

...we cannot accept anything as a given, even the fact

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The Positional Arms Race in Higher Education

In an arms race, there is a lot of action, a lot of spending, a lot of worry, but if it's a successful arms race, nothing much changes. The essence of an arms race is *position*—how a country or university stands relative to others. No single institution alone can safely quit the race, even though all institutions, together, would be better off if everyone did. Unilateral disarmament will swiftly be punished by loss of position and increased vulnerability. Gordon Winston, Orrin Sage professor of political economy and professor of economics at Williams College, builds on Robert Frank's winner-take-all presentation at the 1999 Forum symposium as he describes the *positional arms race* underway today in higher education, and the implications it holds for the future.

Gordon Winston
Williams College



Student Subsidies and Student Quality

The most fundamental economic characteristic of the higher education market is that it is sold for a price that rarely covers the cost of its production. Every student is subsidized to the extent of the difference between the price he or she pays and the cost of producing the education purchased. In the United States, for both the public and private sectors on average, a \$12,800 education was sold in 1995-96 (the most recent year for which data are available) for a price of \$4,000, giving the average student a subsidy of \$8,800 a year.

Table 1 shows the average costs, prices, and subsidies for all institutions, and broken down by public and private institutions.

The price-to-cost ratio can be interpreted as a measure of what the average student has to pay for a dollar's worth of educational spending. A ratio of .313, for example, means that a student pays 31.3 cents for every dollar spent on his or her education. This ratio, which reflects the subsidies students receive, varies dramatically across institutions. When colleges and universities are divided into deciles—that is, 10 evenly sized groups—based on the size of the subsidies they offer, the data show that students attending private institutions in the top subsidy decile pay 26.1 cents for every dollar of educational spending, whereas those attending schools in the tenth decile pay 91 cents for every such dollar of spending. The range in the public sector is similar, but on a different scale: students in the highest and the lowest subsidy deciles pay 7.6 cents and 24.3 cents per dollar of educational spending, respectively.

The other key point to understanding the higher education market is that competition among colleges and universities is, after an enrollment threshold is met, competition for student quality. Numbers of applications are of great interest because they translate into student qual-

Table 1.

Costs, Prices, and Subsidies					
Averages based on 1995-96 data					
	Enrollment	Student Subsidy	Costs: Educational "E&G&K"	Price: Net Tuition & Fees	Price to Cost Ratio
All Institutions	3,398	\$8,785	\$12,787	\$4,002	.313
Public Institutions	5,068	\$9,271	\$10,607	\$1,336	.126
Private Institutions	1,676	\$8,284	\$15,035	\$6,751	.449

Source: Winston-Yen, 1995 (updated); based on U.S. Department of Education IPEDS data. Includes 2,809 institutions, of which 1,426 are public and 1,383 are private. All dollar amounts are per FTE student averaged over institutions. Educational costs include the share of E&G spending devoted to instruction plus the rental rate for physical capital. Tuition and fees are net of grant aid.

ity by allowing selectivity in admissions; indeed, top tier institutions restrict enrollment so that they can be selective on student quality.

Colleges and universities care as much as they do about student quality—about who they sell their education to—primarily because of the *customer input technology* by which higher education is produced. That is, those who buy the product also supply the college with a primary input into its production in the form of student peer effects. The higher the quality of the students with whom he or she is educated, the better a student's education will be. Thus, the quality of education that any college produces will be improved if it can be sold to better quality students.

The Higher Education Market

The higher education market, then, looks like this: colleges and universities want to maximize student peer quality to produce a higher quality education, but there is a limited supply of peer quality among students. So institutions rank applicants by quality—their attractiveness as suppliers of peer inputs. On the other hand, students want to get the most for their money, which means paying as little as possible for a dollar's worth of educational quality. So students rank colleges by the size of their student subsidies, their educational spending per dollar of tuition price. Students are also sensitive to the role of peer effects in increasing educational quality, and so are sensitive to the quality of their potential fellow students. A feedback loop compounds the situation, whereby quality begets more quality.

