



The Path to Timely Completion: Supply- and Demand-Side Analyses of Time to Bachelor's Degree Completion

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May 2014

What We Studied

Time to degree is a key factor in improving college graduation rates and increasing institutional productivity. While there is a growing body of empirical and theoretical work addressing baccalaureate degree completion and persistence, much less is known about the factors that affect time to degree. Most importantly, the institutional factors associated with time to degree have been largely unexamined. Previous studies focus primarily on the characteristics of students who delay graduation. As a result, it is unclear if students or institutions should be the target of policy interventions.

This dissertation is comprised of three quantitative studies that examine supply-side and demand-side factors that contribute to timely—or not so timely—completion. The first study examines a rich set of institutional and student factors that influence the choice between on time graduation, late graduation, dropout and ongoing enrollment. The second study analyzes the effect of transfer on time to degree and explores credit loss at the point of transfer as a mechanism for delay. The third study examines excess credit accumulation, specifically how graduation requirements affect student course-taking behavior.

Time to degree is a salient productivity question for study because of tightening state budgets and a shift in accountability for higher education to focus on measurable outcomes. Time to degree is a pragmatic efficiency measure designed to gauge the output of institutions of higher education (Slichter, 1947). Policymakers are asking how we can produce graduates for the lowest cost, with a minimum of waste and expenditure of resources. The topic is particularly prominent in Texas, the state analyzed in all three studies here. William J. Powers, president of the state flagship university in Texas, declared that the issue of timely graduation is:

“... as serious as any other in higher education. We wouldn't voluntarily pay 20 percent extra for a car, a house, or any other major purchase. University leaders must first smooth the path for timely graduation by taking a hard look at degree requirements and ensuring students can get the classes they need. Then, for students' own good, we must be bolder in pushing them out of the nest” (February 29, 2012).

Others argue that delayed graduation is not only inefficient but that “time is the enemy” because the longer students are enrolled, the less likely they are to ever complete a degree. As time goes on, students run out of private financial resources, exhaust financial aid, experience health problems, find jobs, get married, and have children—activities that are associated with dropout (Complete College America, 2012). Texas Governor, Rick Perry asserted in his 2013 state of the state address that:

“...[Graduating] on time is a problem we simply can't ignore anymore. Currently less than 30 percent of full-time students at our four-year institutions graduate in four years, and only 58 percent have their degree in six. That's why we should tie at least a portion of state funding - I'm suggesting a minimum of 10 percent - based on the number of graduates” (January 29, 2013)

Institutional and state policymakers have begun experimenting with intuitively appealing policy remedies such as charging higher tuition to students who delay graduation, implementing financial aid programs that incent on time completion, capping the number of credits required for graduation, and funding institutional performance based on productivity measures (Volkwein & Lorang, 1996; Groves, 2007).

And yet, policy design and implementation decisions are being made without a sophisticated research basis to match the causes and consequences of time to degree with policy strategies. There is little nuanced debate about either the possible efficiencies in the status quo or which valued outcomes policy should attempt to maximize—and for whom. As Aaron Wildavsky observed in 1979, “technical efficiency does not tell you where to go, only that you should arrive there with the least possible effort.” Efficiency is thus not a goal in itself. It helps us attain more of the things we value (Stone, 1988).

I argue that time to degree is a useful productivity measure that is worthy of study, but recognize it has many limitations as a single indicator of success in higher education. What is valued among policymakers—in this case degree production—may not be what is valued by faculty, who are both an input in the efficiency equation and an output in terms of research and service to institutions and the community at large. The value for students in extending time to degree may be in academic exploration, opportunities to develop human capital and to explore intellectual interests. It is also important to consider the equity dimensions of time to degree. For example, it may be the case that marginal students—those on the cusp of participation in higher education or completion—may now be participating and graduating more often than in previous decades. Extensions in time to degree may be the cost of improving overall access and equity among historically underrepresented populations, including low-income students, minority students, or students who attend college part-time in order to finance their education through work rather than student loans. Therefore, punitive policies – such as charging higher tuition to extenders – may adversely affect larger state policy goals to increase degree completion and close achievement gaps (Campbell, 1979).

Fortunately, efficiency and equity are not incompatible priorities (Stone, 1988). The art of policy decision making is to enable individuals to maximize their own benefits and to encourage them to exhibit a commitment to shared community needs (Etzioni, 1988). In this spirit, the studies in this dissertation seek to inform how we define the problem of time to degree as well as suggest policy levers and considerations for policy implementation that maximize individual and community values. Together, the three studies offer a nuanced analysis of time to degree and present new evidence about the heterogeneous effects of efficiency improvements on different student populations.

