Higher Education Accountability and Affordability:
Studies of Programmatic Accreditation and Student Loans

by

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Dedication

For Luci. Article, article, article.

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Abstract

Even as a college credential becomes more critical than ever for economic security and social mobility, the risks associated with attending college have also grows. Many individuals leave higher education institutions without a credential but with student loan balances that they struggle to repay for years. In such an environment, it is unsurprising that higher education has come under criticism for a lack of accountability and waning affordability. This dissertation presents three empirical studies into different aspects of these two issues.

Chapters 2 and 3 deal with specialized accreditation in business and nursing. Those two fields are crucial to higher education, accounting for a large share of degrees conferred annually and preparing students for entry into critical industries and roles. Both fields have longstanding accreditors that purport to define what a quality business or nursing education looks like, to evaluate programs based on the standards and criteria they define, and to certify what programs satisfy those standards. Accreditation is costly and intertwined with broader accountability practices in higher education, but it is little understood and virtually unstudied. Chapter 2 traces the evolution of specialized accreditation in business and nursing. Business is characterized by a lower prevalence of accreditation, significant stratification of institutions across accreditors, and large racial inequities in who earns degrees from accredited programs. By contrast, nursing has near-universal coverage by accreditors and smaller though long-standing disparities by race and ethnicity in access to accredited programs. Chapter 3 analyzes the impact that accreditation has on program-level degree conferrals and costs. Business accreditation is associated with small gains in degree conferrals but large impacts on instructional costs. Nursing shows just the

reverse: attaining accreditation accelerates the growth of programs while causing no changes to the underlying cost of delivering education.

One conspicuous failure of higher education accountability is the very real student loan crisis affecting millions of borrowers. Chapter 4, coauthored with KC Deane, Brian McCall, and Stephen DesJardins, analyzes student loan repayment patterns for up to 12 years, tracking borrowers through formative ages from early 20s to late 30s. Using social sequence and cluster analysis to understand these longitudinal repayment histories reveals five archetypes of loan repayment describing borrowers' experiences: *persistent defaulters*, *perpetual payers*, *rapid full payers*, *late full payers*, and *consolidators*. There is significant stratification by race/ethnicity and social class into these repayment clusters, with minoritized borrowers, borrowers who do not graduate, and those attending for-profit institutions more likely to experience adverse borrowing outcomes and to experience them over a longer period of time. Borrowers face barriers to repayment frequently and repeatedly, with 30% defaulting at least once, 40% deferring on loans, and three out of every four borrowers missing payments at least once. Findings also show that the narrative of defaulters owing relatively small amounts is not entirely accurate. Though it is true that occasional defaulters do have low loan balances, *persistent defaulters* account for half of all defaulters and owe on average $15,000. These borrowers see their balances grow by 30% after beginning repayment.

Chapter 1 Studying Accountability and Affordability in Higher Education

The Spellings Commission released its *A Test of Leadership* report in 2006, giving voice to long-simmering concerns about affordability and quality in postsecondary education in the United States. The report took particular aim at the sector's "lack of clear, reliable information about the cost and quality of postsecondary institutions, along with a remarkable absence of accountability mechanisms to ensure that colleges succeed in educating students" (Department of Education, 2006, p. x). Whatever the merits of the report in diagnosing the maladies of American higher education and necessary solutions, Zemsky (2007) argued its central themes are critical: "The possibility that Americans, in ever-increasing numbers, would find themselves unable to afford a college education for either themselves or their children. [And] [t]he growing sense that college students are no longer learning enough of the right kind of stuff." (p. 5). The next three chapters in this dissertation address two topics broadly at the intersection of affordability, learning, and accountability: accreditation and student debt.

Studying Accreditation

The next two chapters focus on accreditation, one of the longest-standing mechanisms for accountability in higher education. Accreditation can refer to regional accreditors with oversight over entire institutions, national accreditors of career training programs or faith-based colleges and universities, or the programmatic accreditation of specific fields of study or single-purpose institutions (Eaton, 2015.; Young, 1979). Accreditation operates through external review of an institution's or program's quality which, when affirmed by an accreditor, entitles the college or university to access federal funds like student aid and other federal programs (Eaton, 2015).

Partly because it serves as gatekeeper to federal funds, accreditation is ubiquitous: there are almost 7,900 colleges and universities accredited by at least one of the 18 institutional accrediting organizations currently operating (Eaton, 2015). Despite its long history and expanse, accreditation has few proponents and many critics. It is largely perceived as weak, ritualistic, and protective of the colleges and universities it presumes to hold accountable (Kelly, 2014; Vergari & Hess, 2002; Zemsky, 2011). The Spellings Commission report concluded that "growing public demand for increased accountability, quality and transparency coupled with the changing structure and globalization of higher education requires a transformation of accreditation" (p. 15). Accreditors have until recently survived these criticisms largely unscathed, as the 2008 reauthorization of the Higher Education Opportunity Act (HEOA) precluded the Department of Education (ED) from interfering with the work of accreditors (Eaton, 2008; Eaton, 2017). In 2019, however, ED eliminated the geographic monopolies historically enjoyed by regional accreditors and opened the door for the entry of new accreditors (Department of Education, 2019); this new landscape potentially changes the relationships of accreditors to each other and to the institutions they oversee.

Chapters 2 and 3 focus on the accreditation of programs. Specialized or programmatic accreditation is perhaps the most leading form of program-level accountability in (pre-) professional fields ranging from architecture to zoology. There are more than 100 specialized accreditors currently operating in the US, with oversight over 23,000 programs across some 3,000 institutions (Vibert, 2018). Though some of these accreditors are highly prominent, such as the American Bar Association or the American Medical Association, most specialized accreditors are little-known outside their fields. Table 1.1 attempts to document their collective reach in higher education by listing accreditors among the fifteen largest fields as measured by

degree conferrals. All told, well over 40% of degrees conferred in 2015 came from fields subject to oversight by a specialized accreditor.

Attaining and maintaining programmatic accreditation are substantial undertakings. Compliance with accreditation standards can require significant institutional and departmental efforts and resources, including modifications to curriculum, assessment, and instructional practices, investments in facilities, and hiring of additional faculty and support staff (Vibert, 2018). Academic leaders deciding whether to pursue such accreditation must weigh not only its costs but also its accompanying loss of departmental autonomy (McKee et al., 2005), resistance or indifference from faculty (e.g., Vican et al., 2020), and the possibility that the program realize no tangible benefits from its efforts (Hunt, 2015). On the other hand, specialized accreditation presumably assures programs of the relevance of its curriculum to relevant professional communities and gives programs a third-party seal of approval attractive to prospective students choosing among numerous largely undifferentiated academic offerings. Specialized accreditation, then, has a broad reach in higher education and purports to benefit students, programs, and the field at large. Yet, it remains a fundamentally voluntary undertaking about which little is known, with a persistent dearth of research about the practice (Kelchen, 2018; Zemsky, 2011) including a lack of "well-identified studies of the consequences" of accreditation (Deming & Figlio, 2016, p. 48).

Taking business and nursing as two focal fields, the chapters analyze the evolution of specialized accreditation and its consequences for programs. The choice of business and nursing is intentional for a few reasons. Both fields have several aspects of specialized accreditation in common: the presence of multiple competing accreditors, accreditors that differ in prestige and approach to program evaluation. They also differ in compelling ways, most notably in terms of

the professionalization of each field and stringent licensure requirements in nursing that are entirely absent in business. Just as importantly, both fields have long histories of specialized accreditation that is still transforming. Scholars and administrators in business are engaged in active debate over the relevance of business education curriculum, the value of a business education, and the role that accreditors have played in shaping these (Bennis & O'Toole, 2005; Lowrie & Willmot, 2009; Pfeffer & Fong, 2002). Nursing has undergone significant change in specialized accreditation since 1997, culminating in several lawsuits regarding the governance of accrediting agencies in the field (Lederman, 2015). Accreditation in nursing continues to grow in complexity as more subfields of the profession develop their own recognition processes, as the nursing profession continues to specialize and grow in complexity, and as students and nurses demand greater flexibility in attaining credentials. Table 1.2 summarizes the accreditors included in the analyses and serves as a reference for the next two chapters.

Chapter 2 sets much of the context around the spread of specialized accreditation and its implications for the two fields under study. I draw on theories of professionalization and institutionalism to understand why programs pursue accreditation. Specialized accreditors serve as the vehicle through which professional associations exert influence over universities (Stark et al., 1986), by codifying professional knowledge into accreditation standards and selectively recognizing programs that meet those standards. This process serves to define "field-specific expertise that determines what quality practice and quality education is and ensures advancement of a profession" (Vibert, 2018, p. 47). The advancement and credibility of professions has been at the core of specialized accreditation from its inception, as accreditors aim at "protecting and improving the status of the profession and its practitioners," making programmatic accreditation "attractive to any professional group that has or desires its own identity" (Glidden, 1983, p. 200).

Institutions internalize specialized accreditation as they strive for prestige in a competitive enrollment environment where a valuable signal of quality from a credible third-party arbiter pays dividends (Bloland, 1999; Jost, 1994; Mause, 2009).

My findings show that programs stratify across accreditors by selectivity, size, and control. Larger programs in business and nursing, those with graduate-level offerings, and those housed at public institutions are more likely to attain accreditation from the most prestigious accreditor in each respective field (. For-profit and, to a lesser extent, not-for-profit institutions are less likely to be accredited. The prevalence of specialized accreditation is highest in nursing, where 86% of baccalaureate programs hold some accreditation (relative to 42% for business). The patterns in what programs attain accreditation has implications for what students have access to accredited programs. In business, Black graduates are significantly underrepresented among those earning AACSB-accredited degrees and overrepresented among graduates of ACBSP-accredited programs. This pattern has accelerated since 2012 given the large share of minoritized students, especially Black students, graduating from large for-profit institutions – most pronouncedly for graduate degrees. As of 2015, 92% of all nursing degrees at the baccalaureate level were granted by accredited institutions, with ACEN accounting for 14% and CCNE for 78%. Even with such a high prevalence of accreditation, there are significant disparities in the distribution of nursing graduates by race and ethnicity. In 2015, while fewer than 4% of White nursing baccalaureate graduates earned their degree from unaccredited programs, around 8% of Black and Latinx students did so. Differences are even more pronounced among associate degree earners. If specialized accreditation serves to legitimize credentials in the eyes of employers, these disparities can have important bearings on the labor market outcomes of different students.

Building on the historical overview and findings of Chapter 2, Chapter 3 investigates whether attaining accreditation is associated with changes to demand for and costs of programs. To the extent that accreditation status is a desirable signal and increases the perceived desirability of a business program, it is plausible that accredited programs will experience an influx of students, thus increasing the number of degrees conferred (Adams & Eveland, 2007; Rapert et al., 2004). To the extent that accreditation status implies greater programmatic quality, it is possible for programs to increase degrees awarded holding constant the number of students, for example through increased student retention. As for costs, I frame specialized accreditation as imposing constraints on the tradeoffs that academic departments can pursue to manage costs (Hemelt et al., 2020). Specialized accreditors impose faculty qualification requirements that place programs in competition for hiring a smaller pool of eligible candidates, driving up salaries (Callie & Cheslock, 2008; Hedrick et al., 2010; Levernier et al., 1992). Requirements for research productivity simultaneously increase research expenditures and reduce faculty instructional workloads, increasing costs (Levernier et al., 1992). Requirements around curricular, instructional, and assessment practices can constrain adoption of cost-saving measures like increased class sizes or online instruction.

With this framework of college choice and of departmental production functions, I use a generalized difference-in-difference framework that identifies the causal effect of accreditation on degree conferrals (a proxy for demand) and on instructional costs. Effects on degree conferrals in business are small in magnitude at the baccalaureate level (approximately a 2% increase) but much larger for two-year programs (a 7% increase). There is suggestive evidence that graduate programs see even larger increases when accredited by AACSB but effects are imprecisely estimated and dependent on comparison groups. Results for nursing are consistent

across accreditors and degree levels: Any specialized accreditation is associated with increases in degree conferrals that are smallest at the undergraduate level (5% increase) and largest at the graduate level (5 to 20% at the master's and doctoral level respectively). In terms of instructional costs, I find that business accreditation results in an 8 to 12% increase in costs, driven largely by higher salaries and to a lesser extent lower teaching loads that faculty experience after accreditation. In nursing, on the other hand, accreditation is not associated with any increase in costs. Because nursing programs are subject to numerous other regulations in addition to accreditation (such as Board of Nursing approval), the attainment of accreditation may not carry the same costly implications that business accreditation does.

Studying Student Debt

Chapter 4, coauthored with KC Deane, Brian McCall, and Stephen DesJardins, addresses the second theme of the Spellings Commission report: college affordability. Student loans make college affordable for millions of students (Akers & Chingos, 2016), but a student loan repayment crisis (Dynarski, 2014) points to significant and harmful flaws in the higher education financing regime. Drawing on life course perspectives, this study analyzes patterns in student loan repayment of individual borrowers for up to 12 years post-college. We argue in favor of a life course perspective because loan repayment is a longitudinal process taking place within borrowers' lived context and should be treated, conceptually and empirically, as such. After constructing student loan repayment histories, we study the student-level and institution-level characteristics that correlate with patterns in those histories and evaluate disparities by race and ethnicity and by sector in loan repayment trajectories.

Rather than taking single, discretized outcomes as the unit of analysis, we study the full lifecycle of loan repayments using social sequence analysis and clustering methods. We identify

a high prevalence of adverse loan outcomes across all borrowers that coincide with significant disparities by race and ethnicity. These adverse outcomes include repeated cycles of deferment, negative amortization/forbearance, and default during which student loan balances grow. Disparities by race and ethnicity in student loan repayment extend beyond different indebtedness and default rates. They manifest themselves throughout the loan repayment lifecycle, with minoritized borrowers and those attending for-profit institutions not only at higher risk for adverse outcomes but experiencing those outcomes repeatedly and over longer stretches of time than their White peers. We identify five patterns that characterize student loan repayments *persistent defaulters, perpetual payers, rapid full payers, late full payers, and consolidators*. The first two groups experience perhaps the most adverse repayment histories; the former has frequent and long-lasting spells of unresolved student loan default, whereas the latter alternates between repaying loans and spells of deferment and forbearance. Both groups owe more at the end of the observation period than when they begin repayment. *Rapid full payers* have low loan balances and reach full repayment quickly, while *late full payers* go through stretches of deferment, forbearance, and default before fully repaying. *Consolidators* settle their original debt quickly but face new repayment obligations on consolidated loans. At least 10% of borrowers in each cluster default on loans and half or more struggle through periods of negative amortization or forbearance. Black students, Pell recipients, first-generation collegegoers, students at for-profit institutions, and students who do not earn a credential are disproportionately represented among *persistent defaulters.* White borrowers are over-represented among *full payer* and *consolidator* clusters. Baccalaureate-degree recipients are over-represented among *perpetual payers* and *consolidators*, with for-profit students also concentrated in the latter.

Conclusion

Chapters 2 and 3 constitute, to the best of my knowledge, some of the most complete empirical evidence on the spread of specialized accreditation and its impact on academic programs and their students for business and nursing. I hope the chapters are of use to researchers interested in questions of accountability and quality and to academic administrators navigating a complex accreditation environment and trying to make the right decisions on behalf of their programs and students. Chapter 4 presents a new approach to the analysis of student loan repayment that is particularly timely given the increased complexity of student loan repayment options, persistently low repayment and high default rates, and growing calls for meaningful relief for borrowers. It should prove useful to our understanding of student loan repayment and inform equity-minded reform of a student loan system that reifies numerous inequities. In Chapter 5, I outline possible extensions of this research and more generally research into higher education accountability and affordability.

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Table 1.1 Summary of Degree Conferrals and Specialized Accreditation.

Field (CIP-4 level)	Specialized accreditation present?	Sample accreditors
Business Administration, Management and Operations	Yes	Association to Advance Collegiate Schools of Business; Accreditation Council for Business Schools and Programs
Registered Nursing, Nursing Admin, Nursing Research and Clinical Nursing	Yes	Accreditation Commission for Education in Nursing; Commission on Collegiate Nursing Education
Psychology, General	Yes (clinical psychology only)	American Psychological Association
Biology, General	No	
Criminal Justice and Corrections	Yes	Academy of Criminal Justice Sciences
Accounting and Related Services	Yes	Association to Advance Collegiate Schools of Business; Accreditation Council for Business Schools and Programs
Communication and Media Studies	Yes	Accrediting Council on Education in Journalism and Mass Communications
Teacher Education and Professional Development	Yes	Council for the Accreditation of Educator Preparation
Liberal Arts and Sciences, General Studies and Humanities	No	
Health and Physical Education/Fitness	Yes	Council for the Accreditation of Educator Preparation
English Language and Literature, General	No	
Political Science and Government	No	
Finance and Financial Management Services	Yes	Association to Advance Collegiate Schools of Business; Accreditation Council for Business Schools and Programs
Marketing	Yes	Association to Advance Collegiate Schools of Business; Accreditation Council for Business Schools and Programs
Economics	No	

Notes: List includes 15 largest academic programs by undergraduate degree conferrals in 2014-2015.
Source: Author's calculations from data from the Integrated Postsecondary Education Data System.

Table 1.2. Business and Nursing Accreditors in Scope for Analysis.