It might seem that “subsidy” is far too abstract a notion to influence students' decisions, but much of an institution's subsidy takes very tangible forms. It is embedded in what the campus looks like, how well respected its faculty are, how its buildings are maintained, how rich its curricu-

An arms race has ***no finish line*** that indicates success. It is a **continuing** process that can be ended only by ***ending*** the process itself.

lum is, how successful its sports program is, how illustrious its president is, and so on.

With exaggerated simplicity, this model would have the top institution filling its class with the top students. The second institution in the subsidy hierarchy would fill its class with the best students of those who remain, and so on, until the process exhausts either the student applicant pool or the institutions' total capacity.

Positional Competition and the Arms Race

A college or university's access to student quality, then, depends on its position *relative* to other institutions. That position depends, in turn, on the size of its student subsidy (cost minus price) *relative* to that of other colleges and universities.

The primary implication of this scenario is that an institution's access to student quality doesn't change as long as its position doesn't change. It simply doesn't matter whether the school's costs and prices are rising, falling, or constant, if the same thing is going on in the other colleges and universities. That is the essence of the arms race. The only thing that matters is an institution's relative position. It can initiate repositioning by increasing the subsidy it offers—by increasing spending or reducing price—in an effort to improve its student quality. Another college or university must either respond in kind, or risk losing position in the hierarchy.

It is worth noting that of the some 3,400 colleges and universities in the United States, very few are relevant to any one institution's competitive position. The range of

interest generally is considered to be the 10 above in the subsidy hierarchy and the 10 below. Outside that limited range, no other college or university has a direct impact on an institution's access to quality, although a change that reverberates through the hierarchy—by plus or minus 10—may eventually transmit some impact.

Pressure from a college or university below, through increased spending or reduced price, is more effective in inducing an arms race response than is a growing gap with an institution above. An institution can choose not to follow subsidy increases of those above it because even if the gap between them is growing, its relative position will remain the same. However, a college or university ignores those overtaking its subsidy from below only at considerable peril.

The link between a college or university's hierarchical status and its ability to attract high quality students provides a clear incentive for colleges and universities to reposition in the subsidy hierarchy. Their academic excellence is at stake.

Increasing subsidy to reposition requires either spending more or charging less. Increased spending is the form that positional competition has usually taken, including those “competitive amenities” that take an especially obvious form, such as new 50 meter pools, science facilities, new programs, and expanded student services.

On the other hand, there has been little competition on price—in increasing the distance between cost and price, costs have steadily gone up but prices have not gone down. With all the pressure from competitors to increase costs, there has been no equivalent pressure in the form of competition to decrease prices. It appears, then, that the positional arms race has put opposing pressures on costs and prices.

Conclusion

An arms race has no finish line that indicates success. It is a continuing process that can be ended only by ending the process itself. There are no indications today that any

mutual agreement to stop the competition is near. Instead, there is increasing evidence of further escalation, as more higher education institutions entertain the possibility of engaging in price competition. Some institutions already offer more generous need-based financial aid, while others have been very open about merit-based price reductions.

Does this latest escalation spiral higher education into an out-of-control arms race? The end game of price competition is to pay the best undergraduates to attend—a notion not so farfetched when one considers that prominent graduate programs have been paying the best students to come to their institutions for the last 50 years.

Increasing the subsidy an institution can offer to its students requires either spending more or charging less, both of which have to be supported by non-tuition resources. The increasing professionalism and energy of development efforts, as well as the fund-raising preoccupations of presidents, evidence the need to increase such resources. One frustrated trustee, presented with plans for the next, even larger, capital campaign, asked his president, “How much is enough?” In a positional arms race, there is no such thing.

Gordon Winston is the Orrin Sage professor of political economy and professor of economics at Williams College, where he is also director of the Williams Project on the Economics of Higher Education. He has written widely on the theory of economic development, productive capital, time in economics, economic psychology, and, most recently, on the economic theory and practice of higher education.