EconS 321 – Economics of Sports

Player Evaluation Activity

**The Basics**

You will create a Google Drive folder and share access with each of your teammates as well as your instructor. You will use Google Spreadsheets so that you can work collaboratively with your teammates to collect data. You will also start a Google Doc to complete your write-up. After the data has been collected, you can download your file as an Excel file to perform graphical analysis on your data.

**Team Makeup:**

The class will divided into multiple “teams.” Depending on class size, you may be in a group of 5 or 7 others. You will operate as a team’s general manager and make player decisions based on a player’s previous statistics. **You are expected to work on this project as a group**.

**Objective:**

In this activity we will assess the value of Major League Baseball (MLB) non-pitcher free agents signed for the 2014 season, using a simplified version of the methods described in the article “An Economic Evaluation of the Moneyball Hypothesis.” The following six web sites will be of use in doing so:

* *Player Salary Database:*

http://content.usatoday.com/sports/baseball/salaries/default.aspx

* *Player Performance Database:*

http://www.baseball-almanac.com/players/ballplayer.shtml

* *Team Batting Statistics:*

http://espn.go.com/mlb/stats/team/\_/stat/batting/year/2013

* *Team Attendance Statistics:*

http://espn.go.com/mlb/attendance/\_/year/2013

* *Team Standings:*

http://espn.go.com/mlb/standings/\_/year/2013

* *Team Average Ticket Prices (for 2013 season):*

http://www.fancostexperience.com/

**Here is what to do:**

*Team Sheet: The first sheet will relate the team’s batting effectiveness to winning percentage and revenue.*

1. Obtain team OBP and SLG from the team batting database above, along with team attendance, winning percentage, and the average team ticket price, from the appropriate links.
2. Put the team name in the first column of the sheet, their winning percentage in the second column, OBP in the third column, SLG in the fourth, and leave the fifth column blank for now. Then put attendance in the sixth column, ticket price in the seventh column, and calculate total team ticket revenue and put that in the eighth column.
3. The “Economic Evaluation” article indicated that OBP was twice as important as SLG in producing runs and wins. Thus, create a simple “index” of offensive production, 100\*[2\*OBP + SLG], and put that in your fifth column. Multiplying by 100 just makes the numbers easier to read and interpret.
4. Create a scatterplot that relates the index you have just created, on the x-axis, to the team’s revenue, on the y-axis. Include the Excel trendline and display the equation of the trendline (this is an option in the chart design / layout tab). The slope of the trendline tells you how much each additional point of the index would be worth in revenue, in dollars. There is **ONE** “outlier” in your data. Delete this outlier and then use the coefficient estimate on the trendline as your estimate the value of increases in the index of team offensive production. If your trendline equation is shortened, you can expand the equation by right-clicking on the equation, selecting “Format Trendline Equation,” and clicking “Number” in the category section.

5. Create a scatterplot that relates the index you have just created, on the x-axis, to the team’s winning percentage, on the y-axis. Include the Excel trendline and display the equation of the trendline (this is an option in the chart design / layout tab). If the index increases by 1, how much does the team’s winning percentage increase by?

6. Create another scatterplot of win percentage (x-axis) and revenue (y-axis), and include the Excel trendline and the equation, as before. If the team’s winning percentage increases by 0.01, how much does the team’s revenue increase by?

*Player Sheet:*

*The second sheet of your spreadsheet will relate player batting to player salaries.*

1. Go to the list of free agents at the back of this assignment and choose 30 players at random. (All pitchers should have been taken off the list.) Work out a process you will use to pick your players–it should be a random process–and use it to choose your thirty. Please describe this process in your write-up.
2. Obtain recent OBP and SLG for each player from the performance database above. You can just use the players’ 2013 statistics if you wish, but you can also include data from earlier seasons as well if you wish. Do NOT use 2014 statistics–we are pretending this is just before the season began.
3. Obtain those players’ 2014 salaries from the salary database.
4. Put the player name in the first column, their on-base percentage in the second column, their slugging percentage in the third column, and their 2014 salary in the fourth column.
5. In the fifth column, calculate the player’s index of offensive production, just as you did above for the team. Then, calculate the player’s “marginal product”: the amount that they increase the team’s offensive index, instead of a player at the “Mendoza Line” of a .250 OBP and .300 SLG. Recognizing that the average starter takes 1/10 of all of the team’s at-bats, calculate the difference between each player’s index and the index of the Mendoza Line player, and then divide this by ten.
6. Now, in the sixth column, put that player’s MRP–the extra revenue the player brings in for the team. This is the product of player’s marginal product and the value of increases in that marginal product, which you calculated on the previous sheet, plus the league minimum of $400,000, for which we assume any team can get a player at the Mendoza Line.
7. Make a scatterplot of your salary prediction vs. players’ actual salaries. How close are they?

**What You Need to Turn In:**

Write out, in four double-spaced, typewritten pages:

1. What you did, including writing out any formulas you utilized in your spreadsheet;
2. Why you did it, including an explanation and justification of the formulas you used;
3. Conclusions. To write out the formulas, you may use traditional algebraic notation or copy the Excel formulas out of your spreadsheet.

Attach a hard copy of your spreadsheet and graphs to your write-up, staple it together, and turn it in to me on Monday of finals week.

Please also keep a copy of everything for yourself, which you will use in class when we conduct a “mock player auction” for free agents, and have “playoffs” between the teams you have “purchased”!