Deconstructing Delta: Explaining Educational Costs through Analysis of the Instructional Portfolio

Peter M. Radcliffe
Executive Director
Office of Planning and Analysis
University of Minnesota
radcl002@umn.edu

Abstract: Assessing the cost of higher education has become a critical policy priority. However, this effort is frustrated by limited information and standards. The Delta Cost Project has attempted to address this by assembling data on costs across sectors and levels of higher education, but their reports create as much confusion as clarity. Analysis shows that the overwhelming majority of variance in educational spending between institutions can be explained by differences in the disciplinary and degree level portfolio. Accounting for these differences allows institutions to benchmark themselves and overseers to evaluate the performance of their institutions.

Prepared for presentation at the Association for Institutional Research Annual Forum, June 2-6, 2012, New Orleans, LA

Deconstructing Delta: Explaining Educational Costs through Analysis of the Instructional Portfolio

The escalation of the cost of higher education has captured the attention of educational leaders, institutional governing bodies, government officials, media commentators, and the public at large. Over the past decade, average published tuition at public four-year institutions has increased by 5.6 percent annually after controlling for inflation (Baum and Ma, 2011, p. 13). Only 22 percent of the general public believes that a college education is affordable (Pew Research Center, 2011). Against this backdrop, President Obama issued a warning to higher education institutions in his 2012 State of the Union Address, saying to applause, "so let me put colleges and universities on notice: if you can't stop tuition from going up, the funding you get from taxpayers will go down" (Obama, 2012).

Archibald and Feldman (2011) note that higher education is actually wrestling with two related challenges: increasing prices and increasing costs. In economic terms, price is the amount paid by consumers for a product or service, while cost is the amount paid by suppliers to produce that good. In any economic activity, there is generally some difference between price and cost. Because public subsidies in a number of forms provide a significant portion of that difference in higher education, however, the relationship between price and cost is an important public policy issue. Since most higher education in the United States is provided by non-profit organizations, whether publicly or privately owned, the difference between price and cost is not due to profit-seeking, but rather costs exceed price for most institutions, with the difference made up from state appropriations, private gifts, investment earnings, and other sources. Increasing prices, therefore, are driven by both increasing costs and insufficient subsidies. The discussion that follows will be focused exclusively on understanding differences across institutions in costs.

A vigorous public debate is underway regarding the reasons for the increasing costs of higher education. The Higher Education Price Index, produced by Commonfund, which tracks prices on a market basket of goods purchased by higher education institutions, just as the Consumer Price Index tracks goods purchased by typical consumers, shows that over time, the prices colleges and universities pay for their inputs have risen at a rate higher than general inflation (Commonfund). Archibald and Feldman (2011) argue that this is driven by higher education's heavy reliance on highly educated labor, and the inability to increase productivity inherent in face-to-face education delivery without continuously increasing class sizes. As productivity rises elsewhere in the economy, higher education must compete with those industries for access to this pool of labor, driving up wages despite the lack of productivity growth. This is the "cost disease" phenomena identified by William Baumol and William Bowen. Others, such as Richard Vedder (2004) argue that institutions themselves are at fault for increasing spending in non-instructional areas.

A thoughtful assessment of whether institutions are excessively expensive, however, is frustrated by limited information and standards. One attempt to explore the causes and consequences of rising costs in higher education is the Delta Project on Postsecondary Education Costs, Productivity, and Accountability, known as the Project Cost Project. Funded by the Lumina Foundation for Education, the Delta Cost Project produces a longitudinal aggregation of data on college revenues, expenditures, and enrollments, as well as reports based on that data. The dataset assembled by the Delta Cost Project is based primarily on the Integrated Postsecondary Education Data System (IPEDS), managed by the National Center for Education Statistics in the federal Department of Education, supplemented with other descriptive and economic data. Some alterations in the data have been made by the Delta Cost Project to simplify comparisons between public and private institutions, and to adjust for definitional changes over time. While these changes make working with the data set easier, they come at some cost to transparency and to efforts to link the data set to additional information about institutions. In addition, methodological and reporting decisions made by the Delta Cost Project create as much confusion as clarity. While these decisions may seem logical on the surface and appear intended to make their assembled data accessible and relevant for public policy decisions, they create distortions that have serious consequences for the conclusions drawn and the decisions informed by those observations.

