DO FACTORS ASSOCIATED WITH THE INCREASES IN HIGHER EDUCATION COSTS AFFECT AVERAGE NET PRICE AT FOUR-YEAR PRIVATE NOT-FOR-PROFIT INSTITUTIONS?

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There are factors, such as instructional inefficiencies and administrative expenses, that are associated with the increase in higher education costs. Do these factors have a significant relationship with average net price at 4-year private not-for-profit institutions? The findings of this study note that there are significant relationships between average net price and these factors.

Introduction

Although there is a cost associated with obtaining a bachelor's degree, and even though that cost has increased over time (trends.collegeboard.org, n.d.), there are many benefits. One example is a person's earning power after obtaining a bachelor's degree. The median earnings of person working full-time who holds a bachelor's degree was $56,550 in 2011, whereas a high school graduate made $35,300 (Baum, Ma, & Payea, 2013). As a result of these increased earnings, college-educated adults have higher chances of moving up the socioeconomic ladder (Baum et al., 2013) and paying more than six times the amount in taxes than those who do not receive a college degree (Trostel, 2010). Baum et al. (2013) found that college-educated adults are more likely to receive health insurance and pension benefits from their employers. In addition, they lead healthier lifestyles, thereby reducing health care costs. These data illustrate the impact of a bachelor's degree on an

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individual and on society as a whole. Even so, Gallup polls have shown that students and their families are concerned about whether or not they can afford to pay for college (pdkpoll2015.pdkint.org, 2015).

In light of rising out-of-pocket expenses for higher education to students and their families, two factors have been examined in the literature and have been blamed for this increase: lack of efficiency on the instructional side of higher education (Archibald & Feldman, 2008a; Bowen, 2012; Eckles, 2010; Immerwahr, Johnson, & Gasbarra, 2009; Martin & Hill, 2013, 2012) and increases in administrative spending (Bain & Company, 2009; Greene, Kisida, & Mills, 2010; Hedrick, Wassell, & Henson, 2009; Vanderbilt University, 2015; Vedder, 2007).

In an effort to identify what it causing the increase in average net price at 4-year private not-for-profit institutions, this study investigated whether there was a relationship between average net price and instructional and administrative expenses. Instructional and administrative expenses need to be "covered" by revenue in order to provide a balanced budget. If they are not "covered," these factors have the potential to increase the out-of-pocket expenses to a student and his or her family: that is, net price.

Research Questions

At 4-year private not-for-profit institutions, do instructional expenses have a relationship with average net price while controlling for average endowment assets per student full-time equivalent (FTE), selectivity, institutional grant aid, and the percentage and number of undergraduate students?

At 4-year private not-for-profit institutions, do administrative expenses have a relationship with average net price while controlling for average endowment assets per student FTE, selectivity, institutional grant aid, and the percentage and number of undergraduate students?

Data and Instrumentation

A panel regression analysis was performed to determine the relationship between average net price and the cost drivers associated with increases in higher education costs. The amounts were adjusted for inflation using the Bureau of Labor Statistics' Consumer Price Index, and the regression was calculated in 2014 dollars.

Similar to the budget process in organizations, which takes into account the review of past expenses to create the next year's budget (Larkin & DiTommaso, 2015), tuition is set with the review of the previous year's financial information. Therefore, the average net price variables were lagged by 1 year. For example, 2007–2008 expense information was used to set the 2008–2009 academic year's net price so the panel data regression analysis was calculated for the relationship between the 2007–2008 expenses as it relates to the 2008–2009 average net price. The average net price data for the purpose of this study included the academic years 2009 through 2014, whereas the remaining variables included the data for academic years 2008 through 2013.

The data for this study were obtained from the Integrated Postsecondary Education Data System (IPEDS), which is considered the primary source of information for American colleges and universities, and it is administered by the National Center for Education Statistics (NCES), which is the main federal entity for collecting and analyzing the data (nces.ed.gov, n.d.a). This organization fulfills the congressional mandate to collect and analyze the statistics on American higher education institutions (nces.ed.gov, n.d.a).

