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Endowments, Price Discrimination, and Amenities: The Economics of Private Colleges

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Endowments, Price Discrimination, and Amenities: The Economics of Private Colleges

Abstract

Despite the growing endowments of many private colleges, student debt of graduates is still a significant problem. This paper aims to understand how endowments are being used. Larger endowments theoretically enable colleges to increase expenditure and/or lower the tuition prices paid by students. Empirical evidence of 149 private colleges suggests colleges primarily use endowments to increase expenditures per student as opposed to directing resources to lower tuition. Further this paper uses student survey data on the quality of campus amenities including facilities, dorms, and campus food to understand how the quality of campus amenities is related to tuition prices.

Keywords

Higher Education, Endowments, Amenities

1. Introduction

Despite the massive endowments of many private colleges, student debt upon graduation is still a significant problem. While the behavior of for-profit corporations can be considered using the profit-maximizing framework, understanding the actions of private colleges can be less straightforward. This paper uses economic theory regarding competition in higher education as a framework to understand the use of endowments at private colleges. John Caskey in “The Awkward Economics of Liberal Arts Colleges” analyzes the business practices of colleges by assuming they seek to maximize prestige, or the perceived quality of their graduates. Quality of graduates encompasses the intellectual ability, knowledge, creativity, leadership skills and all other characteristics possessed by graduates (Caskey 2018). Caskey assumes the quality of graduates is positively correlated to the quality of students that a college enrolls. In a competitive market, one mechanism through which a college can enhance its prestige is by increasing the demand of students to attend a college. Attracting more and higher quality applicants allows the college to be more selective and increase the quality of entrants.

One of the ways in which colleges compete is to attract students. To attract the best low-income students, colleges compete on both expenditure and price by offering large financial aid packages. Competition for high-income students tends to be primarily driven by expenditure rather than price. The greater selectivity of private colleges with larger endowments, and higher price these colleges charge high income students, suggests an emphasis on quality of education rather than price. As an undergraduate education is a once in a lifetime purchase, price inelasticity of high-income students may lead to a college decision that considers factors such as prestige, instructional expenditure (encompassing faculty quality and student faculty ratio), and non-instructional expenditure. Non-instructional factors such as modern academic buildings, renovated dorms, new athletic facilities, and high-quality campus food are campus amenities that are powerful tools for attracting students and converting campus visits into applications.

Gordon Winston, in “Subsidies, Hierarchy and Peers: The Awkward Economics of Higher Education,” described the competition of wealthy private institutions as a positional race to attract students that creates pressure on colleges to obtain more donative resources. Positional markets can have wasteful dynamics, in the case of higher education, wealthy colleges are engaged in an arms race competing on amenities (Winston 1999). Winston suggests that competition of elite colleges may lead to spending on amenities in situations where the benefits do not justify the costs, but is still considered necessary to keep up with other schools.

From a social perspective this would be wasteful if increased amenity spending is taking the place of spending increases in areas that could positively affect student outcomes. Because prestige is a relative measure, excessive amenity spending to attract students can be considered an example of a Prisoner's Dilemma. Imagine every college increases spending on amenities in order to attract more applicants. All spend excessively on amenities, but because prestige is relative, no college's prestige actually changes. Each college then generates the same demand as if they had all cooperated and spent in areas that have greater effects on student outcomes.

This paper argues that a better societal outcome would be achieved if private colleges competed less on amenities and instead used increasing endowments to raise instructional spending, student services spending, or lower tuition for all students reducing debt levels. Griffith and Rask (2016) evidenced that raising instructional spending increases average salaries of graduates and the probability of fulltime employment after controlling for selection and graduation. These effects were highest among low income students and those whose parents had lower educational attainment. Weber and Ehrenberg (2010) found that student services expenditure positively influenced graduation and persistence rates, with the effect strongest at schools with lower test scores and high proportions of Pell Grant recipients.

From 1991 to 2013 the total endowments held by private colleges and universities in the United States increased from \$103 billion to \$419 billion (Milton and Ehrenberg 2013). Over almost the same time period, median instructional spending per student has grown, but at a slower rate than non-instructional spending (Webber and Ehrenberg). In recent years, median debt of graduates has continued to increase, despite the growing endowment resources of colleges. Theoretically, larger endowments enable colleges to, in some combination, increase expenditure and decrease need for tuition revenue (Caskey). However, inelastic demand for colleges may be leading to endowments having a greater impact on expenditure than price. The one-time nature of a college decision, willingness to borrow, availability of low-interest loans, and uncertainty of education investment returns may all be factors that lead students to make college decisions prioritizing prestige and quality over price. If relative prestige is an important factor to students then colleges using endowments to increase spending rather than decrease price are acting out of their rational self-interest.

This paper looks at data on 149 not-for-profit private colleges to understand the relationships between endowments, prices to students of different income brackets, and campus amenities. The primary source of data is from the US Department of Education. Student survey data on campus amenity quality

from Niche was also used. Section two describes the data sources and methods in greater depth.

Section three analyzes the relationship between endowments and net-prices to students in different income brackets. The data evidences that colleges with larger endowments are more extreme in their use of price discrimination to students with different family incomes. Larger endowments are associated with lower prices for low-income students and higher prices for high-income students. Section four looks at the relationship between expenditure and endowments. Colleges with larger endowments have greater instructional and non-instructional spending per student. Greater spending per student may explain why high-income students enroll in private colleges in with larger endowments that charge them higher prices.

Section five introduces amenities and brings together the relationship of amenities and prices to students of different income brackets after accounting for endowments. Campus amenity ratings including campus facilities, dorm, and food ratings are positively correlated with endowments. After controlling for endowments, colleges with higher rated campus amenities are associated with even greater price discrimination than those with lower quality amenities. Colleges with above-average campus amenities cost roughly \$2,000 less per year for students with family incomes of less than \$75,000. Relative to colleges with average amenities and similar endowments, those with above-average amenities are about \$4,500 more expensive per year for high-income students.

2. The Data

The data in this paper includes only private non-profit colleges in the United States. In an effort to make comparisons between similar schools, only schools with Carnegie classifications as baccalaureate colleges with an arts and science focus and those classified as baccalaureate colleges offering diverse fields of study have been included. All institutions with graduate programs and those with under 500 total undergraduate students have been removed. Special focus four-year institutions such as engineering schools, art schools, and online colleges have also been removed. Additionally, 10 other schools were removed due to lack of data on amenity quality from Niche. The complete dataset includes 149 private colleges which vary greatly in endowments, prices, and amenity ratings. All data involving college endowments is right skewed with elite colleges having financial resources magnitudes greater than the majority of the other private colleges.