IPEDS tracks institutional spending across a set of categories, defined by federal accounting standards (Governmental Accounting Standards Board, or GASB, for public institutions, and Financial Accounting Standards Board, or FASB, for private and some public institutions). Those categories include spending in the primary mission areas of instruction, research, and public service, along with support categories attached to the delivery of the mission, including student services, academic support, institutional support, and the operation and maintenance of plant. IPEDS reports total and per full-time equivalent (FTE) student spending in each of these categories by institutions. These measures are somewhat limited, however, because they do not connect the support costs to the individual mission activities. Addressing this limitation through the creation of a "fully loaded" version of instructional costs is one of the core goals of the Delta Cost Project.

The primary variable of interest in the Delta Cost Project database is "education and related costs," or "E&R." The concept of E&R expenditures is a "fully loaded" measure of educational costs, including instructional and student services expenditures and an estimate of the share of other support costs that can be attributed to the educational mission. It is extremely challenging for an individual institution to segregate support expenditures by mission activity. For example, does a campus e-mail system support teaching or research? Does landscaping support instruction or public service? In practice, of course, some overhead can be directly attributed to a specific mission activity, but much of it is shared. If these challenges are extraordinary for an individual

institution, attempting to find a straightforward means to make these judgments across institutions is simply impossible. The task for analysis then is to devise a relatively simple, consistent methodology for approximating the appropriate share of overhead costs to attribute to each mission function for an institution, without needing extensive and currently unavailable financial details. The Delta Cost Project's intuitive solution is to add together total expenditures coded as instructional or for student services, and split the remaining support expenditures by the relative proportions of expenditures for education (instruction plus student services), research, and public service. Each mission area's share of the total overhead, therefore, is determined by the relative amount of spending in that area. While this will obviously not be precise for any institution, it is explainable, replicable, consistent, and feasible with existing data.

The Delta Cost Project reports E&R spending in three primary ways: as a raw total, per FTE student, and per degree or completion (combined certificates and degrees). Spending is obviously tied to the size of an institution, so reporting by FTE student or degree granted are simple means to attempt to standardize expenditures and make comparisons about relative efficiency, or at least resource intensiveness. These standardization attempts, however, are only effective to the extent that all FTE students (or degrees, or completions) are either highly similar to each other, or are distributed similarly across institutions. If the costs associated with educating some types of students or with providing some instructional programs are different from each other, and those programs are unevenly distributed across institutions, those standardization approaches will create false equivalencies, inaccurately implying that some institutions are more or less efficient than they truly are.

Providing a student with a full year's academic load obviously consumes more educational costs than one taking a single course. Representing this difference is the purpose of adjusting for FTE enrollments. The standard FTE calculation also recognizes the differences in the intensity of undergraduate and graduate study, setting the full-time bar for undergraduates at 30 credits annually while lowering it for 20 credits for graduate and professional students. As a means for equating educational spending per student, however, this approach only works if graduate and professional credits cost 50 percent more on average to provide. That is, 20 credits of graduate education cost roughly the same as 30 credits of undergraduate education. If not, differences between institutions in the composition of their student bodies will appear as differences in the per-student cost of education. To see this, consider two identically sized institutions, each with a single undergraduate program and a single graduate program, where the costs per FTE student are the same across institutions at the same level, but the costs of education at the two levels are different from each other. For simplicity, assume each institution has 100 FTE students, a per-FTE undergraduate cost of $1,000, and a per-FTE graduate cost of $2,000. At Directional State University, a predominantly undergraduate institution, we assume 75 undergraduate FTE and 25 graduate FTE, for our total of 100. At University Institute, a more graduate-focused institution, the FTE students are split evenly, with 50 undergraduate FTE and 50 graduate FTE. As shown in