Population and Sampling Frame

For the purpose of this study, the population included those institutions on IPEDS that were 4-year private not-for-profit institutions (total downloaded = 1,695). From those institutions, the schools with a Carnegie Classification of 15 through 22, which included research universities, doctoral/research universities, master's colleges and universities, and baccalaureate colleges for all 6 years, were selected (remaining = 914). The schools that were removed had Carnegie Classifications (CC) of 0 (not classified) through 14 (associate's private for-profit 4-year primarily associate's) and 23 (baccalaureate/associate's colleges) through 33 (tribal colleges). Theological seminaries (CC24), medical schools (CC25), and schools of engineering (CC27) were removed. All schools that had multiple campuses that did not have data for each campus were removed

to ensure the data were consistent with those institutions that were included in this study (remaining = 873) (Jaquette & Parra, 2014). In addition, graduate schools were removed (remaining = 866). This resulted in 866 institutions remaining.

VARIABLES

The literature has discussed drivers that affect higher education costs. Both of the cost drivers had associated variables, which are the independent variables in this study. In addition to these independent variables, there was the dependent variable: average net price. There are certain control variables, which, based on the literature, may have affected these outcomes. Each of these variables is described below.

Instructional Expenses

Instructional inefficiencies in higher education refer to the instructional aspect of higher education. As a result of these inefficiencies, there is a possibility that net price to students and their families will increase. Archibald and Feldman (2008a) noted that higher education is similar to a service company that utilizes a highly educated labor force that receives substantial benefits. As a result, it is considered difficult to become efficient (Baumol, 1996; Bowen, 2012), and this is why instructional inefficiencies are to blame for the increase in higher education costs. Generally, the way to contain expenses would be to focus on improved productivity and efficiency (Archibald & Feldman, 2008a; Immerwahr et al., 2009). However, when addressing efficiency in higher education, concerns about quality in teaching and learning arise (Archibald & Feldman, 2008a; Immerwahr et al., 2009). In addition, in other industries, technology is usually associated with streamlining processes and improving efficiency; this is not the case in higher education, where technology is used enhance instruction, not to improve its efficiency (Bowen, 2012).

Two theorists who have tried to explain the difficulties of improving efficiencies in the service industry were Baumol (1996) and Bowen (2012). They explore the topic of cost disease, that is, when an industry's costs increase at a rate greater than that of inflation. Baumol notes that it is difficult to become more productive in higher education. For example, a professor who teaches Russian will not be able to teach Spanish. Another of Baumol's concerns was that if a professor were to become more efficient by having more students or teaching less, the students would be "shortchanged." It is likely Baumol's cost disease theory has driven up the cost per FTE of higher education (Archibald & Feldman, 2008a; Martin & Hill, 2013, 2012).

The issue of efficiency for full-time faculty is considered an area to be improved upon. However, it has been noted that analyzing faculty productivity is complex (Porter & Umbach, 2001) because it is difficult to measure the inputs and outputs of faculty (Bowen, 2012). Items that would be considered important to include when determining efficiency, such as student time and quality, might be difficult to capture (Bowen, 2012). Inasmuch as a professor has teaching responsibilities, a professor also has other duties that relate to research and service. Some of the research tasks include grant writing, scholarly research, and presentations at national conferences. Some service-related duties include mentoring and advising students and writing letters of recommendation. But is their time being used efficiently?

Past studies have not been able to determine if instructors are utilizing their time efficiently (Meyer, 1998). However, there is literature that incorporates faculty inefficiencies as part of the analysis when addressing the efficiencies of colleges and departments. One such study was performed by Eckles (2010) and determined the efficiency of 93 private not-for-profit liberal arts colleges in the United States. Eckles analyzed the practices of highly efficient liberal arts colleges as compared to the practices of relatively inefficient colleges. Data Envelopment Analysis, which is considered the best approach to use (Archibald & Feldman, 2008b), measures efficiencies by analyzing inputs and outputs to create a model of efficiencies to which the inefficiencies are compared (Coelli, Prasada Rao, O'Donnell, & Battese, 2005; Ji & Lee, 2010; Wei, 2001). For the Eckles (2010) study, there were four input variables: two that related to student characteristics (SAT scores and percentage of students that were in the top 10% of their high school class) and two that related to institutional characteristics (percentage of full-time faculty and cost per undergraduate student). Those that ranked as the top 18 institutions were

