

The NBA Draft: The Effect of Leaving College Early

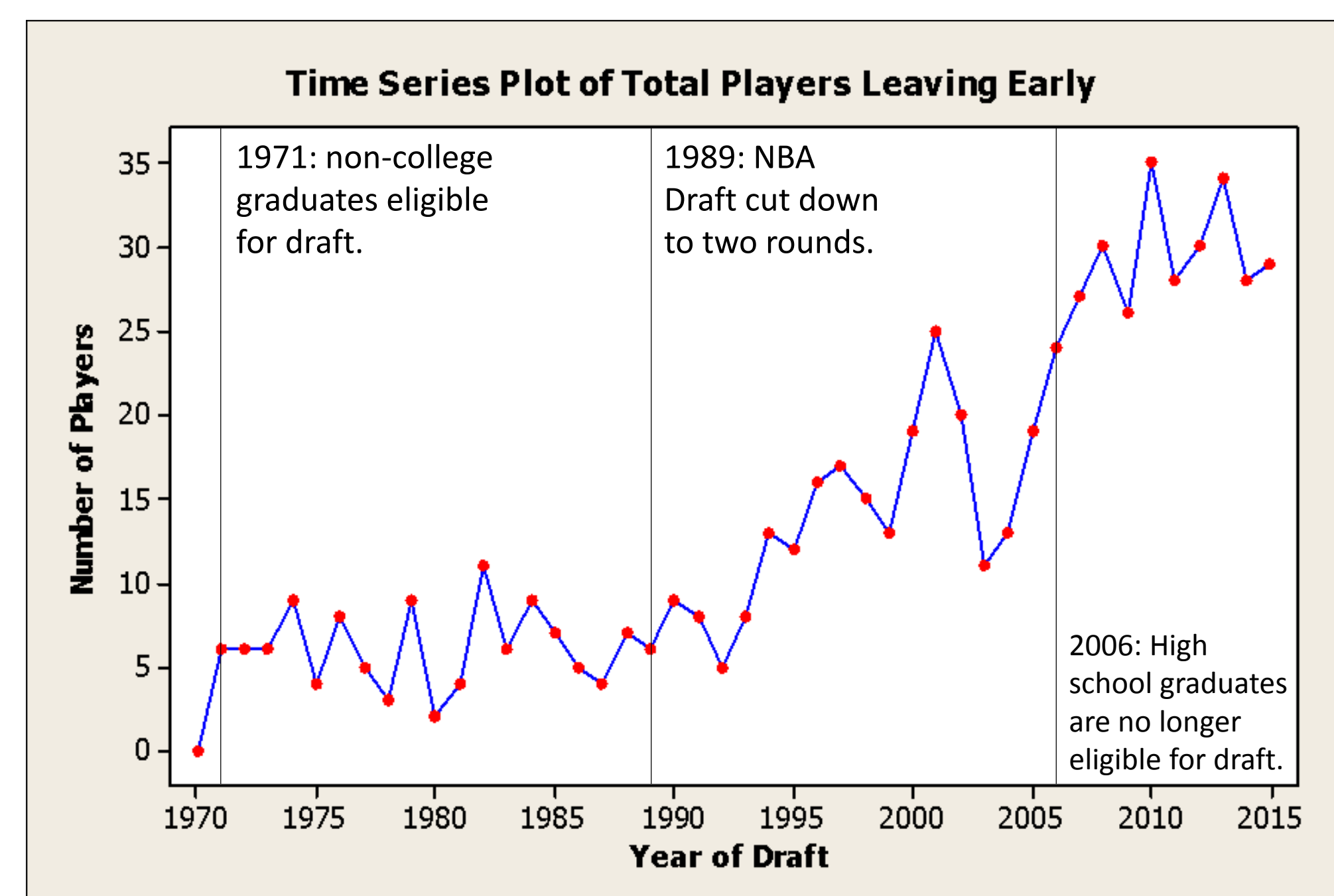
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Introduction

The National Basketball Association (NBA) conducts an annual draft to replenish rosters. Prior to 1971, only college graduates were eligible to be drafted. The Supreme Court case *Haywood vs. NBA* led to the “hardship rule”, allowing non-college graduates (including high school graduates) to enter the NBA Draft. In 2006, the rules changed so that a player must be one year removed from high school graduation and must turn 19 during the calendar year of the draft. As a result, the number of players leaving college early has increased substantially in recent years. Prior to 1995 only three freshmen were drafted; yet from 1996 to 2015 a total of 109 freshmen have been drafted. The 2015 draft had a record thirteen college freshmen drafted.



