

# The Impact of Distance from Home on Student-Athlete's GPA at Northwestern College

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## Abstract

In this paper we study the impact of distance from home on GPA amongst Northwestern College students and focus on the student-athlete demographic. Using data from 2013 - 2016 freshman admissions, we show that distance is the largest deterrent to freshman GPA amongst student athletes. We show that athletic participation alone is not a significant determinant of freshman GPA when previous academic performance and financial need are taken into consideration and held constant. In addition to this, we also show that distance alone is not a major deterrent to GPA, however, amongst student athletes those who are from a long distance are likely to have a GPA 0.171 points lower than their counterparts who come from a short distance.

**Based on our findings, we suggest that institutions composed of majority student athletes can expect those from a long distance to underperform compared to their short-distance counterparts in freshman GPA and therefore should be focused on when it comes to academic support more so than athletes in general.**

## Data and Methodology

- The dataset utilized was obtained from the Northwestern College Admissions Department.
- The data contains information on 795 first-year students at Northwestern from the years 2013 to 2016.
- Variables collected were High School GPA, ACT composite scores, first-year college GPA, gender, whether they are involved in athletics or not, scholarships received, and distance from home.

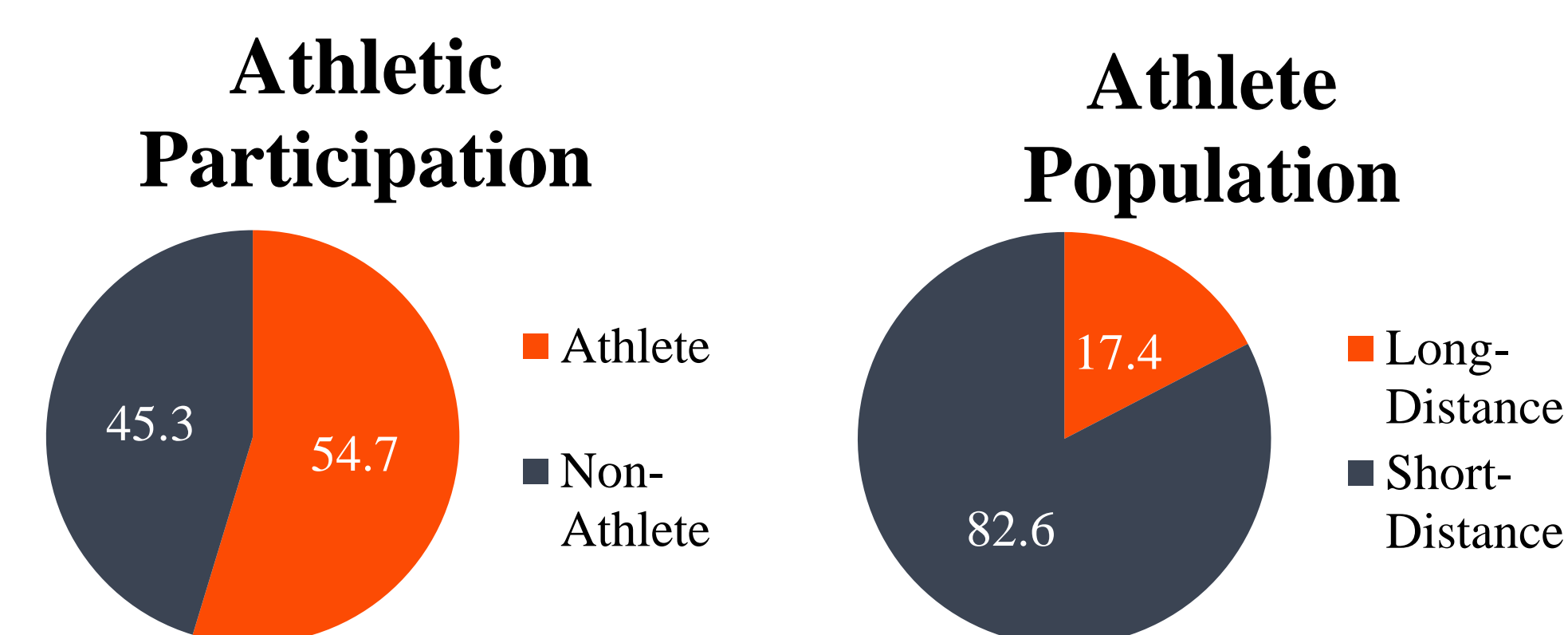
### Regression Model:

