How College Pricing Undermines Financial Aid

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A Policy Paper from the
Center for College Affordability and Productivity
March 2011

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Center for College Affordability and Productivity

The Center for College Affordability and Productivity (CCAP) is an independent, nonprofit research center based in Washington, DC that is dedicated to researching public policy and economic issues relating to postsecondary education. CCAP aims to facilitate a broader dialogue that challenges conventional thinking about costs, efficiency and innovation in postsecondary education in the United States.

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Introduction

The primary purpose of government provided student financial aid is to increase college access by bringing the out-of-pocket price of attendance within reach of more students. The basic idea is quite straightforward. If a good or service costs $100 to buy and the government gives consumers a $50 subsidy, then consumers need only spend $50 of their own money instead of $100. Since the price has effectively been cut in half from the perspective of consumers, consumers who could not afford to buy the product before the subsidy can now afford to do so. This is all quite logical, but it rests upon the assumption that the seller does not change the price because of the subsidy. If the seller increases the price to $150, then the item's affordability has not been increased by the subsidy. Instead, the subsidy merely increases the price and the seller's income.

For items provided in competitive markets, the assumption that a seller cannot respond to the subsidy by raising the price is likely valid. An example of this would be food stamps–while a retailer certainly wants to raise prices, competition ensures that they cannot do so without losing customers. But in higher education, colleges and universities set their own prices. Indeed, colleges and universities have considerable pricing power which is evident by their ability to raise prices when state governments reduce public support. (College Board, 2010) (NCPPHE, 2008).

In this article, we argue that the price of higher education does not remain fixed when most types of aid are provided. Rather, the price of higher education increases as universities and colleges "capture" increases in ability to pay, with the end result that college affordability does not improve. (Note that an increase in ability to pay can occur either from an increase in government subsidies or an increase in household income.)

For the individual student, access to a college degree depends on natural ability, preparation, motivation, personal financial resources, and the price of attendance. In what follows, we consider only the marginal impact of financial resources and the price of attendance on college access while holding all the other determinates constant.[1] In other words, we assume the student has sufficient natural ability, preparation, and motivation to be accepted to the institution of choice and the only residual issue is the relationship between his financial resources and the cost of attendance. Under these assumptions, declining affordability means less college access. Higher attendance prices force some students to choose a "lower quality" college, resulting in a decline of college affordability and a reduction of access.

Are Cost Increases Externally Imposed or Internally Chosen?

We will demonstrate that over the past several decades 1) college costs increased; 2) tuition, fees, room, and board charges increased; and 3) financial aid to students increased. There are two explanations that could explain these observations. We'll call these the external and the internal cost arguments.

[1] If the student does not have sufficient natural ability, preparation, or motivation to get a college degree from his institution of choice, it is not a mismatch of students and institutions. It may be a proper issue for public access policy with respect to either preparation or motivation; but, it is not a proper concern for public financial access policy, which is our single concern in this study.

The external argument is attributable to Baumol and W. J. Bowen's –cost disease" (1966), and argues that economy-wide forces push colleges' costs higher. It is an opportunity cost argument; as real wages in the rest of the economy rise, higher education must pay higher real wages in order to retain and attract faculty, resulting in higher costs. Causation flows from costs to tuition to financial aid (as the government responds to the higher tuition). Financial aid offsets part of the impact of tuition increases, but even larger increases in tuition would occur without financial aid. Financial aid improves access over what would have been the case under this view, and higher education should not be blamed for the rising price of attendance.

The internal cost argument has its origins in H. R. Bowen's revenue theory of cost (1980), and argues that colleges have an insatiable need for resources. Under this view, more financial aid increases the students' ability to pay. Colleges and universities charge what the market will bear, capturing the increased ability to pay.[2] The additional revenue is spent on projects to advance institutional priorities. Under this model, causation flows from financial aid to tuition to costs. In this case, financial aid does not improve access.

