A Comprehensive Economic Analysis of Higher Education in New York State: Investigating Student Debt, Default Rates, Costs, Family Income, and Post-Graduation Earnings

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Introduction

In this comprehensive report, we delve into a thorough analysis of key indicators shaping the landscape of higher education in the great state of New York. Our focus revolves around the critical elements of student debt and default rates, education costs, family income, and post-graduation earnings. The intention is to provide a nuanced understanding of the evolving dynamics within our state's educational system, shedding light on trends, challenges, and opportunities. As we navigate through each section, we aim to uncover the intricate relationships between these variables, offering valuable insights that can inform policy decisions and strategic interventions for the betterment of both students and the state's education system as a whole.

Debt / Cost Analysis

To embark on this comprehensive analysis, we initially received a diverse set of data encompassing education, cost, and Consumer Price Index (CPI) metrics. The education data included information on enrollment, graduation rates, student debt, and default rates. The cost data provided details on tuition, fees, and other associated expenses. The CPI data was instrumental in adjusting monetary values for inflation.

To ensure the accuracy and reliability of our analysis, we undertook a meticulous data cleaning process. This involved addressing missing or erroneous entries, standardizing formats, and resolving discrepancies across the datasets. The education and cost data were harmonized through a careful merging process, aligning them based on common identifiers such as institution names and academic years as well as substituting missing values in the dataset with approximations in a regression model based on the trends nationwide .

One crucial step in enhancing the precision of our analysis was converting all monetary values to real 2018 dollar values. This adjustment is vital to account for inflation over time and to facilitate meaningful comparisons across different years. For the benefit of clarity, the conversion formula utilized can be briefly described as follows: Real Value = (Nominal Value / CPI for the year) * CPI for the base year (2018). This formula ensures that all financial figures are expressed in terms of their purchasing power in 2018, providing a consistent and comparable basis for analysis.

The resulting clean dataset, named education_data_BA_cost, thus represents a refined and consolidated set of information. This dataset encapsulates key variables such as enrollment, graduation rates, student debt, default rates, and various cost components, all adjusted to real 2018 dollar values. This meticulous curation enables a more accurate examination of trends and patterns within the higher education landscape in New York, laying the foundation for an insightful and informed analysis in subsequent sections of this report.

Figure 1 illustrates the temporal evolution of student debt in New York based on the “education_data_BA_cost” dataset. The y-axis represents the average student debt in real 2018 dollars, while the x-axis denotes the academic years. The trend showcases any shifts or patterns in student debt, providing a visual narrative of how financial burdens on students have changed over the years.

Upon close examination, Figure 1 reveals notable fluctuations in student debt over time, particularly those who were deemed “low income” around 2012 having extremely low debt and the steady increase in debt for those with “median” incomes. Identifying peaks and troughs can offer insights into periods of increased financial strain on students and potential factors influencing these fluctuations. This analysis forms the basis for understanding the financial challenges faced by graduates in New York in the last decade..

Figure 2 juxtaposes mean debt and academic years in New York between “private” and “public” institutions, showcasing potential correlations between the two variables. The line graph comparison visualizes each institution's mean student debt, allowing for a nuanced understanding of how institutions may impact debt. By examining the relationship between student debt and types of institutions, we can discern patterns such as debt disproportionately affecting low income students in public institutions than in private within New York. This analysis is crucial for policymakers and educators aiming to address barriers to successful academic completion.

Figure 3 provides a comparative analysis, contrasting student debt trends in New York with the average values across the nationwide average. This allows for a broader perspective on how New York fares in comparison to national averages. Based on the data, we can see that over the course of a decade, debt has gone down significantly across all groups in public universities well below the national average whereas private universities are witnessing a steady but slight increase in debt among median income students while high and low income students are on par nationally.

Figure 4 illustrates the relationship between default rates and out-of-pocket education costs over time in New York based on family income. Examining these trends sheds light on whether family income has kept pace with the rising costs of education and has defaulted on their student loans. According to the graph, default rates in the state of New York, not excluding private or public schools, have dropped significantly over the course of a decade. Meanwhile, student debt amongst all income brackets remain similarly correlated with each other, with increased debt towards 2018 despite default rates dropping significantly. Student debt saw a sizable decrease in mean debt around 2014 despite having some of the highest mean debt in the decade in 2012.

