" type="checkbox"/> N Naik	<input checked="" type="checkbox"/> G Maxwell 	N Naik
<input checked="" type="checkbox"/> A Patel	<input checked="" type="checkbox"/> W Saha	A Patel	W Saha
<input checked="" type="checkbox"/> P Sahu	Sandeep Sharma	P Sahu	Sandeep Sharma
<input checked="" type="checkbox"/> M Sharma	 MP Stoinis	M Sharma	 MP Stoinis
<input checked="" type="checkbox"/> S Singh	S Thakur	S Singh	S Thakur
<input checked="" type="checkbox"/> M Vijay	M Vohra	M Vijay	M Vohra
 Overseas Players		 Overseas Players	
<b>11 of 11 players selected</b>		<b> YOU HAVE EXCEEDED THE MAXIMUM LIMIT OF 4 OVERSEAS PLAYERS </b>	
<b>SUBMIT</b>		<b>SUBMIT</b>	

Source: <http://www.iplt20.com>

Table 1: Summary Statistics

Variables	INDIAN PLAYERS			FOREIGN PLAYERS		
	Obs	Mean	Std. Dev.	Obs	Mean	Std. Dev.
VOTE	1893	41.298	35.067	993	44.838	36.381
MUSLIM	1893	0.071	0.257	993	0.040	0.197
WICKET-KEEPER	1893	0.053	0.225	993	0.030	0.171
CAPTAIN	1893	0.032	0.178	993	0.056	0.230
BOWLER	1893	0.384	0.486	993	0.298	0.457
ALL-ROUNDER	1893	0.215	0.410	993	0.409	0.492
DEBUT	1893	0.258	0.438	993	0.192	0.394
UNCAPPED	1893	0.642	0.479	993	0.075	0.264
MATCH PLAYED	1893	0.436	0.434	993	0.472	0.371
TOTAL RUN	1893	432.731	772.397	993	455.203	659.673
TOTAL WICKET	1893	15.387	25.660	993	14.536	25.332
M-1 RUN	1893	0.034	0.087	993	0.052	0.110
M-1 WICKET	1893	0.034	0.106	993	0.050	0.134
M-1 ER	1893	1.904	3.908	993	2.256	3.976
M-1 SR	1893	31.815	62.985	993	42.630	70.980
M-2 RUN	1893	0.034	0.088	993	0.051	0.109
M-2 WICKET	1893	0.035	0.109	993	0.048	0.132
M-2 ER	1893	1.923	3.913	993	2.234	3.962
M-2 SR	1893	31.675	63.842	993	42.925	71.327
M-3 RUN	1893	0.035	0.089	993	0.050	0.106
M-3 WICKET	1893	0.036	0.113	993	0.046	0.127
M-3 ER	1893	1.916	3.896	993	2.157	3.904
M-3 SR	1893	31.826	64.051	993	42.883	71.091
ROS	1893	2.286	0.144	993	2.144	0.166
INJURED	1893	0.009	0.097	993	0.062	0.242
REPLACED	1893	0.012	0.109	993	0.049	0.216
HOME PLAYER	1893	0.279	0.449			
AUSTRALIA				993	0.358	0.479
SOUTH AFRICA				993	0.251	0.434
WEST INDIES				993	0.141	0.349
NEW ZEALAND				993	0.118	0.323
ENGLAND				993	0.058	0.234
SRI LANKA				993	0.044	0.205
BANGLADESN				993	0.013	0.113
NETHERLANDS				993	0.013	0.113