$$Y_{college\_GPA} = \beta_0 + \beta_1 * athlete + \beta_2 * female + \beta_3 * HS\_GPA + \beta_4 * long\_distance + \beta_5 * distance\_x\_athlete + \lambda_t$$

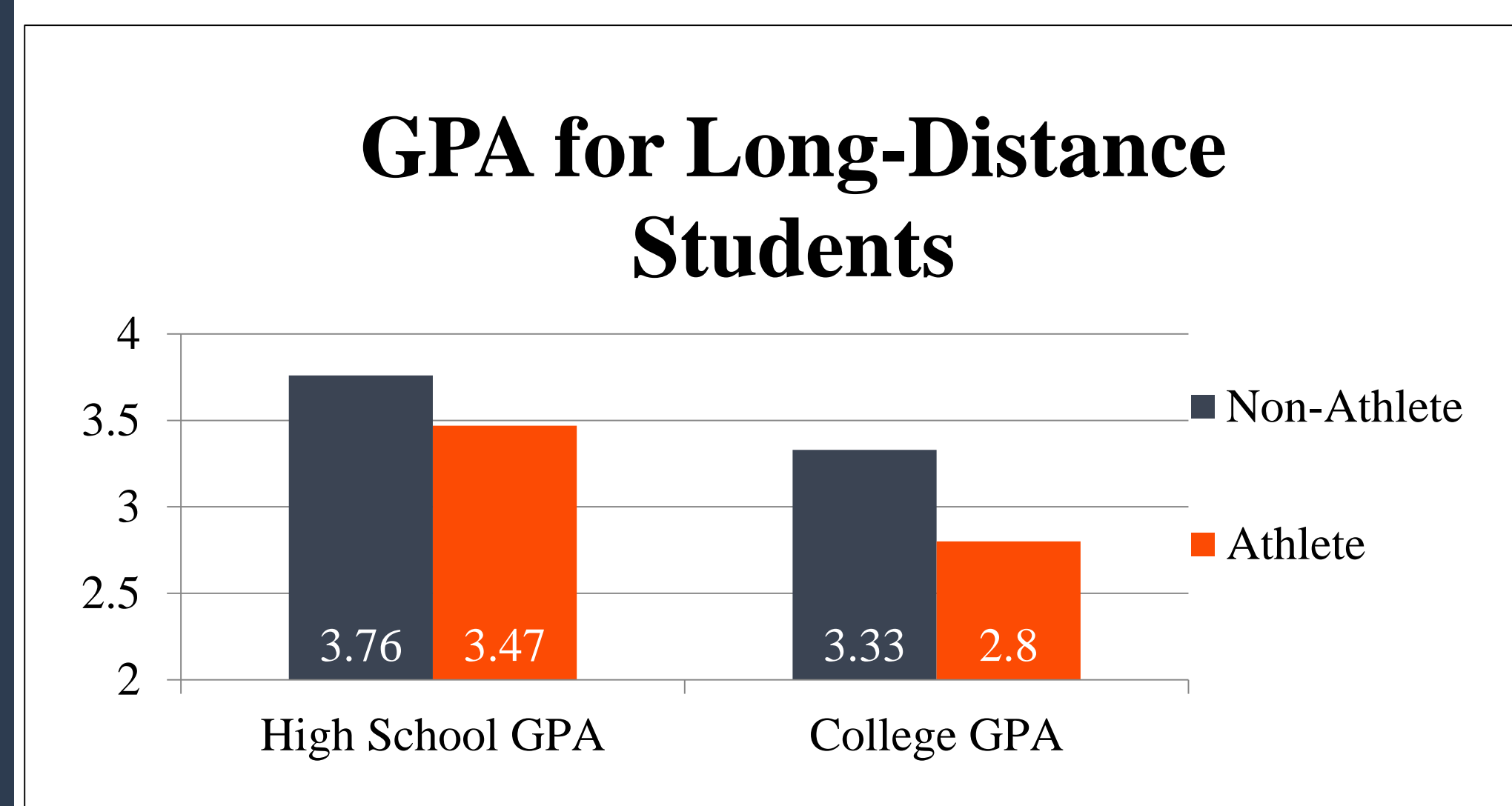
$\lambda_t$  represents three binary variables that correspond to the years 2014-2016 when individually assessed. There was no statistically significant difference between the findings for each year.

