

Technology and universities

The log-on degree

College in America is ruinously expensive. Some digital cures are emerging

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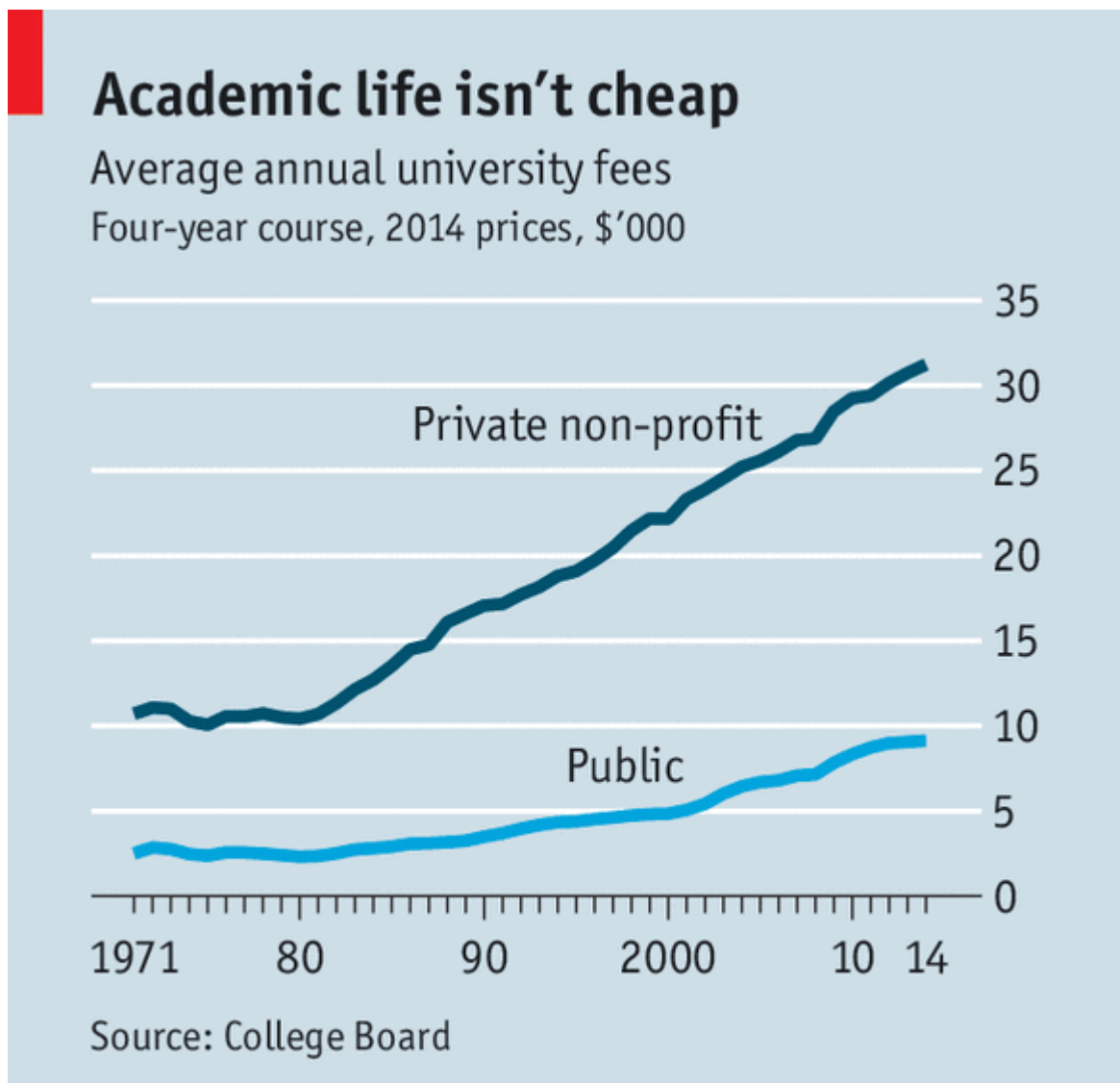
WILLIAM BOWEN, a former president of Princeton, calls it “Harvard envy”. Other American universities try to emulate the Ivy League, which raises costs. They erect sumptuous buildings, lure star professors with fat salaries and hire armies of administrators. In 1976 there were only half as many college bureaucrats as



academic staff; now the ratio is almost one to one. No wonder average annual fees at private universities have soared to \$31,000 in 2014, a rise of around 200% since the early 1970s (see chart). Each new graduate in America is now about \$40,000 in debt. People who take costly arts degrees may end up poorer than if they had never been to college (see [article](http://www.economist.com/news/united-states/21646220-it-depends-what-you-study-not-where) (<http://www.economist.com/news/united-states/21646220-it-depends-what-you-study-not-where>)).

