

# Are Cost Conscious Community Colleges Sacrificing Quality?

DRAFT 8/2012 comments invited

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Compared to their four-year public counterparts, community colleges have been more successful in holding down the costs of educating students but current research, albeit limited, suggests that this may have come at the expense of quality or at least outcomes. This essay addresses the questions surrounding this issue, including the behavior of costs at public two-year colleges and what the research says about quality and outcomes issues. It is based on my study of community colleges over the past twenty-five years.

## The Cost Disease

Community college budgets are under great stress on both the revenue and the cost sides of the ledger. Colleges would need more revenue over time for two reasons: enrollments are rising and costs per students keep going up. I have argued elsewhere that the community college is mission rich and revenue starved and have suggested policy moves to help correct this problem (Romano, 2012). With all of the national attention focused on college affordability, however, it is the cost side of the budget that is under greater public scrutiny.

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In an article in the May/June 2008 issue of *Change*, Archibald and Feldman asked the question, “Why Do Higher Education Costs Rise More Rapidly than Prices in General?” Their answer was that higher education, like a number of other high wage service industries, is saddled with the cost disease. In such industries, productivity is difficult to increase without reducing quality. In industries where productivity growth is slower than that in the overall economy, costs will always rise faster than the general rate of inflation. In higher education costs are best measured by what a college spends per student FTE but the public only sees the tuition and fees (price) the college charges. The price is always lower than the cost and may be changing at a different rate.

The relative thriftiness of the community college is shown in the data compiled by the Delta Cost Project (using IPEDS data) which allow us to examine the costs (measured by expenditures) per student FTE, adjusted for inflation, over the most recent ten-year period for which we have data. It is important to note that we will be focusing on the idea of cost control which is not the same as efficiency. Strictly speaking efficiency refers to the amount of resources needed to produce a given output (outcome). So a community college would be more efficient not by spending less per se, but by spending less to produce a student with a credential or some other outcome.

Table 1 shows that, when we look at national data, the price, in current dollars, increased by over 50% in the public research (PR) and public master’s (PM) colleges from 1999 to 2009. The general cost of living as measured by the consumer price index (CPI) increased by 28.8% in this same period. Prices increased more than the general cost of living because costs, as measured by both expenditure categories listed, were increasing and because public appropriations per FTE were reduced. The community

college picture shows a slightly different story. Here price increases were more in line with the CPI, rising only 3.1% above the CPI over the entire ten-year period (31.9% vs 28.8%). More favorable treatment from public funding, as shown by the level of state and local appropriations figures in Table 1, and cost containment allowed colleges to keep tuition increases down to about the general level of inflation but have not been strong enough to reduce prices.

Table 1 Tuition and fees (sticker price); State and Local Appropriations vs Expenditures by Sector, 1999-2009 (per FTE in 2009 dollars)

<u>Sector</u>	<u>1999</u>	<u>2009</u>	<u>\$ Change</u>	<u>% Change</u>
<b>Public Research</b>				
Tuition and fees	\$4,440	6,926	2,486	+56.0%
State and Local Appropriations	\$10,370	8,868	- 1,502	-14.5%
Education and Related Expenditures	\$14,353	15,919	1,566	+10.9%
Education and General Expenses	\$25,378	27,680	2,302	+ 9.0%
<b>Public Master's</b>				
Tuition and fees	\$3,719	5,666	1,947	+ 52.4%
State and Local Appropriations	\$7,411	6,416	-995	-13.4%
Education and Related Expenditures	\$11,305	12,363	1,058	+9.4%
Education and General Expenses	\$ 14,513	14,874	361	+2.5%
<b>Community Colleges</b>				
Tuition and fees	\$1,842	2,429	587	+31.9%
State and Local Appropriations	\$6,991	6,645	-346	-4.9%
Education and Related Expenditures	\$10,204	10,242	38	+0.4%
Education and General Expenses	\$12,163	11,837	-326	-2.7%

Adapted from Desrochers, and Wellman, 2011. Delta cost and revenue data are based on IPEDS. Tuition and fees represent the average sticker price for in-state undergraduates for 4-year colleges and the in-district price for community colleges. This is not the same as the tuition and fee revenue which represents average tuition revenue from all students less discounts. Nationally, tuition revenue, adjusted for inflation, financed 18.9% of operating budgets in 1999 and 24% in 2009.