considered efficient. The remaining were considered relatively inefficient. The output variable was the six-year undergraduate rate. The findings noted that the inefficient college spent on average $7,357.22 more per undergraduate than necessary. When looking to improve a school's efficiency, one might look at full-time faculty percentage. For example, St. Michael's College and Lawrence College had comparable graduation rates, 80% and 79%, respectively (Eckles, 2010). However, Lawrence College spent $20,000 more per student FTE (Eckles, 2010). The study suggested that full-time faculty costs may be an area in which to improve efficiency, with St. Michael's full-time faculty at 89% and Lawrence's at 93% (Eckles, 2010). This study identified expenses related to inefficiencies with a possible area in which efficiencies can be employed: possible decreases in full-time faculty expense. The fact that Lawrence spent $20,000 more per student identifies how much Lawrence can improve by getting down to St. Michael's cost per FTE, which would possibly help to decrease the net price without affecting graduation rates (Eckles, 2010).

The essence of improving efficiencies is to make sure that costs can be contained. If costs cannot be contained, revenue must be increased to cover the expenses in order for the business to continue to operate. These revenues may come in the form of dollars obtained from students and their families via net price. Being aware that there is an industry-wide need to contain costs, Immerwahr et al. (2009) interviewed presidents, chief financial officers, and focus groups that included faculty. What they determined during the interviews with the chief financial officers was that schools would be interested in increasing the class size and teaching loads in an effort to become more efficient, thereby saving dollars. However, trying to become efficient cannot be done without caution and pushback, especially from the faculty's standpoint, since they are concerned about declining quality as a result of possible changes (Immerwahr et al., 2009).

In this study, instruction expenses per student FTE, which includes both undergraduates and graduates, was utilized to measure instructional inefficiencies. Instruction expenses include general academic instruction, occupational and vocational instruction, community education, preparatory and adult basic education, and regular, special, and extension sessions.

Administrative Expenses

Administrative expenses are considered expenses that are not directly related to instruction and include costs related to academic support services, student services, and institutional support expenses. The definitions of these different types of expenses relate to the area in which they serve. Academic support services include those expenses that support the primary mission of the institution, including its instruction and research. Student service expenses are those expenses related to admissions, registration, and activities that contribute to the student's emotional and physical well-being, such as cultural events, student organizations, and intramural sports programs (nces.ed.gov, n.d.b). Institutional support services include those related to the day-to-day operations of the institution, such as legal and fiscal operations. These administrative expenses, as a whole, are factors that have come under investigation as a result of the increase in higher education costs. It is also to be noted that there are various types of administrative expenses, each of which can impact expenses to the point of driving up net price.

Hazel (2012) conducted a qualitative study that was designed to determine the role of administrative personnel in the context of the changing research university environment. Whereas some schools are trying to address increasing administrative expenses, Hazel (2012) acknowledged the increases in her dissertation. Her analysis concluded that administrative positions are considered the "operational backbone" of the university, necessary to respond to the new technologies, government mandates, and accountability warranted at a university. Administrative personnel support the major research institution by creating and maintaining financial systems, classrooms, and laboratory facilities (Hazel, 2012). Hazel noted that administration is important, but to what degree? How large should administration be and how much money should be spent on it without affecting net price and causing more outlays than necessary for students and their families?

Vedder (2007) attributed the increases to higher education institutions' focus on turning away from

undergraduate instruction to spending more money on things such as research and administration, thereby increasing administrative costs. Another cause for the increase that is noted in the literature is that administrative expenses are needed due to new demands in the industry, such as trying to keep enrollment steady (Heller, 2013a, 2013b). Whatever the cause, administrative expenses became more scrutinized when the economic recession of 2008 hit (Kiley, 2011). After the recession, investments at private institutions started to recover; however, administrative expenses are still being investigated as a possible area for cost savings.