Table 2: Preference between Indian and Foreign Players

	(1)	(2)	(3)	(4)	(5)	(6)	(7)
	VOTE	VOTE	VOTE	VOTE	VOTE	VOTE	VOTE
INDIAN	-2.235 (4.917)	-2.374 (4.942)	-0.344 (4.621)	5.811*** (1.817)	5.599*** (2.109)	0.552 (2.176)	1.032 (2.124)
WICKET-KEEPER			41.08*** (7.974)	5.321 (3.580)	5.023 (3.526)	8.441*** (2.781)	8.806*** (2.712)
CAPTAIN			50.37*** (5.915)	9.196*** (2.124)	8.434*** (2.116)	6.928*** (2.157)	6.421** (2.567)
BOWLER			-0.987 (5.515)	-1.539 (1.685)	-1.342 (1.741)	-1.881 (1.792)	-2.102 (1.751)
ALL-ROUNDER			10.090 (6.194)	0.576 (1.933)	0.873 (1.986)	-3.116 (1.921)	-3.583* (1.891)
DEBUT				-6.661*** (1.876)	-6.699*** (1.977)	-1.115 (1.908)	-1.137 (1.849)
UNCAPPED				-10.54*** (1.805)	-11.77*** (1.893)	-3.312 (2.159)	-3.413 (2.120)
MATCH PLAYED				64.78*** (2.758)	63.40*** (2.813)	52.06*** (2.559)	45.47*** (2.638)
ROS					-3.231 (8.893)	-1.504 (7.405)	-1.506 (7.316)
INJURED					-15.48*** (3.753)	-10.80*** (4.186)	-9.764** (4.616)
REPLACED					-5.961 (3.718)	-7.142** (3.260)	-6.991** (3.123)
TOTAL RUN						0.0139*** (0.004)	0.0140*** (0.004)
TOTAL WICKET						0.402*** (0.098)	0.381*** (0.097)
M-1 RUN						49.08*** (8.414)	50.73*** (8.219)
M-1 WICKET						34.97*** (5.324)	34.96*** (5.002)
M-1 ER						0.618*** (0.107)	0.527*** (0.098)
M-1 SR						0.018*** (0.006)	0.014** (0.006)
M-2 RUN							31.23*** (7.951)
M-2 WICKET							20.18*** (4.826)
M-2 ER							0.266*** (0.073)
M-2 SR							0.003 (0.005)
M-3 RUN							16.28** (7.833)
M-3 WICKET							6.129 (4.419)
M-3 ER							0.176** (0.082)
M-3 SR							0.005 (0.005)
Constant	43.50*** (3.926)	43.54*** (8.429)	35.67*** (9.117)	15.54*** (2.993)	23.820 (20.100)	11.810 (16.610)	11.850 (16.440)
Team and Match FE	No	Yes	Yes	Yes	Yes	Yes	Yes
R <sup>2</sup>	0.002	0.0062	0.157	0.855	0.853	0.888	0.896
Prob > chi2	0.6494	0.989	0.000	0.000	0.000	0.000	0.000
N	2886	2886	2886	2886	2886	2886	2886
Standard errors in parentheses * p<0.1, ** p<0.05, *** p<0.01							
Relevant squared terms and interaction terms are included but not shown here							

Table 3: Preference within Indian and Foreign Players

	(1)	(2)	(3)	(4)
	VOTE	VOTE	VOTE	VOTE
INDIAN	0.751 (1.99)	-0.012 (2.764)		
HOME PLAYER	2.175 (2.158)	2.172 (2.032)	1.783 (1.799)	
MUSLIM	3.628 (3.706)	5.792 (3.665)	4.961 (3.734)	4.85 (4.592)
SOUTH AFRICA		-0.952 (3.231)		-2.501 (3.546)
WEST INDIES		3.669 (4.18)		0.892 (5.583)
SRI LANKA		-10.35** (4.909)		-11.69*** (4.482)
ENGLAND		-9.175 (5.674)		-5.752 (6.897)
NEW ZEALAND		3.711 (3.234)		1.026 (4.011)
Other Controls	Yes	Yes	Yes	Yes
R <sup>2</sup>	0.897	0.903	0.92	0.888
Prob > chi2	0.000	0.000	0.000	0.000
N	2886	2860	1893	967
Standard errors in parentheses* p<0.1, ** p<0.05, *** p<0.01 Standard errors are clustered at players level				

Table 4: Discrimination on the Margin

	DEBUT PLAYERS				UNCAPPED PLAYERS				DEBUT AND UNCAPPED PLAYERS			
	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)	(11)	(12)
	VOTE	VOTE	VOTE	VOTE	VOTE	VOTE	VOTE	VOTE	VOTE	VOTE	VOTE	VOTE
INDIAN	-1.776 (3.721)	-1.474 (3.649)	-1.614 (3.715)	-2.019 (3.929)	1.200 (2.284)	1.295 (2.287)	1.283 (2.292)	1.490 (2.324)	2.274 (3.688)	2.263 (3.713)	2.148 (3.720)	2.235 (3.698)
INDIAN*M 1		-3.349 (2.919)				-1.226 (1.906)				-0.722 (1.866)		
INDIAN*M 1-3			-0.683 (1.735)				-0.348 (1.058)				0.352 (0.765)	
INDIAN*M 1-5				0.583 (2.048)				-0.843 (1.010)				-0.0438 (0.692)
Other controls	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
R <sup>2</sup>	0.892	0.892	0.892	0.891	0.903	0.901	0.903	0.903	0.912	0.912	0.912	0.912
Prob > chi2	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
N	681	681	681	681	1291	1291	1291	1291	535	535	535	535
Standard errors in parentheses* p<0.1, ** p<0.05, *** p<0.01												
Standard errors are clustered at players level												