The critical question is why costs increase. Since colleges and universities are economic institutions embedded in a macro economy, it is undoubtedly true that the external macroeconomy has important effects on their costs. Similarly, it is undoubtedly true that policies taken by these institutions also affect costs. So while both external and internal influences drive costs, the real issue is which explanation of higher costs—the external or the internal argument—is the most significant in explaining rising college costs.

We argue that the internal argument is dominant–that it is the policies chosen by colleges that lead to higher costs–for three reasons.

First, if all cost increases are driven by external macroeconomic influences, then college costs should grow at a rate similar to the rate of cost increases in the general economy. However, the reality is that higher education costs grow at a pace well ahead of the general economy and even faster than healthcare costs in some instances.[3]

Second, faculty productivity and compensation data are more consistent with the internal argument. The faculty wage component of cost per student equals the average real wage paid to faculty divided by the student/faculty ratio. The external cost hypothesis argues that costs rise due to increases in real faculty wages. The internal cost disease argues that costs rise as a result of declining productivity (lower student to faculty ratios). Over the past three decades, the faculty wage component of cost per student rose steadily. Among four-year and above public and private institutions, the faculty wage component of cost

[2] This ability to charge what the market will bear reflects the pricing power available to higher education institutions. If they were selling commodities, like soy beans, they could not adjust prices. In fact, they sell highly differentiated services where students and families are very uncertain about what they are buying. It is the pricing power that allows them to adjust revenues to costs, rather than being forced to adjust costs to revenues.

[3] Using 1987 as the base year, the GDP implicit price deflator for 2008 was 1.68 and the 2008 CPI was 1.83 in 2008. In other words, for the period from 1987 to 2008 the general price level increased by 68 percent as measured by the GDP implicit price deflator and 83 percent as measured by the CPI. In 2008, the index for median household income was 1.93; median household income increased by about 93 percent during that period. Similarly, the healthcare price index was 2.76 in 2008. By contrast, the net proceeds index at public four-year, public doctoral, private four-year, and private doctoral institutions were 2.70, 3.08, 2.58, and 2.83 in 2008. Net proceeds per student grew faster than healthcare costs at public and private doctoral institutions.

per student rose by 33 percent and 72 percent respectively from 1970 to 2007 (Martin, 2011, 34). However, student/faculty ratios among public and private four-year and above institutions declined by 25 percent and 28 percent respectively over this period (Martin, 2011, 31-32), while faculty real wages at public institutions were almost constant and increased by 23 percent at private institutions. Virtually all of the increases in the faculty wage component of cost per student at public institutions are attributable to declining faculty teaching productivity, while both rising real wages and declining productivity are responsible for increases in cost at private institutions.

Lastly, tuition continues to rise even though it already covers instructional costs. Under the external view, higher costs lead to higher tuition only if tuition is not already covering costs, whereas under the internal view, colleges increase tuition whenever it can. According to Bob Samuels "the total average annual instructional cost per student is $1,456."[4] Needless to say, tuition already covers this amount at most colleges, so further increases in instructional costs do not require higher tuition under the external argument.

These three findings indicate that the internal argument is more important in explaining cost increases than the external argument, but the internal argument is not without problems, the main one being inconclusive empirical evidence. The existing literature tests the "Bennett hypothesis" (1987) that colleges and universities purposefully raise prices in order to capture part or all of the increases in student aid. Some find no evidence that either state or federal student aid causes increases in tuition and fees (McPherson and Shapiro, 1991), (Rizzo and Ehrenburg, 2004), while others find a relationship between tuition and fees and student aid (Curs and Dar, 2010a, 2010b); (Li, 1999); (Long, 2004); (Lowry, 2001); (Singell and Stone, 2007), though this relationship is not always universal or robust.

