

1. Introduction

This poster describes an activity using ESPN Fantasy Baseball in which students draft players and a baseball season is simulated. It explains how the activity of participating in a fantasy baseball league can be used to teach the economic concepts of marginal product and competitive balance while promoting data literacy skills. To prepare for the player draft, students use the concept of marginal product to evaluate players and collect data to compare the predicted win contribution of players. The ESPN program is used to draft players and organize teams into leagues. Data from a simulated season, using Out of the Park Baseball, is used to give immediate statistics. The total team points and team standings for each league are collected in a data file, and provided to students for a follow-up exercise to compute measures of competitive balance. The activity is appropriate for upper-level courses in Economics.

The rest of the poster will explain how the instructor, in the role of Commissioner, can work within the ESPN platform to set up leagues and teams, and then conduct a live draft.

2. Exercise on Marginal Product to Rank Players Pre-Draft

- Students are given data in an Excel sheet in which they are asked to estimate a regression with the following specification :

$$\widehat{Player\ Total\ Points}_i = b_0 + b_1 Player\ AVG_i + b_2 Player\ HR_i$$

where i = each player

- Managers will find that the equation above yields the following parameters :

Parameter	Estimate	Standard Error
AVG	238.544***	(88.488)
HR	11.166***	(0.366)
Constant	-6.823	(22.082)

Notes: Robust Standard Errors are reported.
***Significant at the 1 percent level.
**Significant at the 5 percent level.
*Significant at the 10 percent level.

- Instructions are then provided on how to collect past season baseball statistics from various websites. Using the fitted regression coefficients from the above equation, students will use gathered data to develop projected rankings of players through familiarity with the following prediction equation :

$$\widehat{Predicted\ Player\ Points}_i = \widehat{b}_0 + \widehat{b}_1 Player\ AVG_i + \widehat{b}_2 Player\ HR_i$$

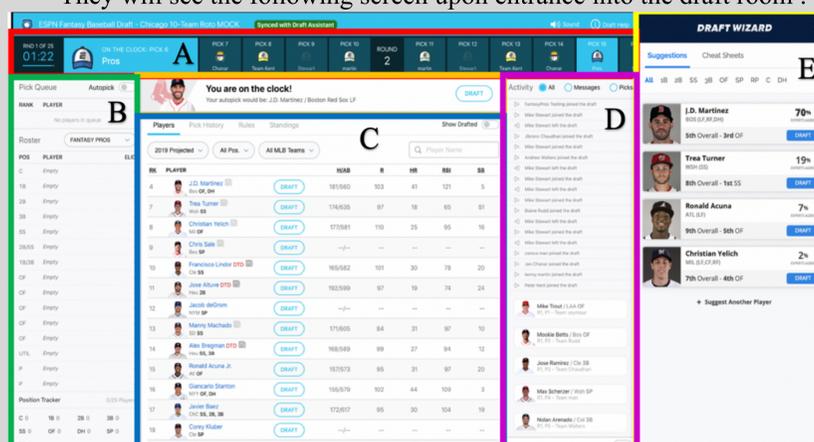
3. Using the Live Draft within ESPN

League Creation

- Instructors sign up as Fantasy Baseball Commissioner and set up 10-team leagues, with setting specifications, and send out corresponding email invites to student managers.
- All leagues are specified for 8 batters and 4 pitchers while set homogeneously by draft date and time.

Live Draft

- Students sign in at the set draft time to use their optimal draft method. They will see the following screen upon entrance into the draft room :



- Where the red rectangle A denotes draft order, the green outline B provides a visual of players queued by the student manager, the blue square C represents MLB players still available to draft, the purple outline D indicates players that have been recently drafted, and the yellow outline labeled E is an analytical tool named Draft Wizard provided by ESPN.

Aggregation of Results

- League Results can be stored in an Excel file provided by the authors.
- Simulated Season results are provided embedded in the file, however, instructors can run new simulations and easily integrate data.
- Final season results are calculated within the Excel file and distributed to students for evaluation on competitive balance.

4. Evaluating Competitive Balance per League

- The final exercise instructs students how to calculate measures of competitive balance using the fantasy baseball league results.
- Competitive balance is calculated from the number of wins per team, which has several corollaries with somewhat similar constructions in other economic fields.
- The four competitive balance measures we use in this exercise are the Noll-Scully measure, the Herfindahl measure of concentration from antitrust literature, and the Gini Coefficient and Lorenz Curve from literature on income inequality.