In an effort to address the idea of administrative bloat, Hedrick et al. (2009) analyzed the growth of instructional and administrative expenses in higher education using data from the 1980s and 1990s to determine if there was a great disparity between the two. They determined that although there was a greater increase in administrative expenses per student in the 1990s, it was not of the epidemic proportions noted in the media (Hedrick et al., 2009). Greene et al. (2010) obtained and compared spending information per student FTE from IPEDS for the years 1993 and 2007 for 198 leading research institutions (Greene et al., 2010). The findings illustrated that for both years, the administrative expenses per student FTE were greater than the instructional expense per student FTE (Greene et al., 2010). The disparity grew from 1993 to 2007 (Greene et al., 2010). The analysis noted that there was a reduction in clerical expense per student FTE from 1993 to 2007; however, it was not enough to offset the increase in administrative expense per student FTE (Greene et al., 2010). This study ended right before the recession of 2008 began. It identified that there was a greater disparity between administrative expenses per student FTE and instructional expenses per FTE, which supports Vedder's (2007) notion that schools have turned away from instruction and have focused more on research and administrative functions. But is this the cause for the overall increase in net price at 4-year private not-for-profit institutions?

Another area, student services expense, has contributed to the increase in administrative expenses. Between 2002 and 2012, wages for student services per student FTE were the fastest growing salary expense (Desrochers & Kirshstein, 2014). As noted earlier, student services include activities that provide for the students' emotional well-being (nces.ed.gov, n.d.b). One example of providing services in order to support students' well-being are those services offered to support diversity. Diversity includes many things. It accounts for students with disabilities, veteran students, adult students, people in recovery, and students of different races and ethnic backgrounds.

Schools support the different types of students that attend. Therefore, student service departments arise, and/or grow, which results in increased administrative staffing and expenditures (Belkin & Thurm, 2012). According to Berrett's (2011) interview with Carl Moses, Provost and Dean of Faculty and Professor of Earth and Environmental Sciences at Susquehanna University, as the students' needs become more diverse, a dean of students, a conduct office, a housing coordinator, and a chaplain are no longer sufficient. There are more services necessary and regulatory burdens are increasing; as such, the school must respond (Mirzadeh, 2015).

Average Net Price

Average net price for full-time, first-time degree/certificate-seeking undergraduates is calculated by subtracting the average amount of federal, state, local government, institutional grant, and scholarship aid from the total cost of attendance (nces.ed.gov, n.d.a). In addition to studying the overall average net price, this study included the average net price per income strata, which is the average net price for students who received Title IV federal student aid, such as federal grants and federal loans. There are five different income levels: less than $30,001 (level 1), $30,001 to $48,000 (level 2), $48,001 to $75,000 (level 3), $75,001 to $110,000 (level 4), and over $110,000 (level 5).

Control Variables

Five items were controlled for in this model: institutional grant aid, average endowment assets per student FTE, selectivity, and the percentage and number of undergraduate students. Changes in other revenue sources were controlled for using institutional grant aid and average endowment assets per student

FTE. Endowment assets per student FTE were utilized to control for changes in revenues from private gifts, grants, and contracts per FTE and revenues from investment return per FTE. To validate the substitution, a correlation between endowment assets per student FTE and revenues from investment return per FTE was run. A correlation between endowment assets per student FTE and revenues from private gifts, grants, and contracts was also run. For revenues from private gifts, grants, and contracts/contributions from affiliated entities per FTE, there was a strong positive relationship with endowment assets per FTE for 5 of the 6 years of data. The correlation coefficient *r* ranged from .63 and .67 for 2013 through 2009. For fiscal year 2008, there was a moderate positive relationship, with a correlation coefficient *r* of .49. For 3 years of data, revenues from investment return per FTE had an almost perfect positive relationship with endowment assets per student FTE, where the correlation coefficient *r* equaled .98, .97 and .97 for years 2013, 2011, and 2010. For 2012 and 2008, there was a positive moderate correlation between the two variables, where the correlation coefficient *r* equaled .57 and .44, respectively. For fiscal year 2009, there was a strong negative relationship between the two, with a correlation coefficient of –.83 that was driven by the recession, where there was a major economic downturn in the United States. These results are indicative of the fact that since the variables are moderately to almost perfectly correlated, the endowment assets per student FTE was a good substitution for the private gifts and grants income and the investment income per student FTE.