Field	Accreditor (acronym)	Founding date	Degree levels accredited	Number of programs (2015)
Business	Association to Advance Collegiate Schools of Business (AACSB)	1916	Baccalaureate and above	482
	Accreditation Council for Business Schools and Programs (ACBSP)	1988	Associate's, baccalaureate and above	135 Associate's 245 baccalaureate and above
Nursing	Accreditation Commission for Education in Nursing (ACEN)	1952	Associate's, baccalaureate and above	639 Associate's 152 baccalaureate and above
	Commission on Collegiate Nursing Education (CCNE)	1996	Baccalaureate and above	641

Notes: Excludes the International Assembly for Collegiate Business Education (IACBE) accreditor in business as it largely accredits programs outside the United States. Excludes Commission for Nursing Education Accreditation (CNEA) in nursing as it was founded in 2017.
Source: Author's calculations from extracted accreditation data.

Chapter 2 A Brief History of Specialized Accreditation in Business and Nursing

A ubiquitous but little-studied aspect of accountability in higher education is specialized accreditation. Specialized or programmatic accreditation refers to the review of academic programs or single-purpose institutions by an external entity that determines and certifies whether an academic unit meets relevant standards of quality for that field or profession (Hegji, 2017). It is widespread, with most fields subject to oversight by at least one of the more than 100 specialized accreditors operating in the US. These organizations accredit over 23,000 academic programs across 3,000 institutions (Vibert, 2018), including virtually all occupational and professional fields that account for most degrees granted annually (author's calculations based on data from the National Center for Education Statistics, 2018).

The broad aim of specialized accrediting standards is to ensure that curricula reflect the priorities of each profession's community of practice, establishing the professional relevance of academic programs and codifying standards of quality for (pre-)professional education. Attaining such accreditation can require a substantial investment of institutional and departmental resources, such as modification to curricula, implementation of new assessment or instructional practices, investments in facilities, and hiring of additional faculty and support staff. For many professional fields, specialized accreditation is also intertwined with licensure requirements and employer expectations, making accreditation particularly desirable to prospective students (Yuen, 2012). Yet, for all the influence these organizations hold and their continual expansion in higher education, specialized accreditation remains a fundamentally voluntary undertaking.

Two fields with highly influential accreditors are business and nursing. These fields are substantively important to higher education. Business accounts for one in five undergraduate degrees and one-quarter of all master's degrees granted annually (author's calculations). Nursing is an increasingly credentialed profession, with growing demand for seats in nursing programs during an ongoing shortage of nurses (Bargagliotti, 2003) and a global pandemic. Both fields have long histories of specialized accreditation dating to the early 1900s; both have multiple accreditors recognized by the Council for Higher Education Accreditation (CHEA) and the U.S. Department of Education; and accreditors in both fields have a history of enforcing meaningful standards through rigorous evaluation of member programs (McKee, Mills, & Weatherbee, 2005; Phelbs & Gerbasi, 2009). There is also a high degree of awareness of specialized accreditation in these fields among faculty and administrators (Ard et al., 2017; Roberts et al., 2004; Romero, 2008). Business and nursing also present interesting contrasts that can add insight to a study of specialized accreditation. The two fields prepare graduates for vastly different labor markets with differing levels of professionalization and occupational licensure regimes. Programs face very different enrollment outlooks, with strong competition for students among business programs (Zammuto, 2017) and a shortage of seats for qualified prospective nursing students (Kovner & Djukic, 2009) that leaves many programs unable to expand.

This paper investigates three basic research questions about specialized accreditation in nursing and business: What business and nursing programs are accredited (RQ1) and by whom (RQ2)? Finally, what students do accredited programs serve and what students are excluded from these programs (RQ3)? I answer the first two research questions by tracing the spread of specialized accreditation in the fields of business and nursing and the characteristics of programs and institutions across accreditation statuses. The third question evaluates the implications of

accreditation for equity both in higher education and as graduates move into their profession. Specialized accreditation is costly and voluntary, necessarily excluding certain programs. As it purports to ensure quality and advance graduates in their respective profession, exclusion from accreditation can carry consequences to labor market outcomes of graduates. Findings reveal that specialized accreditation in business and nursing reflect many of the inequities and stratification present in higher education, favoring selective institutions with greater resources and prestige and the students that typically attend them. This chapter provides the most comprehensive overview of the sorting of business and nursing programs and students across specialized accreditation. The chapter not only clarifies what accreditation does and who participates in it, but also serves as important context for future research into the consequences of specialized accreditation for programs and students.

Background

This section draws on several resources to define accreditation, situate specialized accreditation within this system, and describe the evolution of the practice in business and nursing.

History and Definitions of Accreditation

Accreditation is perhaps the longest-standing accountability practice in higher education in the United States (US), dating to the late 19th century and spanning a wide swath of practices, organizations, and stakeholders. The term encompasses regional accreditors with oversight of entire institutions, national accreditation of career and training programs or faith-based colleges and universities, and programmatic accreditation of specific degrees and fields of study and single-purpose institutions (Eaton, 2015; Young, 1979). Accreditation as currently practiced in US higher education developed "through evolution, not design" (Brittingham, 2009, p. 14) after

rapid expansion and a high degree of diversity of institutions through the 19th century, which gave rise to numerous institutions of dubious quality (Thelin, 2011). Accreditation emerged in a vacuous regulatory environment and in response to public concern over the quality of postsecondary institutions.

In the 1880s, some colleges formed associations that served accreditation-like functions by identifying and publicly listing institutions deemed legitimate (Brittingham, 2009). The aim of these associations was to signal to a skeptical public their quality, and to codify in their terms what quality meant. Membership in these associations grew and eventually they came to assert some independence from member institutions on the standards that institutions are held to (Fester, Gasman, & Nguyen, 2012). Between 1885 and 1895, the three first regional accreditors of colleges and universities were founded. The early focus of accreditation was on explicit, quantitative measures of resources (e.g., number of library holdings) eventually gave way to more qualitative, mission-centered approaches centered on continuous quality improvement practices that are reviewed periodically (Brittingham, 2009; Young, 1979). The 1965 Higher Education Act officially designated accreditors as gatekeepers to Title IV federal funds, including the grants and student loans that comprise a large share of federal expenditures on higher education. Some states also require accreditation as a condition for participation in state financial aid programs and grants. Unsurprisingly given this gatekeeper role, virtually all institutions of higher learning in the US engage with accreditation in some form (Eaton, 2015).

Programmatic or specialized accreditation dates to the early 20th century and in some ways mirrors the evolution of institutional accreditation. Its earliest manifestation is the Association of American Medical Colleges, which codified requirements for medical schools and curriculum and was empowered to inspect members (Glidden, 1983). Efforts to improve medical

education culminated in the Flexner Report, a joint effort of the American Medical Association and Carnegie Foundation that reshaped medical schools across the country (Hiatt & Stockton, 2003). The practice quickly expanded across fields as professional associations recognized that specialized accreditation presented an opportunity to define the training and curriculum of those joining the profession (Hagerty & Stark, 1989) and as college administrators saw a venue for excluding certain providers and reducing competition for students (Glidden, 1983). Specialized accreditation has diffused throughout higher education, with well over 100 accreditors in operation currently overseeing more than 23,000 programs (Vibert, 2018). New accreditors continue to emerge, and the reach of existing accreditor grows, now including accreditation of many programs based on institutions outside the US (Altbach, 2003).

With varying degrees of specificity, accreditors determine minimally acceptable curricula, resources, and student outcomes for academic programs (Kelchen, 2018). The broad aim of specialized accrediting standards is to ensure that curricula reflect the priorities of each profession's community of practice, establishing the professional relevance of academic programs and codifying standards of quality for (pre-) professional education. Programs seeking accreditation begin by notifying the appropriate agency of their intent and conducting a self-study in accordance with guidelines provided by accrediting bodies. The self-study is reviewed by experts chosen by the specialized accreditors; in many cases these are volunteers coming from programs or departments that have already attained accreditation. After the review of the self-study, accreditors send a team of reviewers for a multi-day site visit; these reviewers submit a recommendation affirming or denying accreditation to the applicable accrediting board. The accrediting board votes on any final decisions to accredit or renew accreditation for a program (Brittingham, 2009; Ewell, 2008). Specialized accreditors are funded by annual dues charged to

member institutions and additional fees associated with reviews (Eaton, 2009); these fees range from a few hundred to the tens of thousands of dollars depending on accreditor and on the size of the program under review (Trifts, 2012; Yuen, 2012).

Business Accreditation

Specialized accreditors operate in some of the most popular and critical fields including business (19% of all bachelor's degrees granted in 2014-15) and the allied health fields (12%; all percentages author's calculations). The embrace of specialized accreditation was particularly swift among business programs. The first accreditor of business education, the Association to Advance Collegiate Schools of Business (AACSB), was founded in 1916 and remained the sole accreditor for the field for decades. New entrants emerged in 1988 with the founding of the Association of Collegiate Business Schools and Programs (ACBSP); nine years later, the International Assembly for Collegiate Business Education (IACBE) was formed.[1]

The standards enforced by each accreditor embody different perspectives on quality for business education. The 15 criteria AACSB uses to assess programs run the gamut from adequacy of resources and sufficiency of professional support staff; commitment to continuous enrollment; faculty promotion policies; currency of curricula; assessment of learning and intended student outcomes; and student-faculty interaction and engagement (Association to Advance Collegiate Schools of Business, 2020). Most strongly associated with AACSB accreditation are standards governing the qualifications and intellectual contributions of faculty to the field. AACSB has long emphasized that qualified faculty hold terminal degrees in their

[1]I exclude IACBE from consideration in this paper. Many of the programs accredited by IACBE are housed in institutions outside the United States and the accreditor only attained recognition by CHEA in 2011.

respective fields and maintain active research agendas. (Navarro, 2008; Roller, Andrews, & Bovee, 2003).

Just as business programs face significant competition for enrollments, AACSB itself is not immune to competitive and expansionary pressures. By the late 1980s, most "elite" business programs and schools had already attained accreditation. Programs ineligible for accreditation by AACSB still seek the assurance and prestige associated with accreditation. Unaccredited programs and institutions "engaged in several collective efforts to pressure the AACSB to make accreditation more accessible (Casile & Blake, 2002, p. 182). To continue its expansion and in response to these pressures, AACSB underwent a marked shift in the early 1990s to a "mission-linked approach" (Lowrie & Willmott, 2009, p. 412) to accreditation. As part of this shift, the two criteria governing faculty qualifications and research productivity were broadened, expanding the definition of qualified faculty and intellectual contributions to the field (Casille & Blake, 2002).

The Accreditation Council for Business Schools and Programs (ACBSP) arose as a competitor to AACSB in 1988. ACBSP defines its standards in accordance with quality principles outlined by the Baldrige National Quality Program (Beem, 2017). In sharp contrast to AACSB criteria that dictate minimal standards for programs, ACBSP standards center teaching excellence and assessment practices. Across all seven of its criteria, which span leadership, strategic planning, and curriculum, the standards emphasize systematic evaluative processes that identifies strengths and gaps needed for continuous improvement (Accreditation Council for Business Schools and Programs, 2019). The ACBSP definition of qualified faculty also differs from AACSB, recognizing that practitioners with extensive professional experience are well-equipped to serve as qualified faculty. The organization is also less exigent with respect to

scholarly productivity (Brink & Smith, 2012). Its focus on assessment and continuous improvement practices makes ACBSP accreditation less costly and thus accessible to a range of colleges and universities, including for-profit and two-year institutions (Tullis & Camey, 2007). ACBSP accreditation has grown rapidly since 1988, with well over 400 programs currently accredited in the US (author's calculations).

Even with its long history, specialized accreditation of business programs remains controversial within the field. In particular, AACSB has come under criticism for creating a form of "accreditation sickness" (Lowrie & Willmot, 2009, p. 411) in the field that has compromised the relevance of the business curriculum. The emphasis that AACSB has historically placed on research is alleged to produce a glut of scholarship of limited utility and makes business education less relevant to practitioners, representing "an inappropriate – and ultimately self-defeating – model of academic excellence" (Bennis & O'Toole, 2005, p. 98) for business programs. By contrast, the less prestigious business programs typically accredited by ACBSP or wholly unaccredited have retained a focus on business as a profession rather than discipline, ensuring that teaching integrate knowledge and practice (Bennis & O'Toole, 2005). Even under such critique, however, AACSB persists as the premier accreditor for business programs. Further, there is no empirical evidence that the model of accreditation offered by ACBSP leads to better outcomes for programs or students. The controversy around foundational questions about what to teach business students and how to teach them make obvious the need for significant research into programmatic accreditation practices.

Nursing Accreditation

Nursing programs have long operated under specialized accreditation, preceding even their counterparts in business (Van Ort & Butlin, 2009). Unlike business, however, the early

period of nursing accreditation from the late 1890s to the middle of the twentieth century was marked by a proliferation of accrediting agencies. These numerous accreditors eventually consolidated under the National League for Nursing (NLN, the parent organization of the Accreditation Commission for Education in Nursing or ACEN), which operated as the primary accreditor of nursing programs from 1952 to 1997. The six criteria enforced by ACEN largely mirror the themes found among business programs: nursing program' capacity to deliver on intended program outcomes; faculty qualifications and credentials; adequacy of student support services; curricular alignment to nursing learning outcomes; sufficiency of fiscal, physical, technological, and learning resources; and systematic assessment of the program's performance (Accreditation Commission for Education in Nursing, 2020). These standards apply with a few modifications across all degree levels that ACEN accredits, from diploma and associate's programs to doctorate level. The standards aim to ensure the relevance of programs to licensure and preparation for the profession and can serve to support recruitment and retention of students (Ard et al., 2017).

As in business, tensions gave rise to new entrants into accrediting. A long-running lawsuit alleged that ACEN was not sufficiently independent from the NLN, culminating in 2015 with a recommendation by the National Advisory Committee on Institutional Quality and Integrity (NACIQI) for withdrawal of ED recognition of ACEN. The most notable entrant into nursing accreditation was the Commission on Collegiate Nursing Education (CCNE) in 1997. CCNE differentiated itself by focusing solely on baccalaureate and graduate nursing programs, with its board arguing that "rising accreditation costs, financial strains in higher education, proliferating numbers of specialized accrediting bodies within nursing, and the duplicative activities" therein necessitated a new, streamlined accreditor (Van Ort & Butlin, 2009, p. 3). Its

four accreditation standards concern mission and governance, institutional commitments to the nursing program, curriculum and teaching, and assessment of program outcomes (CCNE, 2018). In addition to presenting a simpler set of accreditation standards, CCNE administrators led the founding of the Alliance for Advanced Practice Registered Nurse Credentialing, which coordinates accreditation efforts across 15 advanced practice nursing fields (Van Ort & Butlin, 2009). As such, CCNE promised a significant reduction in the complexity of accreditation for baccalaureate and graduate nursing programs. CCNE experienced very rapid growth, with nearly 700 programs accredited as of 2015 (author's calculations). Most CCNE-accredited nursing programs were previously accredited by ACEN but voluntarily withdrew from that accreditation to join CCNE. Yet another accreditor emerged in 2017, the Commission for Nursing Education Accreditation (CNEA). The CNEA is also governed by the National League for Nursing, which now operates two nursing accrediting agencies. In contrast to ACEN, CNEA enforces fewer standards and criteria that leave more discretion to programs, focusing instead on assessment and continuous improvement practices (NLN CNEA, 2016). In many ways, CNEA mimics the approach that CCNE has taken in streamlining accreditation and represents an effort by the NLN to reassert itself as a viable accreditor for baccalaureate and higher programs.

Comparing Business and Nursing Accreditation

Though there are parallels in accreditation across business and nursing (e.g., their long history, multiple accreditors), there are two important features unique to nursing. The first is the presence of quantitative standards governing student outcomes; chief among these are minimum expected graduation rates, licensure exam pass rates, and job placement rates (ACEN, 2020; CCNE, 2018). These criteria reflect that central to nursing programs' missions is the preparation of nurses. Business is less aligned to any single profession and thus lacks such exacting, bright-

line standards – as do accreditors in most other fields, which tend to focus on quality improvement rather than quantitative benchmarks (Ewell, 2005).

Second is the complex regulatory environment under which nursing programs operate. Accreditation by ACEN or CCNE is voluntary, but even unaccredited programs must be approved by the relevant state Board of Nursing (BON). Board of Nursing approval is a prerequisite for eligibility for licensure exams such as the NCLEX-RN (Spector, 2004). The criteria that BONs consider when approving programs overlap with those of accreditors and include organization and governance of the program, documentation of curriculum and course materials, faculty qualifications, and faculty/student ratios (Spector, 2004). Approval by BONs focuses on the implications that nursing programs have for public health, safety, and wellbeing (National Council of State Boards of Nursing, 2004). As summarized by Spector et al. (2018), the substantial differences between accreditation and approval are that "BON approval is essential for NCLEX eligibility; BONs are government entities that serve the public, whereas national accreditors are businesses, with the programs being their customers; and BONs have the legal authority to close substandard programs, whereas accreditors do not" (p. 25). Notwithstanding both the seeming duplication in standards and differences in the aim of the two entities, BONs are very supportive of specialized accreditation in nursing. The National Council of State Boards of Nursing (NCSBN) has since 2012 called for all nursing programs to attain accreditation (though doing so is not mandated) as a way of reducing the oversight burden of BONs beyond initial approval (Spector et al., 2018).