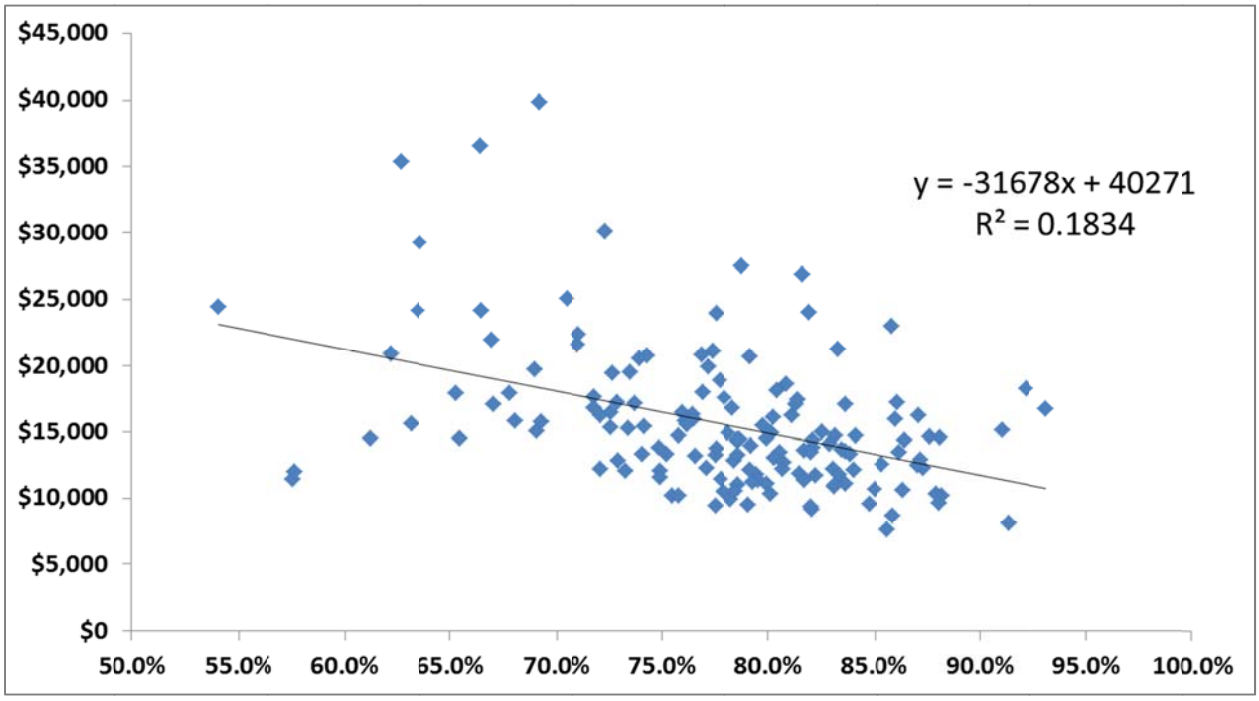
Table 1 below, even though costs at the program level are identical, the differing distribution of students at the two institutions means that overall average costs at University Institute are 20 percent higher than at Directional State University.

Table 1 – Illustration of impact of differing enrollment distributions on average costs

Institution	UG FTE	UG Cost/FTE	Grad FTE	Grad Cost/FTE	Total FTE	Total Cost	Total Cost/FTE
Directional State University	75	$1,000	25	$2,000	100	$125,000	$1,250
University Institute	50	$1,000	50	$2,000	100	$150,000	$1,500
						% Difference:	**20%**

We can examine how this theoretical issue plays out in real institutions by contrasting the E&R spending per FTE of public research universities with the percentage of their student body that is at the undergraduate level. What appears is a clear trend that replicates the theoretical example of the table above. As the percentage of student FTE at the undergraduate level increases, the E&R expenditure per FTE declines, as shown in Figure 1 below.

Figure 1 – Public Research University E&R Expenditures 2008 vs. Undergraduate FTE Percentage



Measuring E&R expenditures per degree or per completion likewise suffer from the same limitations. For example, an associates or masters degree program is expected to take significantly less time than a bachelors or doctoral program. So long as the distribution of degree levels is the same across institutions, this would not be a serious obstacle. However, in practice

the degree offerings of institutions by level vary widely. To control for this, in the model below, total E&R expenditures were regressed on total degrees awarded by level for all public four-year colleges and universities that have a Carnegie Classification (Basic, 2010) as a research, doctoral, or masters institution (classification numbers 15 through 20). Although simple, the model accounts for nearly 87 percent of the variance in total E&R spending across this set of institutions (adjusted R-squared value of .8656).