In addition to controlling for average endowment assets per student FTE, this study controlled for selectivity because Lucca, Nadauld, & Shen (2015) noted variation among their results based on selectivity. This was done by utilizing the percentage of students admitted to the institution for each year. Since FTEs included both undergraduate and graduate students, the percentage of students that are undergraduates was controlled for. In addition, the total number of undergraduate FTEs to address the issue of economies of scale that was identified in the literature (Desrochers & Kirshstein, 2014; Vanderbilt, 2015) were controlled for.

Research Design

The subjects of this study were 4-year private not-for-profit institutions from the academic years 2008–2009 through 2013–2014 and their average net price. The associated data, which were average net price and the average net price per income level, were downloaded for the academic years 2008–2009 through 2013–2014. As noted earlier, there was a 1-year lag in data for the independent variables, so the following variables were obtained for the academic years 2007–2008 through 2012–2013: academic support expenses per FTE, student service expenses per FTE, institutional support expenses per FTE, instruction expenses per FTE, percentage of students admitted, undergraduate enrollment, total student enrollment (which was used to calculate undergraduate percentage of students), percentage of full-time, first-time degree/certificate-seeking undergraduate students who received Pell grants, average endowment assets per FTE, and average institutional grant aid per FTE. The percent of undergraduates was calculated by dividing the number of undergraduates enrolled by the total number of students enrolled.

After the data were downloaded and compiled, they were reviewed for completeness utilizing the missing value analysis available in IBM SPSS version 23. The missing data analysis was completed, which resulted in the lowest number of missing cases, which equaled 1 for academic support service expenses, and the two highest were average net price for the income level five (family income greater than $110,000) variable, with 6.4% of the data missing and the percentage of students admitted variable missing in 6.8% of the cases. The listwise case diagnostic noted there were 4,571 out of a possible 5,192 cases available. For longitudinal data, often the last value is used to replace the missing value (Waal, Pannekoek, & Scholtus, 2011). The linear interpolation feature in SPSS, which replaces missing values using the last valid value before the missing value and the first valid value after the missing values are used for the interpolation (ibm.com, n.d.) was used. If the first or last case in the series has a missing value, the missing value is left blank (ibm.com, n.d.). After the linear interpolation was complete, $N = 5192$.

The data are considered to have institution (within) and fixed effects (between years) variations. A panel regression analysis was performed solving for the equation:

$$ANP_{it} = \beta_o + \text{Instructional Inefficiencies}_{it}\beta_{1,t-1} + \text{Administrative Expenses}_{it}\beta_{AE,\,t-1} + \mu_{it\,it} + \varepsilon_{it}$$

where

ANP_{it} equals average net price per income level for i (institution) for t (academic year);

β_o equals beta;

Instructional Inefficiencies$_{it}\beta_1$ equals instruction expense per FTE for i (institution) for $t - 1$ (academic year – 1) times $\beta_{\text{Inefficiencies}}$;

Administrative Expenses$_{it}\beta_{AE}$ equals academic support, student services, and institutional support expenses per FTE for i (institution) for $t - 1$ (academic year – 1) times $\beta_{\text{Administrative Expenses}}$;

μ_{it} equals the between entities error for i (institution) for t (academic year); and

ε_{it} equals the within entities error for i (institution) for t (academic year).