We aim to provide further support to the notion that financial aid is captured by colleges and universities. We start from the observation that tuition already covers instructional costs. To quote Samuels again, "Public universities charge on average $7,000 per student and they get another $8,000 per student from the state, but in reality, it only cost about a tenth of this amount to teach each student."[5] This means that an increase in financial aid can be used to test the relative validity of the two theories, since each theory gives very different predictions of the effects of an increase in financial aid when tuition is already covering instruction costs. If the external argument is correct, then colleges and universities are following prudent cost control policies and increases in financial aid should reduce net price. Alternatively, if the internal argument is correct, then increases in financial aid will not reduce net price, but will be captured by colleges and universities and spent.[6] In other words, if financial aid increases but net price does not decline and college spending increases, then this is strong evidence in favor of H. R. Bowen's (internal) argument. We demonstrate that this is exactly what happened between 1987 and 2008.

As a brief aside, a common characteristic of this literature is that the authors use either tuition and fees or institutional aid as the dependent variable rather than net proceeds (tuition and fees plus room and board less institutional aid per student). From a financial perspective, increases in room and board or reductions in institutional aid are perfect substitutes for increases in tuition and fees. Furthermore, there is less

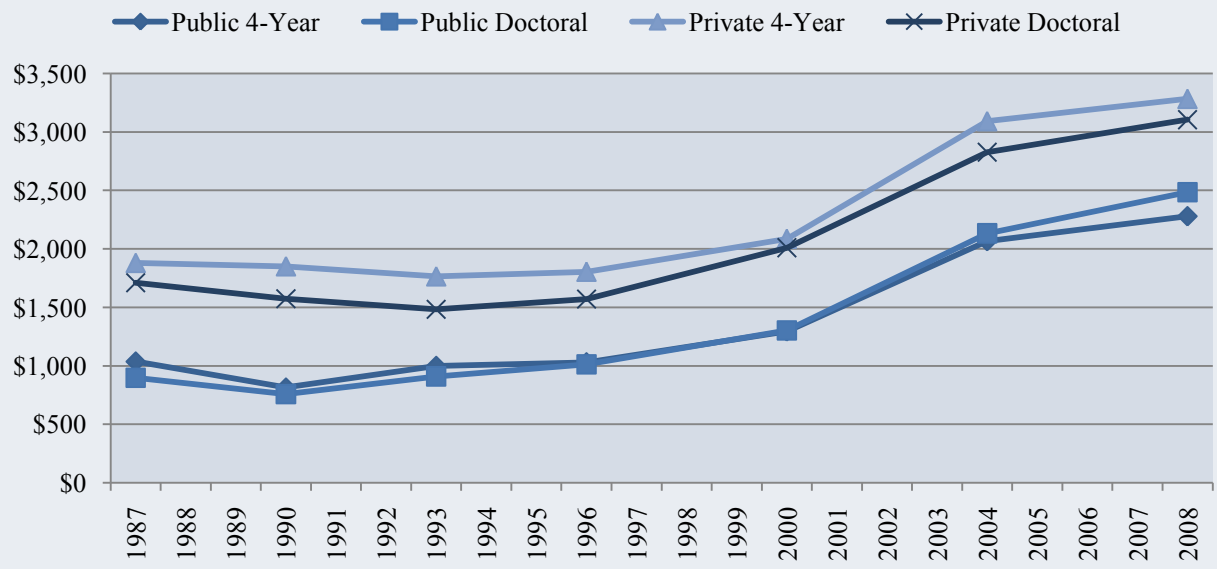
[4] Bob Samuels, "The Solution They Won't Try," *Inside Higher Ed*, June 4, 2010.
[5] Ibid.
[6] Formally the question is: Do increases in ability to pay (either from higher financial aid or increases in income) "Granger cause" increases in cost? If so, this is evidence consistent with H. R. Bowen's revenue theory of cost.

negative publicity as a result of changes in either room and board charges or institutional aid. We therefore focus on net proceeds.

Real Student Aid and Net Attendance Price

To make our case, we first document that student financial aid adjusted for inflation has increased over the past two decades. Figure 1 reveals that in both the public and the private education sectors during the period from 1987 to 2008, real external aid (aid not provided by the institution) per student rose in both four-year and doctoral institutions. For example, in 1987 real external aid per student at public doctoral institutions was $898 and in 2008 it was $2,485. Similarly, in 1987 real external aid per student at private doctoral institutions was $1,710 and in 2008 it was $3,105. This is a 177% increase at public doctoral institutions and an 82% increase at private doctoral institutions.