Looking at the expenditure categories listed in Table 1, we find that Education and Related spending comes the closest to measuring the cost of educating students. It includes expenditures on instruction, student services, and the administrative share and maintenance costs associated with instruction. Since colleges, particularly PR and PM,

are producers of many services, this E&R expenditure is often used by researchers as a proxy for the cost of educating students. Education and General Expenses is an expanded category that includes all spending except for that on Auxiliary Enterprises, such as bookstores and dormitories, which are largely self-supported.

At the community college level, within the Education and Related category, the share going to direct instruction (not shown), which is largely faculty salaries and fringes, has fallen the most, while the share devoted to academic and administrative support has increased the most. This reflects the increased use of part-time faculty and a rising student/faculty ratio. Within the student services category, expenditures on academic support, such as libraries, have fallen; but those devoted to institutional support, such as executive management, have risen. Even though expenditures on administrative support have risen as a share of the budget, this has been largely due to increased compensation and not to an increase in their numbers, which has fallen as a percentage of student enrollments (Zaback, 2011).

It is worth noting that making cost comparisons between two and four-year colleges for comparable students is rather complicated (Romano & Djajalaksana, 2011). The expenditure figures for PR and PM colleges, for instance, include costs for their full range of students. The highest cost students are upper-division and graduate students and the relative cash cows are the lower-division students. We do not have figures which separate undergraduate from graduate expenditures nor do we have national data on lower-division and upper-division costs. On the other hand many vocational/technical community college programs are expensive and come closer to the costs of upper-

division undergraduate costs. On balance however, as Table 1 shows, the costs per FTE student are lower at the community college.

The relative thriftiness of the CC may be seen as a positive or a negative sign: positive if you are interested in keeping costs and prices down but negative if it impacts college quality.

#### Productivity in theory and practice

Make no mistake about it, the reason tuition and fees at public colleges have gone up so rapidly in recent years is that public appropriations have been cut. However, the rising underlying costs of operation must ultimately be controlled if prices are to be held down. As economists argue, the link between costs and prices is through productivity.

Productivity may be expressed as the ratio of outputs to inputs. Producing more output with the same inputs or producing the same output with fewer or lower cost inputs would register as an increase in productivity. But this assumes, for instance, that the output does not decrease in quality, otherwise, by definition we would not be talking about the same output. A recent report on educational productivity prepared for the National Academy of Sciences underscores the difficulty in measuring educational productivity because both “inputs and outputs in the production process are difficult to define and quantify” and because we have not been able to adjust either for quality differences (National Research Council, 2012, p. 4). What we are left with, in practice, are very incomplete, proxy, measures of productivity that are often used as measures of institutional or system level effectiveness. Until better measures are available we are stuck with the conventional proxy measures currently applied in the empirical literature. Thus, we have the familiar discussion about output measures such as the number of degrees produced, or inputs

measures such as SAT scores to account for student quality. A brief discussion of some of these proxy metrics is presented below but remember that none of them takes account, in any satisfactory way, of the changing quality of either the outputs or the inputs.

In contrast to education, measurement of productivity is much easier when looking at the private market for goods. In these industries technological change and the substitution of capital for labor are key ingredients in rising productivity. In some industries, such as electronics, rapidly rising productivity spurred by technological change allows for not only rising wages and quality in that industry but also falling prices. Extending this line of thinking to higher education leads to the cost disease phenomenon where the higher wages that must be paid to attract quality faculty, along with the other costs of operation, push prices up because of the inability or unwillingness to boost productivity. In this regard, higher education is similar to other high wage service industries such as medicine, good restaurants and symphony orchestras. In these industries, it is argued, attempts to increase productivity will come at the cost of lower quality.