Limitations of the Study

This study tried to identify whether there was a significant relationship between the average net price of 4-year private not-for-profit private institutions and the cost drivers of higher education noted in the literature. Average net price was calculated in a different fashion than average net price by income level. The former includes undergraduates who received grant aid or scholarship aid from federal, state, or local government or the institution, whereas average net price per income level includes only those undergraduates that received Title IV federal student aid. As a result, the interpretation of the relationships between the dependent variables (average net price and average net price per income level) and the independent variables are not identical.

Another limitation of the study was that average net price was calculated per undergraduate FTE, whereas the cost drivers, such as instructional expense, were calculated per student FTE, which included undergraduates and graduates. The limitation was addressed by controlling for the percentage of undergraduates per institution.

That being said, the source of the data was IPEDS and, as a result, was limited to the data available on IPEDS for 4-year private not-for-profit institutions and was based on using IPEDS survey respondents and only on the information they supplied. This was a potential issue because the information was supplied by different individuals and may be interpreted and grouped differently as a result. The data were limited to the 2009 through 2014 academic years for average net price and the 2008 through 2013 academic years for all other variables, and, as such, those are the only data included in this study. This study was completed utilizing the data as input by the end users of the IPEDS data; as a result, the data utilized were only as accurate as the data that were input into the system.

Descriptive Statistics

The descriptive statistics of the dependent variables were calculated with preimputation data, where average net price overall had a mean of $22,262. The average net price per income strata was $17,039 for those students whose family income was less than $30,001. The average net price increased as the income levels of the students and their families increased. For income levels 2 (income from $30,001 to $48,000), 3 (income from $48,001 to $75,000), 4 (income from $75,001 to $110,000), and 5 (income over $110,000), average net price was $18,054, $20,918, $24,054, and $27,922, respectively.

Instructional expenses per student FTE equaled $11,026. The last of the independent variables, which related to the administrative expense factor, included academic support services, student support services, and institutional support service expenses that had a mean of $2,855, $4,140, and $5,631, respectively. The remaining descriptive statistics refer to the control variables. The mean and median of average endowments per student FTE were $66,511 and $18,874, respectively. The mean for percentage of students admitted was 63%. The last two control variables had a mean of 81%, for the percentage of undergraduates enrolled, and 2,686, which was the mean for the number of undergraduates enrolled.

Results

INSTRUCTIONAL EXPENSES

Archibald and Feldman (2008a) noted that higher education is an industry that hires a highly specialized task force which, in turn, can affect an institution's capacity to become efficient (Baumol, 1996; Bowen, 2012). For example, a professor who teaches Russian will not be able to teach Spanish. This lack of transferability of manpower creates difficulty for an institution when it may be trying to become efficient as it relates to instructional expenses. As such, instructional expenses are noted as one of the cost drivers associated with the increase in higher education costs. As a result of the literature, it would be assumed that overall average net price would have had a positive significant relationship with instructional expenses, but this was not the case. The findings do not indicate positive significant relationships between average net price and instructional expenses, which would allude to a lack of support of Baumol's (1996) theory; at least, if there are inefficiencies, they are not being passed on to the student in the form of an increased average net price. The only significant relationships found were at the two lowest income levels, and the relationships were inverse. Instructional expenses had an inverse significant ($p < .01$, $p < .001$, respectively) relationship with average net price at income levels one (income less than $30,001) and two (income from $30,001 to $48,000) (see Table 1 for results). That is, for every $1 increase in instructional expenses, there was a decrease in average net price of about 5 and 6 cents for those students and their families whose incomes were below $30,001 and from $30,001 to $48,000, respectively. This was occurring even though endowment assets were controlled for. At each of these income levels, for every $1 increase in average endowment assets, there is a decrease in average net price by almost 1 cent. Colleges have guidelines as to how much can be drawn from their endowment assets, which is usually about 5% (Phung, n.d.), with a portion of that possibly spent to reduce average net price, making the findings feasible. It may also be occurring because the institution may be obtaining grant money that would reduce instructional expenditures for serving an underserved, lower income population. Another cause may be the percentage of undergraduates enrolled in the institution. For example, when there was a one-percentage-point increase in the percentage of undergraduate students, there was a decrease in average net price of almost $30.42. So when there was an increase in the percentage of undergraduates as compared to having more graduate students, there was a decrease in average net price.