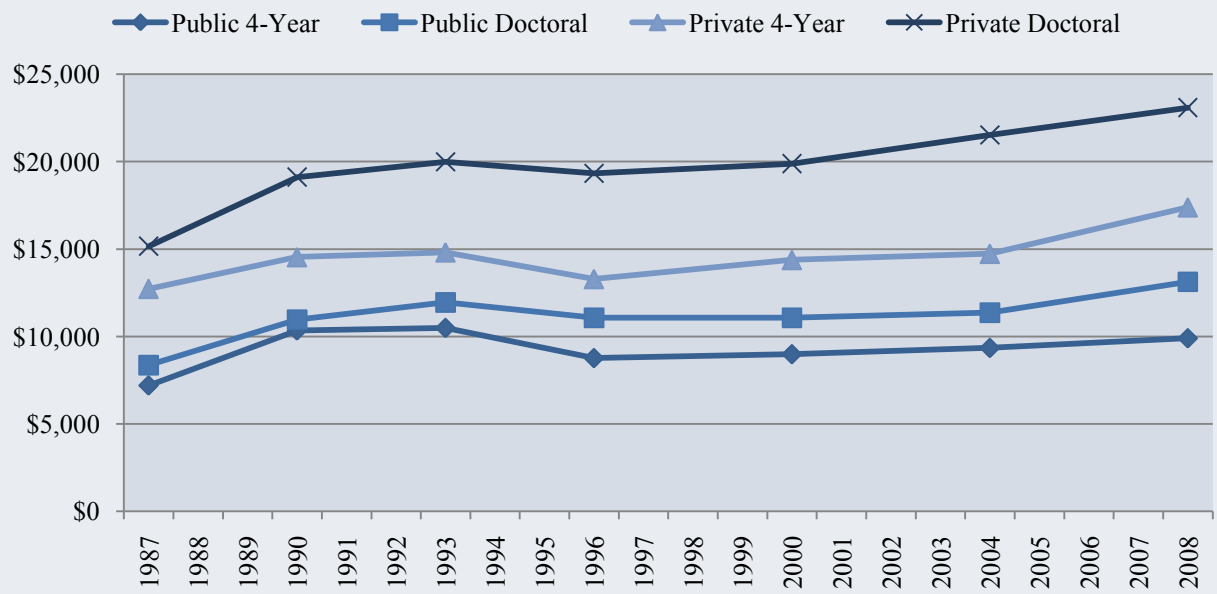
FIGURE 1
Constant Dollar External Aid per Student



SOURCE: National Postsecondary Student Aid Study, 1987, 1990, 1993, 1996, 2000, 2004, and 2008, Data Analysis System Website.
NOTE: External aid is defined as aid not provided by colleges.

If the subsides are not being captured by colleges, then the increase in aid documented in figure 1 should have reduced the net attendance price. This did not happen. The net attendance price (total price of attendance minus all grant aid) increased, as shown in Figure 2, during the period from 1987 to 2008.

FIGURE 2
Actual Net Price of Attendance



SOURCE: National Postsecondary Student Aid Study, 1987, 1990, 1993, 1996, 2000, 2004, and 2008, Data Analysis System Website.

College Affordability

Among public doctoral institutions, the net price of attendance was 17.6 percent of median household income in 1987, and by 2008 it had increased to 26 percent. Similarly, the net price of attendance at private doctoral institutions was 32 percent of median household income in 1987 and 46 percent in 2008. Despite the increases in real external aid, it appears college affordability has deteriorated since 1987. This conclusion would seem to be confirmed by the record levels of debt incurred by students (the Project on Student Debt estimates that the average borrower owed $24,000 at graduation, not including any parental loans).[7]

In a separate paper, we derive conditions under which household utility (welfare) decreases when net attendance price rises (Martin and Gillen, 2011). Empirically, these conditions are satisfied for median (and below) income households with respect to both public and private four-year and doctoral institutions. For these households, experiencing an increase in net attendance price is a "regressive tax" that slows economic mobility. Since household utility declined in each case, affordability declined in each case. For an individual student, college becomes "unaffordable" when the net attendance price exceeds the student's reservation price (the maximum the student is willing to pay) (Martin, 2011, 12-15). Therefore, college unaffordability is measured by student migration down the quality ladder. This migration will be most obvious when it appears as increased enrollment at two-year institutions.