In its present form, higher education is a very labor intensive industry and colleges have found it very difficult to increase productivity by substituting capital for labor. Instead, in order to economize on this expensive input, colleges have taken steps to increase the student-faculty ratio and the percentage of part-time faculty in the classroom. If we examine these two conventional measures, the community college looks like a more flexible and cost effective organization than public four-year colleges. In 2003-04, for instance, 66.5 percent of community college faculty were part-timers as opposed to only 29.1 percent for the public four-year college (NSOPF, 2004). In 2009 only 17 percent of faculty in public two-year colleges had tenure or were on tenure tracks. Likewise, in 2009

student-faculty ratios (on an FTE basis) stood at 22:1 in public two-year colleges vs 15:1 in public four-year colleges. A real difference can also be seen in the FTE student to FTE staff (other than faculty) ratio. In community colleges that stood at 10:1 but it was a hefty 5:1 at the public four-year college (NCES, 2010, Table 257). These measures have certainly helped to increase administrative flexibility and control costs at the community college, but the impact on quality outcomes or measures of institutional performance, such as degree production, is hotly debated.

### Standard Measures of Quality

As we have suggested college quality is an elusive concept. Historically, quality has been measured by focusing on the inputs or the outputs of the education process. In the past, inputs such as the number of faculty with advanced degrees, or the number of books in the library, were common. Today it is more acceptable to talk about outputs, such as the number of degrees produced, the extent of learning that takes place or the success of the graduates.

#### Four-year colleges

In spite of the rhetoric about the importance of output (outcomes) over input measures, the latter still holds sway when it comes to measuring the quality of four-year colleges. Within the input category, the most common measures are related to the quality of the students admitted (these are the peer effects) and the level of resources devoted to the education of students. Peer effects are important because students are one of the inputs that go into production process. Better students, better shared learning, better outcomes. The quality of the students in turn is often measured by such things as average SAT

scores of students admitted, the selectivity of the college (rejection rate), and retention rates.

The other commonly used measure of quality is the level of resources devoted to students, which is generally measured by the expenditures per student or FTE. The assumption is that the more resources available to students the better the outcomes. Well known for using these input measures are the U.S. News & World Report rankings which use spending per FTE on instruction, student services, and academic support, as well as faculty compensation, percent of full-time faculty, and low student-faculty ratios as measures of quality. The message is that higher spending and closer contact with the faculty mean greater quality. In fact, for four-year colleges, research has generally shown a high correlation between these inputs and student outcomes such as degree completion. However, since better students tend to sort themselves into better colleges, it is difficult to separate the effects of institutional quality and student ability. Correlations exist but claims of causal effects should be treated with care.

### Community colleges

No standard proxy measures of quality particularly suited to the community college are currently in use. For that reason researchers generally fall back on the two input measures cited above. Since community colleges are generally open enrollment institutions, the peer impacts on educational outcomes may be negative. Thus, the level of preparation of the incoming students must be controlled for when doing outcomes research. This is never completely successful (Romano, 2011). At the very least, when considering peer effects, community college should be compared with the four-year colleges that are open



admissions or that admit at least 75% of their applicants. This group makes up about half of all four-year colleges in the U.S. (Baum & Ma, 2011). This research has yet to be done.

What about expenditures per student as a measure of quality? This is the most common single measure found in the empirical literature because it is the most readily available and because researchers know that it is correlated with quality at four-year colleges. It is pretty clear that if you look at this single measure, the successful attempts to control costs, other things being equal, have come at the expense of quality. Even those most concerned with controlling college costs, such as Jane Wellman, fear that the community colleges “imperative to cut costs [may be] sacrificing some aspect of quality” (Wellman, 2006).

#### Alternative measures of quality and/or outcomes

Instead of talking about the cost, productivity and quality links, educators often come up with outcomes measures of productivity that do not mention cost or price. The U.S. Secretary of Education’s special commission set up to study this issue in 2010 and the Voluntary Framework of Accountability supported by the American Association of Community Colleges, are examples of efforts that have helped to shift the emphasis away from quality based on inputs to alternative outcome measures under the label of institutional effectiveness or student success. If these outcomes improve it is taken as a sign of increased quality even if costs and prices go up. It is important to point out that outcomes and quality are not the same thing although colleges often use these terms interchangeably. For instance, a college can increase its graduation rate by lowering its

standards. Thus, increasing completion or transfer rates might be accomplished by reducing the quality of education.