Data

Sources

- <http://www.basketball-reference.com/>
- <http://basketball.realgm.com/>

Variables

- College status, age, draft position and years of service were collected for all players drafted.
- Annual performance statistics such as total points, minutes played, games started, games played, and total gamescore were collected for all players drafted.

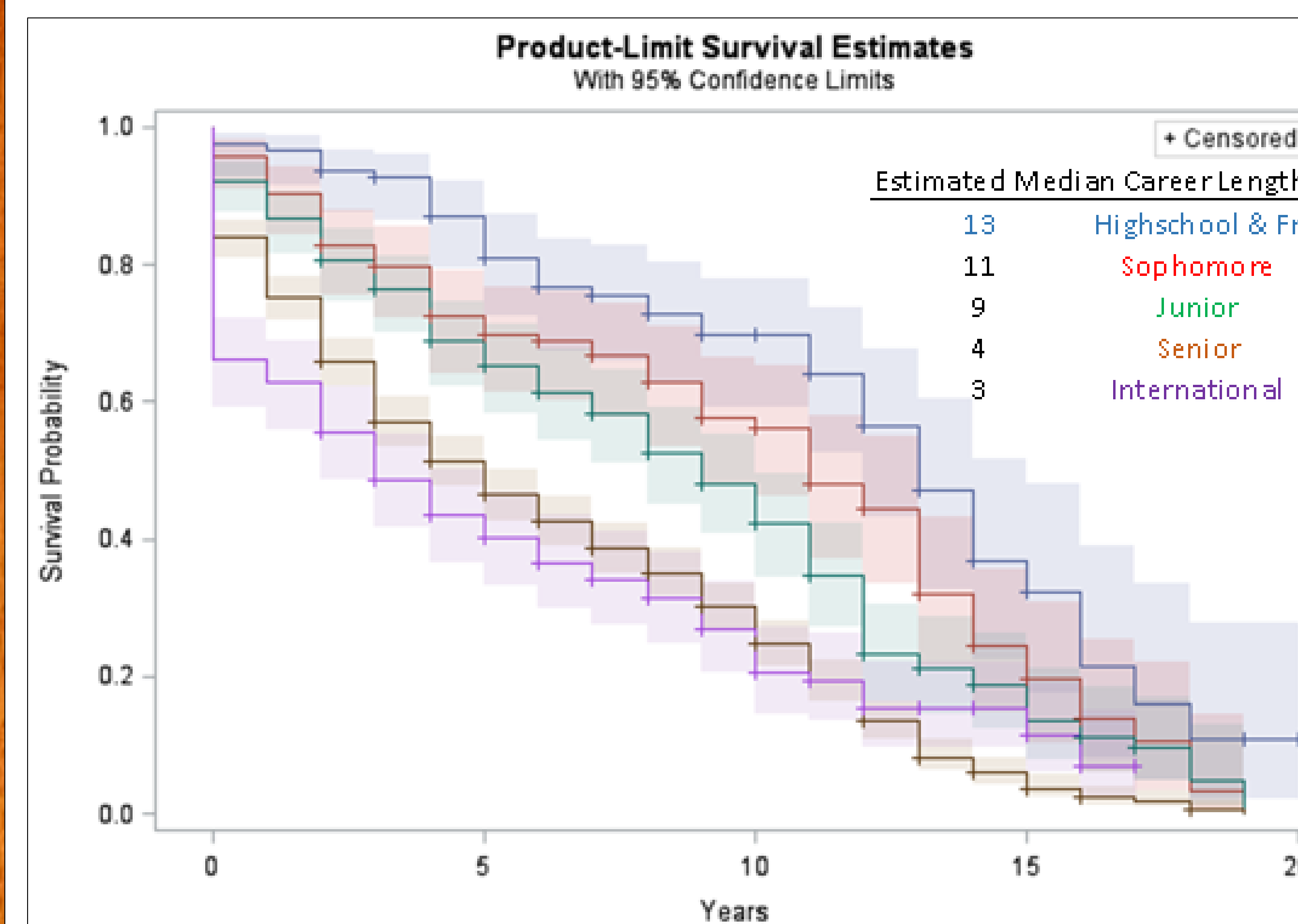
Timing

- Players from 1989 to 2000 drafts were used for analysis of complete careers.
- Players from 1989 to 2005 drafts were used for analysis of age 27 season.
- Players from 1989 to 2010 drafts were used for early career analysis.
- International players weren't used in ANOVA due to small sample size.

Research Goals

- Estimate length of NBA career based on years played in college and draft position.
- Predict success of career and age 27 season based on years played in college and draft position.
- Assess likelihood of a player playing in at least 500 career games.

