Higher Education Outcomes: A better model for predicting student success and reducing economic disparities

Problem

As the cost of higher education continues to increase, lower-income, high-achieving students may have fewer opportunities to attend high performing schools due to these increasing costs and limited availability of non-loan financial aid. Further, lower-income, high-achieving students may have fewer opportunities to break the cycle of poverty due to stifling education debt post-graduation and fewer opportunities for high potential earnings. In addition, household income may influence a student’s access to opportunities throughout high school that strengthen traditional college applications, such as extracurricular activities, travel for academic competitions, and study abroad, or even community volunteering. This project will attempt to examine how upward mobility may be affected not only by the choices made by young adults about their education--the school they choose to attend, the degree they pursue, and how much debt they choose to incur--but also by the subjectivity of administrators during the admissions process.

This research will attempt to answer:

* How is the cost of college education aligned with potential earnings (by degree type)?
  + e.g. Is the cost of a liberal arts/STEM/business education calibrated with potential earnings for the same field?
* What degree types and institutions capture higher proportion of federal aid (by aid type)?
  + How have these changed over time?
  + How do default rates vary by: degree type, institution type, socioeconomic status?
* What is the profile of a typical student who attends a top 25 school before and after s/he attends?
  + Before: Federal aid recipient
  + Before: Income bracket
  + Before: First generation college student
  + Before: degree
  + Before: race/ethnicity
  + After: indebtedness
  + After: repayment rate
  + After: median salary, earnings
  + After: completion rate
  + How has this changed over time?
* How do these relationships change when controlling for socioeconomic status [income bracket]?
* What universities are in danger of exacerbating disparities for low- and middle-income students?
* What types of interventions could school administrators implement during the admissions process as well as matriculation to support low-income students and encourage equitable outcomes across all income brackets?

Target Audience

This research will prove valuable to secondary students during the school selection process, parents of secondary students, and school administrators. Students can use this research to conduct an informal analysis on cost versus return for particular schools and degree types. Parents of secondary students can use this research to identify which schools may be ‘income blind’, offering more equitable opportunities to students of all backgrounds. School administrators could use the research to develop stronger methods for selecting high-potential students during the admissions process by controlling for socioeconomic-related student characteristics.

Data sources:

Higher education institution rankings: [The Times Higher Education University Rankings](https://www.timeshighereducation.com/world-university-rankings/2016/world-ranking#!/page/0/length/25/sort_by/rank_label/sort_order/asc/cols/stats)

Institution-level data and outcomes: [Department of Education College Scorecard](https://collegescorecard.ed.gov/data/documentation/)

Approach

Through an examination of historical data on student populations at top 25 universities, I can develop student profiles based on various socioeconomic factors. Using that information, I can then examine outcomes (completion rate, median salary, indebtedness, repayment rates) for each profile group to identify potential model(s) for predicting likelihood of student success. Ideally, multiple models will be generated to predict likelihood of student outcomes when controlling for factors that can be minimized through tailored interventions.

Deliverables

This research will generate several outputs: a model for use by administrators and parents to inform decision-making; a short brief of the findings; reproducible code for further research; and, a presentation with slide deck for the Springboard community.