#### Student engagement

Even though no widely published national ranking of quality exists for community colleges, the Washington Monthly magazine has attempted to establish a ranking based on student responses to their level of engagement (an input measure) and degree completion rates (an output measure). This ranking is widely criticized because the student engagement numbers are taken from the Community College Survey of Student Engagement (CCSSE) which is not design for ranking purposes and which makes no attempt to control for other variables which influence outputs. In fact, the CCSSE and its birth mother the National Survey of Student Engagement (NSSE) have become the most widely used measures of college effectiveness in the U.S. and are often treated as all-purpose measures of quality. However, survey research experts have cautioned about their use for the purpose of measuring outputs and have questioned the validity of the instrument used to collect the student data (see Special Issue of *The Review of Higher Education*, vol. 34 (3), 2011). In particular the link between engagement and student learning is arguably a weak one.

#### Student learning

Colleges might want to emphasize that learning is their major output and colleges constantly grapple with attempts to assess it on the campus and state level. However, no generally accepted national standard of learning is widely used. Attempts to date such, as the Collegiate Learning Assessment, are more discussed than used and may have limited

application for the community college. The Lumina Foundation is backing a Degree Qualifications Profile. It attempts to specify what a degree, including the associates, means in terms of what students should know and be able to do. Currently in the pilot stage, it is a modified form of what is going on in Europe and has an important spokesman in Cliff Adelman. Still, with the increased movement of students in an out of different institutions these days it is hard to imagine how we could get an accurate measure of the learning outcomes for any particular college.

#### Labor market outcomes

If more learning leads to better jobs and incomes, or increased satisfaction, or lower social costs, then colleges could show that public support represents an investment with measurable payoffs. Some of this of course can be demonstrated; in particular, the link between higher education and improved labor market outcomes is well understood and is, in large part, responsible for the rising demand for higher education. It should be noted that this has not reduced the cost of that output or the public's demand to provide the same results or better at a lower cost.

However, less is known about community college outcomes than those produced by four-year colleges. If it is labor market outcomes we desire, the best hope is to link community college student data to wage and earning data compiled by the labor department in each state. This is especially important for students in vocational/technical programs who go to work directly after attending the community college. In 2011, The Community College Research Center at Columbia University launched a major effort, with support from U.S. Department of Education, to examine this issue in the states of North Carolina, Michigan, Ohio, Virginia and Florida. This line of research should

provide the best evidence yet available on the education/wage link and will hopefully spread to other states.

#### Degree completion and transfer rates

Beyond the ill-defined learning and labor market outcomes, the most commonly accepted measure of output is the number of degrees being produced and the success of community colleges as a pathway to the bachelor's degree. Degree production, in particular has increasingly become a proxy measure of productivity. On this score the community college does not come out very well because graduation rates are low and therefore the cost per degree is high. However, if the definition of completion is broadened to include lower cost certificates and diplomas, the completion rates have been about the same as for public four-year colleges and appear to have increased over the last few years (Desrochers, & Wellman, 2011). If costs per student are holding constant and credential production is increasing, then the cost per credential is falling, other things, including quality, being equal.

In response to their low graduation rate, community colleges will rightfully argue that graduation is not a good measure of their success. At four-year colleges the vast majority of students enroll with the goal of getting a degree. However, the prime goal of credit-seeking students at the community college is often not a degree from that school. Some students are seeking short-term vocational training while others may be attending for a year or less before they transfer to a university. Particularly, in difficult economic times the community college might have an important role to play as “a safe port in a storm” and that safe port, close to home, may only be temporary and without a degree from that college in mind. Finally, research on completion rates need to take into account

the lower level of academic preparation of the students who enter the community college. Once this is accounted for, it may turn out that the value added by the two-year college is higher than that of the four-year level. This is an area that calls for further research.

Successful transfer is an important goal for many students and a good deal is known about transfer rates (Romano, 2011). The recently released report from the federal Committee on Measures of Student Success has called for combining the currently reported IPEDS graduation rate with a transfer rate to get a more accurate measure of student success. On another level, the balance of best studies indicates that for those aspiring to a bachelor's degree, starting at a community college has some penalty attached to it (more on this below). The challenge is to isolate where the problems are and to smooth this pathway to the bachelor's degree.

In short, the community college is a multi-product firm with different programs and roles. The success or failure of these programs/roles needs to be evaluated in ways that do not always show up in the graduation or completion and transfer rates. Nevertheless, as long as it is supplemented with other measures, graduation and successful transfer are reasonable goals for many students and should be included as measures of output (student success or institutional effectiveness).