Another significant difference between business and nursing is the enrollment economy faced by programs in each field. Nursing has for years faced a well-publicized looming shortage of nurses (Bargagliotti, 2003) compounded by enrollment constraints in undergraduate programs

like Associate and Bachelor of Science in Nursing that routinely turn away qualified applicants (Kovner & Djukic, 2009). Other degrees, such as shorter BSN programs for registered nurses (RN to BSN programs) and graduate-level offerings, on the other hand, have experienced significant enrollment growth over the past two decades, including the entry of entirely new programs (Institute of Medicine, 2011). In contrast, business programs operate in a highly competitive enrollment environment, particularly at the graduate level (Zammuto, 2017), where markers like accreditation status and external rankings that allow programs to distinguish from peers are highly valued (e.g., Fee et al., 2008).

In the next section, the conceptual framework outlines why programs may pursue accreditation, how they may choose among multiple accreditors, and how differences and similarities across business and nursing play out in this process. Before presenting this framework, Table 2.1 serves as a reference summarizing the characteristics of the four accreditors included in this study that can help the reader navigate the frequently used acronyms in this paper.

Conceptual Framework

Now understanding what specialized accreditation entails, this section sketches a conceptual framework for why academic programs pursue it. I draw from two theoretical traditions to identify external and internal factors that help explain why specialized accreditation has expanded across higher education, how different institutions may sort across accreditors, and what this expansion and sorting mean for equitable access to accredited programs.

The professionalization of occupations is one external driver for specialized accreditation. Professionalization refers to the process by which occupations make claims to their own domain space and expertise, securing prestige and monetary returns. Wilensky (1964)

proposed that professionalization is a process that begins by formalizing the training of an occupation, typically advocated by professional associations that define the tasks and expertise belonging to the profession. Abbott (1988) noted that such a procedural view of professionalization overlooks the interconnected nature of occupations. Abbott proposed instead a focus on the boundaries between professions and on how different professions claim jurisdiction over certain knowledge and tasks. This process establishes a credible, legitimate claim over exclusive professional knowledge (Slaughter & Leslie, 1997) that serves to "influence the everyday realities of professional status, interprofessional competition and jurisdictional division between professions" (Kroezen et al., 2013, p. 2). In other words, professions need boundaries that can be asserted over competing claims by other occupations. Specialized accreditors are one mechanism by which boundaries of professional knowledge are created and enforced. They are vehicle through which professions, typically through professional associations, exert influence over universities (Stark et al., 1986), codifying professional knowledge and defining the "field-specific expertise that determines what quality practice and quality education is" (Vibert, 2018, p. 47).

The advancement and credibility of professions has been at the core of specialized accreditation from its inception, as accreditors aim at "protecting and improving the status of the profession and its practitioners," making programmatic accreditation "attractive to any professional group that has or desires its own identity" (Glidden, 1983, p. 200). But business and nursing are not equally professionalized. Business programs do not prepare students for one single occupation, but many of the roles that business majors take have professionalized over time, such as accounting (Cooper & Robson, 2006), management (Spender, 2007), consulting (David et al., 2013), and human resources (Wright, 2008). Nursing has become increasingly

professionalized for over a century as nursing tasks grow in complexity, nurses gain broader scope of practice (Markowitz & Adams, 2020), and nurses specialize and stratify across ranks. One constraint on the professionalization of nursing is its highly gendered nature, which has historically limited its effectiveness in jurisdictional disputes with largely White and male dominated professions like doctors (Manley, 1995). Specialized accreditation may thus be especially appealing in nursing: lacking the status to prevail in jurisdictional disputes, accreditation is one avenue for establishing a system of control, a professional association, and the licensure and certification of members of good standing. Thus, as it relates to the first research question, it is reasonable to expect a higher prevalence of accreditation in nursing than in business.

Professionalization may stimulate the rise of specialized accreditors, but why do so many programs internalize the demands of accreditors? Just as colleges and universities expend resources in the competition for status (e.g., Bowman & Bastedo, 2009; Winston, 1999), so do programs and departments (Slaughter & Leslie, 1997). Podolny (2005) argued that status flows in part from associations and relations. Attaining specialized accreditation is a way to secure a valuable association that lets programs claim as peers all other selectively accredited members, just as administrators engage in strategic partnerships with other institutional membership associations to advance status (Orphan & Miller, 2019). Such an association is valuable internally as programs leverage their accreditation status to secure greater resources within their institutions (Glidden, 1983) and externally as a third-party assurance of quality attractive to prospective students and faculty (Bloland, 1999; Jost, 1994; Mause, 2009). Reinforcing the importance of accreditors as "legitimating agents" (Durand & McGuire, 2005) is the dependence of American institutions on professional and occupational programs. Colleges and universities

have become "definitively oriented to occupational-professional education at the end of the twentieth century, at a time when they were becoming mass terminal institutions" with such programs accounting for around 60% of bachelor's degrees granted annually (Brint et al., 2005, p. 174). Specialized accreditation also enables business and nursing programs to pursue other markers of prestige. Only programs accredited by AACSB are eligible for inclusion in the *US News & World Report* ranking of business programs, while nursing programs considered for ranking must hold accreditation from ACEN or CCNE.

Research question 2 examines the sorting of programs across accreditors. Business and nursing are somewhat unique for having multiple accreditors with distinct accrediting philosophies and levels of prestige. Because of its long history and roots in the most selective institutions in the country, AACSB has long been the premier accreditor of business programs. It also serves as a gatekeeper to the all-important *US News & World Report* rankings that drive so many decisions of both students and administrators (Corley & Gioia, 2000; Fee et al., 2008; Zell, 2005). As such, programs housed in more selective institutions, those granting doctoral degrees, and those of higher research intensity should be more likely to pursue accreditation by AACSB. Comprehensive universities, baccalaureate colleges, less well-resourced, and less selective institutions will be more like to attain accreditation by ACBSP (or to remain unaccredited).

Prior empirical work provides some supporting evidence for this. Researchers have documented that pursuit of AACSB accreditation is viewed as necessary for programmatic legitimacy (Holmes, 2001; Trapnell, 2007) especially when compared to accredited peer programs (Casile & Davis-Blake, 2002; McKee et al., 2005). Competition for enrollments and the signal value of accreditation are also frequently reported motivations for accreditation (Webster & Hammond, 2012), particularly among private institutions (Casile & Davis-Blake,

2007). Academic leaders report the belief that AACSB accreditation "improves the brand of programs and/or schools, which in turns aids in the recruitment of talented students and the attraction of qualified faculty" (Smith et al., 2017, p. 4). Survey data bear this out for faculty and academic leaders (e.g., Roberts et al., 2004), though students generally do not cite accreditation status as a strong determinant of their choice of business program (Hunt, 2015). But because accreditation in business is intertwined with rankings, students need not associate their decisions to an accreditor for it to impact where they enroll. The very limited research on ACBSP accreditation finds that programs pursue this accreditation as a marker of quality and as a tool for quality improvement, with little to no evidence that extrinsic benefits like increased enrollment or prestige drove administrators to pursue accreditation (Beem, 2017).

Nursing is an interesting contrast as the newer accreditor, CCNE, carries a higher level of prestige because of its focus on baccalaureate and higher degree levels and because of the active role that AACN takes in promoting greater credentialing for nurses. Research suggests that administrators are attracted to accreditors because of their desire for recognition as a quality program, to improve programmatic quality, and to gain more resources and greater recognition from their home institutions (Freitas, 2007). With respect to the choice of nursing accreditor, Belack et al. (1999) found that programs offering graduate-level degrees and those housed at research-intensive institutions were more likely to pursue CCNE accreditation; administrators at private institutions and at programs without graduate offerings reported an intent to pursue or remain with ACEN accreditation.

Because business and nursing programs stratify across accreditors, findings for research question 3 are likely to mirror such stratification. There is ample research demonstrating the various ways that enrollment patterns by race/ethnicity and income are stratified across

institutional prestige and selectivity (e.g., Bastedo & Jaquette, 2011; Carnevale & Rose, 2004; Posselt et al., 2012). As such, one would expect minoritized graduates in business and nursing to be less likely to complete their degrees in accredited programs. These disparities should be most pronounced for the more prestigious accreditor in each respective field, AACBS and CCNE.

Empirical Approach

The analysis for all three research questions makes use of a panel dataset created to track business and nursing programs and their accreditation status from 1985 to 2015. Based on this data, I contrast various characteristics of programs and institutions by accreditation status over time. To measure characteristics of students served by accredited programs, I use data on the race/ethnicity of students completing degrees in business and nursing by institution annually. The next section provides detail on the data source and methods used.

Data

The analysis uses a panel dataset at the institution-degree-program-year level that spans from 1985 to 2015. The universe of business and nursing programs is derived from the Integrated Postsecondary Education Data System (IPEDS). Data on awards conferred identifies all degree-granting programs in business under the two-digit Classification of Instructional Programs (CIP) code 52 (formally business, management, marketing, and related support services) and in nursing under the four-digit CIP code of 5138 (formally registered nursing, nursing administration, nursing research, and clinical nursing). Because CIP codes are revised every ten years, I create a crosswalk mapping all codes from 1980, 1990, 2000, and 2010. The IPEDS is also the source for program- and institution-level measures like control, Carnegie classification, and selectivity (as proxied by *Barron's* category); financial measures like total revenue; the count of degrees awarded by race/ethnicity; and the share of degrees conferred in business and nursing.

To measure the timing and incidence of accreditation, I developed a novel dataset capturing all business and nursing programs that are currently accredited and the year in which they earned their initial accreditation. These data were gathered by retrieving information from websites, program profile pages maintained by accreditors, and membership rosters published regularly by accreditors. This information was then spot-checked and validated manually or through inquiries about accreditation status directly to each accreditor before matching to IPEDS. These data are the basis for creation of a time-varying categorical variable that reflects the accreditation status of each degree granting program in business and nursing by year from 1985 to 2015. The results generally focus on programs at the associate or baccalaureate levels, though I disaggregate the analysis to higher degree levels as warranted throughout.

There are limitations to this dataset. For one, accreditors do not provide consistent information on the loss of accreditation. As a result, programs that earned and lost accreditation within the time span of the panel could be (erroneously) categorized as never accredited. The loss of accreditation is relatively rare so bias associated with this issue should be minimal. An important exception to this is the impact of CCNE's entry on ACEN accreditation. The entry of CCNE into nursing accreditation led to programs voluntarily withdrawing from ACEN accreditation to join CCNE instead. For example, the University of Michigan was accredited by ACEN from 1953 until 2002 without interruption, when it voluntarily withdrew from ACEN accreditation and became accredited by CCNE. Hundreds of other nursing programs did the same. In short order, CCNE established a near-monopoly on accreditation at the baccalaureate and higher level, accounting for nearly 80% of accredited programs at the four-year or higher level (author's calculations). By contrast, since 2014 ACEN has granted accreditation to 30 such programs while 61 withdrew from accreditation. There is no comprehensive publicly available

data source on these voluntary withdrawals. To fully capture this phenomenon, I acquired a membership roster for ACEN in 1996 (the year preceding the entry of CCNE) from a publication by the National League for Nursing. Combining this list with the year of initial accreditation by CCNE allows for the identification of all former ACEN members that switched accreditors and the timing of each switch.

These limitations may impact findings by resulting in an undercounting of accredited programs. The great deal of manual processing involved in acquiring these data also could introduce some error affecting the analysis. However, there is no reason to assume that possible errors and undercounting are systematic rather than random. Thus, I cautiously interpret these findings as establishing a lower bound of the coverage of accreditation in business and nursing. Because of the survivor bias inherent in only capturing the status of currently accredited programs, it is also important to keep in mind that all discussion of the characteristics associated with accreditation generalize only to programs that have remained accredited.

A final limitation to the data used relates to IPEDS. Information from IPEDS is largely measured at the institutional level, with relatively little data measured about academic programs themselves. For example, measures of substantive interest like enrollment, admissions, or finances are not captured by program, requiring the use of institution-level proxies instead. The information available on student characteristics by academic program is also limited to race/ethnicity and is only measured at graduation (i.e., reported only for completers). It is possible for the characteristics of business and nursing graduates to differ from those of business and nursing students if there are differential retention and graduation rates by race/ethnicity or any other factor correlated with race/ethnicity.

Methods

The research questions in this paper are purely descriptive; the research methods follow from there. The first research question deals with the growth of accreditation in business and nursing and the characteristics of programs by accreditation status. I begin by tracing accreditation over time as the annual and cumulative number and share of programs accredited by field. Descriptive statistics of the characteristics of accredited programs and institutions relative to their unaccredited peers are also reported for three points in time for business (1985, 2000, and 2015) and two points in time for nursing (1996 and 2015). These unconditional characteristics of institutions by accreditation status are of substantive interest and drive much of the discussion. Because it is possible for descriptive statistics to obscure confounding relationships, Supplemental Materials include results for a series of linear probability models of the form:

$$P(Y_{i_a} = 1) = X_i'\beta + \varepsilon_i \quad (1)$$

where $P(Y_i = 1)$ is the probability of program *i* being accredited by accreditor *a* as of 2015, $X_i'\beta$ are vectors of covariates at the program and institution level and their associated coefficients, and ε_i are robust standard errors. These covariates include measures for institutional control, selectivity, graduate-level offerings, enrollment, degrees conferred in business/nursing, and the business/nursing share of all degrees (all measured in 2015). Results from this analysis do not change the substantive conclusions derived from the simpler descriptive statistics.

For the third research question, I track the proportion of degree conferrals by programmatic accreditation status from 1985 to 2015 by degree level for business and nursing. This time series is then subdivided by race/ethnicity and by accreditation status from 1995 on (the first year of data availability in IPEDS), which yields trends per race/ethnicity of the share

of total business/nursing graduates that earn their degree from unaccredited programs and by accreditor.

Findings

Business Accreditation

The two business accreditors collectively accredit 738 programs at the baccalaureate and higher degree levels as of 2015, with AACSB accounting for 70% of them. Annually since 1985, AACSB has accredited eight new programs annually, with a large uptick in the late 1990s coinciding with revised standards that made accreditation attainable for less research-intensive institutions. ACBSP averaged nine newly accredited programs annually over the same period. Table 2.2 reports summary statistics of institutions and programs by accreditation status. Programs accredited by AACSB remained remarkably consistent over the 30 years in the panel. The accreditor continues to accredit a disproportionate share of programs in institutions ranked in the top three selectivity categories from *Barron's*. It also continues to accredit a large proportion of business programs at public institutions, with only a small increase in the number of not-for-profit institutions holding AACSB accreditation. Unsurprisingly, colleges and universities with AACSB accreditation are significantly larger than their peers, conferring twice as many degrees as ACBSP-accredited institutions. The most notable shift in the characteristics of AACSB-accredited programs is the ascendance of historically Black colleges and universities (HBCUs), which have attained equitable representation with the accreditor within the past thirty years after decades of exclusion. Programs accredited by ACBSP differ from AACSB-accredited ones in numerous ways. In particular, ACBSP is more likely to accredit programs at minority-serving institutions and HBCUs, accredits a smaller share of programs based at public institutions (and a greater share of those at not-for-profits). These programs are also housed at

less selective institutions. Finally, ACBSP has accredited many programs at for-profit institutions, especially since 2000. Regression results in Table 2.7A (in Supplemental Materials) confirm that the differences in characteristics across accreditation status hold simultaneously.

With over 700 programs now accredited, the share of baccalaureate degrees granted by unaccredited programs dropped sharply over time from about 50% in 1985 to fewer than 30% as of 2015 as illustrated in Figure 2.1. Over the same period, AACSB increased its share by 10 percentage points while ACBSP rose steadily until 2012, when it experienced significant growth in degrees conferred after accrediting several large online and multi-campus for-profit operators like Capella, DeVry, Strayer, and University of Phoenix. The share of students graduating from these programs reveals disparities by race and ethnicity that mirror disparities in enrollments at the institutions served by each accreditor. Specifically, Black business graduates are significantly underrepresented among those earning AACSB-accredited degrees and overrepresented among graduates of ACBSP-accredited programs. This pattern has accelerated since 2012 given the large share of minoritized students, especially Black students, enrolled at the colleges and universities most likely to be accredited by ACBSP.

The trends in accreditation coverage and in disparities for Black students are even more pronounced at the graduate level, included in Figure 2.2. The share of master's degrees conferred by AACBS-accredited programs is virtually unchanged over the 30-year period, with Black and Latinx business graduates consistently underrepresented in this group. At the doctoral level, the share of degrees conferred by unaccredited programs essentially doubled over the past 30 years – largely reflecting that the share of business doctorates with AACSB accreditation dropped from 90% to less than half. The significant gains in doctorate share by ACBSP in recent years do not

fully compensate for the relative reduction in AACSB coverage of doctoral business degrees and ascendance of doctoral programs holding no programmatic accreditation.

Programmatic accreditation remains somewhat uncommon among business programs at the two-year level, with 9% of programs accredited by ACBSP as of 2015 (Table 2.3). Public institutions are more likely to be accredited (13% are) and constitute most two-year colleges, so they account for most accredited programs. Colleges housing accredited programs are twice as likely to be classified as "high transfer" institutions by Carnegie class. These are institutions that grant fewer than 30% of degrees and certificates in career and technical education and whose students have high transfer rates into four-year programs. Two-year colleges with accredited business programs are larger by about one-third (or 800 full-time students) and grant almost twice as many business degrees as unaccredited programs (111 vs. 64 annually). Because these programs are larger on average, in 2015 13% of two-year business degrees were granted by accredited programs, ranging from 16% for White students to 9% for Latinx business graduates.

