



PEER WAGES, TUITION AND PRICE DISCOUNTS

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The director of Williams' Project on the Economics of Higher Education discusses the transformation of U.S. colleges and universities.

In colleges, students educate students. Some do it better than others. So we see “peer effects” not only in their clothes, vocabulary and mating rituals but also in academic performance and learning. A student will do better academically—learn more, learn to think more carefully, perform better—if he or she is associated with strong fellow students instead of weak ones.

It's long been suspected that this is the case, and important educational policies appear to be based on that suspicion. But now there's emerging statistical evidence that indeed a college student's academic performance is affected by the qualities of his or her peers.

These peer effects may help in the classroom—a professor can cover more material in greater depth in front of sharp and attentive students than with dull and distracted ones, to everyone's advantage. But peer effects seem to be more pervasive and subtle than that. Having to defend a late-night dorm room argument with a demanding fellow student is simply more educational than being able to get by with a sloppy argument, even if the argument

is about what went wrong on a date last night or whether God exists. In a residential college with demanding fellow students, education goes on all the time, which is one reason for residential colleges.

Hard evidence on the existence of peer effects has not been easy to get, mainly because of friendships. Are peers' behaviors similar—say, they like studying history or drinking beer—because they've influenced each other or because they sought each other out as kindred spirits? The first is evidence of peer effects; the second isn't.

To avoid that kind of “selection bias,” we at the Williams Project on the Economics of Higher Education researched peer effects at Williams and four other colleges among randomly assigned roommates (in a study led by Dave Zimmerman, the Orrin Sage Professor of Political Economy) and among partners in psychology-lab experiments (in a study led by Al Goethals, the Dennis Meehan '54 Third Century Professor of Leadership). Roommate studies also were conducted at Dartmouth, Berea

College and University of Maryland. Based on this research, peer effects are often significant, even for the highly limited question of what influence one student's SAT scores are likely to have on another's grades. So we're persuaded that peer effects exist and, on the broader canvas of a college education, can be highly influential.

As part of an economic production process, though, educational peer effects are really strange. They mean that a firm's (school's) customers (students) not only buy the product (educational services) but also supply the firm with an important input to its production (peer quality).

It's as if the quality of the Taurus you bought from your local Ford dealer depended on the quality of the other people buying cars there. If they were good drivers, your Taurus would ride better, corner more precisely and get better gas mileage. And if your fellow customers were very, very good drivers, your Taurus would become a BMW. We're only beginning to understand the economic implications of a production technology like that. But we *are* beginning, and they look a lot like higher education. So let me describe the most important of them.

Schools care very much about who their students are, about whom they sell their product to. It's not true, as it is for Ford dealers and most familiar businesses, that they're indifferent to who buys the product, because admitting better students will—other things equal—produce a better education for everyone. Indeed, most of the increasingly fierce economic competition among colleges over the past decade has been a competition to get better customers, not just more customers, because, through peer effects, the quality of a school's education will be improved just as it would be by getting more and better faculty or facilities or lab equipment or the like.

So selective schools are selective in order to produce a better education. There are socially valuable benefits of that selectivity—the improvement of education—that may offset the oft-cited social costs of its stratification. Whatever the net



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social value, it's important to understand what's motivating schools to be selective, if they can be. In place of the dubious incentives that are often suggested, like exclusivity (a "Rodeo Drive" effect) or striving for prestige for its own sake, it appears that schools are often being exclusive in order to have fewer weak students, in order to produce better education—a much more substantial motive.

But if schools are being selective in admissions in recognition of the role that student peer quality plays in producing educational quality, a role like that of good faculty and facilities and lab equipment, it would seem to make sense for them to pay good students a wage or salary like they pay for good faculty and facilities and lab equipment.

So why don't schools pay students a salary or price for their peer quality? The answer is, they do. And hugely.

Those students whom colleges think will bring the greatest amount of peer quality can currently earn \$50,000 a year and more, and there's an increasingly hot bidding war for them as more and more colleges enter the competition for scarce top-student peer talent.

The hitch is that this wage payment is hidden from view. It takes the form of a subsidy, selling the student educational services that are very expensive to produce (about \$80,000 a year at Williams) for a very modest price (the \$27,500 average net price at Williams). The average student at a wealthy school like Williams is getting \$52,500 a year in subsidy—an implicit wage or salary. Even the wealthy student who's paying the full sticker price of \$38,100 is getting a \$41,900 salary as a full-time undergraduate.