Table 2 – Total E&R expenditures by public research, doctoral, or masters institutions by degrees awarded

Variable	Coefficient	Std Error	t Score	P>t	CI Lower	CI Upper
Associates	$20,558	$28,409	0.72	0.4700	$(35,286)	$76,401
Bachelors	$39,248	$4,159	9.44	-	$31,074	$47,423
Masters	$16,671	$11,325	1.47	0.1420	$(5,589)	$38,932
Doctorate	$588,288	$47,180	12.47	-	$495,548	$681,028
1st Professional	$227,888	$37,653	6.05	-	$153,874	$301,901
Constant	$26,600,000	$6,768,072	3.93	-	$13,300,000	$39,900,000

As with the distribution of degree programs by level, if degree programs in different fields were all equally expensive to offer, knowing the distribution of those programs by field at an institution would not be necessary to understand the relative efficiency of an institution in delivering its educational mission. As it happens, that question has been examined. In 2009, the State Higher Education Executive Officers, published a study of field and level-specific enrollments and expenses from four states (Florida, Ohio, Illinois, and New York). The study found marked differences in the distribution of expenses and the distribution of enrollments, as measured by student credit hours, the base for determining FTE totals. For example, while graduate and professional enrollments accounted for only 20 percent of the total student credit hours, they accounted for 34 percent of the total instructional costs. Likewise, the proportion of total instructional costs related to health science education vastly exceeded the proportion of total credit hours taken in those fields, while most liberal arts fields represented a smaller share of expenses than they did of enrollments. Clearly, both the level of instruction and the field of instruction are critical drivers in educational costs.

To address this, it is necessary to examine the portfolio of degree programs at an institution. The ideal measure of student demand for instruction and support services would most likely include intensity of enrollment, level, and field for all students, but that information is not available through public sources. What is available through IPEDS, however, is the number of degrees awarded at each level and in each field, broadly defined. Degree field is tracked in IPEDS using the Classification of Instructional Program (CIP) taxonomy. CIP codes have six digits, in three pairs. Fields are identified through these codes in the CIP hierarchy at three, nested levels: two-digit, four-digit, and six-digit. At the two-digit level, the broadest grouping, there are thirty-eight separate codes, listed in Table 3 below.

Table 3 – CIP 2010 two-digit codes

CIP #	Program Description
1	Agriculture, agriculture operations, and related sciences
3	Natural resources and conservation
4	Architecture and related services
5	Area, ethnic, cultural, and gender studies
9	Communication, journalism, and related programs
10	Communications technologies/technicians and support services
11	Computer and information sciences and support services
12	Personal and culinary services
13	Education
14	Engineering
15	Engineering technologies/technicians
16	Foreign languages, literatures, and linguistics
19	Family and consumer sciences/human sciences
22	Legal professions and studies
23	English language and literature/letters
24	Liberal arts and sciences, general studies and humanities
25	Library science
26	Biological and biomedical sciences
27	Mathematics and statistics
29	Military technologies
30	Multi/interdisciplinary studies
31	Parks, recreation, leisure, and fitness studies
38	Philosophy and religious studies
39	Theology and religious vocations
40	Physical sciences
41	Science technologies/technicians
42	Psychology
43	Security and protective services
44	Public administration and social service professions
45	Social sciences
46	Construction trades
47	Mechanic and repair technologies/technicians
48	Precision production
49	Transportation and materials moving
50	Visual and performing arts
51	Health professions and related clinical sciences
52	Business, management, marketing, and related support services
54	History