Nursing Accreditation

The current state of accreditation for nursing programs is characterized by a high prevalence of accreditation that is diffused across sectors of higher education, as summarized in Table 2.4. At the baccalaureate level, 87% of programs are accredited, 20% by ACEN and 67% by CCNE. Of programs that remain unaccredited, those at for-profit institutions account for a large share (5% of all nursing programs but 68% of unaccredited ones). Unaccredited programs produced an average of 127 nursing graduates each in 2015; even as nursing professionalizes and accreditation diffuses unaccredited programs graduate thousands of nurses annually. ACEN accredits a large share of programs housed in public institutions, HBCUs, and predominantly Black institutions. After significant and constant growth, CCNE now accredits most programs,

including virtually all from institutions ranked moderately selective or higher and those with graduate-level offerings: 76% of MSN programs and 89% of DNP programs carry CCNE accreditation. CCNE-accredited programs are also larger on average, though since they operate in colleges and universities that are themselves larger, the nursing share of all degrees is smallest. Table 2.8A in Supplemental Materials reports results of a regression of accreditation status as of 2015 on these same characteristics.

Moving to nursing accreditation over time, the panels in Figure 2.3 display the initial accreditation dates of currently accredited programs in nursing. The graph makes clear that CCNE has become the primary accreditor of nursing programs at the baccalaureate and higher level, accrediting on average 34 programs annually since 1997. In its early years, the limiting factor to the expansion of CCNE was not a lack of applicant programs but a shortage of reviewers to evaluate programs (Van Ort & Butlin, 2009).

By contrast, ACEN has accredited fewer than 10 programs annually since 1997 and has seen numerous voluntary withdrawals over the same period. To understand the migration between these two accreditors, I compare accreditation in 1996-1997 (the year preceding the entry of CCNE) and 2015 in Table 2.5. In 1996, there were 482 programs with ACEN accreditation; of those, 399 (83%) have since switched to CCNE. Table 2.4 makes clear that programs that have switched from ACEN to CCNE differ from those that remained: HBCUs and predominantly Black institutions are less likely to switch, whereas institutions that did switch are more selective on average. Switchers are also larger and more likely to offer graduate-level programs: as of 2015, they are 28% more likely to offer MSN degrees and three times more likely to offer DNP programs. The last column of Table 2.4 makes apparent that the profile of programs that ACEN has accredited since 1997 has also changed: programs earning ACEN

accreditation since then are more likely to be for-profit institutions, include no institutions in the most or highly competitive *Barron's* categories, and are less likely to offer graduate degrees in nursing.

The patterns and trends in nursing accreditation have important implications for students. Figure 2.4 plots the share of nursing degrees that are granted overall and by race/ethnicity, split by accreditation status. As of 2015, 92% of all nursing degrees at the baccalaureate level were granted by accredited institutions, with ACEN accounting for 14% and CCNE for 78%. Since 1996, the coverage of degrees by accreditors has mirrored that of academic programs: CCNE has increased its share steadily while ACEN experienced a decline from a high of 87% in 1996 to under 20% since 2008. The share of nursing graduates earning their degrees at unaccredited programs has declined slightly since 1996, averaging 10% annually. There are significant disparities in the distribution of nursing graduates by race and ethnicity, however. Black and Latinx students are disproportionately represented among unaccredited programs. In 2015, 4.6% of nursing baccalaureate degrees were granted by unaccredited programs, ranging from 3.7% for White students to 6.5% for Black and 6.9% for Latinx students.

Nursing programs at the associate level (Table 2.6 and Figure 2.5) are characterized by a lower overall prevalence of accreditation. There are almost 700 ACEN-accredited two-year programs, representing around 60% of all programs. Almost 90% of ACEN-accredited programs are housed in public institutions; institutions with accredited programs enroll more students on average and have larger nursing programs graduating 50% more students on average (approximately 30 students). As of 2015, ACEN accreditation covers 66% of all degrees conferred but there are significant disparities by race and ethnicity: 70% of White students

completing two-year nursing degrees do so at ACEN-accredited programs relative to 56% for Black and Latinx students.

The gap in the accreditation coverage of Black and Latinx nursing graduates generally reflects enrollment patterns. Latinx students earning nursing degrees are most represented at Hispanic-serving institutions (HSIs), which have a 9-percentage point lower probability of holding specialized accreditation than predominantly white institutions (see Table 2.8A in Supplemental Materials). Additionally, as of 2015 21% of Black and 18% of Latinx nursing graduates earn their degrees at for-profit colleges, the institutions least likely to hold such accreditation. Note that the sample excludes Puerto Rico. With the inclusion of Puerto Rico, the proportion of Latinx nurses graduating from unaccredited programs would have more than doubled over this period as few Puerto Rico-based programs were accredited previously. Recently, however, ACEN and CCNE have made significant inroads in Puerto Rico institutions: Since 2015, ACEN has accredited 8 and CCNE has accredited 11 such programs.

Discussion

The analysis presented here finds support for the growing importance specialized accreditation plays in business education across each of these areas. Highly selective elite business programs continue to sort into the prestigious accreditation of AACSB, though striving middle-selectivity institutions have also recently come to pursue this accreditation – especially as AACSB relaxed standards to take a more mission-centered approach to accreditation. The connection between AACSB and rankings of business schools, coupled with these new standards, has made accreditation by AACSB more attainable and a near-necessity for striving business programs. In contrast, ACBSP has come to accredit many institutions that are unlikely to meet AACSB standards and unlikely to seek out gains in published rankings but seeking

greater legitimacy nonetheless: the least selective colleges and universities and those in the for-profit sector. This stratification is reflected in what students have access to accredited programs. To the extent that AACSB sees itself as a key determinant of students' labor market success (which they claim) and to the extent that attending the "right" institution and attaining the "right" cultural fit play a central role in access to elite jobs (e.g., Rivera, 2012), this exclusion could have significant implications for labor market outcomes. At the same time, to the extent that ACBSP lends some legitimacy to programs with high concentrations of minoritized students, it is crucial to get a better understanding of whether and how its accreditation improves programmatic quality and student outcomes.

Future research should also investigate doctoral programs lacking specialized accreditation given the explosive growth of such programs, especially among minoritized business students. Doctoral degrees prepare individuals for some of the most professionalized occupations available to business students and seem at first glance to be the one credential level where specialized accreditation is most justified, making the prevalence and growth of unaccredited doctoral-granting programs puzzling. Graduate school is an important driver of student debt and one cause of wide disparities in debt burden by race and ethnicity (e.g., Scott-Clayton & Li, 2016). The prestige of graduate business programs is the strongest determinant of labor market outcomes for PhD holders (Bedeian et al., 2017). Unaccredited doctoral programs in business can certainly make such credentials more attainable given the very limited number of slots at selective graduate programs, but these programs may combine high tuition charges with low name recognition and perceptions of prestige in ways that harm students financially and academically.

Given the licensure regime that characterizes nursing and the field's striving for greater professionalization, it is unsurprising that its prevalence of accreditation is high. Perhaps more surprising are the lower rate of accreditation among two-year programs and the persistence of unaccredited programs. Nursing accreditation can be a costly endeavor, so community colleges strapped for resources and already running oversubscribed nursing programs may forgo it with little consequences, which appears to be the case. What remains unknown, however, are the labor market consequences that students face, especially minoritized students. Nursing programs have not managed to expand enrollments sufficiently to meet demand by qualified applicants, running counter to the stated goals of professional associations to increase the education level of the nursing workforce. Future research (like the next chapter of this dissertation) should explore the implication of specialized accreditation to the supply of nursing seats at colleges and universities and to the labor market outcomes of students, especially in the context of CCNE's goal of streamlining the complicated web of accreditation across registered nursing and advanced practice nursing programs. The entry of CNEA introduces yet more change and complexity to nursing accreditation at the two- and four-year levels and demands additional research into the accreditor choices administrators face and their implications for the success of programs and their students. It is critical to understand the impact that differences in nursing programs, including accreditation, have for students' labor market outcomes and for the quality of care and health outcomes for patients.

The persistence of unaccredited programs in nursing also warrants future research into the types of programs that are available to aspiring nurses and how students navigate such choices. One example of such work is the investigation of college choice by Iloh and Tierney (2014). They interviewed nursing students at a low-cost community college and at an expensive

for-profit institution, finding that many turned to the for-profit sector because of hurdles faced in attending and succeeding at an under-resourced community college, including limited available seats, course waitlists, and complex bureaucracy. Combined with the findings in this paper, it is critical to study what implications accreditation status has for career advancement and diversity of the nursing labor force – especially as Black and Latinx nursing graduates continue to disproportionately attend unaccredited programs. For example, Latinx individuals comprise only 3% of the nursing workforce, a significant underrepresentation given this group accounts for 18% of the US population (Devoe, 2016) and has accounted for at least 5% of baccalaureate nursing degrees granted annually since 1996 (author's calculations). Black and Latinx nurses also have the lowest earnings among registered nurses, a differential not explained by variation in education level or experience (Moore & Continelli, 2016). Future research should investigate whether the unaccredited degrees that many aspiring Black and Latinx nurses earn is a possible cause for leaving the profession and being systematically underpaid.

Conclusion

This paper provides some of the first and most thorough documentation of specialized accreditation in business and nursing, including its evolution over time, its coverage of programs and institutions, and the students it serves. The contrast between the two fields is instructive, as it illustrates how the licensure regime of nursing and professionalization of the occupation requires a higher degree of accreditation for program legitimacy. The similarities between the fields are the voluntary nature of specialized accreditation and the presence of multiple accreditors; these similarities serve to reinforce the stratification across accreditors as prestige and isomorphism drive programs' accrediting ambitions. Another goal behind documenting specialized accreditation in detail for these two fields is to properly contextualize the practice in future

research. For example, the next chapter makes use of quasi-experimental methods to study the effects of accreditation on degree conferrals and costs. The information in this chapter informs that study by defining what the accreditation "treatment" is and what types of institutions comprise the "counterfactual" to a program that has attained accreditation. As specialized accreditation pervades higher education, tracking its scope across and within fields is critical in an era of heightened accountability for institutions and programs.

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Table 2.1 Specialized Accreditors for Business and Nursing in Scope for Analysis.

Field	Accreditor (acronym)	Founding date	Degree levels accredited	Number of programs (2015)
Business	Association to Advance Collegiate Schools of Business (AACSB)	1916	Baccalaureate and above	482
	Accreditation Council for Business Schools and Programs (ACBSP)	1988	Associate's, baccalaureate and above	135 Associate's 245 baccalaureate and above
Nursing	Accreditation Commission for Education in Nursing (ACEN)	1952	Associate's, baccalaureate and above	639 Associate's 152 baccalaureate and above
	Commission on Collegiate Nursing Education (CCNE)	1996	Baccalaureate and above	641

Note: Excludes International Assembly for Collegiate Business Education (IACBE) accreditor in business as it largely accredits programs outside the United States. Excludes Commission for Nursing Education Accreditation (CNEA) in nursing as it was founded in 2017. "Program" defined as institution-CIP code (52 for business, 5138 for nursing) collapsed across degree levels within institution.

Source: Author's calculations from extracted accreditation data.

Table 2.2 Descriptive Characteristics for Business Programs by Accreditation Status (four-year level).

	1985		2000			2015		
	AACSB (n=223)	Unaccred (n=957)	AACSB (n=347)	ACBSP (n=123)	Unaccred (n=850)	AACSB (n=482)	ACBSP (n=245)	Unaccred (n=1,031)
HBCU	0.009	0.065	0.033	0.125	0.044	0.045	0.105	0.028
Pred Black Institution	0.009	0.022	0.007	0.025	0.026	0.005	0.017	0.025
Hispanic-Serving Institution	0.087	0.093	0.088	0.125	0.097	0.104	0.092	0.092
Control								
Public	0.725	0.360	0.706	0.400	0.303	0.712	0.262	0.219
Not-for-profit	0.275	0.599	0.294	0.592	0.600	0.288	0.498	0.561
For-profit	0.000	0.041	0.000	0.008	0.096	0.000	0.240	0.219
Barron's ratings (as of 2014)								
Most competitive	0.153	0.013	0.112	0.009	0.010	0.091	0.000	0.013
Highly competitive	0.126	0.037	0.116	0.009	0.040	0.116	0.006	0.048
Very competitive	0.293	0.229	0.294	0.204	0.217	0.293	0.175	0.219
Competitive	0.386	0.497	0.399	0.454	0.503	0.398	0.512	0.476
Less competitive	0.037	0.159	0.066	0.269	0.148	0.083	0.244	0.143
Noncompetitive	0.005	0.052	0.013	0.046	0.064	0.019	0.056	0.069
Special purpose	0.000	0.013	0.000	0.009	0.018	0.000	0.006	0.032
Undergraduate degrees conferred								
Total	1,679.8	320.1	1,684.3	420.2	382.3	2,218.8	923.4	507.8
	(1194.7)	(405.1)	(1324.1)	(276.8)	(508.1)	(1976.8)	(1759.1)	(907.0)
Business	502.0	123.0	422.0	84.6	107.2	473.4	225.9	118.1
	(338.1)	(154.5)	(335.9)	(42.01)	(162.1)	(433.1)	(458.9)	(255.7)
Business share	0.247	0.288	0.211	0.187	0.244	0.186	0.225	0.208
Total FT Enrollment	10,050.3	1,984.7	9,225.7	2,463.0	1,908.8	10,749.4	1,875.9	2,066.7
	(6491.8)	(2319.1)	(6792.4)	(1461.0)	(2279.2)	(8879.8)	(1481.2)	(3567.2)

Source: Author's calculations from IPEDS data and derived accreditation statuses.

Table 2.3 Descriptive Characteristics for Business Programs by Accreditation Status in 2015 (two-year level).

	ACBSP (n=135)	Unaccred (n=1,539)
Control		
Public	0.941	0.565
Not-for-profit	0.044	0.169
For-profit	0.015	0.257
Total FT Enrollment	3,529.2	2,736.1
	(3415.9)	(6089.0)
Transfer intensity (from Carnegie Class)		
High transfer	0.348	0.174
Mixed transfer	0.319	0.172
High CTE	0.207	0.165
Undergraduate degrees conferred		
Total	1,806.2	578.7
	(2,174.3)	(797.7)
Business	118.8	74.5
	(99.4)	(120.5)
Business share	0.075	0.133

Source: Author's calculations from IPEDS data and derived accreditation statuses.

Table 2.4 Descriptive Characteristics for Nursing Programs by Accreditation Status (four-year level).

	1996		2015		
	ACEN (n=482)	Unaccred (n=108)	ACEN (n=152)	CCNE (n=641)	Unaccred (n=128)
HBCU	0.045	0.046	0.112	0.013	0.028
Pred Black Institution	0.010	0.011	0.031	0.008	0.014
Hispanic-Serving Institution	0.092	0.149	0.068	0.103	0.138
Control					
Public	0.542	0.402	0.565	0.437	0.241
Not-for-profit	0.456	0.586	0.404	0.532	0.414
For-profit	0.002	0.011	0.031	0.031	0.345
Barron's ratings (as of 2014)					
Most competitive	0.032	0.014	0.000	0.033	0.029
Highly competitive	0.043	0.057	0.009	0.044	0.029
Very competitive	0.232	0.171	0.085	0.253	0.176
Competitive	0.504	0.614	0.479	0.512	0.544
Less competitive	0.148	0.114	0.282	0.111	0.147
Noncompetitive	0.032	0.029	0.137	0.026	0.059
Special purpose	0.009	0.000	0.009	0.022	0.015
Undergraduate degrees conferred					
Total	1,177.1 (1351.4)	784.5 (1007.2)	925.1 (1200.8)	1,539.5 (1987.1)	1,167.4 (3128.3)
Nursing	92.3 (111.1)	52.3 (44.97)	129.6 (152.3)	171.0 (393.6)	127.0 (173.2)
Nursing share	0.130	0.099	0.186	0.165	0.221
Total FT enrollment	5,254.7 (5867.3)	3,661.0 (5914.2)	3,499.6 (3496.3)	6,246.5 (7872.3)	4,879.3 (14302.8)
Graduate programs					
Offers MSN	0.785	0.529	0.410	0.638	0.407
Offers DNP	0.399	0.184	0.068	0.344	0.103

Source: Author's calculations from IPEDS data and derived accreditation statuses.

Table 2.5 Descriptive Characteristics for Nursing Programs by ACEN Accreditation Status (four-year level).

	Remained w/ ACEN (n=83)	Switched to CCNE (n=399)	ACEN since 1997 (n=75)
HBCU	0.124	0.015	0.062
Pred Black Institution	0.023	0.008	0.031
Hispanic-Serving Institution	0.062	0.095	0.077
Control			
Public	0.558	0.514	0.569
Not-for-profit	0.434	0.481	0.354
For-profit	0.008	0.005	0.077
Barron's rating (as of 2014)			
Most competitive	0.017	0.043	0.000
Highly competitive	0.017	0.045	0.000
Very competitive	0.108	0.265	0.037
Competitive	0.533	0.503	0.407
Less competitive	0.250	0.104	0.259
Noncompetitive	0.067	0.024	0.296
Special purpose	0.008	0.016	0.000
Undergraduate degrees conferred			
Total	1,337.441	1,823.830	1,041.742
	(3157.8)	(2177.0)	(1640.3)
Nursing	143.806	185.361	127.708
	(182.0)	(339.0)	(124.0)
Nursing share	0.165	0.161	0.204
Total FT enrollment	5,747.023	7,649.594	3,336.800
	(14372.7)	(8552.4)	(4105.3)
Graduate programs			
Offers MSN	0.636	0.820	0.169
Offers DNP	0.163	0.474	0.015

Source: Author's calculations from IPEDS data and derived accreditation statuses.