How We Analyzed the Data

The first study uses a discrete-time hazard model to analyze two complementary sources of data: statewide longitudinal student-level data from the Texas Higher Education Coordinating Board¹ and institutional data from the Integrated Postsecondary Education Data System (IPEDS). Unlike many previous studies of time to degree, which analyze data from a single institution, this study includes detailed information about institutional expenditures, faculty resources, and student populations served by all Texas institutions of higher education. Results suggest time to degree is a complex phenomenon and both student and institutional factors are significantly associated with it. On-time graduates come to college with the advantages of socioeconomic background and strong academic preparation. Students make tradeoffs among competing outcomes including timely graduation, late graduation, dropout, and ongoing enrollment. Some strategies used by low-income students slow completion but enable persistence. Full-time faculty are consistently and positively associated with on-time completion for students from various backgrounds and educational pathways, although there are significant heterogeneous effects of other institutional inputs.

¹ The research presented here utilizes confidential data from the State of Texas supplied by the Texas Education Research Center (ERC) at The University of Texas at Austin. The authors gratefully acknowledge the use of these data. The views expressed are those of the authors and should not be attributed to the ERC or any of the funders or supporting organizations mentioned herein, including The University of Texas, the State of Texas, or the study’s sponsor. Any errors are attributable to the authors.

The second study examines student mobility across institutions of higher education and the impact of transfer on graduation, credit accumulation, and time to degree. Many students now earn credits at multiple institutions of higher education on their way to completing a bachelor's degree. The effects of transfer on degree attainment and years of education accumulated have been studied, with a primary focus on the contributions or drawbacks of community college education. This paper extends the literature regarding the effect of transfer on higher education outcomes to include issues of time to degree by asking, "Does transfer accelerate or extend time to degree?" The focus of this study is less on the role community colleges play in higher education attainment; instead, it more generally examines the issue of student mobility from a transfer policy perspective. This study tests whether the effects of transfer differ among vertical transfer students (who move from two-year to four-year institutions) and lateral transfer students (who move from four-year to four-year institutions) and whether credit loss at the point of transfer is a mechanism for extending time to bachelor's degree completion. Using propensity score matching on statewide longitudinal data from 2004 to 2012, I find that transfer extends time to degree by almost one extra term, contributes to the accumulation of 7.6 excess credits at graduation, and decreases degree completion by approximately 17 percentage points for all transfer students. Although lateral transfer students have modestly shorter times to degree, graduation and credit accumulation penalties are larger for lateral transfers than vertical transfers—results that support the credit loss hypothesis.

The third study focuses on excess credit accumulation as a mechanism for extending time to degree and assesses whether limitations on the number of credits an institution can require for graduation is an effective policy lever for reducing time to degree. The majority of students who complete a bachelor's degree attempt more credits than are required to graduate and take more than four years to complete a degree. I examine trends in credit requirements, time to degree, and excess credits 2003-2012. I explore two definitions of excess credit requirements, one that uses the minimum credits required by the state for graduation and another that is specific to a student's institution and major. I observe variation in credit requirements over time, which I leverage to estimate the effects of credit requirements using fixed effects models. In response to reductions in credit requirements, I find that students take fewer required courses; however, they attempt more elective courses. The tradeoff produces a small positive effect on time to degree. Results suggest credit requirement policies can reduce some types of excess credits, but used in isolation these policies may shift rather than reduce student demand for excess courses. Implications for measuring and tracking excess credits as well as policy implementation are discussed.

What We Discovered

Each of the three studies highlights a unique dimension of the complex phenomena of time to degree. Beyond the topical consistency, chapters have a common theoretical approach. In the tradition of policy research, each study integrates theory from multiple disciplines. Studies draw primarily on human capital and education production function models of individual and institutional behavior and integrate ideas from social capital, education psychology, and organizational theories. I employ diverse econometric methods most appropriate for the questions at hand, with particular attention to the treatment of time.

Chapters also share three common themes. First, each study explores the central role of institutions in shaping collective behavior and outcomes (Ostrom, 2007). A second theme is that time to degree is but one possible measure of institutional productivity and there are myriad reasons why students delay graduation. Third, each study investigates the tension between efficiency and equity in accelerating time to degree by providing evidence about possible negative consequences for subpopulations of students (Wildavsky, 1979; Stone, 1988).

This dissertation concludes with a summary of findings and recommendations for policy and future research. Results provide insights into potential policy levers, which are available to legislators and institutional administrators who seek to improve timely degree completion. Appropriations for public institutions of higher education, institutional resource allocations and policies, transfer rules and incentives, and graduation requirements receive particular attention.

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