Data on degrees awarded by field are not included in the Delta Cost Project database. However, they are tracked in the IPEDS system from which the institutional expenditure data is drawn, so it is possible to supplement the Delta Cost Project database with this data. As noted previously, because the Delta Cost Project's adjustments to the underlying IPEDS data are difficult to replicate from the outside, this analysis is based on data directly from IPEDS, applying the Delta Cost Project's approach to calculating E&R spending. In IPEDS, the degree award data is grouped at five levels—associates, bachelors, masters, doctoral, and professional—and across the thirty-eight two-digit CIP classifications at each level. This produces 190 possible combinations of field and level. However, there are many combinations at which no institution awarded a degree in 2008-09, the last year for which the data is available. In addition, there are several combinations where so few degrees are offered that they cannot be modeled cleanly. To address these problems, combinations where no degrees were awarded we dropped from the model, and combinations where fewer than ten degrees were awarded in that level and field were combined with degrees awarded in the same field at the nearest degree level. These two adjustments reduced the total number of combinations in the model to an even one hundred. Regressing total E&R expenditures on these degree award level-field combinations explains over 95 percent of the variation in institutional spending among public research, doctoral, and masters institutions. While conceptually the coefficients represent the expenditures associated with a single degree awarded in the relevant field at the relevant level, in practice each institution produces a diverse portfolio of degree awards in any given year, and it is the combination of all of the programs that produce those degrees that lead to a particular spending level for that institution. The value of the model, therefore, is not in attempting to isolate the cost of instruction in any particular program (that would be more effectively accomplished through data-sharing arrangements like the Delaware Instructional Cost Study), but rather in providing an estimate of the expected level of expenditures for an institution given their mix of degree programs. The table below shows the actual and predicted E&R expenditure from the model for the University of Minnesota Twin Cities and its comparison group (for the full model output, see the Appendix).

Table 4 – Predicted vs. actual E&R expenditures for U of Minnesota Twin Cities comparison group

Institution	Actual E&R	Predicted E&R	Variance	% Var
Penn State U	$1,366,000,000	$1,210,000,000	$156,000,000	13%
U of California Los Angeles	$1,537,000,000	$1,380,000,000	$157,000,000	11%
U of Washington Seattle	$1,284,000,000	$1,180,000,000	$104,000,000	9%
The Ohio State U	$1,172,000,000	$1,090,000,000	$82,000,000	8%
U of Minnesota Twin Cities	$1,085,000,000	$1,040,000,000	$45,000,000	4%
U of Michigan Ann Arbor	$1,230,000,000	$1,210,000,000	$20,000,000	2%
U of Texas Austin	$851,300,000	$864,000,000	$(12,700,000)	-1%
U of California Berkeley	$841,000,000	$926,000,000	$(85,000,000)	-9%
Uof Florida	$728,500,000	$826,000,000	$(97,500,000)	-12%
U of Illinois Urbana-Champaign	$712,200,000	$834,000,000	$(121,800,000)	-15%
U of Wisconsin Madison	$675,100,000	$885,000,000	$(209,900,000)	-24%

The variance for some of the institutions is still significant in practical terms, but as a tool for benchmarking institutions, this formulation provides several advantages. The overwhelming majority of inter-institutional variation in spending appears to be connected with differences in the distribution of student levels and degree fields. Additional refinements built upon this base, therefore, have a greater chance of explaining actual differences in practices across institutions that result in greater or lesser efficiency, rather than conflating those practices with the academic portfolio. Likewise, differences between actual and predicted expenditures, particularly if they prove to be stable or consistently trending over time, provide a simple way to communicate with interested audiences about institutional performance.

This analysis focused on public research, doctoral, and masters institutions, a diverse yet limited collection of institutions. Applied to baccalaureate institutions, which are somewhat more homogenous, these predictions might be even more powerful. Overall, within the realm of research, doctoral, and masters institutions, expenditures at private institutions were significantly higher, and modeling including both public and private institutions produced models with less explanatory power. Identifying ways to incorporate both baccalaureate and private institutions is a challenge for future research. In addition, identifying variables that can help explain the remaining differences in institutional spending and inform policymakers and institutional administrators about effective practices in controlling costs would add significantly to the value of these models and the Delta Cost Project data set.

The Delta Cost Project's data represent a powerful and important tool for analyzing institutional spending, but it is also highly vulnerable to misinterpretation and oversimplification. Paying close attention to the differences in missions between institutions and how they are reflected in their instructional portfolios is critical to realizing the value of this data.

References

Archibald, R. and Feldman, D. (2011). Why does college cost so much? New York: Oxford University Press.

Baum, S. and Ma, J. (2011). Trends in college pricing 2011. New York: College Board.