5. Exercise on Competitive Balance

- Students are distributed the following Excel sheet :

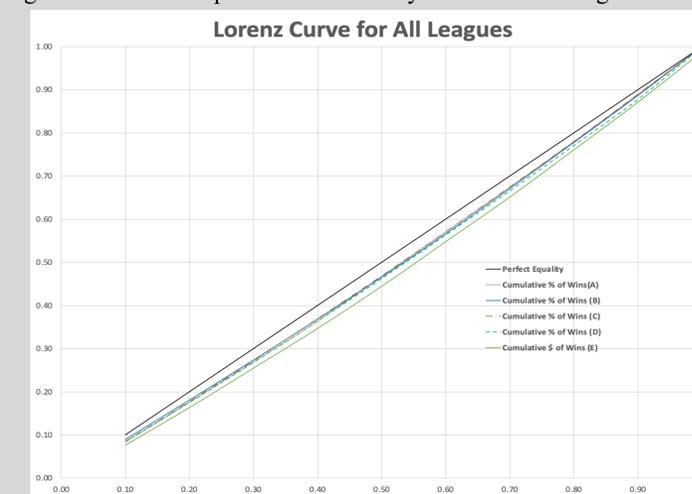
Team	Points	Share %	Share Squared	Team	Points	% of Points	% of Teams	Cumulative % of Points (A)	Perfect Equality	Area under the Lorenz Curve	
1 Dummy2	3374.01	8%	8.42	Dummy2	3374.01	0.08	0.10	0.10	0.08	0.10	0.0042
2 Dummy	3668.98	9%	9.15	Dummy	3668.98	0.09	0.10	0.20	0.18	0.20	0.0130
3 Bailey	3741	9%	9.33	Bailey	3741	0.09	0.10	0.30	0.27	0.30	0.0222
4 Storrs CT Jianguo I	3796.99	9%	9.47	Storrs CT Jianguo F	3796.99	0.09	0.10	0.40	0.36	0.40	0.0316
5 Glizzy Gladiators	4135.01	10%	10.31	Glizzy Gladiators	4135.01	0.10	0.10	0.50	0.47	0.50	0.0415
6 Deng	4152.01	10%	10.36	Deng	4152.01	0.10	0.10	0.60	0.57	0.60	0.0519
7 Patterson	4156	10%	10.37	Patterson	4156	0.10	0.10	0.70	0.67	0.70	0.0622
8 Cruz	4245.97	11%	10.59	Cruz	4245.97	0.11	0.10	0.80	0.78	0.80	0.0727
9 Efrat	4364.99	11%	10.89	Efrat	4364.99	0.11	0.10	0.90	0.89	0.90	0.0834
0 Dunhill	4456.01	11%	11.11	Dunhill	4456.01	0.11	0.10	1.00	1.00	1.00	0.0944

RESULTS	D
Standard Deviation of Points	345.8
HHI	1007
Area A	0.023
GINI	0.045

- Excel Functions:
- Sort
 - Mathematical Operators: +,/,*
 - Standard Deviation
 - Chart

- A) describes total points of each team ranking in ascending order, B) provides calculations of the Herfindahl-Hirschman Index, C) indicates information on the Lorenz Curve and Gini-Coefficient, D) represents a table for student to complete, and E) denotes Excel functions used by students.

- Students are introduced to a visual interpretation of the Competitive Balance in the form of a Lorenz Curve. Student managers are asked to create a Lorenz Curve for each league to compare the competitiveness within leagues. Below is a representation used by the student managers :



6. References

Baird, K.E. 2005. Player markets, profits, and competitive balance: A classroom simulation exercise. *Journal of Sports Economics*, 6(3): 331-334

Halliday, S. D. 2019. Data literacy in economic development. *Journal of Economic Education* 50 (3): 284-98.

Hoyt, G. M., and K. McGoldrick. 2017. Promoting undergraduate research in economics. *American Economic Review* 107 (5): 655-59.

Warren, R. G. 1997. Engaging students in active learning. *About Campus* 2(1): 16-20.

Wooten, J. J., and D. R. White. 2018. An in-class experiment to teach marginal revenue product using the baseball labor market and *Moneyball*. *Journal of Economics Teaching* 3(1): 115-132.