ADMINISTRATIVE EXPENSES

Typically, when there is an increase in expenses, there is the assumption that the price of that item will rise. However, the findings do not indicate that for the two lowest income levels. For average net price at income levels 1 (income less than $30,001) and 2 (income from $30,001 to $48,000) (see Table 2 for results), there was an inverse significant ($p < .05$ for both) relationship, where for every $1 increase in academic support service expenses, there was a decrease in average net price of about 28 and 33 cents for income levels 1 (income less than $30,001) and 2 (income from $30,001 to $48,000), respectively. Academic support service expenses relate to the retention of students, which may be more necessary for those students at lower income levels, given that only 10% and 13%, respectively, of students in the two lowest income quartiles have attained a bachelor's degree by age 24 as compared to the highest quartile, which had a 52% bachelor's degree rate (pellinstitute.org, 2016). However, it is possible that it is administrative bloat with the lower-income-level students (who received more grants and financial aid) being shielded from their implications and those students with higher income levels absorbing the costs in their average net price.

These findings suggest that private institutions are investing in academic support services for those students in the income levels that need it and are at least partially offsetting the costs by increasing the average net price for those students in income level 5 (income greater than $110,000), where for every $1 increase in academic support services there was about a 17-cent increase in average net price. Since only income level 5 (income greater than $110,000) has a positive ($p < .01$) significant relationship, administrative bloat does not seem to be the cause, which is consistent with the Hedrick et al. study (2009). For it to be considered administrative bloat, it would more likely impact

Table 1. Average Net Price Regression Results Four-Year Private Not-for-Profit Institutions—Instructional Inefficiencies

	β coef.	Significance	β coef.	Significance	β coef.	Significance	β coef.	Significance	β coef.	Significance	β coef.	Significance
Instructional Inefficient	**Over all**		**Income Level One**		**Income Level Two**		**Income Level Three**		**Income Level Four**		**Income Level Five**	
Instructional Expenses	0.003		–0.045**		–0.062***		–0.003		0.003		0.058	
	(0.0165)		(.0148)		(.0160)		(.0137)		(.0133)		(.0488)	
Endowment Assets	–0.001		–0.008***		–0.006***		–0.006***		–0.002		0.002	
	(.0008)		(0.0018)		(.0009)		(.0012)		(.0009)		(.0018)	
%of Students Admitted	–6.821		–6.24		14.719*		10.386		–0.636		–15.842**	
	(3.6093)		(5.7898)		(6.2266)		(5.3168)		(4.9682)		(5.8702)	
# of Undergraduates	0.185		0.178**		0.177*		0.163*		0.173*		0.265*	
	(.1060)		(.0666)		(.0741)		(.0817)		(.0853)		(.1135)	
% of Undergraduates	–4.853		–30.422***		–30.759***		–32.216***		–33.979***		–32.286**	
	(9.9338)		(8.1050)		(7.8892)		(7.6935)		(7.9804)		(9.6584)	
Institutional Grant Aid	0.166		0.002		0.024		–0.004		0.052*		0.234***	
	(.0202)		(.0244)		(.0277)		(.0220)		(.0223)		(.0271)	
Sample Size	5,192		5,192		5,192		5,192		5,192		5,192	

Source: Integrated Post secondary Education Date System (IPEDS)
Standard error is in parenthesis.
*for p <0.05, **for p < 0.01, ***for p <0.001

Table 2. Average Net Price Regression Results Four-Year Private Not-for-Profit Institutions—Administrative Expenses