The primary source of the data presented is the U.S. Department of Education Integrated Post-Secondary Educational Survey (IPEDS). College

financial data including endowment figures are based on the 2014-2015 fiscal year. All data referring to endowments, total expenditure, instructional expenditure, and net-tuition revenue is compared across colleges on a per student basis.

One metric discussed often in this paper is net-price. Net-price refers to the average total cost of attendance including tuition and fees, books and supplies, and living expenses minus scholarship/grant aid. Average net-price by income bracket includes the net price paid only by students who receive Title IV aid (federal financial aid). Faculty salaries, which are discussed in section four, are presented as an annual figure. These numbers were reported in the IPEDS dataset as monthly salary, but have been projected to annual figures assuming 9 months of working per year.

As detailed data on college amenity spending such as spending on academic and athletic facilities, campus dorms, and campus food is not available, campus amenity quality has been used as a proxy. It is assumed that colleges which have higher quality facilities, dorms, and food spend more in these areas. In order to compare campus amenity quality across colleges, introducing student survey data was necessary. Niche (Niche.com) is the most comprehensive source available regarding the quality of amenities at a large number of schools. Additionally, Niche is completely transparent about the methodology of their amenity ratings, which is include below in Tables 2.1, 2.2 and 2.3. This paper uses Niche's overall campus ratings, campus dorm ratings, and campus food ratings. These ratings are displayed on Niche's website as letter grades ranging from D- to A+. Letter grades have been converted to a numeric scale from negative 1 (worst quality) to 10 (best). In the multiple regression analysis used in section five, campus quality ratings are grouped into brackets. Tables 2.1, 2.2, and 2.3 below explain the factors and weights in Niche's campus amenity ratings methodologies.

Table 2.1 Niche Overall Campus Rating - Methodology

Factor	Weight
Student survey responses on quality of campus facilities	50%
Niche campus dorm rating	15%
Niche campus food rating	15%
Niche local area rating, which incorporates median rent and local crime rate	15%
Niche campus safety rating which includes campus crime rate and student surveys regarding health and safety	5%

Table 2.2 Niche Campus Dorm Rating - Methodology

Factor	Weight
Student survey responses on quality of campus housing	70%
Average cost of campus housing	10%
Housing capacity as a percentage of full-time undergraduate student enrollment	10%
Student housing crime rate	10%

Table 2.3 Niche Campus Food Rating - Methodology

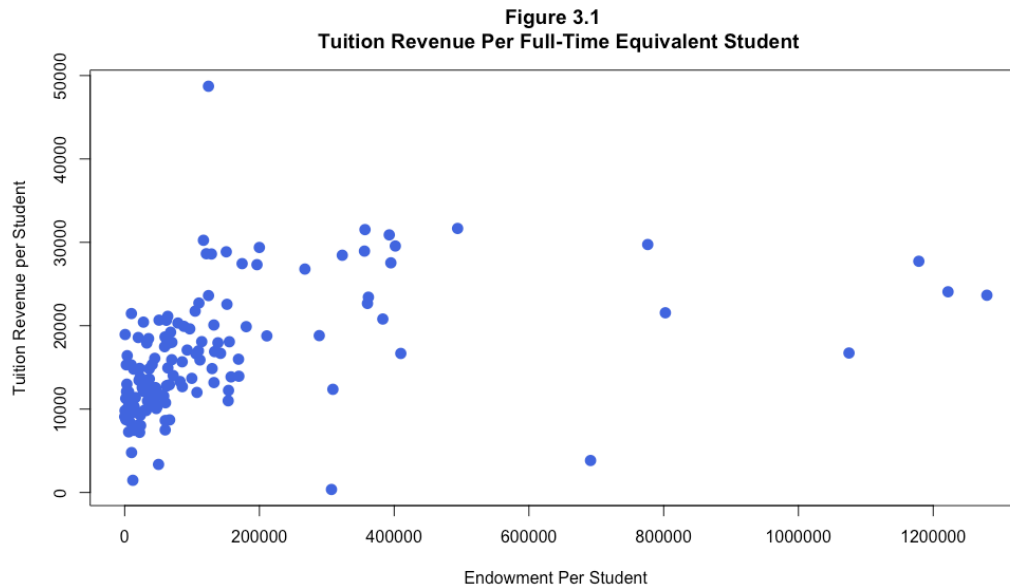
Factor	Weight
Student survey responses on quality of campus food	85%
Average meal plan cost	15%

3. Price Discrimination and Endowments

Colleges, under Caskey's framework, set tuition prices in a way that maximizes prestige. Higher prices and greater tuition revenue allow for more spending which can be used to increase prestige, however, prices too high will dissuade students from attending (Caskey). One way that colleges balance this trade-off is through price discrimination. Students from different economic backgrounds will differ greatly in their ability and willingness to pay for college. Sticker prices at colleges have been rising in recent years as a way to drive price discrimination (Winston). This is referred to as the "high-cost/high-aid" model; students with low ability to pay are charged lower net-prices than students with greater ability to pay. This model allows colleges to maximize the demand of all students, regardless of ability to pay. Price discrimination often requires high-income students paying greater than the college spends per student, while low-income students pay less than average expenditure per student. Private college endowments play an important role as an additional source of revenue allowing colleges to increase spending, which in turn attracts more of the high-income students necessary to subsidize the tuition of students with lesser ability to pay.

Endowments allow for increased spending making the college more attractive for all students, and in addition allows for greater financial aid to be given to low income students. Caskey's analysis of liberal arts colleges provides evidence that donor support has a positive relationship with spending per student and selectivity. Liberal arts colleges with greater donor resources had lower admissions rates and higher spending per student (Caskey).

Theoretically endowment earnings can be used by colleges to maintain tuition revenue levels and increase spending, or alternatively, to maintain spending and lower tuition revenue (Caskey). In combination higher spending and lower tuition prices will attract applicants allowing colleges to be more selective. Data from 149 private colleges provides evidence that endowments are associated with increased spending, but not decreased total tuition revenue. The average net-tuition revenue per full time student actually has a positive relationship with endowment. As seen in Figure 3.1 below, for colleges with endowments less than \$400,000 per student there is a positive relationship between endowment per student and net-tuition revenue per student. This effect appears to diminish at extremely wealthy colleges as raising endowments greater than \$400,000 per student does not appear to be associated with any change in net tuition revenue per student.