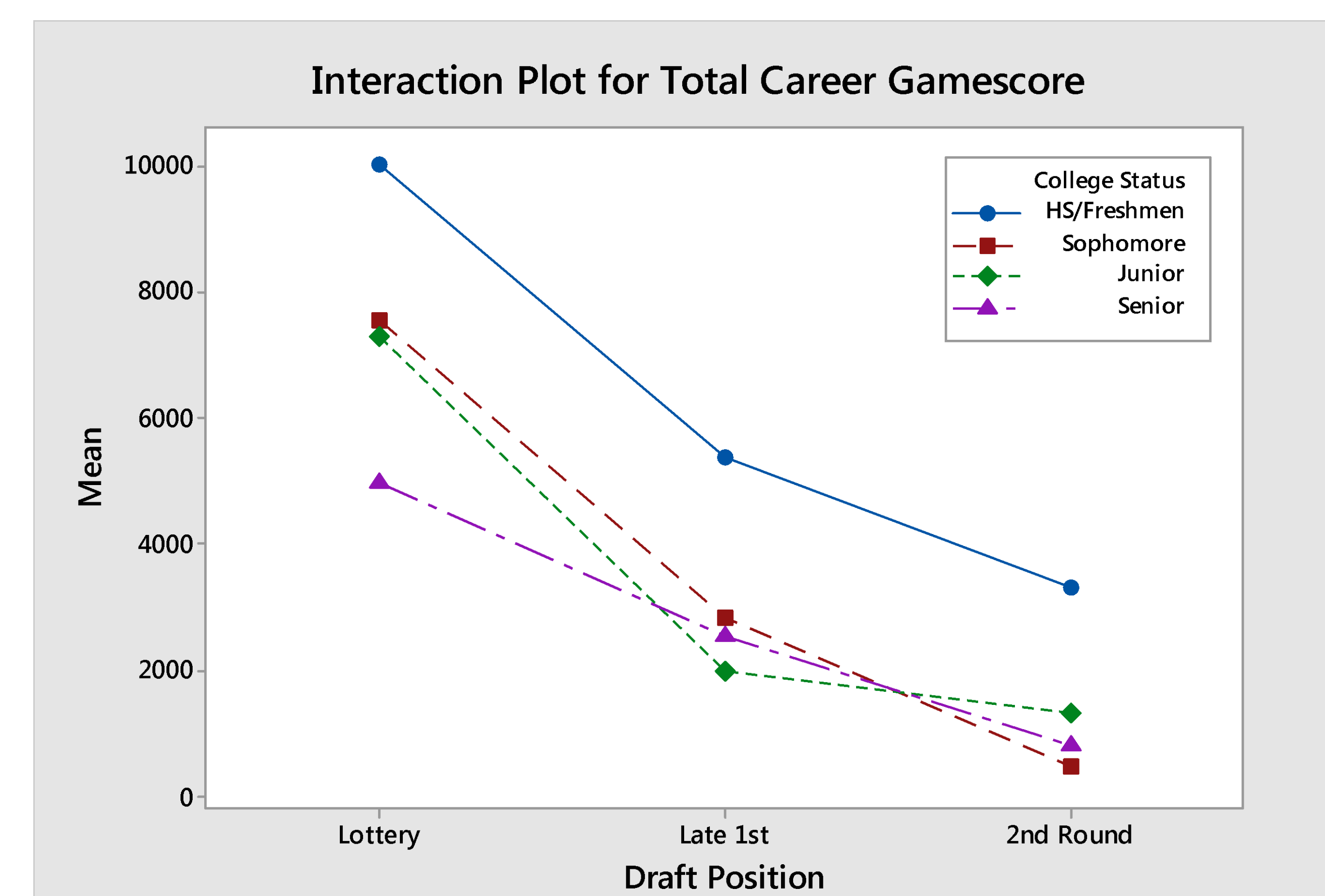
Methods and Results



Survival Analysis was used to estimate the probability of a player having a certain career length with 95% confidence intervals. The figure to the left shows the survival plot for career lengths between the different college status groups. Results indicated statistically significant differences in median career length based on status (Chi-square = 133.8, P-value < 0.0001). Specifically, seniors and international players have significantly shorter careers than those that leave college early. It also seems likely that there are differences between freshmen, sophomores and juniors but the current study lacked the statistical power to distinguish between these

groups. Additionally, logistic regression found college status to be a significant factor for a career exceeding 500 games (Chi-square = 29.1, P-value < 0.001). In particular, confidence intervals for odds ratios indicated that college graduates entering the NBA were less likely to play in 500 games compared to each of the other categories.

Performance statistics were analyzed using two-factor ANOVA. Marginally significant interactions between college status and draft position for total points ($F= 2.43$, $P= 0.025$) and total career gamescore ($F= 2.32$, $P=0.032$) were deemed to be unimportant based on the interaction plot to the right. Subsequently, additive models were used to obtain Tukey adjusted multiple comparisons. A Bonferroni correction was implemented to account for multiple response variables.



Entire Career	Total Points	Total Minutes	Games Started	Games Played	Total Gamescore
High school & Fr	9052 A	17743 A	394.3 A	599.2 A	6454 A
Sophomore	5421 B	12639 AB	293.2 AB	454.6 AB	4129 AB
Junior	5350 B	12015 AB	262.9 AB	468.4 AB	3882 B
Senior	3799 B	9571 B	198.2 B	396.2 B	2879 B

Entire career	Total Points	Total Minutes	Games Started	Games Played	Total Gamescore