Conger, S., Bell, A., & Stanley, J. (2010). Four State Cost Study. Boulder, CO: State Higher Education Executive Officers.

Delta Cost Project. [Data file]. Washington, DC: Delta Project on Postsecondary Education Costs, Productivity, and Accountability.

Desrochers, D., Lenihan, C., & Wellman, J. (2010). Trends in college spending 1998-2008: Where does the money come from? Where does it go? What does it buy? Washington, DC: Delta Project on Postsecondary Education Costs, Productivity, and Accountability.

Desrochers, D. and Wellman, J. (2011). Trends in college spending 1999-2009: Where does the money come from? Where does it go? What does it buy? Washington, DC: Delta Project on Postsecondary Education Costs, Productivity, and Accountability.

Higher Education Price Index. [Data file]. Wilton, CT: Commonfund Institute.

Integrated Postsecondary Education Data System. [Data file]. Washington, DC: National Center for Education Statistics, Department of Education.

Obama, B. (2012, January 24). Remarks by the President in the State of the Union Address. Washington, DC: White House Office of the Press Sectretary.

Pew Research Center. (2011, May 16). Is college worth it? College presidents, public assess value, quality, and mission of higher education. Washington, DC: Pew Social and Demographic Trends.

Vedder, R. (2004). Going broke by degree: Why college costs too much. Washington, DC: American Enterprise Institute Press.

Appendix: Regression of E&R spending on degrees awarded by level and field

Variable	Coefficient	Std Error	t Score	P>t	CI Lower	CI Upper	Sig
aacip1	$531,075	$353,428	1.5000	0.1340	$(164,245)	$1,226,395	
aacip11	$(451,038)	$1,075,028	(0.4200)	0.6750	$(2,566,003)	$1,663,928	
aacip13	$1,109,259	$1,160,382	0.9600	0.3400	$(1,173,628)	$3,392,146	
aacip15	$485,870	$215,122	2.2600	0.0250	$62,648	$909,091	**
aacip19	$1,329,900	$828,865	1.6000	0.1100	$(300,775)	$2,960,574	
aacip22	$(946,697)	$1,635,840	(0.5800)	0.5630	$(4,164,982)	$2,271,588	
aacip24	$(18,890)	$47,034	(0.4000)	0.6880	$(111,424)	$73,643	
aacip30	$(610,090)	$510,483	(1.2000)	0.2330	$(1,614,392)	$394,212	
aacip43	$319,798	$302,911	1.0600	0.2920	$(276,137)	$915,733	
aa2cip47	$(289,247)	$694,564	(0.4200)	0.6770	$(1,655,703)	$1,077,208	
aacip50	$(837,144)	$2,454,577	(0.3400)	0.7330	$(5,666,178)	$3,991,890	
aacip51	$8,164	$83,523	0.1000	0.9220	$(156,156)	$172,484	
aacip52	$195,422	$229,228	0.8500	0.3950	$(255,552)	$646,397	
bachcip1	$180,200	$81,559	2.2100	0.0280	$19,744	$340,655	**
bach2cip3	$175,935	$133,033	1.3200	0.1870	$(85,789)	$437,660	