While larger endowments are not associated with less tuition revenue in aggregate, they are associated with lower net-prices for low income students. Colleges with larger endowments are generally more selective, have a higher sticker price, and generally use greater price discrimination than colleges with smaller endowments. Colleges with larger endowments further utilized the high-cost/high-aid model, charging higher prices to high-income students and lower prices to low-income students. In total, as Figure 3.1 suggests, net tuition revenue per student actually is increasing with endowments.

Linear regressions were used to analyze the differences in net-price paid by students in different income brackets across colleges. Table 3.2 below shows the results of regressions of net-price for students of different income brackets by endowment per students. The difference in intercepts evidences that all colleges to some extent utilize a price discrimination model based on family income. The relationships between endowment and price evidences that the use of price discrimination increased with endowment. There was a statistically significant negative relationship between net-prices and endowments for students with family incomes of less than \$75,000. For students with family incomes of greater than \$110,000, there was a statistically significant positive relationship between endowments and net-price.

Table 3.2 Linear regressions of average net-price for each income bracket by endowment per student.

	Family Income < 30K	Family Income 30-48K	Family Income 48-75K	Family Income 75-110K	Family Income > 110K
Intercept (\$)	17,062*** (<0.001)	17,852*** (<0.001)	20,053*** (<0.001)	22,851*** (<0.001)	26,381*** (<0.001)
Endowment per student (\$)	-0.01050*** (<0.001)	-0.00992*** (<0.001)	-0.00703*** (<0.001)	-0.00127 (0.489)	0.01447*** (<0.001)

Significance Codes: *p<0.1, **p<0.01, ***p<0.001

Table 3.2 evidences colleges with larger endowments utilize the high-cost/high-aid model more extremely than colleges with lower endowments. Larger endowments are associated with lower prices for low income students, with the relationship between price and endowment being most extreme for the lowest income bracket. Figures 3.3 and 3.4 below show the negative relationships between average net-price and endowment per student to low-income students at private colleges. The black line represents the linear models of the relationships for each income bracket in Table 3.2.

Figure 3.3
Net Price - Family Income Less than \$30,000

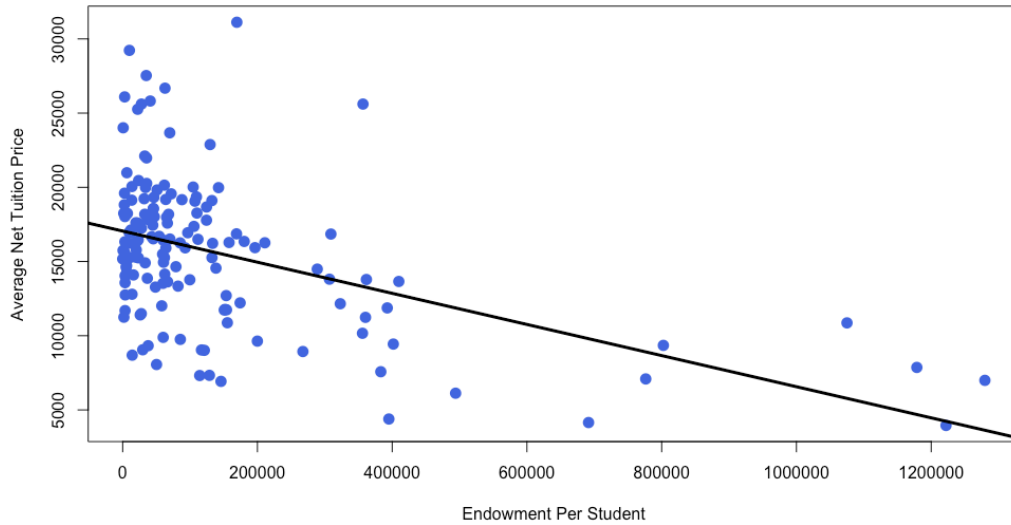
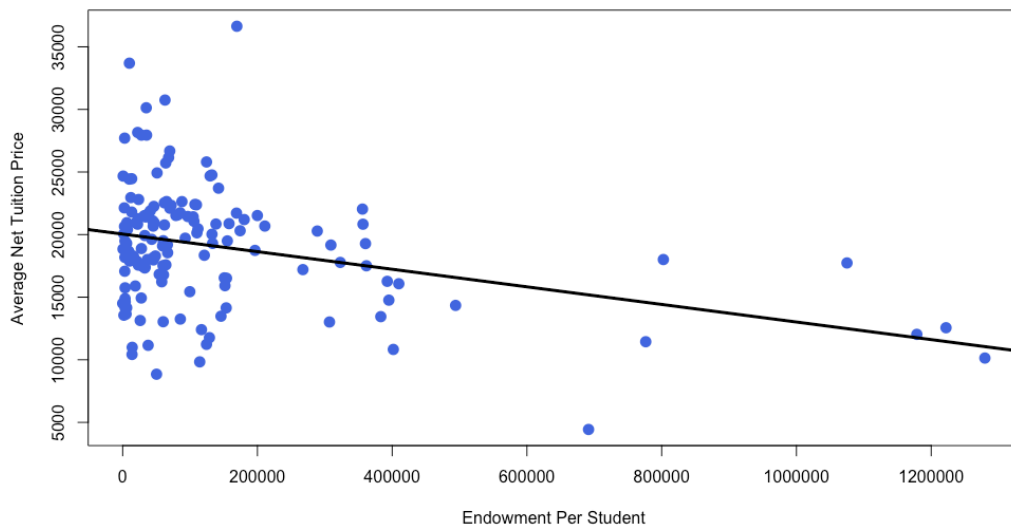
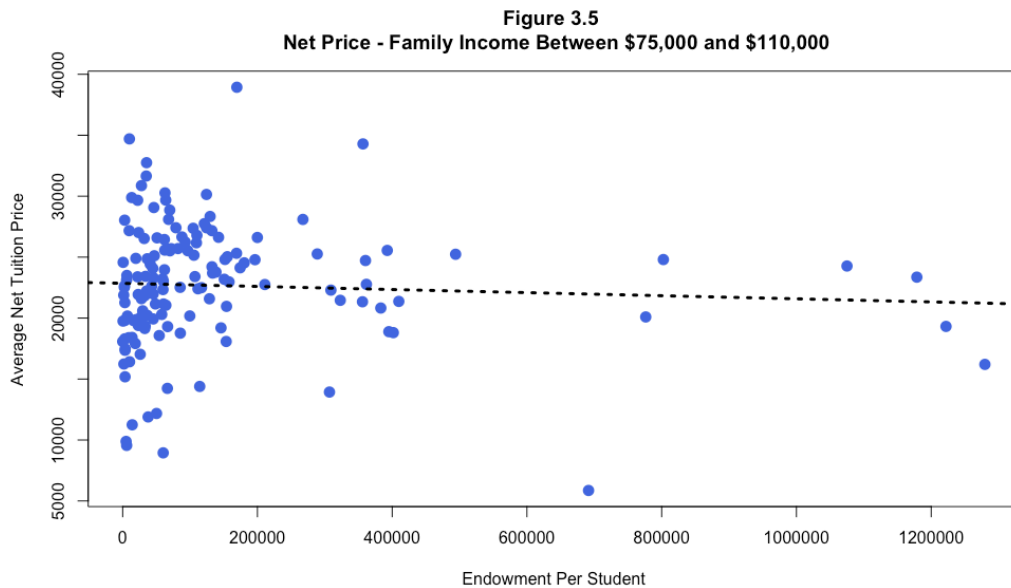


