Data Science Scoping Paper

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Problem Statement:
How does financial aid impact college graduate earnings in Hawaii?
Predicting graduate income based on the amount and type of financial aid received

Dataset:
https://collegescorecard.ed.gov/data/
https://collegescorecard.ed.gov/data/documentation/

Objective:
To understand how different types and amounts of financial aid influence future earnings, possibly reflecting on the effectiveness of financial aid programs.

Societal Impact:
This could provide insights for policymakers and educational institutions on how to structure financial aid to maximize graduate success.

Data Availability:
Financial aid data should be extensively covered in the dataset.

Ethical Considerations:
Moderate. The primary concern would be ensuring privacy and confidentiality in handling individual financial data.

Exploring the Tides of Opportunity:
How Financial Aid Impacts College Graduate Earnings in Hawaii

Context

Hawai‘i is a diverse and vibrant state but it is an island state that is economically and environmentally vulnerable. Due to its isolation and dependence on imported goods, the cost of living is extremely high for even the most basic of goods and services. In this type of environment, education is critical to shaping the economic future of its population. The cost of higher education makes financial aid the lifeline that enables people to pursue their academic and professional dreams. This is even more evident in a state like Hawaii where there is a reliance on financial aid to cover the costs of attendance. But once the caps are thrown and the diplomas are framed, how does this financial aid continue to influence lives? Specifically, how does it affect the earnings of graduates? Data science techniques and data from the College Scorecard will be used to explore the relationship between the type and amount of financial aid received and the subsequent earnings of graduates.

The Wave of Financial Aid

Before we paddle out into the deeper waters of analysis, let's establish what we know about financial aid. Financial aid comes in various forms—grants, scholarships, work-study programs, and student loans. Each type of aid has different implications for students. Grants and scholarships, for example, do not require repayment and can relieve future financial pressure, whereas loans must be repaid, potentially burdening a graduate's financial stability. Understanding how each type of aid impacts graduate income is crucial for developing more effective aid programs.

Navigating Through the Data

The College Scorecard (https://collegescorecard.ed.gov/data/) collects data on many higher education issues. The site provides a dataset that includes information on both financial aid and graduate earnings, as well as other useful information. For the purposes of this analysis, we will focus on the data related to the amount and type of financial aid received by students from institutions across Hawaii. We will attempt to trace the journey of students who receive aid from the moment they are issued financial aid to their post graduation earnings.

Impact on the Local Level

Understanding how student financial aid impacts an individual’s economic outcomes and earnings is critical for both education institutions and lawmakers. The implications of this study are

particularly significant for Hawaii. By analyzing how financial aid shapes wages and earnings, we can provide insights that may help in structuring financial aid programs to maximize graduate success, thereby enhancing the financial health of borrowers and the overall economic health of the community.

Riding the Wave of Ethical Considerations

There are some ethical issues involved with this type of analysis using financial data. We must handle the data with care, respecting the privacy and confidentiality of individual financial information.

Conclusion: Charting the Course Ahead

This analysis is not just about numbers; it's about real lives and the real impact of educational investments in Hawaii. By understanding how financial aid influences graduate earnings, we can begin to tailor financial aid programs that not only support students through their education but also set them up for substantial post-graduation success. For Hawaii, where community and 'ohana are central, investing wisely in education means investing in the future of the islands themselves.

In the spirit of lokahi, or unity, let us move forward together, using the insights gained from this study to empower the next generation of learners and leaders in Hawaii. Through informed decisions and compassionate leadership, we can ensure that the waves of change lead to prosperous shores for all.

Other Ideas reviewed and discussed:

Predicting graduate income based on race, gender, and age:

- **Objective**: This could aim to identify and analyze income disparities among graduates to inform policies or initiatives for reducing inequality.
- **Societal Impact**: High, as it directly addresses issues of equity and social justice.
- **Data Availability**: These demographic factors are likely well-documented in the dataset.
- **Ethical Considerations**: High sensitivity. Care must be taken to ensure that the analysis does not perpetuate stereotypes or bias and that it is conducted with an aim to foster positive societal changes.

Predicting graduate income based on the admission rate and academic competitiveness of the school:

- **Objective**: To explore how the selectivity and perceived quality of an institution correlate with the economic outcomes of its graduates.
- **Societal Impact**: Useful for prospective students and educators, influencing decisions about which institutions provide the best return on investment.
- **Data Availability**: Admission rates and metrics of academic competitiveness are likely to be well-documented.
- **Ethical Considerations**: Low. This analysis is less likely to involve sensitive personal data.