## Data and Methodology

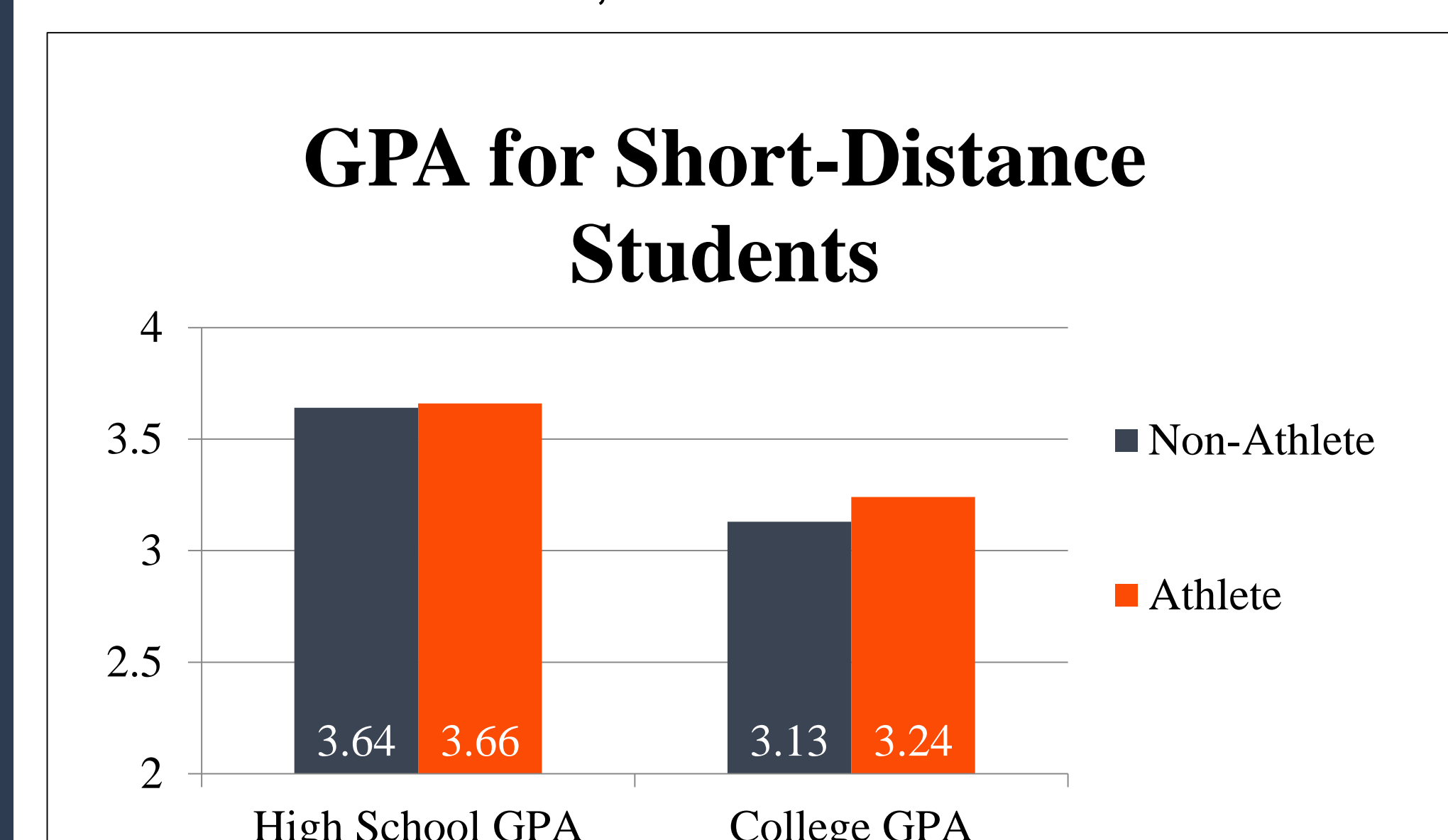
Exploratory analysis shows that the impact of athletics on academic performance is of upmost importance to institutions like Northwestern College with a high percentage of their student body involved in athletics, with nearly one-fifth of those athletes coming from a long distance.