Digital technology can make college cheaper without making it worse, says Michael Crow, the president of Arizona State University (ASU) in Phoenix and co-author of “Designing the New American University”. This idea is not new. For a few years now, massive open online courses (“MOOCs”) have enabled universities to beam lectures to wide audiences for a tiny marginal cost. The problem has always been that taking a MOOC is not the same as attending college in person. MOOCs are cheap, but students cannot bump into each other in the library and swap ideas, chit-chat or body fluids.

ASU seeks to mix online and face-to-face instruction in a way that makes both more effective. For example, one reason why college costs so much is that many students fail to graduate on time. Only three-fifths finish a four-year degree within six years. This may be because they are ill-prepared when they arrive: shaky numeracy leads many to drop out of courses that require maths. ASU uses technology to diagnose and address such shortcomings. All students are tested on arrival and given remedial help if they need it.



Economist.com

Teachers cannot keep an eye on all their charges, so the university's "eAdvisor system" nags them instead. Since 2008 it has given all freshmen an online achievement plan, including a constantly updated dashboard that shows whether they are on track or drifting towards the exit.

Online introductory courses, full of prompts and explanations, ensure that teachers do not have to keep going over the basics in seminars. This frees time to teach the more difficult stuff. Data analytics allow tutors to identify which students are stuck and arrange the right response.

Early results look good: ASU has almost doubled undergraduate enrolments since 2002, to 82,000, kept its degree costs reasonably low (\$10,000 a year for in-state applicants) and increased the share of students who graduate after four years from under one-third to half. The goal is to raise that to two-thirds in this academic year.

As well as chivvying laggards, software can make courses more fun. One of the most popular at ASU, on space exploration, offers nifty interactive sessions, allowing students to learn astronomy by way of a quest to find out what a habitable extraterrestrial world might be like.

Providing more of its coursework online also helps a university to serve students far away. Phil Regier, the dean of online studies at ASU, says that the number of students who study remotely is growing fast. They tend to be older, holding down jobs, bringing up families and fitting in their studies whenever they can grab time in front of a screen. They pay the same fees as in-state students who live on campus.

This works out well for the university, which can educate more fee-paying students without building bigger lecture halls. Extra sources of income are handy at a time when the state of Arizona is cutting funding for higher education. Mr Crow is quick to spot opportunities: ASU has linked up with Starbucks, a coffee chain, to provide online degrees for company staff.

The notion that online degrees are inferior is starting to fade. Top-notch universities such as Pennsylvania State and Columbia now offer them in many subjects. Georgia Tech has had an online-only master's degree in computer science since 2014, which it considers just as good as its campus version. Minerva, a "virtual" university based in San Francisco, offers online seminars to students who hop from city to city gaining work and cultural experience.

Even Harvard, long a digital resister, has softened a bit. From this year, its master's course in public health can be done full-time, part-time or in intense bursts. For much of it, students do not need to be present on campus, so long as they gain the required course-credits. That touches on another idea that could change the way other courses are taught, paid for and accredited: the SPOC (Small Private Online Course).

Whereas the mass-market MOOC is aimed at large numbers of people with different levels of knowledge and commitment, SPOCs are focused on particular groups of students who are qualified to take the course and ready to interact with others while learning. Harvard's Kennedy School of Government runs a popular SPOC on American security policy: alongside the campus students in Cambridge, Massachusetts, 500 more take the course online. They are required to dedicate time to it and do lots of homework, but so far they can receive no formal credit for it.

That seems odd. Robert Lue, who runs HarvardX, the university's digital arm, says that it is becoming easier to imagine prestigious universities creating SPOCs for course-credits. Mr Lue approves. "The Harvard idea for the 21st century is not to end up as the education

equivalent of a heritage park,” he says.

Clayton Christensen, the Harvard professor who coined the term “disruptive innovation”, thinks American universities are too firmly wedded to their old costly ways to embrace the digital revolution. But Jose Ferreira, who runs Knewton, an education technology firm, predicts that as online courses proliferate and are made easily available in the (computational) cloud, students will embrace them. The present design of colleges he sighs, resembles “a 19th-century factory that builds everything on site”. In the next few years, Mr Ferreira says, at least one of America’s large elite institutions will break ranks and accept credits from the best online courses as part of a mainstream degree. At that point, he reckons, “the rest will quickly follow.”

Freeing universities from their geographical constraints might mean that undergraduates at, say, Ohio State could collect an extra course-credit or two from Harvard. That could increase choice for students and create new revenue streams for the universities with the best digital offerings. Old-fashioned colleges that fail to offer value for money, however, may find that their lecture halls start to empty.

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