Figure 5 integrates student debt levels and default rates nationwide much like figure 4 analyzed. Comparatively, By correlating these variables, we can see that New York has been slightly lower than the national average of student debt across both private and public schools. Furthermore, the default rate was much lower in New York than nationwide, however mean debt across all income levels has risen in the end of the decade. To address this, I would recommend our state government implement income-indexed financial aid programs that adjust the amount of aid provided based on family income. This ensures that students from lower-income households receive more substantial support, aligning with the principle of equitable access to education.

Debt, cost, and earnings after graduation

To conduct a comprehensive analysis, I utilized the graduates_income_2018.csv data in conjunction with the education and cost data. Firstly, the education and cost data were cleaned as outlined in Section 2, addressing missing or erroneous entries and standardizing formats. Subsequently, the graduates_income_2018.csv data was imported and cleaned to ensure

consistency in variables. The datasets were then merged based on common identifiers such as institution names, creating a unified dataset for analysis and using the same regression techniques as earlier.

Figure 6 illustrates the distribution of mean earnings compared after graduation. The x-axis represents student debt in real 2018 dollars, and the y-axis depicts earnings after graduation in 6, 8, and 10 years. This visualization provides insights into the relationship between the amount of graduate incomes and the subsequent increase over time depending on schooling and job pay. The histogram indicates a discernible trend where higher levels of earnings are associated with higher income levels when attending college. This insight suggests that there might be a complex interplay between social class and post-graduation financial success.

Figure 7 and 8 explores the relationship between education cost and student debt among earnings.. The histograms reveal a positive correlation between education cost and student debt, indicating that higher education expenses correspond with increased levels of student debt. This observation emphasizes the importance of understanding the impact of rising educational costs on student financial outcomes.

Conclusion

In summary, the analysis of New York's higher education landscape based on education_data_BA_cost reveals crucial insights into the dynamics of student debt, family income, out-of-pocket costs, and default rates. Figures 1 and 2 depict the trajectory of student debt over time and its potential correlation with graduation rates, while Figure 3 provides a comparative perspective against national averages. Figure 4 highlights a concerning divergence between the trends in family income and out-of-pocket costs, indicating an escalating financial burden on families. Moreover, Figure 5 underscores the correlation between rising student debt and default rates, emphasizing the need for targeted policy interventions. The policy recommendations put forth aim to address these challenges by promoting income-indexed financial aid, cost containment, financial literacy, work-study opportunities, and default prevention counseling. Collectively, these measures aspire to foster a more equitable and sustainable higher education environment in New York, ensuring that students have access to quality education without bearing undue financial hardship.