Lottery Pick	9524 A	20724 A	482.2 A	713.7 A	7066 A
Late 1st	5188 B	11963 B	244.5 B	480.3 B	3885 B
2nd round	3004 C	6289 C	134.8 C	244.9 C	2136 C

Tukey comparisons show significant differences in several performance statistics between lottery, late 1st and 2nd round picks. Freshmen and seniors are significantly different for every performance statistic examined for entire career.

Age 27 season	Total Points	Total Minutes	Games Started	Games Played	Total Gamescore
High school & Fr	653.1 A	1292.7 A	30.09 A	41.85 A	480.3 A
Sophomore	449.7 AB	995.1 AB	26.22 A	33.23 A	344.3 AB
Junior	479.7 AB	1058.7 AB	23.23 A	37.98 A	349.8 AB
Senior	356.5 B	876.4 B	18.72 A	34.35 A	270.1 B

Age 27 season	Total Points	Total Minutes	Games Started	Games Played	Total Gamescore
Lottery Pick	742.5 A	1575.1 A	37.23 A	52.14 A	558.4 A
Late 1st	465.3 B	1052.9 B	24.42 B	38.3 B	345.4 B
2nd round	246.5 C	539.2 C	12.05 C	20.12 C	179.4 C

At age 27, lottery, late 1st and 2nd round picks are all significantly different. For games played and games started the college status is not significantly different.

Conclusions

Subject to the confounding effect that talent almost surely impacts the decision to leave college early:

- NBA players who leave college early average longer and more productive careers.
- Viewing age 27 as the year of peak performance, those players who leave early reach a greater average peak.
- The likelihood of reaching 500 games played is significantly higher for those leaving college early.
- Draft position correlates to success but also is related to the chance of leaving college early.

Future Ideas

- Treat draft position as quantitative.
- Incorporate rookie year performance as a predictor.
- Examine full careers of “one-and-done” players
- Examine careers of players drafted prior to 1989.

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