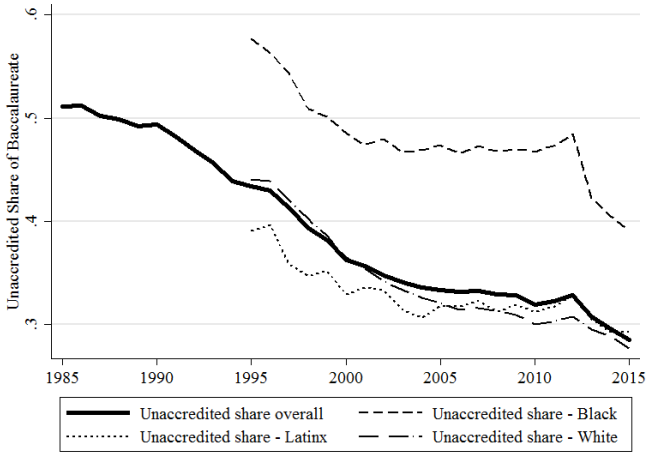
Table 2.6 Descriptive Characteristics for Nursing Programs by Accreditation Status in 2015 (two-year level).

	ACEN (n=639)	Unaccred (n=494)
Control		
Public	0.890	0.609
Not-for-profit	0.082	0.107
For-profit	0.027	0.263
Total FT Enrollment	3,354.3	2,943.2
	(3,626.8)	(5,652.1)
Transfer intensity (from Carnegie Class)		
High transfer	0.325	0.168
Mixed transfer	0.268	0.235
High CTE	0.152	0.128
Undergraduate degrees conferred		
Total	931.2	571.1
	(1,109.5)	(1,052.5)
Business	91.3	63.7
	(83.1)	(110.9)
Business share	0.192	0.268

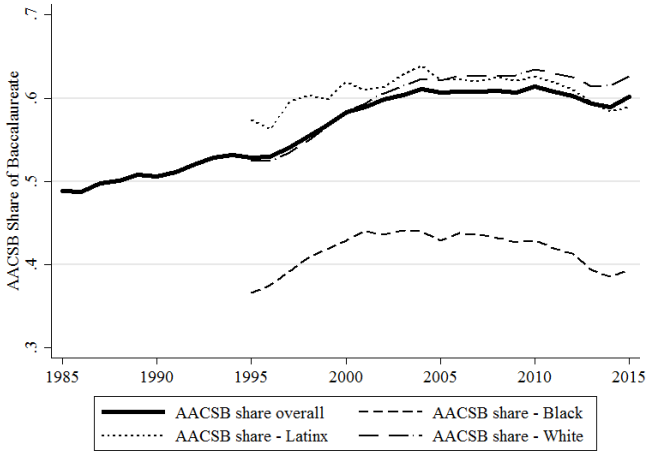
Source: Author's calculations from IPEDS data and derived accreditation statuses.

Figure 2.1 Share of Business Degrees Conferred by Accreditation Status.

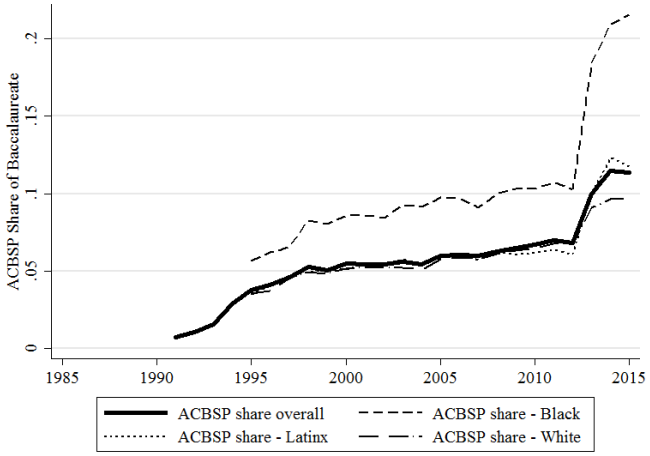
a. Bachelor's Unaccredited



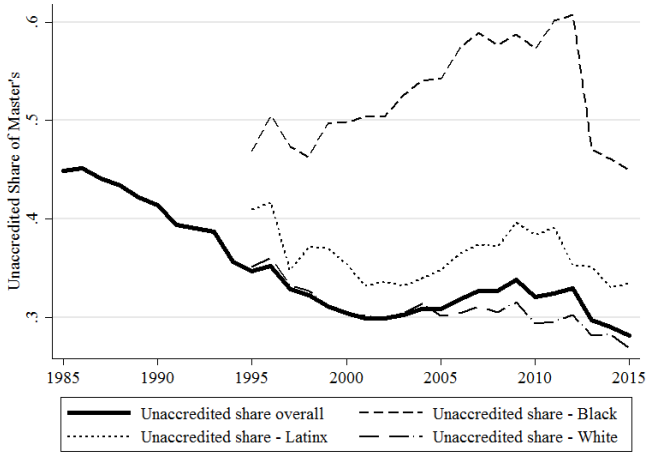
b. Bachelor's AACSB accredited



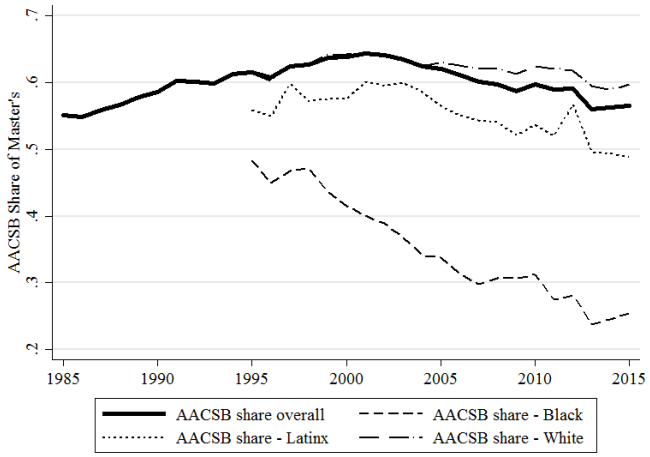
c. Bachelor's ACBSP accredited



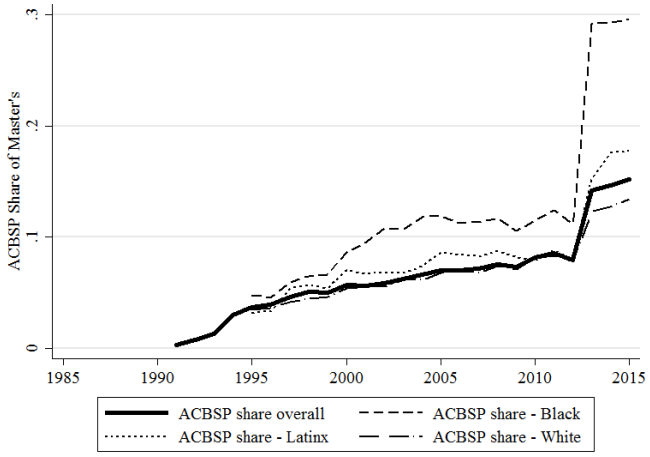
d. Master's Unaccredited



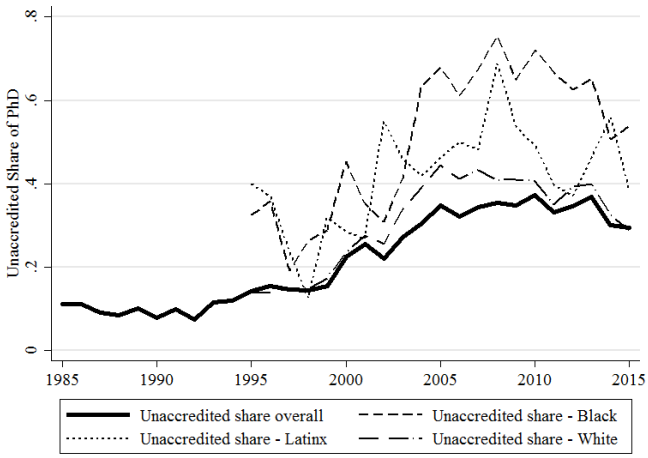
e. Master's AACSB accredited



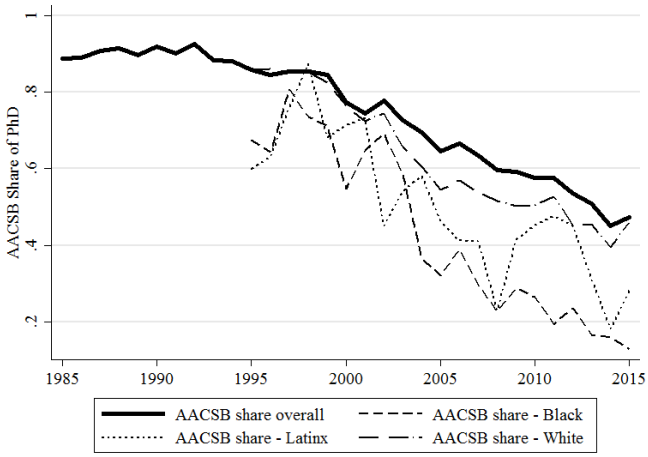
f. Master's ACBSP accredited



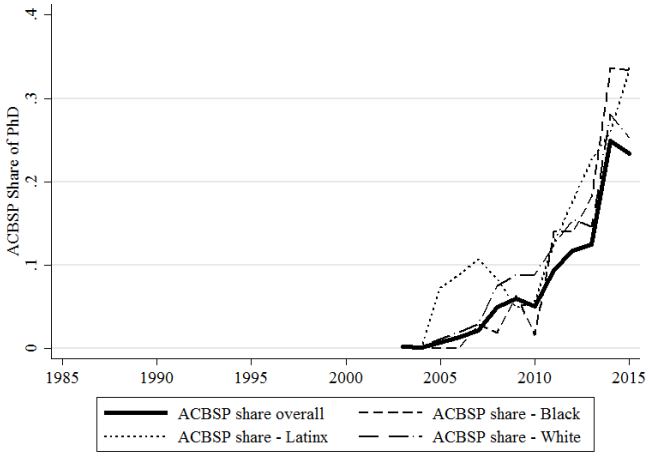
g. Doctoral Unaccredited



h. Doctoral AACSB accredited

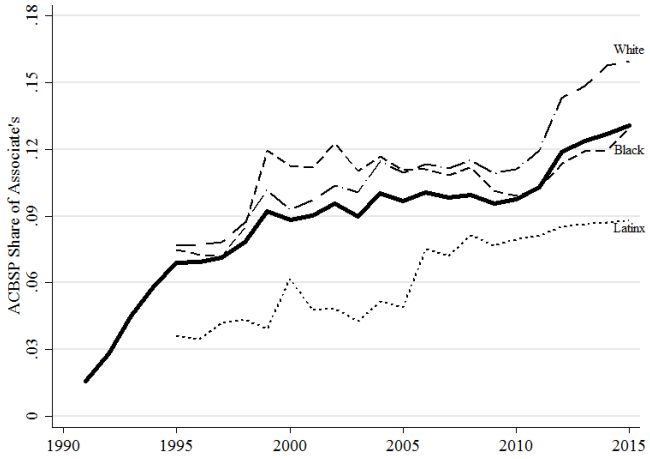


i. Doctoral ACBSP accredited



Source: Author's calculations from IPEDS data and derived accreditation statuses

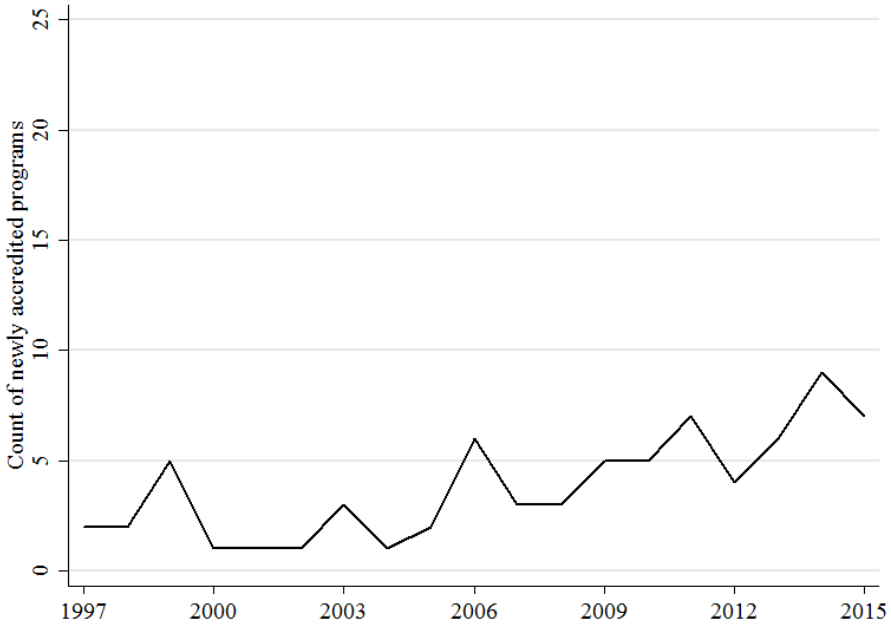
Figure 2.2 Share of Associate's Business Degrees Conferred by Accreditation Status.



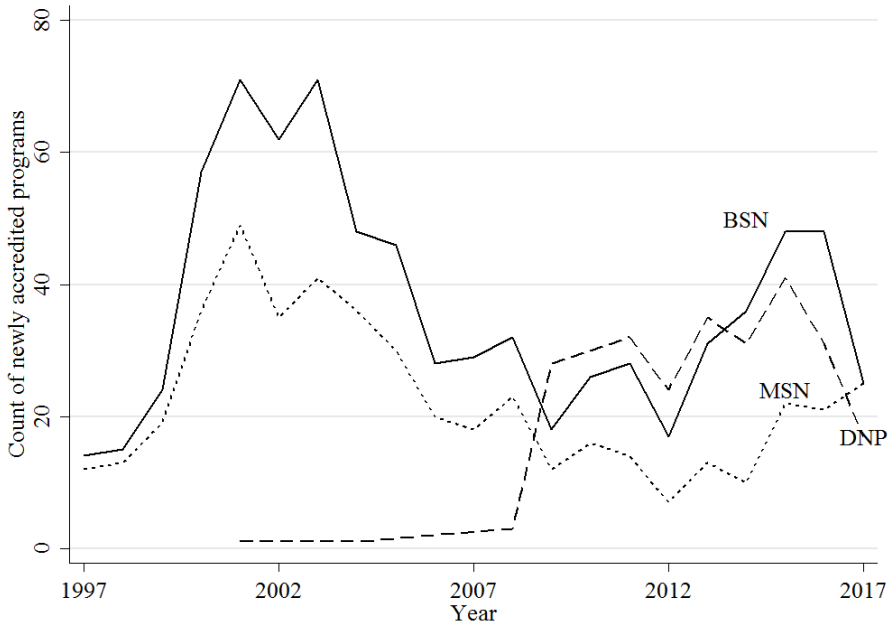
Source: Author's calculations from IPEDS data and derived accreditation statuses

Figure 2.3 Newly Accredited Baccalaureate Nursing Programs by Accreditor and Year, 1985-2015.

a. ACEN



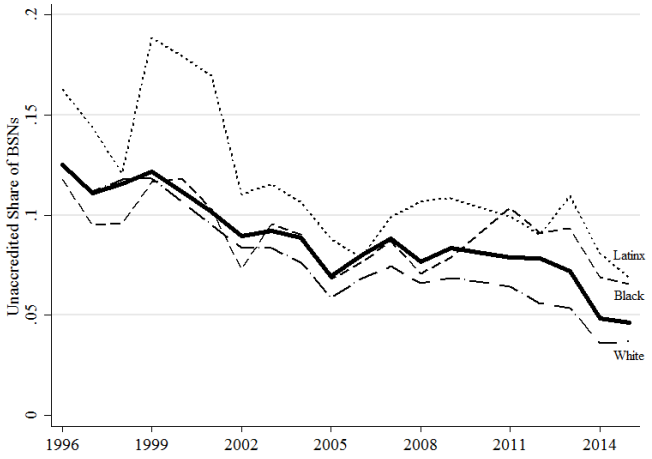
b. CCNE



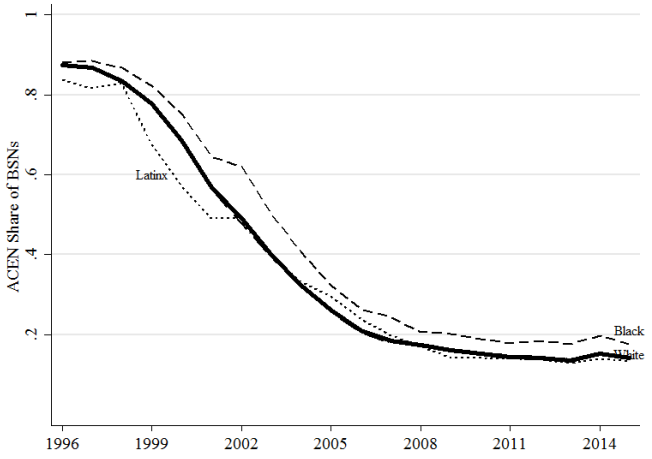
Source: Author's calculations from derived accreditation statuses.