Figure 3.4
Net Price - Family Income Between \$48,000 and \$75,000

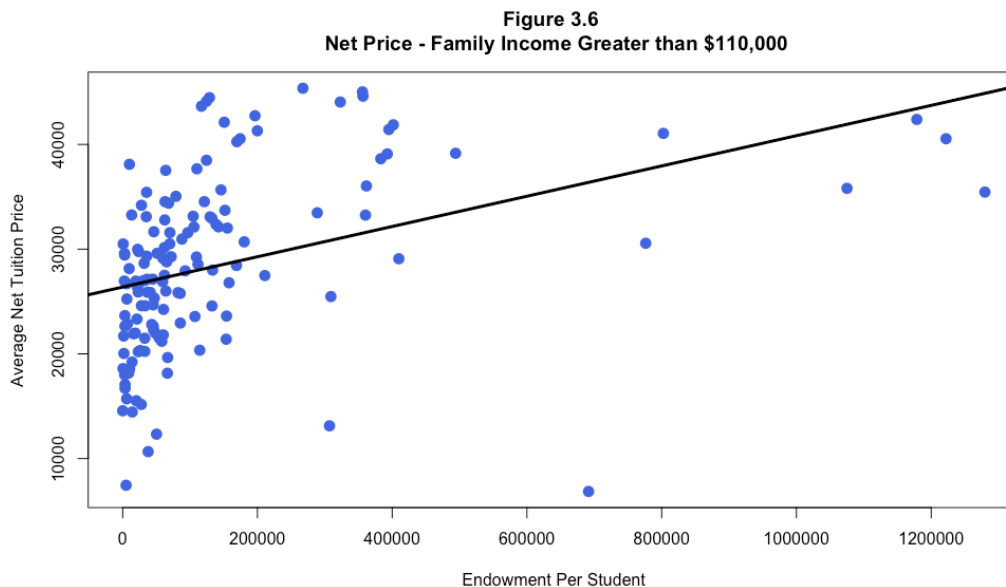


It does appear that larger college endowments are associated with lower net prices to students with family incomes of less than \$75,000. For students with family incomes of between \$75,000 and \$110,000, however, there was no statistically significant relationship between endowment and price. Figure 3.5 below shows the relationship between net-price for students in this income

bracket and endowments at private colleges. The dashed line indicates that this relationship is not statistically significant.



The price discrimination model utilized by colleges with higher endowments is associated with higher tuition prices for high-income students. There is a significant positive relationship between average net-price and endowments for students with family incomes of greater than \$110,000. It is worth reiterating that net-price measured in this paper only includes prices paid by students who receive federal financial aid. Students who do not receive financial aid are not included in this dataset, and thus the true average price paid by students with incomes greater than \$110,000 will not be reflected. However, Figure 3.6 compares prices to students in the same income range who all receive federal loans at different colleges. It is assumed that federal financial aid is distributed to students of similar family incomes regardless of institution attended. Figure 3.6 shows the positive relationship between price to high-income students and endowments. The black line represents the linear approximation of the relationship which is from table 3.2.



Collectively, the relationships of price for each income bracket and endowment suggests that colleges with larger endowments utilize greater price discrimination. Caskey has previously evidenced that colleges with larger endowments are more selective, with lower admissions rates and higher test scores of incoming students. Greater selectivity would likely imply greater demand and larger numbers of applicants. One of the reasons for greater demand from low-income students could lower prices, although this would not explain greater demand from high-income students. To understand the complete picture, it is necessary to also consider expenditure.

4. Expenditure and Endowments

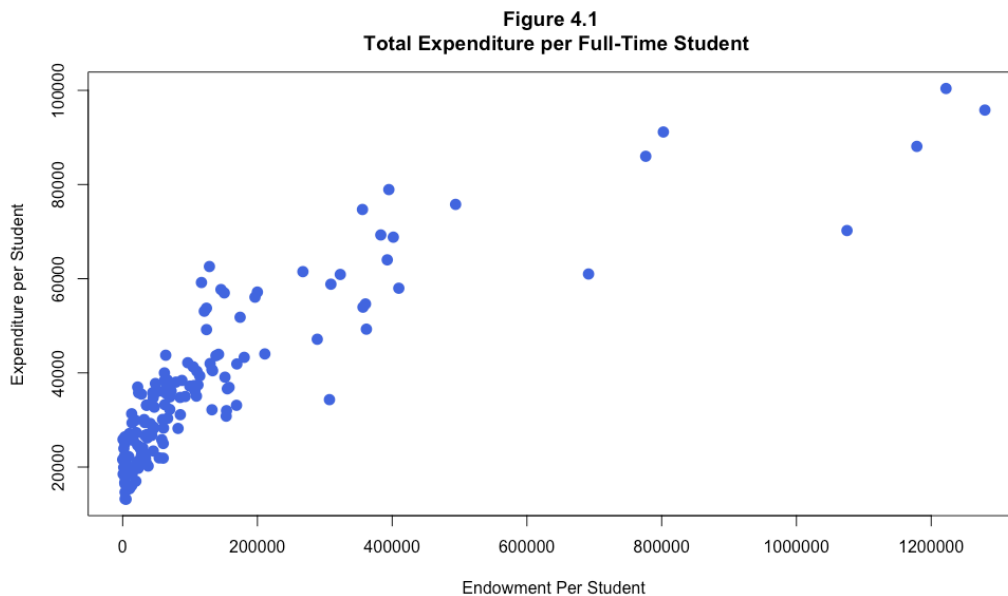
In order for colleges to make education affordable and charge low-income students less than the average expenditure per student, colleges need students to pay higher tuitions. If high-income students have inelastic demand then they may make college decisions considering many factors such as prestige, quality of education, student faculty ratio, and amenities like campus facilities, dorms, and food quality.