bach2cip4	$(93,422)	$118,580	(0.7900)	0.4310	$(326,712)	$139,869	
bachcip5	$737,608	$173,120	4.2600	-	$397,019	$1,078,197	***
bach2cip9	$66,058	$37,851	1.7500	0.0820	$(8,407)	$140,524	*
bach2cip10	$(87,019)	$210,936	(0.4100)	0.6800	$(502,006)	$327,968	
bachcip11	$551,226	$95,693	5.7600	-	$362,964	$739,488	***
bachcip13	$43,781	$21,717	2.0200	0.0450	$1,056	$86,505	**
bach2cip14	$164,315	$39,227	4.1900	-	$87,141	$241,488	***
bachcip15	$188,190	$68,461	2.7500	0.0060	$53,503	$322,877	***
bach2cip16	$(373,942)	$148,711	(2.5100)	0.0120	$(666,510)	$(81,375)	**
bachcip19	$(88,248)	$53,631	(1.6500)	0.1010	$(193,758)	$17,263	
bachcip22	$(783,292)	$184,726	(4.2400)	-	$(1,146,714)	$(419,871)	***
bach2cip23	$(125,448)	$61,319	(2.0500)	0.0420	$(246,083)	$(4,812)	**
bachcip24	$28,104	$23,792	1.1800	0.2380	$(18,704)	$74,911	
bach2cip26	$(49,748)	$45,564	(1.0900)	0.2760	$(139,388)	$39,892	
bach2cip27	$(39,644)	$262,618	(0.1500)	0.8800	$(556,307)	$477,020	
bachcip30	$37,316	$31,244	1.1900	0.2330	$(24,153)	$98,785	
bachcip31	$(32,458)	$60,776	(0.5300)	0.5940	$(152,027)	$87,110	
bachcip38	$(98,565)	$344,463	(0.2900)	0.7750	$(776,246)	$579,117	
bach2cip40	$235,251	$154,586	1.5200	0.1290	$(68,876)	$539,377	
bach2cip41	$270,912	$439,237	0.6200	0.5380	$(593,226)	$1,135,049	
bach2cip42	$156,281	$56,937	2.7400	0.0060	$44,266	$268,296	***
bachcip43	$101,218	$51,877	1.9500	0.0520	$(842)	$203,278	*
bach2cip44	$59,321	$78,575	0.7500	0.4510	$(95,264)	$213,906	
bach2cip45	$49,738	$32,429	1.5300	0.1260	$(14,062)	$113,538	
bach2cip49	$214,375	$119,188	1.8000	0.0730	$(20,110)	$448,861	*
bachcip50	$(98,406)	$56,870	(1.7300)	0.0850	$(210,291)	$13,478	*
bachcip51	$27,652	$31,310	0.8800	0.3780	$(33,946)	$89,249	
bachcip52	$24,642	$15,660	1.5700	0.1170	$(6,167)	$55,452	
bach2cip54	$561,621	$137,525	4.0800	-	$291,061	$832,181	***
mastcip1	$(1,771,046)	$618,665	(2.8600)	0.0040	$(2,988,182)	$(553,911)	***
mastcip3	$39,707	$422,750	0.0900	0.9250	$(791,994)	$871,408	
mastcip4	$343,738	$187,410	1.8300	0.0680	$(24,965)	$712,441	*
mastcip5	$(538,266)	$608,473	(0.8800)	0.3770	$(1,735,351)	$658,820	
mastcip9	$(654,198)	$227,734	(2.8700)	0.0040	$(1,102,233)	$(206,163)	***
mastcip11	$(235,308)	$130,598	(1.8000)	0.0730	$(492,241)	$21,624	*
mastcip13	$59,962	$23,255	2.5800	0.0100	$14,211	$105,714	**
mastcip14	$95,838	$55,858	1.7200	0.0870	$(14,055)	$205,731	*
mast2cip15	$(309,371)	$221,211	(1.4000)	0.1630	$(744,572)	$125,829	
mastcip16	$1,217,574	$447,113	2.7200	0.0070	$337,943	$2,097,205	***
mastcip19	$612,305	$342,269	1.7900	0.0750	$(61,061)	$1,285,670	*
mastcip22	$1,127,942	$364,581	3.0900	0.0020	$410,680	$1,845,204	***
mastcip23	$170,365	$239,069	0.7100	0.4770	$(299,970)	$640,699	
mast2cip24	$24,479	$192,484	0.1300	0.8990	$(354,206)	$403,164	
mast2cip25	$(159,664)	$72,213	(2.2100)	0.0280	$(301,731)	$(17,596)	**
mastcip26	$569,424	$242,826	2.3400	0.0200	$91,699	$1,047,149	**
mastcip27	$1,130,049	$402,526	2.8100	0.0050	$338,135	$1,921,963	***
mastcip30	$98,838	$157,629	0.6300	0.5310	$(211,276)	$408,951	
mastcip31	$(138,109)	$111,300	(1.2400)	0.2160	$(357,076)	$80,858	
mastcip38	$(2,723,361)	$959,841	(2.8400)	0.0050	$(4,611,713)	$(835,010)	***