Figure 2.4 . Share of Baccalaureate Nursing Degrees Conferred by Accreditation Status.

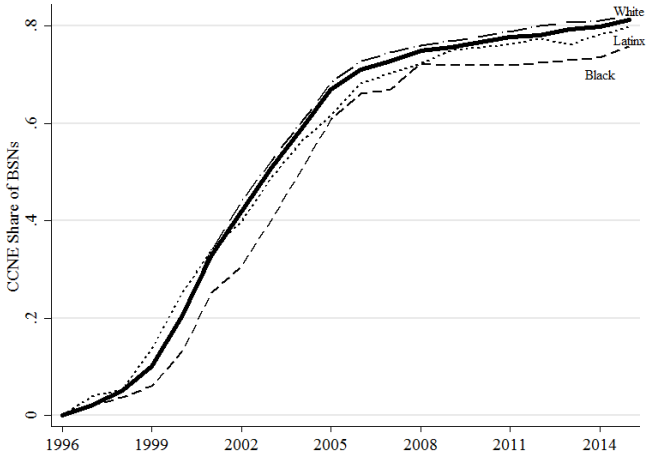
a. Unaccredited



b. ACEN accredited

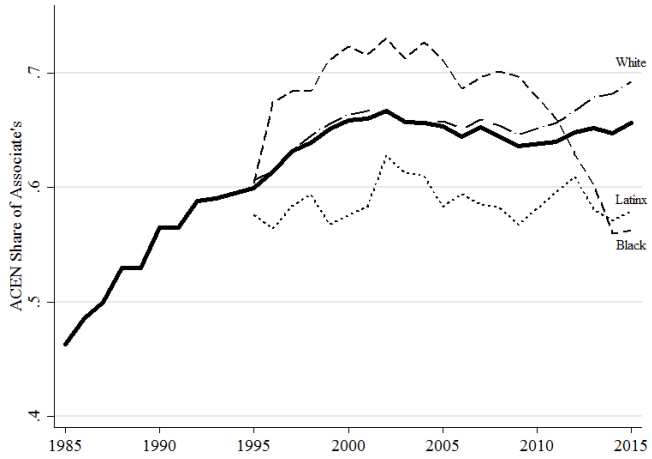


c. CCNE accredited



Source: Author's calculations from derived accreditation statuses.

Figure 2.5 Share of Associate's Nursing Degrees Conferred by Accreditation Status.



Source: Author's calculations from IPEDS data and derived accreditation statuses

Supplemental Materials

Table 2.7A Regression Results for Accreditation Status among 4-year Business Programs.

	Accredited by AACSB	Accredited by ACBSP
HBCU	0.131*	0.068~
	(0.062)	(0.040)
Pred Black Institution	-0.064	-0.004
	(0.084)	(0.006)
Hispanic-Serving Institution	-0.062	-0.004
	(0.046)	(0.003)
Control (ref. Public)		
Not-for-profit	-0.334***	0.004
	(0.034)	(0.009)
For-profit	-0.162**	-0.010
	(0.060)	(0.027)
Selectivity (ref. Most Competitive)		
Highly competitive	-0.268***	-0.001
	(0.070)	(0.002)
Very competitive	-0.364***	0.009
	(0.057)	(0.007)
Competitive	-0.476***	0.001
	(0.055)	(0.005)
Less competitive	-0.515***	-0.012
	(0.063)	(0.009)
Noncompetitive	-0.637***	0.010
	(0.074)	(0.027)
Enrollment FT (logged)	0.061***	-0.008~
	(0.018)	(0.005)
Business degrees granted (logged)	0.065***	0.008
	(0.017)	(0.007)
Business as share of degrees	-0.073	-0.027
	(0.114)	(0.041)
Constant	0.243~	0.034~
	(0.133)	(0.020)
N	1,095	1,095
Adjusted R-squared	0.514	0.029

Notes: Outcome is accredited in 2015 by either AACSB or ACBSP. Coefficients are estimated by linear probability model. For-profit institutions included as non-competitive. Robust standard errors in parentheses. ~p<.1; *p<.05; **p<.01; ***p<.001.
Source: Authors' calculations from IPEDS and accreditation data.

Table 2.8A Regression Results for Accreditation Status among 4-year Nursing Programs.

	Accredited by ACEN	Accredited by CCNE
HBCU	0.394***	-0.358***
	(0.091)	(0.087)
Pred Black Institution	0.259~	-0.245~
	(0.136)	(0.134)
Hispanic-Serving Institution	-0.083*	0.083~
	(0.039)	(0.049)
Control (ref. Public)		
Not-for-profit	-0.071*	0.056
	(0.034)	(0.042)
For-profit	-0.510***	-0.049
	(0.093)	(0.106)
Selectivity (ref. Most Competitive)		
Highly competitive	-0.010	0.090
	(0.040)	(0.090)
Very competitive	-0.032	0.089
	(0.023)	(0.078)
Competitive	0.025	0.015
	(0.027)	(0.080)
Less competitive	0.110*	-0.072
	(0.054)	(0.095)
Noncompetitive	0.323***	-0.300**
	(0.088)	(0.116)
Enrollment FT (logged)	-0.040*	-0.010
	(0.017)	(0.029)
Nursing degrees granted (logged)	0.039*	0.049~
	(0.016)	(0.027)
Nursing as share of degrees	-0.007	-0.306
	(0.126)	(0.192)
Offers MSN	-0.032	0.010
	(0.034)	(0.041)
Offers DNP	-0.113***	0.154***
	(0.029)	(0.036)
Constant	0.364*	0.572*
	(0.145)	(0.236)
N	795	795
Adjusted R-Squared	0.185	0.227

Notes: Outcome is accredited in 2015 by either ACEN or CCNE. Coefficients are estimated by linear probability model. Robust standard errors in parentheses. ~p<.1; *p<.05; **p<.01; ***p<.001. **Source:** Authors' calculations from IPEDS and accreditation data.

Table 2.9A Regression Results for Nursing Accreditation Switch Among 4-year Programs.

Outcome: Switched from ACEN to CCNE (1 = yes)	Coefficient (SE)
HBCU	-0.355***
	(0.103)
Pred Black Institution	-0.148
	(0.172)
Hispanic-Serving Institution	0.072
	(0.064)
Control (ref. Public)	
Not-for-profit	0.059
	(0.059)
For-profit	0.190
	(0.422)
Selectivity (ref. Most Competitive)	
Highly competitive	0.104
	(0.099)
Very competitive	0.122
	(0.089)
Competitive	0.018
	(0.094)
Less competitive	-0.045
	(0.116)
Noncompetitive	-0.165
	(0.148)
Enrollment FT (logged)	-0.013
	(0.040)
Nursing degrees granted (logged)	0.039
	(0.033)
Nursing as share of degrees	-0.371
	(0.299)
Offers MSN	0.056
	(0.058)
Offers DNP	0.168***
	(0.041)
Constant	0.581~
	(0.348)
N	495
Adjusted R-Squared	0.398

Notes: Outcome is switched from ACEN to CCNE between 1996 and 2015. Coefficients are estimated by linear probability model. Robust standard errors in parentheses. ~p<.1; *p<.05; **p<.01; ***p<.001. **Source:** Authors' calculations from IPEDS and accreditation data.

Chapter 3 Specialized Accreditation and its Consequences for Academic Programs: The Case of Business and Nursing

In 2015, administrators at Vanderbilt University published a study detailing expenditures on compliance with federal regulations in higher education. The authors alleged that the sector spent over $27 billion on compliance in 2013-2014. Outside of spending related to research activity and grants management ($16 billion), by far the largest contributor to compliance expenditures was accreditation, which cost colleges and universities over $7 billion annually (Vanderbilt University, 2015). Published as accreditors continued to face significant skepticism stemming from the Spellings Commission report, the study laid bare not only the direct expenses associated with accreditation but also the significant time required of faculty and staff to ensure compliance with accreditors. Surprisingly, about half of those expenses are associated with specialized accreditation.

There are more than 100 specialized accreditors currently operating in the US, with oversight over 23,000 programs across some 3,000 institutions (Vibert, 2018), almost exclusively in professional and pre-professional fields. Unlike its regional equivalent, specialized accreditation applies to a single academic unit within a larger higher education institution (such as a school of business), to subspecialties of disciplines like engineering, or to standalone single-purpose institutions such as dedicated nursing schools (Vibert, 2018). As with the more familiar practice of regional accreditation, the purpose of specialized accreditation is to ensure quality improvement and to hold programs accountable to accreditation standards. Unlike regional accreditation, however, specialized accreditors emphasize the relevance of programs to their

associated communities of practice and employers, validating specific academic offerings over others as more legitimate in the eyes of a profession (Hagerty & Stark, 1989).

There is near-unanimous agreement among higher education administrators that specialized accreditation carries significant costs. For each such accreditor, departments may be on the hook for application and membership fees, costly site visits, and expensive consultants; maintaining accreditation also requires resources and time required for preparation of frequent mandatory reports and self-studies (Baker et al., 2004; Glidden, 1983). What is more, these direct costs may pale in comparison to the expenditures required to bring programs into compliance with accreditation requirements in the first place. Doing so could involve updating of facilities, hiring of additional faculty, changes to teaching and research loads, and large-scale curricular and pedagogical reforms (Eaton, 2009; Heriot et al., 2009; Trifts, 2012; Yuen, 2012). Accredited programs do not undertake such expenditures without some expected benefit. A stamp of approval from an accreditor signals that programs "demonstrate to their external publics that they are responsible stewards of the resources invested in them, that they are soundly managed, and that they produce the kinds of results that they are expected to produce" (Ewell, 2005, p. 104). The assurance of programmatic quality from a credible third-party arbiter may be particularly desirable in a competitive enrollment environment (Bloland, 1999; Jost, 1994; Mause, 2009). Students can also benefit from such accreditation through professional networks, greater professional mobility, and pathways to relevant professional licensures (e.g., Ard et al., 2017; Yuen, 2012).

Two fields with long-standing but differing traditions of specialized accreditation are business and nursing. Specialized accreditation has played a role in business education since the early 1900s. Currently, the field has multiple accreditors recognized by the Council for Higher

Education Accreditation (CHEA) or the U.S. Department of Education (ED) accrediting hundreds of business programs. The history and ubiquity of accreditation among business programs has not diminished controversies over its influence over the field. Some argue that "accreditation sickness" (Lowrie & Willmot, 2009, p. 411) has led institutions to pursue the prestige of specialized accreditation while compromising the relevance of the business curriculum, making it "less and less relevant to practitioners" (Bennis & O'Toole, 2005, p. 98). The need to demonstrate high levels of research productivity has allegedly resulted in business faculty producing a glut of scholarship of limited utility (Lowrie & Willmot, 2009; Simons, 2013). Perhaps most concerning to scholars of business education is the dearth of evidence "that mastery of the knowledge acquired in business schools enhances people's careers" (Pfeffer & Fong, 2002, p. 80) as "business schools are teaching students the wrong things in the wrong way" (Simons, 2013, p. 3).

Accreditation in nursing has several similarities to business, most notably the presence of multiple accreditors of varying prestige that reflect different philosophies toward the recognition of nursing programs (Phelps & Gerbasi, 2009). Nursing has operated under some form of oversight by accreditors for over a century, affording nursing programs recognition of their quality, purporting to improve the training that nurses receive and providing students a clear path to licensure and professional certification (Ard et al., 2017). But a long-standing and well-publicized shortage of nurses in the United States (Bargagliotti, 2003) has brought renewed attention to accreditation practices. Nursing accreditors are subject to the familiar concerns over the costs associated with accreditation (Baker et al., 2004), in addition to criticism that too-stringent accreditation standards, particularly around faculty qualifications, hiring, and clinical training requirements, constrain enrollment growth and exacerbate nursing shortages (e.g.,

Nevidjon & Erickson, 2001). Evidence suggests that accredited nursing programs deliver better outcomes for students (Ard et al., 2017), but these programs do not provide sufficient seats as large numbers of otherwise qualified applicants are routinely denied admission to accredited nursing programs each year (Kovner & Djukic, 2009). Unaccredited, largely for-profit providers have quickly emerged to serve this unmet pool of aspiring nurses, accounting for 14% of nursing degrees in 2016, up from less than 2% in 2007 (Pittman et al., 2019). Even as accreditors and professional associations have set ambitious goals for a more highly educated nursing workforce, only 56% of registered nurses in 2019 held a BSN – well short of the 80% goal set by the American Association of Colleges of Nursing for 2020 (American Association of Colleges of Nursing, 2019).

Research Questions

Specialized accreditation covers vast swaths of higher education, requires potentially sizable investments and forgone autonomy on the part of academic programs, and may carry significant implications for students' educational and career trajectories. In the two fields of focus for this paper, specialized accreditation is long established and still expanding as dozens of programs become newly accredited each year and as new accreditors emerge.[1] Yet we know surprisingly little of how specialized accreditation affects these programs (Kelchen, 2018; Klasik & Hutt, 2018; Zemsky, 2011), owing to a dearth of "well-identified studies of the consequences" of accreditation (Deming & Figlio, 2016, p. 48). Much of the literature on accreditation is aimed

[1] In business, the International Accreditation Council for Business Education (IACBE) began to accredit programs in the US in 2011. Nursing saw the recent addition of the Commission for Nursing Education Accreditation (CNEA) to the ranks of accreditors in the field though the organization is yet to accredit any programs. Because neither accreditor had attained recognition by CHEA and ED during the panel used for analysis, I exclude them from consideration.

at practitioners, focusing on the nuts and bolts of the accreditation process and favoring narratives, documentation of institutional practices, and descriptions of accreditation efforts over empirical evaluation of what accreditation accomplishes (Fester et al., 2012; Volkwein et al., 2007; Zemsky, 2011). The consequences of accreditation remain an open question at an inopportune time for accreditors. Its critics have become emboldened in their calls for reform or outright elimination of the accreditation system (Gillen et al., 2010; Kelly, 2014; Neal, 2008; Vergari & Hess, 2002) and these critics found a receptive audience in the Trump-era Department of Education (US Department of Education, 2018). Academic leaders, meanwhile, make critical accreditation-related decisions for their departments with little to guide them.

This paper seeks to answer two interrelated questions about the consequences of specialized accreditation for business and nursing programs' operations and attainment of their educational mission. The research questions are:

(1) What are the effects of specialized accreditation on the number of degrees granted, and

(2) What are its effects on instructional costs?

Put another way, these questions tell us how accreditation affects the core functions of most academic departments: the production of graduates and the cost of teaching students. For policymakers in the higher education space, these questions can help our understanding of how specialized accreditation shapes the sector beyond the usual claims of accountability and continuous quality improvement.

I choose to study accreditation in both business and nursing because each field captures important dimensions of the practice of specialized accreditation. The stakes of business accreditation are especially high because the field covers such a large portion of students in

higher education: business accounts for about one-fifth of all undergraduate and one-quarter of master's degrees awarded annually (author's calculations from IPEDS data), with over 900 universities offering graduate business programs that are important sources of revenues for institutions (Murray, 2012; Simons, 2013). Nursing accreditation is of critical importance amidst a shortage of nurses, as unaccredited programs produce 10,000 nurses annually, and during a global pandemic laying bare the need for nurses while complicating their clinical training.

Background on Specialized Accreditation

The analyses that follow are specific to each accreditor. The previous chapter presented in detail the history of specialized accreditation in business and nursing; this section provides only a brief summary to contextualize the rest of the study. In business, the two competing accreditors are the Association to Advance Collegiate Schools of Business (AACSB) and the Association of Collegiate Business Schools and Programs (ACBSP). These organizations perform the same role in creating standards for accreditation of business programs and evaluating programs against those standards, but each embodies a unique philosophy of business education. The most pronounced difference is that AACSB emphasizes the importance of research in the preparation of business majors. It enforces stringent requirements around faculty qualifications and research productivity, which limit the amount of teaching faculty are expected to do (Navarro, 2008; Roller et al., 2003).

On the other hand, ACBSP emphasizes the importance of instruction tied to real-world experience as delivered by scholar-practitioners with professional experience in the field. ACBSP programs prioritize teaching over research, tend to employ practitioners as faculty, and reflect a broader but generally less selective set of institutions among its accredited members (Beem, 2017). The ACBSP accreditation process also sets fewer bright-line standards, focusing

instead on systematic evaluative processes that identifies strengths and gaps needed for continuous improvement (Accreditation Council for Business Schools and Programs, 2019). accreditation is more realistically attainable by a wide range of institutions like two-year colleges and for-profits (Tullis & Camey, 2007).