Returning to the previously discussed theoretical framework, if colleges with larger endowments are not associated with lower net tuition revenue, then they must be using endowments to increase spending. Previous research on liberal

arts colleges evidenced that there is a strong positive correlation between donor resources and spending per student (Caskey).

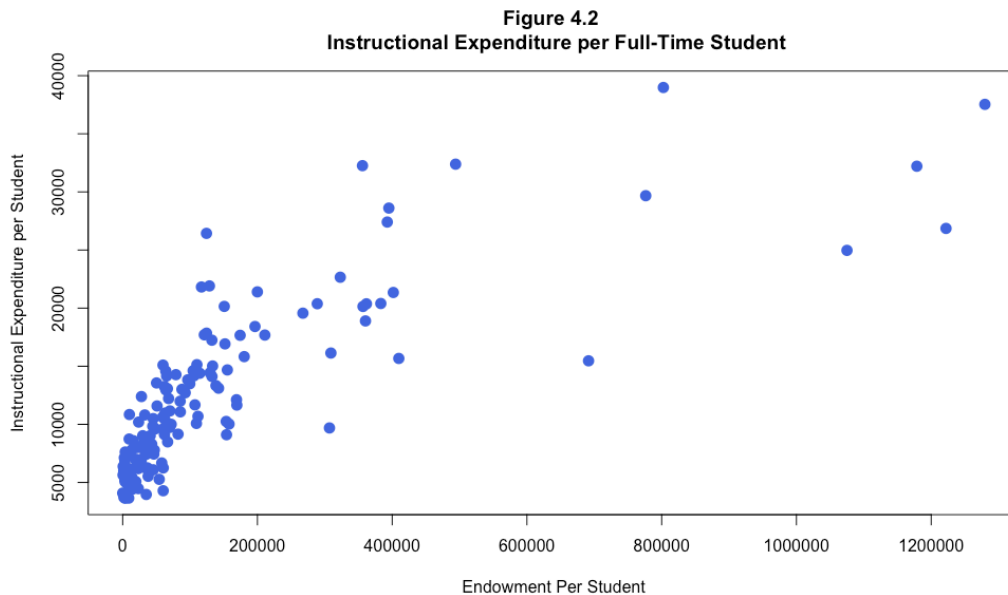
In recent decades both instructional and non-instructional spending has grown at colleges (Webber and Ehrenberg). Before considering amenity quality in section five, this section looks at the relationship between endowments and instructional spending. It is assumed here that colleges with higher faculty salaries will attract higher quality professors. With higher quality professors and more professors per student colleges are using larger endowments to increase instructional spending and offer a higher quality education. Given that high-income students pay higher tuitions at private colleges with larger endowments, the greater selectivity suggests college decisions of high-incomes students are driven by quality rather than price.

Figure 4.1 below shows the relationship between endowment per student and expenditure per student. Caskey's analysis of liberal arts colleges found a positive relationship between donor support and spending per student, this chart evidences a similar relationship in the analysis of 149 private colleges.



While non-instructional spending has grown faster than instructional spending over recent decades, instructional spending per student has also increased at colleges (Webber and Ehrenberg). Griffith & Rask provide evidence that instructional expenditures have positive student impacts on salaries and probability of employment in one's major field following college graduation. The

positive relationship between instructional spending and labor market outcomes may be another contributing factor to inelastic demand of high-income students. Figure 4.2 below evidences the positive relationship between endowment per student and instructional expenditure per student.



To understand exactly where this spending is going, instructional expenditure can be broken down further down. Colleges with larger endowments have on average higher faculty salaries and lower student faculty ratios. Below Figure 4.3 shows the positive relationship between endowments and faculty salaries, while Figure 4.4 shows that college with larger endowments on average have lower student faculty ratios.

Figure 4.3
Faculty Salaries (per 9 months)

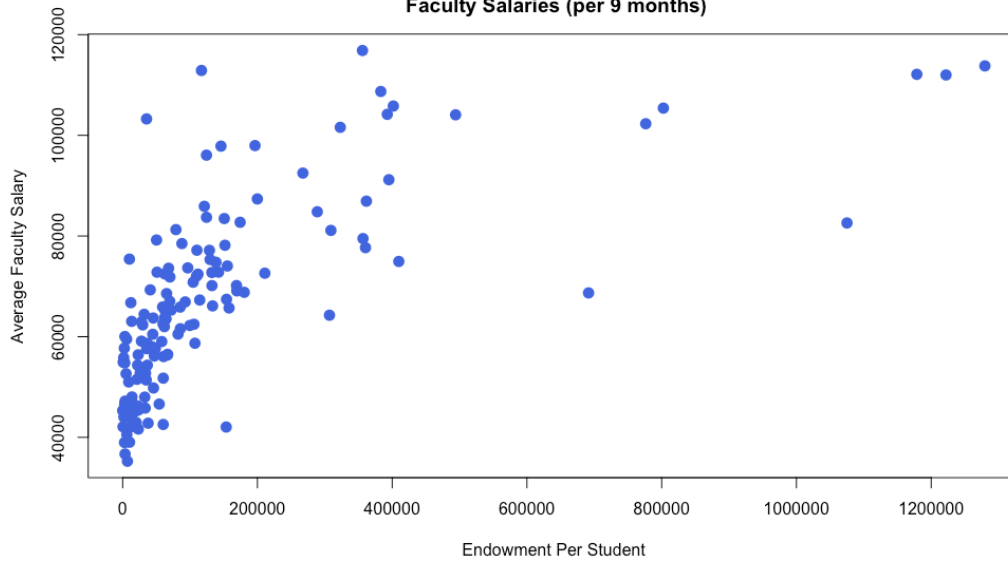
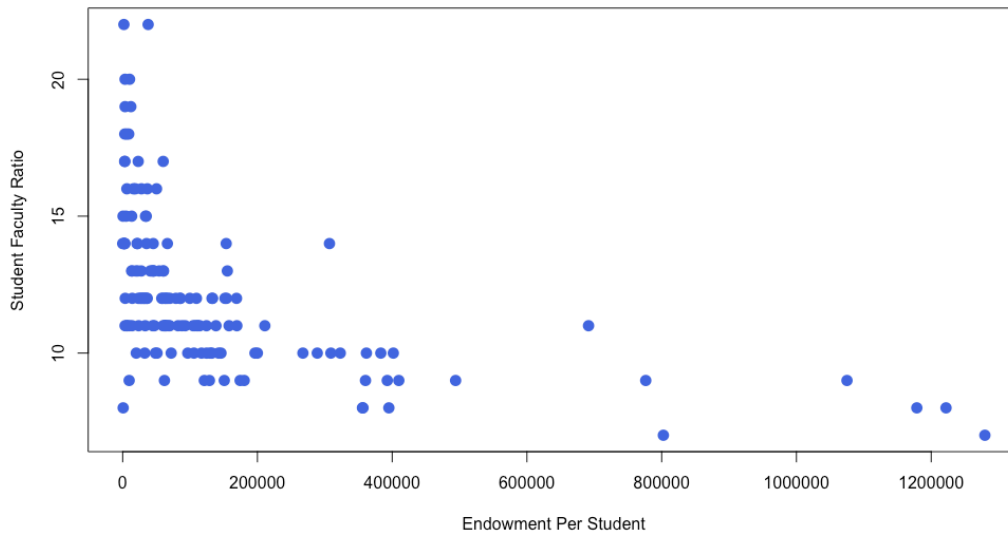


