AI, Economics, MOOCs, and . . .
the Fast-and-Furious Future of Higher Education

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We offer a rigorous three-pronged argument that residential US higher education is teetering on the edge of a cliff. If it falls, it will die. (Q1) What brought it to the edge? (Q2) How can it avoid falling, in favor of climbing down smoothly and safely?

Answer to Q1: Residential higher education in the US has been carried to the brink by a sudden advance in automation. For nearly three millennia, education had been fundamentally the same: a small group of human students co-located (or tethered by audio- or video-stream) with a human teacher interact over content presented by that teacher, and the interaction is laboriously measured by that same teacher. Harvard, our first university, is based on this model to this day; RPI, our first technological university, is too; each, of course, followed antecedents in places across the Pond. But, at the dawn of AI, well over half a century ago, the polymath Patrick Suppes quietly opened Pandora’s box by programming computers to teach formal logic. Out of that box, courtesy of sustained r&d in AI, has now sprung MOOCs. And MOOCs, even in their infancy, are, as we’ve just seen, powerful enough to utterly disrupt Thomas Jefferson’s university from top to bottom. The master of a MOOC, supported by intelligent machines, can instantly grade thousands of computer programs, even — lest humanists think they are insulated — thousands of essays. AI will march on; the pother at UVA is but a tiny tremor that portends the full quake.

This answer to Q1 is a synoptic one implied by each of our three prongs, each of which, in turn, falls under our overall attempt to rigorously analyze the situation in economic terms. We show that assessing the situation classically in accordance with Baumol’s “cost-disease” model implies that the precipice has indeed been reached. We show that assessing the situation via agent-based techniques implies the same. And we show that our new form of economics rooted in formal logic, when here applied, likewise implies that the cliff has been reached. In all three techniques, barring radical moves, the deadly free-fall will happen. This is essentially provable, given the premises in our models. The winners will be those in the new jobs that supplant the old ones. Indeed, some MOOC masters have already become wealthy by way of the wave of automation that is slowly building to a tsunami.

Now to Q2: The agile and well-equipped rock climber can navigate a vertical drop with no loss of life or limb. How could that be pulled off here? Well, one way that won’t work, but will nonetheless be nearly irresistible, is what we call the “country-club” move. Millions of individuals are still willing to spend tens and even hundreds of thousands of dollars a year to get together with others to talk and dine and play in beautiful, verdant settings far removed from digital interaction. The country-club move consists in chiefly trying to sustain the old-style model of residential education by enticing customers to pay not so much for the academic side, but the socio-aesthetic side. This move, as our models show, is fiscally infeasible, unless customers are restricted to the kind of folks who can pay big bucks for membership at country clubs — but in that case, very few residential colleges/universities will be needed.

What will work? The only fighting chance is secured by a form of education that requires (at least, say, for half a century) co-location of faculty and students. The monstrous irony in the present Academy is that instead of creating such education, many of our elite universities (à la e.g. Coursera) are doing exactly the opposite: providing content gratis, thereby pushing themselves, and others, closer to the cliff.