In nursing, the Accreditation Commission for Education in Nursing (ACEN) operated as the sole accreditor for decades until 1997. The standards enforced by ACEN are intended to ensure the relevance of programs to licensure and preparation for the profession and can serve to support recruitment and retention of students (Ard et al., 2017) across all degree levels. In 1997, the Commission on Collegiate Nursing Education (CCNE) emerged as a specialized accreditor of nursing programs at the baccalaureate and higher level (Van Ort & Butlin, 2009). CCNE standards address fewer areas than ACEN and aim to streamline accreditation of nursing and various advanced practice nursing fields as four-year nursing programs found themselves facing a growing number of accreditors across specialties (Van Ort & Butlin, 2009). The entrance of CCNE into nursing accreditation gave programs at four-years a choice of accreditor at a time when ACEN faced criticisms and lawsuits because of its alleged insufficient independence from the National League of Nursing. Since 1996, almost 400 programs switched from ACEN to CCNE.

Conceptual Framework and Literature Review

I study the consequences of accreditation for two core functions of academic departments: the number of degrees it awards, and the costs associated with its instruction. Specialized accreditation may affect either through numerous channels, but there is no specific integrated conceptual framework that speaks to the relationship between specialized accreditation and these outcomes. Rather, I draw from the college choice literature to motivate

the relationship between specialized accreditation and degrees awarded. I then turn to economic theories addressing the determinants of costs for academic departments to discuss how specialized accreditation affects the cost of instruction. This section also reviews the (limited) empirical literature addressing these outcomes.

Specialized accreditation and degree conferrals

Since the late 1970s, scholars have developed increasingly nuanced models of college choice to explain postsecondary enrollment decisions. Drawing from economics, psychology, and sociology, college choice models make explicit the factors and mechanisms that inform decisions throughout the college-going process (e.g., Hossler & Gallagher, 1987; Manski, 1993; Perna, 2006). Research on college choice has analyzed the roles of the high school context (e.g., McDonough, 1997; Perna et al., 2008), familial resources (e.g., Paulsen & St. John, 2002), self-efficacy (Stage & Hossler, 2000), geography (Hillman, 2016), and the characteristics and amenities of colleges themselves (Long, 2004; Jacob et al., 2018; Skinner, 2019). For the most part, however, conceptual models of and empirical research on college choice do not speak directly to attributes of academic programs themselves.

Choices regarding schooling and occupations are deeply intertwined (Lent et al., 1994; Sullivan, 2010). From a college choice and major choice perspective, it is plausible that accredited programs will produce more graduates if specialized accreditation is a desirable attribute to prospective students. There is a "high level of ignorance and faith embedded in the college purchase decision" (Winston, 1999, p. 17) that credible third-party information brokers can mitigate, which many argue accreditors do (Bloland, 1999; Jost, 1994; Mause, 2009). Many programs feature their accreditation status prominently on websites and marketing and recruitment materials (Adams & Eveland, 2007). And though the evidence on whether students

care about programmatic accreditation is mixed, prospective students do frequently report that quality is an important factor in their choice of institution and major (e.g., Rapert et al., 2004). Eligibility for the ever-popular rankings of business and nursing programs published by *US News & World Report* is also governed by accreditation – only AACSB-accredited programs are eligible in business, and only those with ACEN or CCNE accreditation are eligible in nursing. Perhaps most illustrative of how specialized accreditation affects enrollment decisions are the numerous lawsuits students have filed against programs that lose or never attain accreditation that prospective students expected (e.g., Bird, 2018; Hult, 2014).

The preceding paragraphs treat specialized accreditation as serving a signaling role that increases degrees awarded mechanically by driving up interest and thus enrollment in a program. But it is also possible (and in fact alleged by accreditors) that accreditation increase degrees awarded through improvements in programmatic quality. That is, when a department implements and complies with the standards specified by accreditors, the overall quality of the program should increase. This increased quality should in turn translate into higher rates of student success, persistence in the major/program, and eventually more graduates. Though "quality" is an imprecise, contested concept in higher education, accreditors almost universally claim to improve the quality of programs through exposure to more highly credentialed faculty, better assessment practices, professionally relevant curricular content, and adequate facilities (see, e.g., Ard et al., 2017; Bieker, 2014; Trapnell, 2007; Vibert, 2018; Webster & Hammond, 2012).

A final consideration in the relationship between the production of degrees and specialized accreditation relates to capacity. Increased demand for a program is mediated by a department's willingness or capacity to serve additional students. One possibility is for increased demand for a program to just result in a more selective program. Elite institutions compete for

students and resources through their claims of prestige (Winston, 1999); increasing the selectivity of an institution or program is a conspicuous way to claim a more elite status (potentially with associate gains in other markers of status like rankings). Accreditors with bright-line standards on measures such as licensure exam pass rates (as both nursing accreditors have) could encourage programs to maintain or increase selectivity in order to ensure high marks on those standards. This unwillingness to serve additional students is more likely among graduate programs that have greater control over their own marketing and admissions practices than undergraduate programs operating under institutional admissions policies and decisions, but it shouldn't be ignored.

A second possibility is that capacity is constrained *because of* specialized accreditation. Academic departments combine a mix of inputs including faculty, support staff, services, and equipment to produce instruction and eventually degrees (e.g., Dundar & Lewis, 1995). To the extent that inputs are efficiently converted into those outputs, programs may have a harder time increasing output. Prior research has generally found a high degree of efficiency within institutions and departments (e.g., Doyle, 2014; Dundar & Lewis, 1995; Titus & Eagan, 2016; Titus et al., 2017). Specialized accreditation constrains the types of inputs that academic programs can use, for example through standards related to facilities and faculty qualifications, that could mediate programs' ability to meet increased demand for seats. It is plausible that the costs associated with increasing capacity are systematically higher among accredited programs – limiting any increase in degrees awarded even as interest in a program grows. Nursing programs, for example, have largely been oversubscribed for many years, owing at least in part to an inability to hire sufficiently qualified faculty and to secure students clinical sites (AACN, 2017).

The costs of specialized accreditation

Academic programs are complex, using a variety of inputs to produce some mix of instruction, research, and service (Cheslock et al., 2016). Within these broadly defined outputs are meaningful distinctions across programs based on mission, level of instruction, and numerous other factors, resulting in differing production functions between programs (Dundar & Lewis, 1995). Among accredited programs, the obligation to meet standards can have important implications for costs precisely because specialized accreditors unwittingly constrain some of the cost-saving tradeoffs that programs may typically resort to. One example is AACSB standards for faculty research productivity: by expecting greater research productivity, AACSB could directly increases research expenditures for accredited departments and indirectly increase instructional costs because of the reduced faculty teaching load required to sustain research productivity (Levernier et al., 1992). Stringent requirements for terminally credentialed faculty, found across business and nursing accreditation, can place programs in direct competition for hiring from a relatively smaller pool of qualified candidates, driving up salaries and reducing reliance on contingent faculty (Callie & Cheslock, 2008; Hedrick et al., 2010; Levernier, Miles, & White, 1992). Standards governing faculty qualifications and curricular or instructional practices, such as the use of frequent formative assessment or active learning pedagogies, can constrain class sizes, shifts to cost-saving modes of instruction such as large online courses, or the use of contingent faculty.

Finally, accreditors may advocate for greater credentialing within professions, leading departments toward higher cost graduate-level academic offerings. The American Association of Colleges of Nursing (AACN), which oversees CCNE, has long advocated for higher educational attainment for nurses – not only calling for all nurses to hold baccalaureate degrees but also

encouraging graduate-level training for nurses and nurse administrators nationwide (AACN, 2019) and advocating for expansion of Doctor of Nursing Practice programs (AACN, 2004). The emphasis that AACSB places on research by faculty may also necessitate expanded graduate programs that attract the types of faculty members interested in conducting research in the first place and provides them access to graduate students that can serve as research assistants.

In all, specialized accreditation can plausibly change departments' costs and degree production in several ways, with important implications for how departments operate, educate, and spend. Next, I turn to prior empirical work investigating these relationships.

Prior Empirical Literature

The empirical evidence about the impact of accreditation on degree production and on costs is extremely narrow. Among this small body of research, few if any studies have made use of causal inference methods. Much of the prior work in this area is based on limited case studies and surveys of administrators, faculty members, and prospective students and largely measure attitudes toward and familiarity with accreditation. I review this literature below, beginning with business as it comprises the most studies before moving to the more limited research investigating nursing programs.

The most mature body of research on specialized accreditation centers on AACSB. Though extant research has not demonstrated a link between accreditation by AACSB and the production of degrees, several scholars have demonstrated that the competitive nature of student recruitment underlies many programs' motivation for seeking accreditation. AACSB accreditation intends to assure prospective students that an "AACSB-accredited business school provides access to great educational resources and future employment opportunities" (Trapnell, 2007, p. 69); the same accreditation signals to prospective students that they will be "associated

with other outstanding students and a highly qualified faculty" (p. 69). The recruitment benefits may be even greater for graduate education, as business schools and programs housed therein are more directly responsible for student recruitment at the graduate level and thus most feature their AACSB accreditation status prominently on marketing materials and websites (Trifts, 2012). Survey evidence suggests that AACSB accreditation is increasingly salient to students and employers (Tulis & Camey, 2007) and legitimates programs – especially programs at institutions not typically thought of as "elite" such as HBCUs (Holmes, 2001), striving public and private institutions (Durand & McGuire, 2005), and even institutions outside the United States (e.g., McKee et al., 2005). Deans of a broad sample of business schools affirm that AACSB accreditation "highly enhanced student marketing appeal, enhanced recognition as an elite institution, and faculty recruitment advantages" (Roller et al., 2003, p. 201).

Similar (though markedly weaker) beliefs on the part of deans apply to accreditation by ACBSP (Hunt, 2015; Roller et al., 2003); prior work has also found lower awareness of ACBSP accreditation among prospective students through surveys (Bennet et al., 2015). But research into ACBSP represents a small fraction of the already limited extant research into AACSB. Thus, the analysis presented in this paper advances our understanding of the effects of specialized accreditation on degree awards by (1) employing causal methods better suited to the question at hand, (2) by covering a much broader set of institutions, and (3) by assessing these effects for both primary accreditors of business programs.

Research on the costs associated with accreditation is somewhat more extensive, and again largely centered on AACSB. Several articles have documented the concerns that academic administrators feel about the direct costs of specialized accreditation (e.g., McKee et al., 2005; Roller et al., 2003). Though instructive for planning purposes, these studies generally reflect the

one-time or occasional expenditures programs face without telling us much about how accreditation affects costs on a more permanent basis.

The objective of the analysis in this paper is to identify shifts in the instructional costs of academic departments resulting from the attainment of accreditation. Three previous articles are closely related to this analysis. Heriot, Franklin, and Austin (2009) collected detailed information on the costs of AACSB accreditation for ten business schools during their initial accreditation cycles. Deans at nine of the ten reported increased annual expenses of "far greater economic significance than one-time costs" (p. 286). Chief among these was increases in salary expenditures associated with hiring additional faculty; across the nine institutions reporting increased faculty headcount, additional salary expenses averaged $320,000 annually for each department. Not only are there costs associated with employing additional faculty, these additional faculty at AACSB-accredited institutions are paid more than their counterparts at unaccredited business schools (Levernier et al., 1992). These higher salaries are compounded by lower teaching loads for faculty in accredited business programs (Hedrick et al., 2010). Faculty at these programs are more productive researchers (Hedrick et al., 2010; Yunker, 2010), which is consistent with the vision of AACSB for quality and partly accounts for the lower teaching load. A limitation of this literature, however, is that issues of selection into accreditation are not sufficiently addressed to establish any causal relationships.

Lower teaching loads carry yet another cost: Heriot, Franklin, and Austin (2009) identified at least one program that had to reduce enrollment (forgoing tuition revenue) because of constraints the program faced in scaling up enrollment while ensuring instruction by faculty meeting AACSB rules. Their findings are echoed in interviews conducted by Kelderman (2009), where the anticipated costs of AACSB accreditation led one business school to abandon its

accreditation ambitions entirely while another reported shrinking its continuing education programs because it was unable to find sufficient faculty meeting AACSB qualification requirements. Research on the cost implications of ACBSP is virtually nonexistent beyond brief mentions in case studies (e.g., Beem, 2017) and comparisons of its direct costs to those of AACSB. The latter consistently shows ACBSP as the less costly accreditor in business (Brink & Smith, 2012). Weighed against these costs are the benefits of accreditation that accrue to business programs in areas like recruitment, enrollment, hiring, and teaching quality (e.g., Elliott, 2013; Hunt, 2015; Trapnell, 2007); evidence in support of these claimed benefits is mixed at best (Hunt, 2015).

The research base for specialized accreditation in nursing is even more limited than that for business. What few studies do exist suggest similar themes as those observed in business. In general, across several survey-based studies, administrators believe that ACEN and CCNE accreditation are valuable to prospective students, improving the marketability of nursing programs (Bellack et al., 1999; Freitas, 2007). An important distinction between nursing and business is the primacy of licensure for aspiring nurses. Accredited programs have much higher success rates for nursing licensure exams than their unaccredited counterparts (Freitas, 2007; Spector et al., 2018). Graduating from accredited nursing programs can also provide nurses more geographic mobility as those credentials are more likely to be valid across state lines and preferred by employers (Ard et al., 2017). The licensure regime in the nursing profession may thus increase the salience of nursing accreditation to prospective students. Unfortunately, to the best of my knowledge no study has quantified this relationship. Similarly, numerous articles document concerns over the costs associated with nursing accreditation but none establishes a causal link between accreditation and the costs that departments face in delivering instruction.

The costs documented in this limited research largely overlap with those studied in accreditation more generally, including the demands that accreditation place on faculty and staff time (Freitas, 2007) and the political costs related to loss of autonomy on aspects of mission and curriculum (Wirt & Kirst, 1997).

In broad strokes, this body of research strongly suggests that there may well be substantively important impacts of specialized accreditation on costs in business and nursing. But the existing research is limited in scope and in terms of methods used. So, the present paper contributes to our understanding of the *causal* nature of the relationship between accreditation and costs, expands the evidence base to include multiple accreditors in each field, and covers a wider, more representative swath of higher education institutions than prior work. The conceptual framework and existing literature also imply important differences across the two fields in terms of expected findings. In terms of degree production, the higher rate of accreditation coverage in nursing (see Chapter 2) implies that for the marginal program attaining such accreditation, it may not be much of a differentiator. In other words, if specialized accreditation drives up degree production by making programs more attractive to students, this effect should be smaller in nursing where many of the programs a student may consider are likely already accredited. In business, on the other hand, accreditation is less prevalent and thus may set programs apart from peers more readily. This is especially true for AACSB if accredited programs find themselves in popular published rankings so valued by academic leaders and students (Athavale, 2017; Dahling-Brown, 2006). The relationship between accreditation and instructional costs is similarly likely to vary by field. The accreditation of business programs by AACSB carries numerous implications for the kinds of faculty members hired, the salaries they earn, and the amount of time they dedicate to research. In nursing, on the other hand, CCNE may

impose few if any increases to costs because comparison programs – those that are unaccredited or previously accredited by ACEN – do not operate in meaningfully different ways. These comparison programs are still bound by the standards enforced by Boards of Nursing, meaning that the attainment of specialized accreditation need not require substantial underlying changes to programs.

Empirical Strategy

Data

Universe of programs. I identify degree-granting programs at two- and four-year institutions using the Integrated Postsecondary Education Data System (IPEDS). Through a series of annual surveys required of Title-IV eligible institutions, IPEDS collects and makes publicly available a wealth of program- and institution-level information. I define the universe of relevant business and nursing programs with data from the IPEDS Completions Survey. This survey reports degree conferrals by degree level and Classification of Instructional Program (CIP) code. For business, I identify programs granting degrees at the 2-digit CIP code 52 (broadly business, but defined as Business, Management, Marketing, and Related Support Services). The code 51.38 broadly identifies programs in Registered Nursing (specifically defined as Registered Nursing, Nursing Administration, Nursing Research, and Clinical Nursing), which are the focus of ACEN and CCNE accreditation. Academic programs are identified at the Associate's, Baccalaureate, Master's, and Doctoral level for all years from 1985 to 2015. I use IPEDS data to capture several program- and institution-level characteristics as well. These include measures like institutional characteristics like control, enrollment, Carnegie classification, selectivity, financial measures (e.g., revenue, tuition share of revenue), and

programmatic measures such as degrees conferred and the share of degrees in business or nursing.

Accreditation information. To determine the accreditation status and date of initial accreditation for each program, I collected information from websites, membership rosters, and profile pages maintained by the four accreditors operating in the business and nursing fields. The year of initial accreditation for each program was used to generate an indicator variable for each program-year observation in the panel reflecting accredited status (1 = accredited; 0 otherwise). This time-varying indicator for the presence of accreditation drives the identification under the difference-in-differences approach described in the next section.

Instructional costs. The last data source used is the National Study of Instructional Cost and Productivity from the University of Delaware (the Delaware Cost Study, hereafter DCS). Since 1998, the DCS has collected program-level data on costs and productivity from over 700 four-year institutions. The survey collects detailed information at the four-digit Classification of Instructional Programs (CIP) level on instructional, research, and service expenditures. These data capture spending on faculty salaries and benefits, as well as expenditures associated with instructional facilities like laboratories if allocated to individual departments. The DCS also collects information on total instructional activity measured by faculty full-time equivalents (FTEs), student credit hours, and organized class sections. Faculty FTE are reported by rank, and credit hours and class sections are disaggregated into lower and upper divisions (for undergraduate instruction) and graduate division. These data allow me to construct numerous measures of interest, such as instructional expenses per credit hour, faculty salary and teaching load, and class size.