Williams' numbers are typical of the wealthy, high-paying private colleges and universities in the U.S. Those are the salaries being paid for the best student peer quality in higher education.

But the student subsidy (peer salary) being paid by the average U.S. school is in the neighborhood of \$10,000. An education that cost \$15,000 to produce in 1995-96 (in today's dollars) was sold for an average net price of \$5,000. A study of 2,700 schools using National Center for Education Statistics data shows huge differences in student subsidies or peer wages among schools.

Since peer wages are paid to all the students at a school, those schools that pay high wages attract long queues of applicants who'd like to sell their peer quality for that much money. Most applicants are turned away from high-wage schools because they don't bring the greatest promise of peer quality. What's more, schools don't expand to be able to take more students, like a sensible business would, simply because they control their peer quality by limiting enrollments.

What are the implications? First, there's a hierarchy of schools in the U.S. based on their ability to pay high peer-quality wages for students, and there are very few students in the rarefied atmosphere of the wealthiest private schools with their huge

yearly salaries. Most schools pay their students far more modestly, with more modest results, and many schools' admission motives edge over from student quality to student numbers, where quality is relatively less important. At the extreme, open admission abandons peer quality for enrollments.

Second, this has been, and may still be, the main form that competition among schools for student quality takes in U.S. higher education. Colleges compete through the student-subsidy wage they offer *all* their students as they sell that expensive education at a modest price. Schools with the highest student subsidies are paying the highest peer salaries and therefore have the most choice in students. The "best" students in terms of peer effects are concentrated at the schools that pay the highest peer wages.

But increasingly there's a new strategy at work. Some schools are offering higher individual peer wages to a particular student who promises above-average peer quality—and therefore will increase the a

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school's average educational quality—in hopes of luring that student away from a high general-wage school. It's called "merit aid" or a "scholarship" or "price discounting." So the student who gets into Princeton paying full price (receiving something like a \$45,000 peer salary) may be induced to go to Vanderbilt, where, despite its lower general salary, a "full ride" scholarship gives the kid a \$60,000 salary.

Looking across schools, those that have passively accepted the student quality that their position in the hierarchy gave them are becoming aggressive, using higher individual wages to improve their peer quality, "stealing" students from schools

that give a higher general wage to their students but that won't match the bid for an individual. This price competition threatens to change U.S. higher education in very basic ways.

Most important is that the genie is out of the bottle and probably won't go back in. So the raw power of this classic "price competition" is increasingly likely to dominate higher education as aggressive schools' price discounts to improve their own student quality are matched or exceeded by the once-passive schools whose peer quality has thereby been reduced. Retaliation. And retaliation breeds retaliation (a fact basic to competition, even as described in Econ 101, that's ignored in most of the competitive pricing strategies that are expected to improve a school's student peer quality).

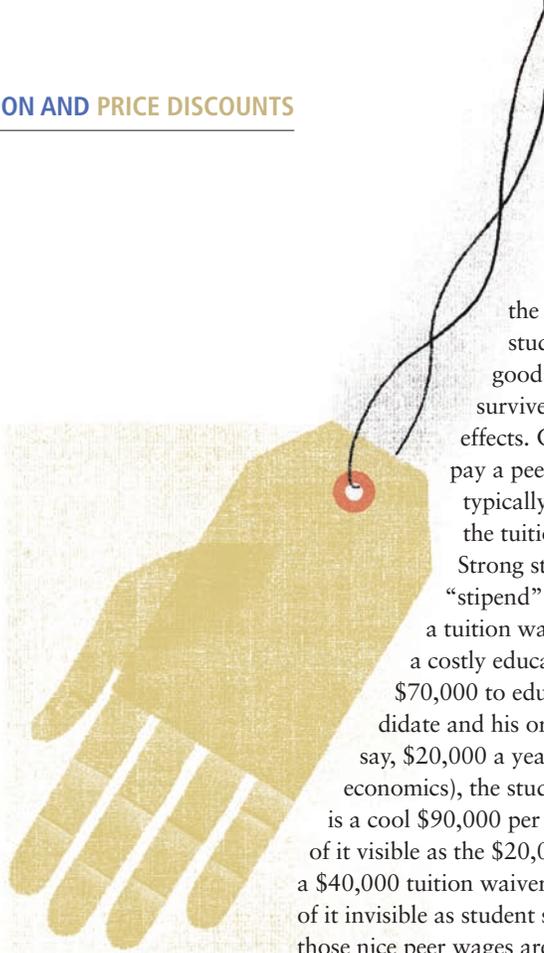
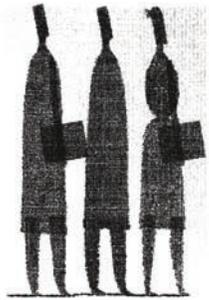
So there's a sea change going on in the way colleges compete for student quality. The old style, dominated by the rich schools who won at the game, pitted their general student subsidies (wages) against each other, creating a well-known