Table 5: Preference at match level

Dependent variable: VOTE	(1) INDIAN	(2) MUSLIM	(3) HOME PLAYERS
Match 1	-1.425 (2.842)	-0.886 (7.712)	-1.020 (3.766)
Match 2	-0.509 (1.751)	1.874 (4.248)	-0.883 (2.025)
Match 3	-0.010 (1.603)	-2.562 (2.509)	-0.399 (1.529)
Match 4	0.0889 (1.790)	-3.968 (2.915)	-0.0983 (1.553)
Match 5	-0.168 (1.764)	-3.495 (2.635)	0.487 (1.537)
Match 6	0.0449 (1.559)	-1.152 (2.923)	-1.083 (1.426)
Match 7	-1.024 (1.633)	-0.690 (2.948)	-1.837 (1.660)
Match 8	-0.471 (1.498)	1.164 (2.054)	-3.252* (1.738)
Match 9	0.0121 (1.452)	2.281 (3.531)	-2.201 (1.535)
Match 10	0.361 (1.323)	1.792 (3.423)	-1.108 (1.319)
Match 11	-0.592 (1.470)	0.242 (3.072)	-0.193 (1.137)
Match 12	0.194 (1.231)	1.344 (2.389)	0.803 (1.172)
Match 13	0.300 (0.976)	-1.067 (2.680)	0.146 (0.754)
Other controls	Yes	Yes	Yes
R <sup>2</sup>	0.8939	0.8947	0.9019
Prob > chi2	0.000	0.000	0.000
N	2707	2707	2681
Standard errors in parentheses* p<0.1, ** p<0.05, *** p<0.01 Standard errors are clustered at players level 14th match is considered as the base here. We exclude the 15-17 matches as there are not many observations			

Table 6: Preference at the Team Level

	(1)	(2)	(3)	(4)	(5)	(6)	(7)
	VOTE	VOTE	VOTE	VOTE	VOTE	VOTE	VOTE
INDIAN	0.225 (2.095)	-1.871 (3.039)	-1.861 (3.054)	-0.845 (3.212)	-0.014 (3.057)	-2.997 (3.679)	-1.315 (2.855)
INDIAN * Delhi Daredevils	3.676 (4.178)	5.575 (4.720)	5.570 (4.769)	4.691 (4.906)	3.804 (4.932)	5.441 (4.788)	5.441 (4.788)
INDIAN * Kolkata Knight Riders		6.454 (6.845)	6.414 (7.312)	5.062 (7.334)	3.992 (7.079)	16.37 (15.29)	2.904 (7.543)
INDIAN * King XI Punjab			0.0789 (6.234)	-0.597 (6.350)	-1.093 (6.368)	-12.91 (16.63)	3.915 (7.982)
INDIAN * Mumbai Indians				-3.675 (3.839)	-4.394 (3.911)	-8.171 (6.893)	-1.440 (4.446)
INDIAN * Royal Challengers Bangalore					-2.850 (5.789)	-6.608 (8.213)	0.123 (6.212)
INDIAN * Rajasthan Royals						-13.77 (18.11)	4.740 (8.281)
INDIAN * Sunrisers Hyderabad							5.048 (3.310)
Other Controls	Yes	Yes	Yes	Yes	Yes	Yes	Yes
R <sup>2</sup>	0.896	0.896	0.896	0.896	0.896	0.896	0.896
Prob > chi2	0.000	0.000	0.000	0.000	0.000	0.000	0.000
N	2886	2886	2886	2886	2886	2886	2886
Standard errors in parentheses* p<0.1, ** p<0.05, *** p<0.01 Standard errors are clustered at players level							

