

(The Evolution of) Post-Secondary Education: A Computational Model and Experiments¹

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Abstract

We propose a computational model to study (the evolution of) post-secondary education. “Consumers” who differ in quality shop around for desirable colleges or universities. “Firms” that differ in quality signal the availability of their services to desirable students. Colleges and universities, as long as they have capacity, make offers to students who apply and qualify.

We study the dynamics and asymptotics for three nested variants of this matching model: the first variant replicates the Vriend (1995) model, the second stratifies both firms and consumers by quality, while the third variant of our model additionally equips some firms with economies of scale. The third variant of our model is motivated by the entry of for-profit providers into low-quality segments of post-secondary education in the USA and empirical evidence that, while traditional nonprofit or state-supported providers of higher education do not have significant economies of scale, the new breed of for-profit providers seems to capture economies in core functions such as advertising, informational infrastructure, and regulatory compliance. Our computational results suggest that this new breed of providers is likely to continue to move up the quality ladder.

Our model also lends itself to the study of such issues as the consequences of opportunistic behavior of firms (admittance of unqualified students for fiscal reasons) and the emergence of behaviorally different consumers (traditional “patronizers” vs “hoppers”), among others. Our computational results suggest that opportunism is a poor long-run strategy and that consumers are rather heterogenous in their shopping behavior but that the mix of behaviorally different consumers is unaffected by the presence of for-profits or opportunistically behaving firms.