none of us really knows where it's going to wind up. There's a growing consensus, though, that schools' (limited) ability to cut prices is increasingly being used to bid for peer quality of wealthy students at the expense of more costly poor students of equal quality who have to be given additional need-based price discounts (financial aid). So this market dynamic appears, like so much in U.S. higher education these days, to be working against the highly qualified low-income student as schools are choosing to improve (or protect) their peer quality at the expense of their older, idealistic dedication to equality of opportunity for low-income students.

Finally, if this all sounds like a real stretch—the imaginative extrapolation of a whole set of redefinitions in admission and financial aid, all based on evidence of academic peer effects—consider that the nation's leading graduate schools have been doing all this for a very long time and in exaggerated form.

In first-rate PhD programs, the quality of the education depends heavily on





the quality of fellow students, since no good program can survive with weak peer effects. Graduate schools pay a peer wage that's typically larger even than the tuition they charge. Strong students get a "stipend" in addition to a tuition waiver, along with a costly education. If it costs \$70,000 to educate the PhD candidate and his or her stipend is, say, \$20,000 a year (not unusual in economics), the student's peer wage is a cool \$90,000 per year—\$60,000 of it visible as the \$20,000 stipend plus a \$40,000 tuition waiver, and \$30,000 of it invisible as student subsidy. And those nice peer wages are migrating from programs like economics PhDs, where they've been paid for at least 50 years, to new ones like graduate religion and, most recently, law and business schools.

Recognizing the role of peer effects is starting to change our understanding of higher education and how it's produced. Some nagging economic questions are

answered: Why don't schools expand to meet excess demand? Why do they often engage in aggressive price discounting even when they can fill their classrooms and dorms? Why do the most expensive colleges have the longest queues of students trying to get in? None of this makes any sense in a normal, familiar business firm, but all of it, and more, protects the unique role of peer effects in producing high-quality education.

What remains to be seen is whether most colleges, in the rush to compete for those students who offer the greatest peer quality, will freeze out the growing numbers who have far greater financial needs. Only a few schools have the resources to both maintain high student quality and protect access for those high quality students from families with low incomes. Fortunately, Williams is one of them. ■

Gordon C. Winston is the Orrin Sage Professor of Economics, emeritus, and director of the Williams Project on the Economics of Higher Education. A version of this article appeared in the Nov. 28, 2003, Chronicle of Higher Education.

Bridging the Gap

The Williams Project on the Economics of Higher Education has captured the attention of scholars as well as policy and institutional decision-makers across the country, making the northwestern corner of Massachusetts a hotbed for rigorous study of the issues facing colleges and universities.

With some \$3.5 million in foundation support, largely from the Andrew W. Mellon Foundation, Williams faculty associated with the project over the past 16 years have studied a host of issues, including whether business models can be applied to higher education, how students influence each other's academic performance and the ramifications of recruiting high-ability, low-income students to colleges like Williams.

Faculty members' work has been published in several books, magazines and academic journals, presented at professional conferences and before Congress, and catalogued in nearly 70 working papers available online. Authors include economics professors Ralph Bradburd, Henry Bruton, Cappy Hill '76 (the College's provost), Mike McPherson (who is now president of The Spencer Foundation), President Morty Schapiro, Gordon Winston and David Zimmerman as well as psychology professor Al Goethals.

"A significant number of the more prominent researchers in this field have come from Williams," says Sandy Baum, professor of economics at Skidmore College and a senior policy analyst with The College Board. "So Williams has been instrumental in developing constructive dialogue about the issues facing higher education today."

The involvement of undergraduates distinguishes the project from other think tanks. A dozen students spanning the classes of 1990 to 2002 have written senior theses using databases maintained at the project's headquarters in Mears West. Nearly 40 have served as research assistants, and each year a recent graduate serves as a full-time research coordinator.

The original plan for the project was "to apply economic tools to the study of the higher education industry in a way that would be of practical interest to educators and policy makers," says President Schapiro. "None of us dared to dream that the project would be alive and well more than 15 years later."

Adds Baum, "Williams has been very effective at bridging the gap between relevant scholarly research and higher education policy."

Visit the project on the Web at www.williams.edu/wpehe. ■