[7] Student Debt and the Class of 2009, "The Project on Student Debt," October, 2010.

Why Isn't Aid Translating into Improved Access?

Why are these increases in student aid not being converted into better access? The answer is that aid is captured by colleges and universities through their pricing and institutional grant policies, which allows costs to rise unnecessarily. This money is then used to pursue other objectives that raise costs in a continuous revenue-to-cost cycle.[8]

In order for the revenue-to-cost cycle to persist, colleges and universities must have two essential bits of information: They must know how much students can realistically afford to pay and how much external aid they receive from third parties. Currently, colleges and universities have access to all of this information.

The government requires students wanting federal aid to provide intimate financial details for themselves and their parents so that need-based aid can be determined. This is perfectly reasonable, but the government, unreasonably, gives this financial data to colleges and universities. As a result, colleges and universities have unrivaled information about each student's underlying ability to pay. No one would consider sharing this much detailed family financial data with their car dealer or roofing contractor, yet for higher education, it is standard operating procedure.

The second requirement for capture, knowing how much external aid is received, is also fulfilled. External aid (federal grants, veterans' benefits, tax subsidies, state grants, and private grants) are typically paid directly to the institution rather than to the student with the goal of easing the administrative burden and minimizing fraud. While this eliminates the student's incentive to collect the aid but not enroll, it creates another hazard: colleges and universities know exactly how much external aid students receive and can lower their own grant aid accordingly.

Thus, when an institution plans for the next academic year, it knows the representative student/parent's approximate ability to pay as supplemented by federal grants, state grants, and sometimes even private grants. The institution also knows its current and projected costs. Hence, it can choose tuition, fees, room, board, and the institution's grant budget accordingly. If the federal or state authorities increase financial support per student, the institution has the opportunity to capture part or all of that increased ability to pay by reducing institutional grants and/or raising their charges for tuition, fees, room, or board.

As long as colleges and universities have the incentive and ability to capture external aid and cover costs, increases in student aid or increases in income have the potential to be converted into higher attendance prices and college access will not improve.[9] The same is true of subsidized student debt; it can be

[8] Robert E. Martin, "The Revenue to Cost Spiral in Higher Education," John William Pope Center for Higher Education Policy, July 2009.

[9] It is possible that institutions redistribute captured income from wealthier students to poor students. Unfortunately, this appears not to be the case. The NCPPHE's national report card on college affordability measures college affordability by state and individual institution and by income decile. In its most recent report, the NCPPHE gave every state, except California, an F.

converted into increased ability to pay and hence, higher net prices. The exception to this general pattern is modest aid targeted at only low-income students, like the Pell grant.[10]

The forgoing point is very important because the purpose of federal and state grants in particular is to promote college access, not to provide supplemental funding for colleges and universities per se. When institutions capture increased ability to pay, they frustrate the primary goal of public policy and, in practice, can completely undermine that public policy.

Compatible Pricing Policies

Our main point is that by increasing prices in response to aid, college and university pricing undermines government financial aid efforts. To demonstrate how problematic this is, suppose colleges and universities adopted pricing policies that are consistent with public policy objectives concerning college affordability and access. What would that pricing policy look like? One intriguing hypothetical approach is capping net proceeds as a percent of median income.[11] Individual institutions control their own tuition, fees, room and board charges, and their institutional grant budgets; in other words, they set net proceeds per student based on the quantity of external aid available to students. We will call this new access policy the "*capped net proceeds*" policy.

If colleges and universities cap net proceeds per student based on median household income, they would be following a pricing policy that promises to allow all increases in external student aid to be applied to improving college access. This hypothetical policy would tie net proceeds to median household incomes, so that if real median household incomes increase, then real net proceeds can increase.