Figure 1

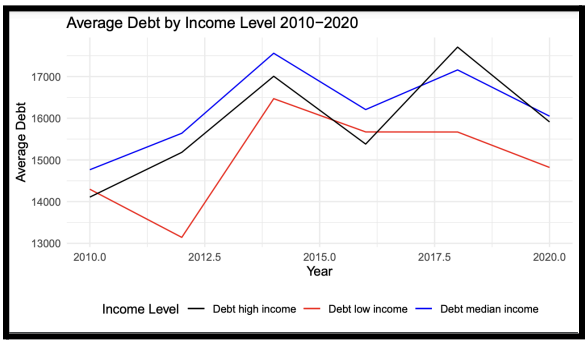


Figure 2

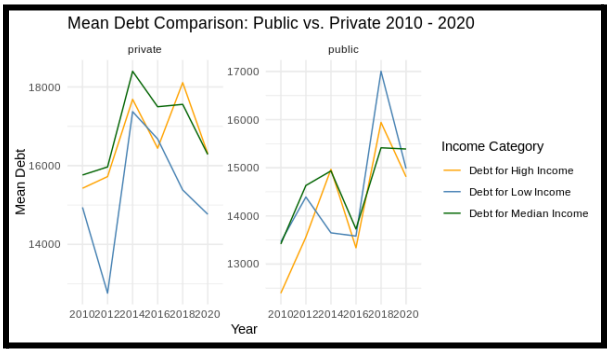


Figure 3

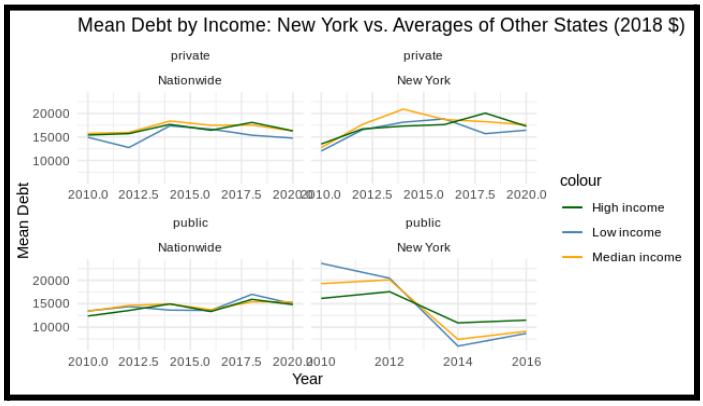


Figure 4

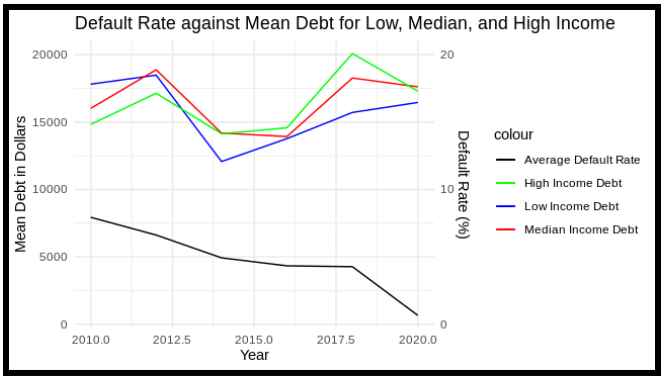


Figure 5

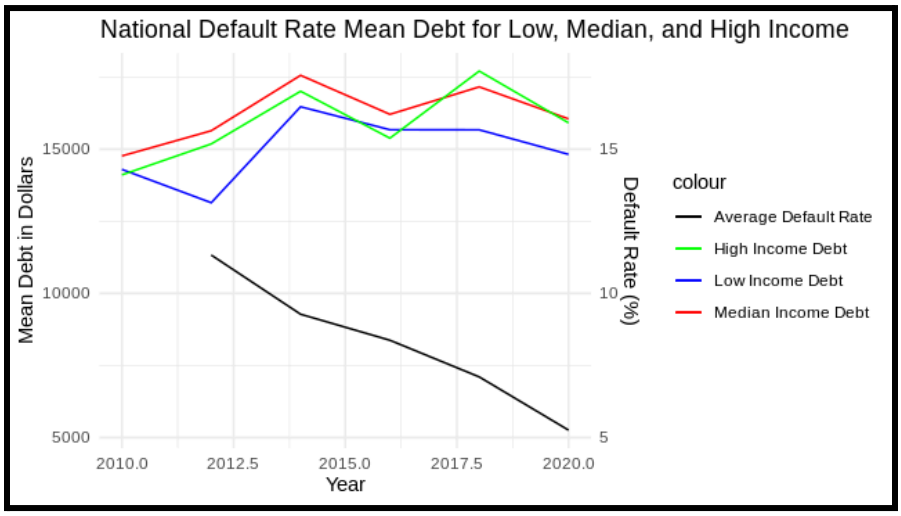


Figure 6