Figure 4.4
Student Faculty Ratio



While data on private colleges does indicate a positive relationship between instructional spending and endowments, there appears to be a diminishing marginal effect. This could indicate that wealthy schools are using a greater share of endowments to increasing spending in non-instructional areas.

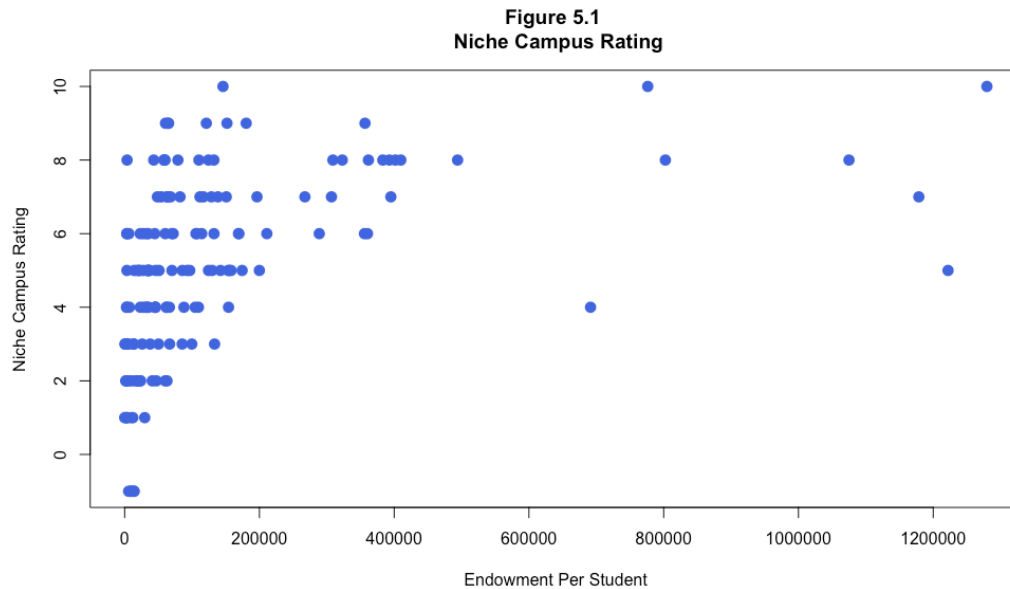
5. Amenities and Endowments

From 1990 to 2010 as college endowments grew, overall expenditure per student grew including both instructional and non-instructional expenditure (Webber and Ehrenberg). Non-instructional expenditure actually grew at a faster rate than instructional spending over that time (Webber and Ehrenberg). While this paper largely has assumed college spending decisions are made to maximize prestige and student demand, in reality donor preferences may also be a factor. Ehrenberg notes colleges endowments are not entirely unrestricted in how they can be spent (Ehrenberg 2017). Donor preferences may be one potential factor driving the non-instructional expenditure growth. Substantial donors may prefer to see a tangible change from their donation such as a new building with their name on it rather than donating to a financial aid fund (Ehrenberg). In addition to donor preferences, factors which drive the demand of top students and inelastic high-income students will influence how colleges spend. Attracting students willing to pay high tuitions is necessary for the model of subsidizing low-income students to be possible.

Especially at elite private colleges, there is a positional race in prestige rankings to attract the top students (Winston). Winston suggested the potentially wasteful dynamics of positional markets if colleges are excessively spending on amenities (Winston). Competition can be a powerful tool in shaping market behavior and colleges that do not raise larger endowments and increase spending on amenities can be at risk of being overtaken in the rankings by colleges that do. Examples of amenities considered in this paper are academic buildings, athletic facilities, dorms and campus food. High quality amenities may be beneficial for attracting students, and perhaps make the college experience more enjoyable. However, this paper assumes that the difference between average and above-average amenity quality will not causally affect student outcomes such as graduation rates and employment outcomes.

Because data regarding specific amenity spending is not available, this paper uses amenity quality as a proxy. It is assumed that colleges with higher quality amenities have spent more than colleges with lower rated amenities. Niche (Niche.com) is the most comprehensive source available regarding the quality of amenities and is used in this paper to compare colleges. Section two of this paper discusses Niche's ratings methodology more in depth. In this section the relationship between endowments and amenity ratings is looked at. Subsequently, the relationship between price to different income brackets and amenity quality is analyzed after controlling for endowments. Colleges with larger endowments have higher rated amenities including a higher overall campus rating, campus dorm rating, and campus food rating. Figure 5.1 below compares colleges by

endowments and overall campus rating. This Niche overall campus rating includes student survey data on campus facility quality, dorm quality, and food quality.



There appears to be a positive relationship between endowment per student and overall campus ratings. Similar to overall campus ratings, two specific components of this rating, campus dorm ratings and campus food ratings, are both positively related to endowments as well. Below Figures 5.2 and 5.3 show the positive relationship between endowments, dorm ratings, and campus food ratings. While both relationships are positive, there appears to be greater variation in campus food ratings among colleges with large endowments.