As an aside, note how useful the ratio of net proceeds to student incomes would be as a performance measure for colleges and universities. Each institution knows its net proceeds per student and it knows the average household income of the students attending the college. A good measure of financial responsibility over time would be net proceeds divided by average household income (the average income for students actually attending the institution). Is the institution steadily increasing the ratio, keeping it constant, or decreasing the ratio?

What would college costs and access look like today if colleges and universities had capped net proceeds as a percent of median household income at the level which existed in 1987? For each year after 1987, capped net proceeds would be equal to the corresponding 1987 percentage multiplied by actual median household income in that year. Capped net price of attendance would then be equal to capped net proceeds less actual external aid per student. This calculation hypothetically guarantees that all external aid per student goes toward improving affordability and access by lowering net price as a percent of median income rather than by being captured as increasing net proceeds.

[10] The argument that aid increases ability to pay, which is then captured by the college, does not apply to aid that is effectively means targeted to low income students and that does not exceed the cost of providing an education. Essentially, as long as the aid does not raise a student's reservation price above current costs, there is nothing to capture. For more details see: Andrew Gillen, *Financial Aid in Theory and Practice*, Washington, DC: The Center for College Affordability and Productivity, April 2009.

[11] Since net proceeds are all the revenue variables controlled by the institution, capping net proceeds is the same as putting constraints on their ability to pass costs on to students.

The capped net price serves as a benchmark for what could have been achieved with respect to college access if observed increases in student aid occurred but colleges and universities had adopted pricing policies that were consistent with access policies. Table 1 contains the figures for capped net price as a percent of median household income. The data reveals that declines in the percentages are uniform, meaning that the increases in external financial aid from 1987 to 2008 would translate into lower per student net prices. By our household utility model, utility would increase in each case and access would improve in every sector (Martin and Gillen, 2011). Among public four year, public doctoral, private four year, and private doctoral institutions, access would improve by 13 percent, 17 percent, 11 percent, and 9 percent, respectively.

TABLE 1

Capped Net Price as a percent of Median Household Income

Year	Public 4-Year	Public Doctoral	Private 4-Year	Private Doctoral
1987	15%	18%	27%	32%
1990	16	18	27	32
1993	15	17	27	32
1996	15	17	27	32
2000	15	17	27	32
2004	13	15	24	30
2008	13	15	24	29

SOURCE: National Postsecondary Student Aid Study, 1987, 1990, 1993, 1996, 2000, 2004, and 2008, Data Analysis System Website.

TABLE 2

Actual Net Price as a percent of Median Household Income

Year	Public 4-Year	Public Doctoral	Private 4-Year	Private Doctoral
1987	15%	18%	27%	32%
1990	22	23	31	40
1993	23	27	33	45
1996	19	24	28	41
2000	18	22	28	39
2004	19	23	30	44
2008	20	26	35	46

SOURCE: National Postsecondary Student Aid Study, 1987, 1990, 1993, 1996, 2000, 2004, and 2008, Data Analysis System Website.

In contrast, consider actual net price as a percent of median household income in Table 2. Actual net price rose as a percent of median income in every category. Among public four-year, public doctoral, private four-year, and private doctoral institutions, net price as a percent of median income increased by 33 percent, 44 percent, 30 percent, and 44 percent, respectively.

TABLE 3

Captured Real Income

Year	Public 4-Year	Public Doctoral	Private 4-Year	Private Doctoral
1990	$2931	$2479	$1803	$3837
1993	3723	4132	2811	5565
1996	1670	2953	690	4258
2000	1525	2530	935	3959
2004	2982	4022	2880	7083
2008	3465	5818	5223	8345

SOURCE: National Postsecondary Student Aid Study, 1987, 1990, 1993, 1996, 2000, 2004, and 2008, Data Analysis System Website.