Preliminary analysis showed that non-athletes from a long distance outperformed athletes from a long distance in both high school and first-year college GPA with 99.9% confidence.



Athletes from a short distance outperformed non-athletes in both high school and first-year college GPA, but with no statistically significant difference. Thus, the difference between high school and first-year college GPA in the two groups is not merely a reflection of athletics, but rather *distance*.



## Results

- In Model 1 finds a statistically significant correlation at a 99% confidence level in which being involved in athletics correlates to a decrease of 0.197 in GPA scores, supporting the findings of our literature review regarding the negative impact of athletic participation on academic performance in college.
- Model 3 shows that distance alone as a determinant of college GPA is not statistically significant, which aligns with our hypothesis that the interaction between distance and athletics has an impact on college GPA since the interaction term is statistically significant at a 95% confidence level with a coefficient of -0.171.
- Model 4 demonstrates that when accounting for other important factors in first-year college GPA, the athlete variable is no longer statistically significant. The long distance variable remains statistically insignificant, but their interaction term remains significant with 95% confidence.
- These results fall in line with our hypothesis that **the interaction of long distance and athletics serves as a deterrent to academic performance.**

### Regression Table

.variable	College GPA (Model 1)	College GPA (Model 2)	College GPA (Model 3)	College GPA (Model 4)
(Intercept)	3.269***	-0.827***	-0.792***	-0.884***
Athlete	-0.197***	-0.116***	-0.089***	-0.01
Female		0.057*	0.05	0.149***
HS GPA		1.104***	1.094***	0.853***
Long Distance			0.035	0.02
Distance x Athlete			-0.169**	-0.171**
ACT Composite				0.036***
Female x Athlete				-0.066
Scholarship				0
N	795	795	795	795
R2	0.025	0.555	0.559	0.597
adj R2	0.024	0.553	0.556	0.591
AIC	1481.668	862.296	859.56	799.73

## Conclusion and Recommendations

- Our initial hypothesis was that amongst students at small, private institutions composed of majority student-athletes, distance would play a larger role in determining GPA than being an athlete alone.
- Our results confirmed this hypothesis by showing that when holding important factors constant, students who participated in athletics were more likely to have lower GPAs if they were from a long distance than their counterparts from a short distance.
- Based on our findings, we suggest the implementation of support groups and mentorship programs within athletic teams in order to create a sense of belonging and support within the team.
- In addition to this, we suggest that emphasizing the importance of host families to long-distance students will help replicate the support a student would receive if they were attending an institution closer to home.
- Finally, it is important for coaches to acknowledge the results of this study and monitor their athletes' academic performance, especially if their home is more than 250 miles from Northwestern College.
- Regarding future research, we suggest looking closer at the socioeconomic status of long-distance athletes compared to that of short-distance athletes at Northwestern College in order to better understand the recruiting practices of Northwestern College Athletics and its implications regarding the academic success of athletes in their first year.

## Acknowledgements

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