Figure 5.2
Campus Dorms Rating

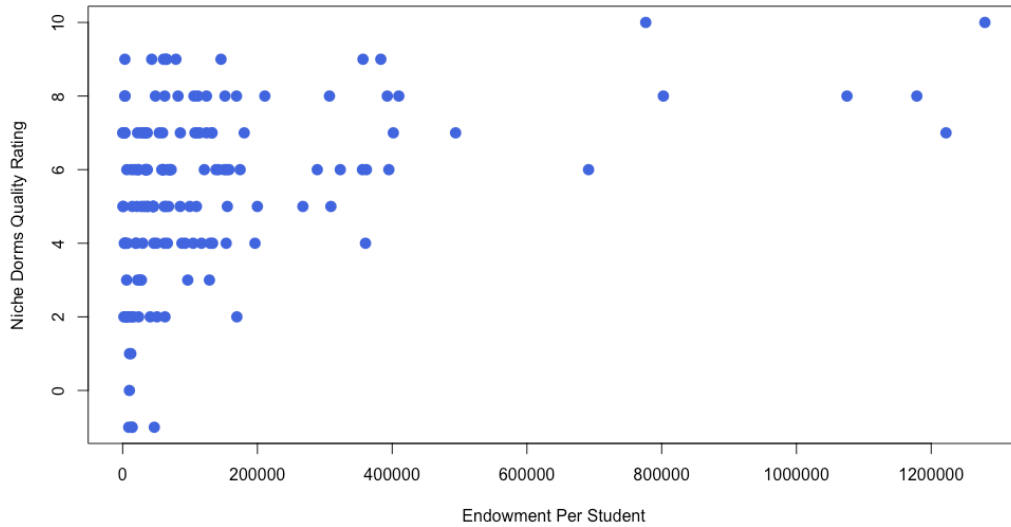
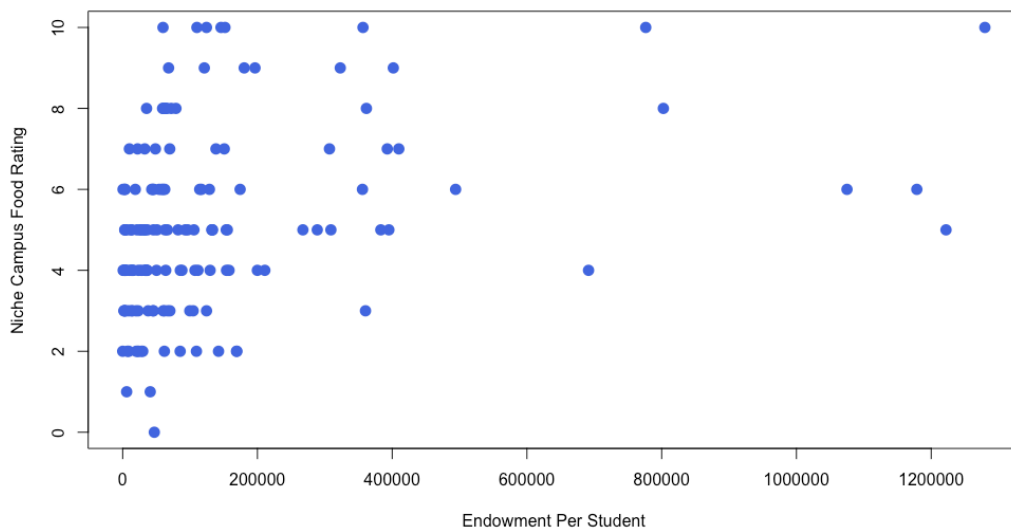


Figure 5.3
Campus Food Rating



Earlier analysis evidenced colleges with larger endowments have greater expenditure per student than colleges with smaller endowments. This includes both higher instructional expenditure and non-instructional expenditure per student. While some of this greater non-instructional expenditure surely includes

greater student support and services that are beneficial, colleges with larger endowments also have higher rated amenities. Assuming that higher rated amenities is related to greater amenity spending, this amenity spending may come at the opportunity cost of lowering tuition prices and student debt.

Controlling for endowments allows for greater comparisons across colleges. Even among schools with similar endowments per student, there is quite a bit of variation in amenity quality. The objective of this analysis was to determine among colleges with similar endowments and different rated amenities, which segments of students are paying higher tuition to pay for these amenities. Whether higher rated amenities were associated with a higher tuition price for low-income students receiving federal financial aid, middle and high-income students receiving federal aid, full-pay students, or some combination of these groups. Prior to running a multiple regression on net-price by endowment and amenity quality, the variable of Niche's campus rating was bucketed in three groups. Figure 5.4 below shows the numerical range of Niche's campus ratings and which ratings are categorized as below-average, average, and above-average amenities.

Table 5.4 Converting Niche Campus Ratings to Categorical Variable

Niche Campus Rating Range	Campus Rating as Categorical Variable	Number of Colleges in Category
7 – 10 (Between B+ and A+)	Above Average	45
4 – 6 (Between C+ and B)	Average	66
Negative 1 – 3 (Between D- and C)	Below Average	38

Multiple regression analysis was used to determine the relationship between net-price for each income group and amenity quality after accounting for endowments. In section three it was shown that colleges with larger endowments used greater price discrimination than colleges with smaller endowments. There were statistically significant negative relationships between endowment and prices to low-income students. Additionally, there was a statistically significant positive relationship between endowments and prices to students who have family incomes of greater than \$110,000. After introducing amenity quality as a variable

in the regression, these relationships between endowment and price all remained statistically significant with coefficients of similar magnitudes.

The regression results, as seen below in Table 5.5 are that colleges with higher quality amenities seem to be disproportionately paying for them with higher tuition prices for students with family incomes greater than \$75,000 per year. This includes students receiving federal financial aid and presumable full-pay students as well.