Administrative Expenses	β coef.	Significance	β coef.	Significance	β coef.	Significance	β coef.	Significance	β coef.	Significance	β coef.	Significance
	Overall		Income Level One		Income Level Two		Income Level Three		Income Level Four		Income Level Five	
Academic Support Services	0.082		–0.282		–0.329*		–0.137		–0.064		0.171**	
	(.0569)		(.1405)		(0.1478)		(.0838)		(.0781)		(.0602)	
Student Support Services	0.025		0.133		0.086		0.024		0.053		0.075	
	(.0828)		(.0852)		(.0890)		(.0733)		(.0694)		(.0754)	
Institutional Support Services	0.06		–0.002		0.009		0.008		–0.032		0.012	
	(.0444)		(.0639)		(.0681)		(.0519)		(.0398)		(.0537)	
Endowment Assets	–0.002		–0.007**		–0.005***		–0.005***		–0.001		0.001	
	(.0009)		(.0021)		(.0011)		(.0012)		(.0009)		(.0016)	
% of Students Admitted	–6.395		4.226		13.04		9.505		–1.341		–14.916**	
	(3.6741)		(5.7807)		(6.7015)		(5.2973)		(4.9988)		(5.7381)	
# of Undergraduates	0.184		0.201**		0.194*		0.173*		0.18*		0.27*	
	(.1046)		(.0698)		(.0788)		(.0842)		(.0881)		(.1156)	
% of Undergraduates	–3.619		–36.453***		–34.583***		–35.298***		–36.318***		–34.491***	
	(10.7028)		(9.1433)		(9.4117)		(8.3854)		(8.6788)		(9.6301)	
Institutional Grant Aid	0.168		0.001		0.026		0.002		0.054*		0.231***	
	(.0207)		(.0257)		(.0307)		(.0228)		(.0232)		(.0225)	
Sample Size	5,192		5,192		5,192		5,192		5,192		5,192	

Source: Integrated Postsecondary Education Data System (IPEDS)
Standard error is an parenthesis.
*for $p < 0.05$, **for $p < 0.01$, ***for $p < 0.001$

average net price for all income levels as well as overall average net price. However, in addition to the increase for income level 5 possibly fronting for the lower income levels, increases at the higher income levels may be caused by students' and their families' willingness to pay for or maybe even demand the additional services associated with these expenses.

Conclusion

Given the fact that student's choice is sensitive to price (Eagan, Lozano, Hurtado, & Case, 2013) and the notion that college affordability is being contested (pdkpoll2015.pdkint.org, 2015), institutions should evaluate alternatives in trying to reduce average net price. So what can an enrollment manager do? Well, one thing is to work with the finance department to ensure cost containment. The cost-cutting trends in higher education (Bain & Company, 2009; Belmontabbeycollege.edu, n.d.; discover.umn.edu, 2013) should continue with a focus on academic support. An analysis of academic support expenses should be completed to determine whether cost saving tactics can be implemented. Another way to address the cost containment is possibly offering merit scholarships in an effort to attract students who may not need the academic support services, thereby reducing costs, while improving the academic standard of the school.

In addition, enrollment managers should keep in mind the location from which the student is coming when offering a financial aid package. A family income of $115,000 from Manhattan, New York, is equivalent to making $43,953 in Dothan, Alabama (money.cnn.com, n.d.). The Manhattan, New York, family would be considered income level 5 (income greater than $110,000), whereas the Dothan, Alabama, family would be considered income level 2 (income from $30,001 to $48,000). The averages for average net price for the data in this study for income levels 5 and 2 were $27,922 and $18,054, respectively. So, although the two families' incomes would be considered equivalent based on the cost-of-living adjustment calculator, their average net price would be very different. In an effort to provide effective financial aid packages, a cost-of-living adjustment calculator should be taken into consideration, especially if there is cost-sharing among income levels.

Another area of focus for enrollment managers would be the percentage of undergraduates enrolled in relation to all students at the institution. There was an inverse significant (p varied) between average net price at all income levels and the percentage of undergraduates enrolled at the institution. For every one-percentage-point increase in undergraduates, there was a decrease in average net price for all five income levels for both sets of data. The decrease ranged from $30 to $36 (see Tables 1 and 2 for results). So when there was a higher undergraduate enrollment as a percentage of total enrollment, there was a decrease in average net price. Efforts can be made to create an optimum undergraduate population ratio.

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