

Does one size fit all? University differences in the influence of wages, financial aid, and integration on student retention

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Abstract

We develop and empirically implement a model of university student retention using opportunity cost, financial aid, academic and social integration, and students' background explanatory variables. For one year, we tracked students from Weber State University (WSU) and Oregon State University (OSU) to learn whether they remained enrolled for 0, 1, 2, or 3 quarters. We use negative binomial and Poisson distributions to empirically model the observed enrollment decisions. We make four interesting empirical findings. First, opportunity costs influence retention, but the effects differ by university. At WSU, an undergraduate, commuter university, we find students substitute wage labor for enrollment. At OSU, a Research I university, the effect is non-linear, but on average, higher wages encourage retention. Second, we find no evidence that efforts to increase academic integration through increased advising and mentoring are effective. Third, the effects of financial aid differ by university and are sometimes negative. At OSU, work-study financial aid encourages retention, while grants do not. At WSU, grants support retention, but VA assistance does not. Finally, we find that students' future intentions for re-enrollment are a major determinant of re-enrollment at WSU, but not OSU. This may reflect the ancillary role that WSU plays in many of its students' career and academic plans.

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1. Introduction

Universities devote scarce resources to support retention efforts (Dale & Zych, 1996; Hood, 1999; McLaughlin, Brozovsky, & McLaughlin, 1998). Researchers have evaluated the efficacy of these various efforts, including advising, counseling, the mentoring, and services to improve academic skills (Bean, 1990; Campbell &

Campbell, 1997; Dale & Zych, 1996; Easterling, Patten, & Krile, 1998; Johnes, 1997; Purdue University, 2001) and retention-enhancing financial aid packages (DesJardins, Ahlburg, & McCall, 2002). Most of this research focuses on single institutions.

This paper is unique in that it moves away from the traditional single institution research and attempts to compare retention policies at two different types of universities. In addition, we consider the effects of two determinants of retention, which are seldom considered in extant research: students' intentions to remain enrolled or not (Bean, 1983, 1990; McLaughlin et al.,

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1998) and wage-based opportunity costs (Mohanty & Finney, 1997).

Researchers develop and test retention theories, focusing on four types of determinants.¹ The first is students' background characteristics. Ill-prepared students and those with adverse socio-economic backgrounds are more likely to drop out of college (Astin, 1997; Marcus, 1989; Porter, 1990; St. John, Hu, & Weber, 2001).

Second, influential theories emphasize the importance of academic and social integration (Bean, 1983, 1990; Spady, 1970; Tinto, 1975, 1993), defined as students' identification with the university's social and institutional norms. Academic integration is concordance between students' academic goals and the institution's academic program (Wetzel, O'Toole, & Peterson, 1999). The theories suggest improved retention by facilitating students' interactions with an institution's academic and social systems. Many universities have adopted programs designed to improve academic and social integration. Commonly, universities encourage or require an early declaration of a major and to regularly see an advisor. Faculty are encouraged or required to serve as advisors and mentors, in and out of the classroom. Research on academic integration has focused on the effects of advising, counseling, and mentoring (Bean, 1990; Campbell & Campbell, 1997; Johnes, 1997), student-teacher connections (Robst, Keil, & Russo, 1988), services to improve academic skills (Bean, 1990; Dale & Zych, 1996; Easterling et al., 1998), and encouraging an early declaration of a major (Bean, 1990).

Third, students increasingly straddle the boundary between wage labor and college (American Council on Education (ACE), 2000) and education's opportunity cost may influence retention. Purdue University (2001) found that 17–35% of Indiana students cite employment as the reason for dropping out. St. John et al. (2001) find changes in labor markets partially explain changes in retention. Yet, of the retention studies we are aware of, only Mohanty and Finney (1997) account for students' wage-based opportunity costs, finding that higher wage rates initially enhance retention, but beyond some point, reduce the probability of retention.

The fourth determinant is financial aid. Manski (1989) points out that the theoretical effect of financial aid on retention is ambiguous. By lowering education's cost, retention is enhanced; by encouraging experimentation by less academically prepared students, financial aid may decrease retention. Wetzel et al. (1999) find an inverse relationship between tuition levels and enrollment. Chressanthis (1986) and Wetzel, O'Toole, and Peterson (1998) find an ambiguous link. Summarizing, Bean and Metzner (1985) suggest a direct link between financial difficulties and attrition. Research on financial

aid has focused on attracting students, while its role in retention has not been extensively investigated (DesJardins et al., 2002). Moreover, most financial aid research has not distinguished between different types of aid (DesJardins et al., 2002). Two exceptions are DesJardins et al. (2002) and St. John et al. (2001). Both studies find substantively different effects for different types of aid, but neither controls for wage-based opportunity costs.

This paper makes three contributions. First, we develop a theoretical model of student retention incorporating the four determinant types. Second, consistent with the sequential and discrete nature of re-enrollment decisions, we use negative binomial and Poisson empirical models to estimate the determinants of students' decisions to re-enroll in college. We focus on the effects of wage-based opportunity costs, financial aid, and programs to enhance academic integration through advising, mentoring, and the declaration of a major. Third, we compare two public universities, a four-year undergraduate, commuter campus and a Research I public university, typifying the diverse missions of public universities in many states. Identification of potential differences is important for the design of effective, university-specific retention policies and accountability guidelines (Astin, 1997; Johnes, 1997; Layzall, 1999).

2. A model of student retention

Initially, deciding on whether or not to attend a specific institution of higher education, a student compares the perceived benefits and costs of enrolling at a specific college with those of enrolling at another institution, or not enrolling at all. Denote the student's perceived discounted utility resulting from not enrolling anywhere as U_0 .

The expected utility of attending the i th college at the time, t , reflects the student's subjective probability of completing the degree, P_{it} , the expected discounted benefits of completion, D_{it} , and the expected discounted opportunity costs of completing college, C_{it} . These benefits and costs are time dependent. C_{it} will decrease with progress towards graduation. If real salaries remain constant or increase, D_{it} will increase as a student progresses. A student may also expect to get consumptive benefits from attending college. These benefits depend on the extent of social integration, denoted here as Z_{it} .

The perceived probability of graduation from college i , P_{it} , depends on both the student's background, Θ , such as age, gender, ability, marital status, family characteristics, and the student's intentions, as well as the degree of academic integration, Φ_i . Academic integration depends on the extent of advising, mentoring, and the alignment of the student's academic goals

¹For a review, see Bean (1990).

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