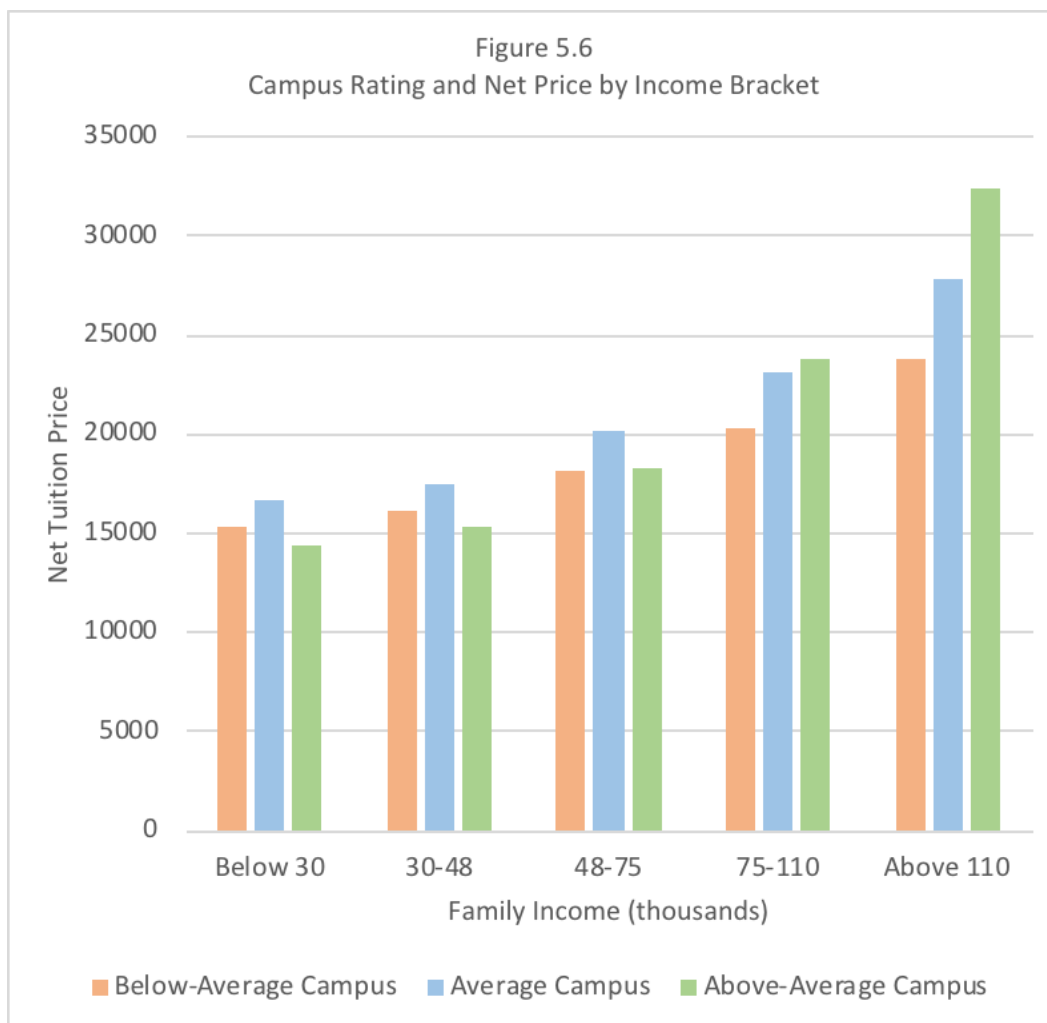
For low income students with less than \$48,000 in annual family income, colleges with above-average campus amenities are actually more affordable. For students that received federal financial aid with family incomes between \$75,000 and \$110,000, colleges with below-average amenities cost \$2,934 less per year than colleges with average quality amenities. These amenities were even more disproportionately paid for by students with family incomes greater than \$110,000. For these high-income students, colleges with below-average campus amenities were \$3,966 less expensive than colleges with average campus amenities. For these same students, colleges with above-average campus amenities were \$4,599 more expensive than colleges with similar endowments and average amenities. Table 5.5 below shows the results of the regressions for net-price to each income bracket based on endowment and amenity quality.

Table 5.5 Multiple Regression of Net Price for each Income Bracket by Endowment per Student and Niche Campus Rating (categorical)

	Family Income < 30K	Family Income 30-48K	Family Income 48-75K	Family Income 75-110K	Family Income > 110K
(Intercept) (\$)	17,967*** (<0.001)	18,728*** (<0.001)	21,091*** (<0.001)	23,632*** (<0.001)	26,580*** (<0.001)
Endowment per student (\$)	-0.00945*** (<0.001)	-0.00895*** (<0.001)	-0.00658*** (<0.001)	-0.00327 (0.104)	0.00890** (0.002)
Above Average Campus	-2,278* (0.012)	-2,174* (0.018)	-1,956* (0.035)	604 (0.550)	4,599** (0.002)
Below Average Campus	-1,411 (0.121)	-1,398 (0.133)	-2,023* (0.033)	-2,934** (0.006)	-3,966* (0.013)

Significance Codes: *p<0.1, **p<0.01, ***p<0.001

The data evidences that colleges with higher quality amenities utilize price discrimination even more than colleges with average amenities, even after controlling for endowments. Higher quality amenities are associated with higher prices to students with family incomes of greater than \$75,000. While this data only includes students receiving federal financial aid, it might be reasonable to assume that high income students not receiving federal aid and full-pay students are also paying higher tuition for high quality amenities. Figure 5.6 below is a chart of the predicted net-prices to students of different income brackets at colleges with different quality amenities. To emphasize the relationship between campus amenity quality and price, this chart sets endowment equal to \$136,861. This is the average endowment figure for the 149 private colleges, although because the endowment distribution is right skewed it is near the 75th percentile of colleges.



Average endowment per student: \$136,861 (approx. 75th percentile)

Figure 5.6 illustrates the differences in prices to income brackets between colleges with different amenity qualities. Colleges with above-average amenities utilize price discrimination to a greater degree than colleges with average amenities. Amenities can be thought of as used for getting high-income students to pay even higher tuition prices. The greater tuition revenue from high income students allows for even greater subsidization of low-income students. While from a social perspective excessive amenity spending may seem wasteful, colleges raising endowments to invest in amenities are only acting in order to maximize prestige and attract high-income students. High quality amenities are one way that wealthy private colleges are able to generate excess demand.

In conclusion, price discrimination is a tool used by colleges to increase student demand regardless of ability to pay. Larger endowments and spending are used to attract high-income students willing to pay the high tuitions necessary to subsidize low-income students under this model. In order to attract high income students with inelastic demand, colleges are competing on spending including academic and amenity spending. Additionally, colleges are competing by investing to improve the quality of campus amenities. The negative consequence of this amenity's arms race is that endowments, despite have risen substantially in recent years, have not solved the problem of large student debts.

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