The difference between constant dollar actual net price and constant dollar capped net price provides a measure of the real income captured by each type of institution over the years from 1990 to 2008. As reported in Table 3, the real income captured equals the sum of real external aid captured and additional

real income from students and their parents. For example, the figure of $2,931indicates that in 1990, public four-year institutions captured $2,931 more than they would have had the cost of college remained at its share of 1987 income. As Table 3 reveals, the highest dollar amounts are found among private doctoral institutions. The lowest average amount of income captured and the most variability is found among private four-year institutions.

While the preceding tables indicate that universities and colleges are capturing increases in aid, they are also capturing much more than just aid. They are taking more student income as well. If one subtracts real external aid from the total real income captured, we have a measure of the additional real income, beyond the aid, captured from students and their parents. Table 4 contains the figures for captured student income. For example, the $2,117 figure for public four-year institutions in 1990 indicates that even after accounting for financial aid, students at public four-year institutions were paying $2,117 more in 1990 than they would have had the cost of college as a percent of income remained at its 1987 level. A negative number means that the net price for students decreased. It is interesting to note that the only sector where institutions do not routinely capture all of the external aid are the private four-year institutions. In four of the years, the private four-year institutions did not recapture all of the external aid available that year.

TABLE 4
Captured Student Income

Year	Public 4-Year	Public Doctoral	Private 4-Year	Private Doctoral
1990	$2117	$1721	$-48	$2263
1993	2724	3223	1046	4082
1996	640	1940	-1114	2688
2000	229	1227	-1151	1949
2004	915	1889	-212	4257
2008	1185	3333	1940	5240

SOURCE: National Postsecondary Student Aid Study, 1987, 1990, 1993, 1996, 2000, 2004, and 2008, Data Analysis System Website.

What Effect Would Compatible Access Pricing Have on Colleges and Universities?

Had colleges and universities followed pricing policies that were consistent with access policy, the amount of inflation adjusted net proceeds per student they would have forgone each year would be equal to the amount of real income they captured in Table 3. Using enrollment rates for 2008 and the forgone net proceeds for that year by type and sector, the total foregone revenue would have been some $59

billion, not an inconsequential sum. This quantity of forgone net proceeds represents 18.5 percent of higher education's total expenditures in 2007.

What does higher education buy with this $59 billion? It appears that most of this sum goes to finance reductions in faculty and staff productivity. Over our study period, colleges and universities steadily decreased teaching loads among tenure track faculty, reduced class sizes, and added more professional staff per student. The interesting questions here are how much lower the price would be today if productivity had been maintained at the 1987 level and whether the reduced cost would be sufficient to pay for pricing policies that were compatible with access policies.

In 1987, the student/faculty ratios at four-year and above public and private institutions were 13.6 and 9.3, respectively.[12] In 2007, those ratios were 11.6 and 6.3, respectively. As measured by student/faculty ratios, faculty productivity declined by 15 percent at public institutions and by 32 percent at private institutions. Among nonacademic professional administrators and staff, there was a similar decline in productivity. In 1987, the student/professional staff ratios at four-year and above public and private institutions were 16.7 and 12.4, respectively. In 2007, those ratios were 12.1 and 9.0, respectively; thus, per student professional staff productivity declined by 27.5 percent and 27 percent, respectively. Given constant or rising real wages, declining student/staff ratios inevitably mean rising costs per student. If public and private institutions had maintained their student/staff ratios at the 1987 level, how much lower would cost be today?

Using the most recent data from the 2009 *Digest of Education Statistics*, Table 5 contains total "academic" and "administrative" expenses for 2007 by type and educational sector. Academic expenditures are the sum of instruction, research, and public service, while administrative expenditures are the sum of academic support, student services, and institutional support. The total of these two types of expenditures accounts for 63 percent of total expenditures at four-year and above public institutions and 76 percent of total expenditures at four-year and above private institutions. Using the actual number of faculty and professional staff at these institutions in 2007, we calculate the academic and administrative cost per staff member in 2007.