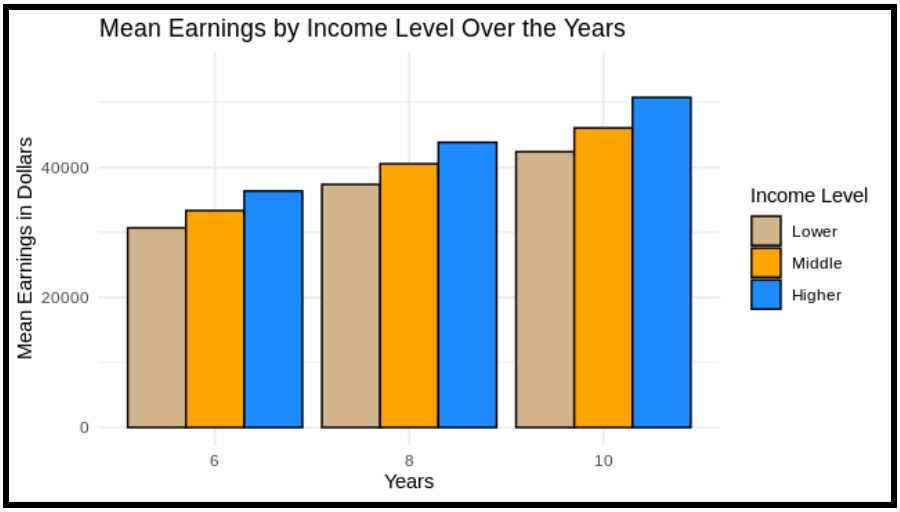


Figure 7

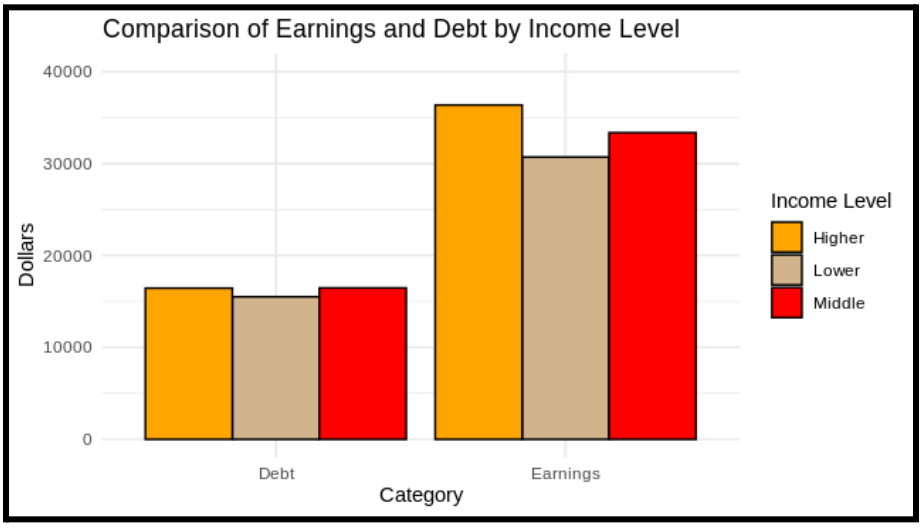
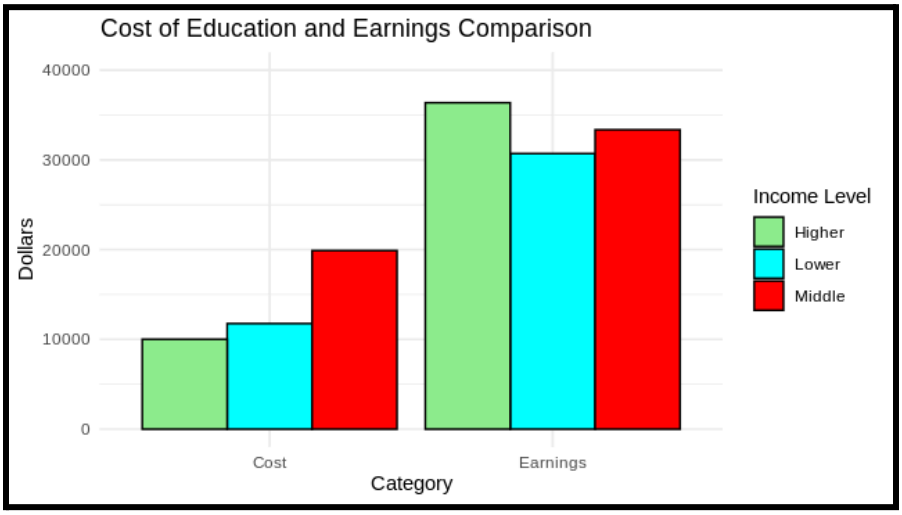


Figure 8


Cost of Education and Earnings Comparison
40000
30000
20000
10000
0
Dollars
Cost
Earnings
Category
Income Level
Higher
Lower
Middle