Table 7: Preference Based on Players' Individual Characteristics

	(1)	(2)	(3)	(4)
	VOTE	VOTE	VOTE	VOTE
INDIAN	2.678 (2.167)	0.411 (2.686)	1.096 (2.723)	2.271 (2.885)
INDIAN* BOWLER	-5.515 (3.509)	-3.455 (3.755)	-4.101 (3.779)	-5.045 (3.836)
INDIAN* ALL-ROUNDER		4.259 (3.606)	3.688 (3.612)	2.638 (3.751)
INDIAN* CAPTAIN			-8.494* (4.571)	-8.533* (4.519)
INDIAN* WICKET-KEEPER				-8.190 (5.934)
Other controls	Yes	Yes	Yes	Yes
R <sup>2</sup>	0.897	0.897	0.897	0.898
Prob > chi2	0.000	0.000	0.000	0.000
N	2886	2886	2886	2886
Standard errors in parentheses* p<0.1, ** p<0.05, *** p<0.01 Standard errors are clustered at players level				

Appendix  
Table A1: Explanation of Variables

VARIABLES	DESCRIPTION
<b>Dependent variable</b>	
VOTE	Percentage of vote received by a player in each match played by its team
<b>Independent Variables</b>	
<b>Individual characteristics</b>	
INDIAN	Equal to one if Player is Indian, zero otherwise
HOME PLAYER	Equal to one if the Indian player who is born or played for a state (or from the neighboring state where there is no IPL team) and now Playing for the IPL team belonging to the that state, zero otherwise
SOUTH AFRICA	Equal to one if the player is from South Africa, zero otherwise
ENGLAND	Equal to one if the player is from England, zero otherwise
SRI LANKA	Equal to one if the player is from Sri Lanka, zero otherwise
NEW ZEALAND	Equal to one if the player is from New Zealand, zero otherwise
WEST INDIES	Equal to one if the player is from West Indies, zero otherwise
BOWLER	Equal to one if the player is specialized in bowling, zero otherwise
ALL-ROUNDER	Equal to one if the players is specialized in both bowling and batting, zero otherwise
WICKET-KEEPER	Equal to one if the player is a wicket keeper, zero otherwise
CAPTAIN	Equal to one if the player is captain in match t, zero otherwise
<b>Experience</b>	
DEBUT	Equal to one if the player become a part of IPL team for the first time, zero otherwise
UNCAPPED	Equal to one if a player have never been selected for their senior national side at the international stage
MATCH PLAYED	Number of match played by a player until match t/ Number of match played by its team until match t
<b>Performance</b>	
TOTAL RUN	Sum of all run scored by a player in the IPL until 2014 season
TOTAL WICKET	Sum of all wicket taken by a player in the IPL until 2014 season
M-1 RUN	Run scored by a player in m-1 match / Run scored by all players of the team in m-1 match
M-1 WICKET	Wicket taken by a player in m-1 match / Wicket taken by all players of the team in m-1 match
M-1 ER	Average run given in an over while bowling in m-1 match
M-1 SR	(Run scored by a player in m-1 match / Ball faced by the player in m-1 match) * 100
M-2 RUN	Run scored by a player in m-2 match / Run scored by all players of the team in m-2 match
M-2 WICKET	Wicket taken by a player in m-2 match / Wicket taken by all players of the team in m-2 match
M-2 ER	Average run given in an over while bowling in m-2
M-2 SR	(Run scored by a player in m-2 match / Ball faced by the player in m-2 match) * 100
M-3 RUN	Run scored by a player in m-3 match / Run scored by all players of the team in m-3 match
M-3 WICKET	Wicket taken by a player in m-3 match / Wicket taken by all players of the team in m-3 match
M-3 ER	Average run given in an over while bowling in m-3
M-3 SR	(Run scored by a player in m-3 match / Ball faced by the player in m-3 match) * 100
<b>Other variables</b>	
ROS	Indian player = Number of Indian players in the team in match m / 7 Foreign player = Number of Foreign players in the team in match m / 4
INJURED	Equal to one if the player has opted out or injured in match m, zero

REPLACED	otherwise Equal to one if the player is replaced by a regular player due to injury or opting out in match m, zero otherwise
<b>Additional Control Variables</b>	
Team_FE	Dummy variables for each team
Match_FE	Dummy variables for each match
We also include squared term of the following variables TOTAL RUN, TOTAL WICKET, M-1 RUN, M-1 WICKET, M-2 RUN, M-2 WICKET, M-3 RUN, M-3 WICKET	
We also include the interaction term of following variables TOTAL RUN * TOTAL WICKET, M-1 RUN * M-1 WICKET, M-2 RUN * M-2 WICKET, M-3 RUN * M-3 WICKET, M-1 RUN * M-1 SR, M-2 RUN * M-2 SR, M-3 RUN * M-3 SR,	