Given the actual 2007 FTE enrollment in these two sectors, the capped staffing can be calculated by dividing enrollment by the 1987 student/faculty and student/professional staff ratios. The capped academic and administrative expenditures for 2007 are then equal to the capped staff members times the actual 2007 cost per staff member in each category. The saving that would have occurred had the institutions maintained 1987 staffing patterns are then equal to actual expenditures less the capped expenditures in Table 5.

[12] All ratios use full-time equivalent figures.

TABLE 5

Staffing and Expenditures by Type: Actual and Capped (2007)

	Public Institutions	Private Institutions
Actual:		
Academic ($1,000)	$84,086,360	$56,788,456
Administrative ($1,000)	$34,628,127	$37,066,792
Total	$118,714,487	$93,855,248
Faculty	518,221	472,628
Administrators	494,244	332,056
Academic/Faculty	$162.3	$120.2
Admin/Staff	$70.1	$111.6
Enrollment (2007)	5,994,230	2,993,729
Capped:		
Student/Faculty (1987)	13.6	9.3
Student/Staff (1987)	16.7	12.4
Faculty	439,961	321,986
Staff	359,289	241,377
Academic ($1,000)	$71,387,901	$38,688,074
Administrative ($1,000)	$25,172,784	$26,944,445
Total	$96,560,686	$65,632,519
Saving	$22,153,802	$28,222,729

SOURCE: Digest of Education Statistics, 2009, Tables 218, 243, 362, and 364.

In total these savings would have been approximately $50 billion in 2007. It is important to stress that none of that $50 billion is accounted for by assuming reductions in faculty or staff compensation. Rather, it assumes that while faculty and staff are still compensated as they are in reality, faculty and staff ratios have been maintained at their 1987 level. This would mean higher teaching loads (fewer faculty members) and fewer administrative staff. $50 billion equals 85 percent of the revenue colleges and universities would have had to forgo in 2008 in order to follow pricing policies that were compatible with improved access. The subtotals reveal that the cost savings at private institutions would be slightly greater than the revenue forgone, while the cost savings at public institutions would equal 70 percent of the revenue forgone. In other words, spending can be lowered and access improved by simply increasing teaching loads to their 1987 level and cutting the additional administrative staff that has been added.

While these are not conclusive estimates of either the revenue institutions would have to forgo in order to comply with access policy or the amount of cost savings that would have occurred if these institutions had maintained basic faculty and staff productivity, they serve to illustrate that if higher education institutions had at least maintained 1987 faculty/staff productivity levels, existing financial aid programs would have made considerable progress towards improving college affordability and access. This analysis also serves to illustrate that failure to take faculty and staff productivity seriously has an important opportunity cost: declining college access. Furthermore, it illustrates the futility of increasing financial support for college access as long as colleges and universities continue to capture increases in ability to pay; if capture is possible, financial access policy tends to fuel inflation in college costs.

Conclusion

While financial aid is designed to increase access by lowing prices, we show that recent increases in financial aid have not improved affordability and have therefore not increased access. We argue that the reason for this is that colleges are able to capture the aid by increasing prices.

This does *not* suggest that colleges and universities are engaged in either collusive or venal behavior. Rather, these institutions are simply responding to the perverse incentive system they confront.[13] The incentive system is what must be changed.

Consider the problem from the individual institution's perspective. Since value added from obtaining a college education is uncertain, competition between institutions is driven by academic reputation. Due to this persistent uncertainty, each institution must signal quality through expensive proxy signals, such as the quality of their students, research, facilities, or athletic teams. If an individual institution forgoes capturing increased financial aid dollars, it cannot compete; its status will decline as will its ability to attract good students. This behavior is reinforced by the fact that students and their parents associate high cost with high quality. Each institution comes to the same conclusion independently; the parallel behavior is driven by the incentive system. All of these institutions are embedded in a competitive environment that

[13] An extended exploration of the incentive system that leads to these results can be found in *The College Cost Disease: Higher Cost and Lower Quality*, by Robert Martin, March 2011, Edward Elgar, Ltd.

no single institution can change. Higher education is engaged in an expenditure ~~–ar~~ms race" that thwarts policies to increase public access and redistributes wealth to higher education insiders.

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