mastcip40	$(428,863)	$332,154	(1.2900)	0.1980	$(1,082,329)	$224,602	
mastcip42	$112,637	$120,169	0.9400	0.3490	$(123,780)	$349,053	
mastcip43	$(564,759)	$201,209	(2.8100)	0.0050	$(960,610)	$(168,909)	***
mastcip44	$187,967	$61,383	3.0600	0.0020	$67,204	$308,729	***
mastcip45	$(153,676)	$162,462	(0.9500)	0.3450	$(473,297)	$165,945	
mastcip50	$202,373	$203,920	0.9900	0.3220	$(198,810)	$603,556	
mastcip51	$105,909	$72,722	1.4600	0.1460	$(37,162)	$248,980	
mastcip52	$(68,989)	$26,281	(2.6300)	0.0090	$(120,693)	$(17,284)	***
mastcip54	$(1,078,252)	$580,014	(1.8600)	0.0640	$(2,219,348)	$62,844	*
doc2cip1	$(2,618,332)	$1,469,173	(1.7800)	0.0760	$(5,508,723)	$272,058	*
doc2cip3	$(3,924,711)	$1,406,240	(2.7900)	0.0060	$(6,691,289)	$(1,158,133)	***
doc2cip4	$3,487,518	$1,963,430	1.7800	0.0770	$(375,253)	$7,350,289	*
doc2cip5	$4,806,498	$3,185,498	1.5100	0.1320	$(1,460,518)	$11,100,000	
doc2cip9	$(1,046,331)	$1,589,334	(0.6600)	0.5110	$(4,173,121)	$2,080,458	
doc2cip11	$67,341	$1,003,891	0.0700	0.9470	$(1,907,673)	$2,042,355	
dpcip13	$(287,084)	$271,087	(1.0600)	0.2900	$(820,409)	$246,241	
doc2cip14	$(1,134,596)	$295,410	(3.8400)	-	$(1,715,773)	$(553,418)	***
doc2cip16	$675,719	$1,349,539	0.5000	0.6170	$(1,979,308)	$3,330,746	
doc2cip19	$5,774,356	$1,726,631	3.3400	0.0010	$2,377,453	$9,171,258	***
doc2cip23	$769,349	$1,085,810	0.7100	0.4790	$(1,366,829)	$2,905,526	
doc2cip26	$2,526,493	$388,217	6.5100	-	$1,762,732	$3,290,254	***
doc2cip27	$1,460,798	$1,352,781	1.0800	0.2810	$(1,200,608)	$4,122,204	
doc2cip30	$(821,372)	$1,030,174	(0.8000)	0.4260	$(2,848,094)	$1,205,351	
doc2cip31	$4,483,451	$1,629,117	2.7500	0.0060	$1,278,393	$7,688,508	***
doc2cip38	$(7,567,033)	$2,492,644	(3.0400)	0.0030	$(12,500,000)	$(2,663,108)	***
doc2cip40	$827,204	$629,641	1.3100	0.1900	$(411,526)	$2,065,934	
dpcip42	$1,509,199	$553,119	2.7300	0.0070	$421,015	$2,597,383	***
doc2cip43	$(2,028,540)	$2,398,741	(0.8500)	0.3980	$(6,747,724)	$2,690,644	
doc2cip44	$(876,434)	$1,211,891	(0.7200)	0.4700	$(3,260,658)	$1,507,790	
doc2cip45	$944,366	$787,318	1.2000	0.2310	$(604,571)	$2,493,302	
dpcip50	$799,172	$780,428	1.0200	0.3070	$(736,209)	$2,334,553	
doc2cip51	$(279,881)	$241,887	(1.1600)	0.2480	$(755,759)	$195,998	
doc2cip52	$1,429,388	$1,109,849	1.2900	0.1990	$(754,083)	$3,612,859	
doc2cip54	$3,767,803	$1,719,230	2.1900	0.0290	$385,462	$7,150,145	**
dpcip22	$(8,218)	$64,819	(0.1300)	0.8990	$(135,739)	$119,304	
pro2cip51	$249,466	$64,305	3.8800	-	$122,955	$375,976	***
constant	$9,812,023	$5,668,471	1.7300	0.0840	$(1,339,893)	$21,000,000	*