#### Recent Studies of Community College Quality/Outcomes

As I have argued, community colleges have held down costs mainly by substituting part-time for full-time faculty and by increasing the student-faculty ratio. The impact of these measures on quality, however measured, is not certain given the few well-designed studies that have been done on this issue. However, the following research, which leans

heavily on the two standard measures of quality, peer effects and resources, suggests that quality has been reduced.

The most widely cited study of the impact of cost control on outcomes was done by Jacoby (2006) who examined the impact of the increasing use of part-time faculty on graduation rates. Relying on an IPEDS dataset, which included 935 public two-year colleges throughout the U.S., he uses three different measures of the graduation rate in an attempt to control for part-time and transfer students. For peer effects he uses two indirect measures of student quality. He finds that as student quality goes up so does the graduation rate, a predictable result. However, his most interesting finding is that the increasing use of part-time faculty has a large and negative impact on graduation rates. A similar result was found for four-year colleges by Ehrenberg and Zhang (2004). Further evidence that the increasing use of part-time faculty has a negative impact on student outcomes at the community college is provided by Boylan (2010), Egan and Jaeger (2009), and Jaeger and Egan (2009).

Calcagno, et al, (2008), drawing on the models of student engagement, set out to examine the institutional characteristics which influence student completion rates, measured by a certificate or degree or transfer to a four-year college. They consider both peer effects and expenditures per student for a national sample of community colleges. After controlling for a number of variables, they conclude that expenditures and tuition levels are not related to completion, although traditional-age students seem to be helped by expanding student support services. The variables that did make a difference were college size (small is better), a greater proportion of full-time faculty, and the proportion of minority students (less is better).

Another well designed study by Strange (2009) uses national data and expenditures per student, as well as other measures, of community college quality. He finds that students do not select a community college based on its quality but generally go to the one closest to their home. More importantly, differences in college quality make no difference in students' educational attainment. In a related study, Dunlop (2011) finds that the bachelor's degree attainment of community college transfers in the state of Virginia depend on the quality of the college transferred to and not on that of the community college.

Reviewing the existing studies on transfer rates, Pascarella and Terenzini (2005) concluded that similarly situated students would be about 15-20% less likely to complete a bachelor's degree if they started at a community college. A similar community college penalty rate was found by Long and Kurlaender (2009). However, neither of these studies implied that the lower completion rate was due to poor quality at the two-year level.

#### The Aspen List

Growing out of the community college summit held at the White House in 2010, a challenge was laid down to find the most exemplary colleges in the nation. A quality list based on outcomes, such as completion rates and labor market and learning outcomes, was released by the Aspen Institute in 2011. Institutional performance in three areas of student success, adjusted for missions and size, produced measures of quality based on 1. student success in persistence and completion, 2. consistent improvement in outcomes over time, and 3. equity in outcomes for students of all racial/ethnic and socioeconomic backgrounds (Aspen Institute, 2011).

Despite its weaknesses (e.g. it does not measure quality in any absolute sense), if we must have a list this is probably the best one available using current national data. It was guided by an excellent panel of researchers and practitioners. When I looked at the top ten candidates for the \$1 million dollar prize, I found that eight of the ten colleges on the list had education and general expenditures per FTE student that were close to or higher than their state median for 2009 (author's calculations). This might suggest that higher spending produces higher quality. Two of the colleges on the list were below their state median and one, Valencia Community College in Florida (the eventual winner of the prize), operated at the lowest cost on the list and was well below its state median (\$7,894 vs \$10,078). Some of this low cost may be accounted for by their program mix since, in 2010-11, 52% of the students were enrolled in lower cost AA transfer programs and 33% were in certificate programs which usually take less than two-years to complete (see Romano, Losinger & Millard, 2011 on differential program costs). Notwithstanding this, Valencia may prove to be an example of a cost effective but productive college that breaks the link between high quality and high spending.

#### Canary in the Coal Mine?

If additional studies support the view that cost cutting measures at the community college have come at the expense of quality or at least poorer outcomes, it will pose a policy dilemma. Policy makers will increasingly confront tradeoffs that reduce upward mobility, the formation of human capital, and the competitiveness of the U.S. economy. For the higher education sector as a whole, the community college acts as the canary in the coal



mine and serves as a warning to the public of the impending decline in the quality of U.S. higher education at least below the elite college level.

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