The DCS provides the most comprehensive measure of instructional costs and productivity but has several limitations. First, the survey does not include two-year or for-profit institutions. Compounding this problem is the small number of ACBSP and ACEN accredited programs that participated in the survey multiple times after attaining accreditation (fewer than 10 for each). Second, the DCS is a voluntary survey that institutions opt in to or out of each year. Though the DCS captures a large share of institutions of higher education and is generally representative of four-year institutions (Hemelt et al., 2020), it is a highly unbalanced panel at the program level. Finally, the survey has only been conducted since 1998. These limitations mean that the analysis of the impact of accreditation on costs applies only to four-year institutions and to accreditation by AACSB in business and CCNE in nursing.

Sample characteristics. In all, the analysis includes 2,710 unique degree-granting undergraduate programs in business (1,771 at the baccalaureate level and 939 at the associate's level) and 2,028 degree-granting nursing programs (960 baccalaureate, 1,068 associate's). A degree-granting program is defined as a unique combination of the IPEDS identifier of institutions (unit ID) and the appropriate CIP code (52 denoting business degrees, 51.38 denoting registered nursing) in the IPEDS completion survey. The analysis is further subset by degree level. Between 1985 and 2015, AACSB granted accreditation to 293 business programs while ACBSP newly accredited 269 baccalaureate-level programs and 192 associate's programs. In nursing, ACEN newly accredited a total of 439 associate and 131 bachelor's programs. Since 1997, CCNE granted accreditation to 774 baccalaureate programs, 472 master's programs, and 274 doctoral programs in the same time span. These counts exclude programs accredited before 1985 as those programs do not switch status during the observation window and thus, as detailed later, do not contribute to the identification of causal effects.

Table 3.1 summarizes descriptive statistics of undergraduate programs by accreditation status as of 2015. Panel A reports statistics for business; panel B does so for nursing. These descriptive statistics make it readily apparent that program characteristics vary widely across accreditors. In business as of 2015, AACSB accredits 27% of all undergraduate programs – but none in the for-profit sector, while programs at public institutions are significantly overrepresented. It is also clear that AACSB accredits mostly selective institutions, with 90% of its members falling in the "competitive" or higher *Barron's* category. These institutions also enroll more students on average, graduating larger business cohorts than the other two groups. Finally, though these institutions charge tuition and fees comparable to those housing ACBSP-accredited or unaccredited programs, their instructional expenditures per FTE are much higher – by 40% to 62% depending on comparison group. This pattern stands in sharp contrast to ACBSP, which accredits around 15% of baccalaureate-level business programs with an *over*-representation of for-profit institutions (one-fifth of all ACBSP programs) and publics under-represented. ACBSP institutions are less selective, with 83% of them ranked "competitive" or less selective by *Barron's.* Historically black colleges and universities (HBCUs) were entirely absent of the group of AACSB-accredited programs until the late 1970s but have by now attained parity in accreditation by AACSB – though ACBSP does accredit the majority of HBCU business programs. In the two-year sector where ACBSP operates as the sole accreditor, 13% of programs were accredited as of 2015. Virtually all accredited associate's business programs (98%) are in public community colleges. Even though relatively few programs are accredited, these tend to be larger programs at institutions enrolling a greater number of students and granting more associate of business degrees.

There are notable differences by accreditation status among nursing programs as well, and they largely mirror some of the patterns observed in business. For example, the more prestigious accreditor (CCNE) tends to accredit programs housed at more selective and larger institutions. Though students at CCNE-accredited institutions face higher published tuition and fees, these institutions also spend about one-third more on instruction than do ACEN-accredited ones. For-profit providers of nursing programs are largely unaccredited at both the two- and four-year sectors, even as they continue to grow their enrollments and graduate an increasing share of registered nurses. Unaccredited nursing programs are still subject to state authorization by the applicable state Board of Nursing as described in the previous chapter.

Table 3.2 provide descriptive statistics on instructional costs by program based on a pooled cross-section from 2015 to 2017. These include information on total instructional activity and faculty characteristics like salary, workload, and rank. Panel A covers business programs and B nursing. In business, programs accredited by AACSB deliver more credit hours of instruction with a similar split between undergraduate and graduate levels as unaccredited programs. Instructional costs per credit are around 27% higher, a result of higher faculty salaries (by almost 60%) for faculty that do less teaching (workload is 16% lower, or around 0.6 fewer course sections per year). Compensating for these factors is the class size of AACSB programs, which are approximately 50% larger at the undergraduate level and 40% larger for graduate courses. AACSB programs employ a lower share of supplemental and temporary faculty than unaccredited programs. In nursing, differences in terms of instructional costs and their drivers are more muted across accreditation status. Programs with accreditation by CCNE are larger in terms of instructional activity, but differences in faculty salary, workload, and class size are generally small. CCNE programs do use fewer tenure-track faculty and more regular faculty with

recurring appointments. Accreditation requirements require that faculty hold current RN licensure, maintain clinical expertise, and supervise clinical practice experiences, which many programs do by employing part-time faculty who are also practicing nurses. In terms of instructional costs, CCNE-accredited programs are around 10% cheaper on a per-credit basis than their peers.

Methods

Because accreditation is voluntary, there is likely to be significant selection into specialized accreditation by programs. That is, programs attaining such accreditation may differ from their unaccredited counterparts on observable (clearly the case, as seen in Table 3.1) and unobservable characteristics, complicating causal inference about the effects of accreditation. Absent a randomized control trial, there are numerous quasi-experimental methods that can overcome such issues depending on the mechanisms underlying selection. I identify the relationship between accreditation and the two outcomes of interest by using the (plausibly) exogenous variation in the incidence and in the timing of accreditation. I use a generalized difference-in-differences approach that stands as the most common causal inference method in social science research (Goodman-Bacon, 2018), including among higher education scholars where it has seen significant growth over the past ten years (Furquim et al., 2020).

In a difference-in-differences (DID) setup, the effect of interest is identified by comparisons of "treated" units (accredited programs) and comparison units (unaccredited programs) before and after "treatment" (attainment of accreditation). The DID method has proven quite useful in the social sciences because such scenarios are encountered frequently. In higher education, for example, policies and practices diffuse slowly as institutions and states retain significant autonomy in their decision-making, frequently giving rise to opportunities to

employ DID in studies of performance-based funding policies, admissions practices, financial aid programs, promise zones, and more (Furquim et al., 2020).

As applied in this analysis, I estimate models in their most basic form as:

$$y_{pt} = \alpha + \delta Accred_{pt} + \theta_p + \vartheta_t + \varepsilon_{pt} \quad (1)$$

The dependent variable y_{pt} represents the outcome of interest (degrees awarded or instructional costs, both in logs). The variable $Accred_{pt}$ is a time-varying dichotomous indicator for the accreditation status of program *p* in year *t*; that is, the variable takes a value of one for each year and program that is accredited and a value of zero otherwise. Its associated coefficient δ is the parameter of interest, capturing the causal relationship between programmatic accreditation and the outcome. Difference-in-differences relies on a comparison of the pre- and post-treatment outcomes among the treated and comparison groups. To recover those, I use two-way fixed effects at the program (θ_p) and year (ϑ_t) levels. These account for unobserved time-invariant differences between treated and comparison programs and unit-invariant unobserved time trends. Standard errors are clustered by institution, which is the unit of treatment (following Bertrand et al., 2004).

A first-order concern for such an approach is whether there is sufficient variation in the timing of treatment. That is, are there enough academic programs attaining accreditation across years to provide sufficient statistical power for the model? The two panels in Figure 3.1 display the number of programs accredited each year and cumulatively. The programs switching statuses (from unaccredited to accredited), plotted on the left, drive the difference-in-differences identification outlined above. Across both fields and all four accreditors, there are anywhere from a handful to several dozen programs that become accredited each year, which should suffice.

The central assumption underlying causal inference in difference-in-differences is that of parallel trends: is the trend in the outcome observed for the comparison group a reasonable counterfactual for the "treated" group absent accreditation? One could argue that as constructed, the full universe of programs makes a sensible counterfactual since unaccredited programs still operate within the norms and bounds of US higher education, belonging to institutionally accredited colleges and universities and subject to all the other accountability and quality improvement regimes governing higher education. However, it is also possible that institutions with fundamentally different missions would serve as poor counterfactuals. For example, the for-profit sector largely seeks to expand enrollments while the selective colleges may prefer to hold enrollment constant even as applications grow. I address this issue by estimating models across multiple samples, including a sample that includes *only* accredited programs (i.e., it excludes never-treated programs entirely).

Another assumption of the model as specified in Equation (1) is treatment effects are constant post-accreditation. An outcome like degree conferrals could lag a change in accreditation (or any other treatment) for a few years as it takes time for students to graduate. As Wolfers (2006) wrote, "Any reduced-form or structural analysis that assumes an immediate constant response to a policy shock may be misspecified if actual dynamics are more complex than a simple series break" (p. 1807). A growing body of research has pointed to the threat of time-varying treatment effects in difference-in-differences. Both de Chaisemartin and D'Haultfoeuille (2019) and Goodman-Bacon (2018) have demonstrated that in the presence of heterogenous treatment effects across either units or time can introduce bias to the two-way fixed effects estimator. The average treatment effect (ATE) estimated by Equation 1 is the weighted average of several discrete DID comparisons among never-treated units, units treated a short

time, units treated for a long period, and so on (Goodman-Bacon, 2018). Heterogeneity in the ATEs across either groups or time can result in negative weights being assigned to some of those pairwise comparisons, biasing the estimated ATE (de Chaisemartin and D'Haultfoeuille, 2019). There is also a possibility for anticipatory effects of accreditation. Programs do not apply for accreditation suddenly; they may spend months or years in preparation and in consultation with accrediting bodies before applying. For example, if AACSB accreditation is preceded by steady hiring of better-compensated faculty, its effect on instructional costs would occur prior to the official start of the accreditation "treatment" as operationalized here.

I (partly) address these concerns in two ways. First, I respecify Equation 1 as an event study, which allows the effect of accreditation on the outcomes of interest to vary over time. The event study allows for a more precise and interpretable estimated treatment effect for each period under accreditation:

$$y_{pt} = \alpha + \sum_{j=-m}^{q} \delta_j treat_{pt}(t = k + j) + \theta_p + \vartheta_t + \varepsilon_{pt} \quad (2)$$

In this model, the single post-treatment coefficient from Equation (1) is replaced by m leads and q lags from the year of treatment, yielding one δ_j coefficient for each lead and lag save for the omitted category (typically set at zero, or the year of initial accreditation, for ease of interpretation). Another advantage of this specification is that the statistical significance and magnitude of δ_j for all $j < 0$ (leads) can informally assess whether the pre-treatment trends are reasonably parallel and whether anticipatory effects are observed. Though absence of divergent pre-trends does not necessarily imply that parallel trends hold, it can at least provide some suggestive evidence that the comparison group makes an appropriate counterfactual. Second, I use the time-corrected Wald ratio estimator proposed by de Chaisemartin and D'Haultfoeuille

(2019) (the Wald-TC estimator) in addition to the two-way fixed-effects estimator from Equations 1 and 2. Their approach is robust to treatment effect heterogeneity by modifying how the averaging of average treatment effects is weighted. Rather than having weights proportional to the number of treated units in a cohort (i.e., year of initial accreditation) and the variance of treatment therein, de Chaisemartin and D'Haultfoeuille (2019) construct weights based on the share of treated units in each cohort and estimate cohort-specific treatment effects that are then appropriately averaged.

Robustness checks and limitations

The event study specification and Wald-TC estimator address some of the limitations and threats to identification inherent to difference-in-differences with varying treatment timing. I conduct several additional robustness checks such as the inclusion of unit-specific trends, placebo tests that vary the timing of treatment, and analyses of non-equivalent outcomes that are unrelated to business/nursing accreditation such as degree conferrals and instructional costs in psychology.

The choice of comparison group is an important one for the validity of causal estimates. One may believe that unaccredited programs are so distinct from their accredited peers that they should not be used for identification at all. An overly restrictive comparison group, on the other hand, could yield findings that are sample-dependent. I estimate models based on a few different comparison groups, ranging from samples inclusive of virtually all programs to samples restricted based on key observed characteristics of interest. I also estimate models based on "switchers" only, identifying the average treatment effect solely from variation in the timing of treatment for eventual switchers and omitting never-treated units (Sun & Abraham, 2020). The switcher-only sample also addresses issues of eligibility for accreditation. For example, even the

most selective business program housed at a for-profit institution cannot become accredited by the AACSB. Such a program may also have no incentive to constrain enrollments, potentially making for a poor counterfactual given its likely divergent trends for an outcome like degrees conferred. The trade-off for more restricted comparison groups is that those restrictions can limit the external validity of the estimates.

The data gathered on specialized accreditation status introduces another limitation. I can only identify the initial date of accreditation for programs that are currently accredited. If a program gained and lost accreditation within the duration of the panel, it is (incorrectly) coded as never accredited. None of the accrediting agencies make available systematic documentation on formerly accredited programs. Requests for such information were declined by all accrediting bodies. This limitation can introduce survivor bias to the analysis if, for example, programs that are unable to increase enrollments or that cannot sustainably afford the costs of accreditation are more likely to lose their accredited status. Such a bias could inflate estimates of the impact of accreditation. Three accreditors (AACSB being the exception) occasionally publish minutes of board meetings where accreditation decisions are documented. A review of published minutes from 2012 to 2015 for ACBSP, ACEN, and CCNE, reveals that anywhere from zero to five programs may lose accreditation annually; the relative rarity of accreditation loss means such bias is likely minimal. Another data-related limitation is inherent to the Delaware Cost Study. Only a handful of institutions with ACBSP- or ACEN-accredited programs participate in the study, making analysis for these accreditors untenable. By extension, findings have no external validity to the types of institutions that do not participate in the DCS like for-profit universities.

A conceptual limitation is that the empirical models leave unanswered questions of mechanism. The conceptual framework maps several channels through which specialized

accreditation may affect degree conferrals and costs for programs. The empirical approach of the paper answers whether any effects are observed but not why. For example, the models cannot disentangle if an observed increase in degree conferrals is due to increased demand by students, improvements to the quality of accredited programs, or a combination of the two. I engage in some informed speculation but acknowledge that adequate understanding of mechanisms requires significant additional research, including long-term qualitative research embedded in programs undertaking accreditation efforts.

Findings and Discussion

Accreditation and degree conferrals

Table 3.3 reports results for a naïve model of the effect of AACSB accreditation on degree conferrals. The model is of the form specified in Equation 1 and includes all unaccredited programs as the comparison group. Results show a negative impact of accreditation on degrees granted, ranging from a 9% decrease for master's programs to 13% for bachelor's degrees. These results are somewhat attenuated when looking at a more restrictive comparison group but remain largely negative.

Event study results reported in Figure 3.2 (and specified as in Equation 2) suggest that this specification may violate the parallel trends assumption as there are substantial, statistically significant pre-treatment differences in the trends of accredited and unaccredited degree conferrals. These results also suggest that treatment effects are likely heterogeneous over time. The pre-treatment trends are also unsurprising given the patterns of accreditation coverage of business degrees reported in Chapter 2: the share of degrees accredited by AACSB is largely stagnant since 1985 even as the number of programs accredited continues to increase. This suggests that non-AACSB programs have expanded degree conferrals at a faster rate than

AACSB-accredited ones (Garrity, 2012). Such a pattern seems consistent with the high proportion of selective, research-intensive universities that have earned AACSB accreditation, suggesting that unaccredited business programs at less selective, teaching-focused institutions and for-profit colleges are generally more expansionary and may not serve as a realistic comparison group.

Table 3.4 reports difference-in-differences results for each accreditor's impact on degree conferrals that account for the issues demonstrated above. To address the issues associated with weighting in the two-way fixed effects estimates, I use the Wald-TC estimator and include five post-treatment periods (accounting for treatment effect heterogeneity). Reported coefficients are the weighted average of treatment effects over a five-year period. These coefficients are derived from the preferred comparison group for each accreditor. Because of the idiosyncrasies of AACSB accreditation, the preferred model uses only "switchers" or programs that become accredited. For other accreditors, comparison groups include all degree-granting programs. As a robustness check, column 6 reports results based on a propensity score matching-like approach to derive comparison groups. These comparison groups are based on a logistic model that predicts accreditation status on a robust set of covariates derived from the analysis in Chapter 2. Only observations in the common support region are included (plots included in Supplemental Materials Figure 3.7A), but the weighting of observations is left to the Wald-TC estimator. Finally, column 4 reports the p-value for a joint test that placebo coefficients going back five years from treatment jointly equal zero; this test serves as a check for parallel pre-trends.

Results on Table 3.4 show that among business programs, specialized accreditation has a limited effect on degree conferrals. Among switchers for AACSB at the bachelor's level, for example, the treatment effect is estimated as a 2.4% increase in the number of degrees awarded.

The ATE for AACSB accreditation at the doctoral level is a high but imprecisely estimated 55% increase (e^0.441); this point estimate also fails the parallel pre-trends test. Results for ACBSP are reported separately for two- and four-year institutions. Findings reveal a positive and marginally significant estimated effect of ACBSP accreditation on associate degree production equivalent to an increase of 8.6% averaged over the first five years post-accreditation. At the four-year level, results are null across baccalaureate, master's, and doctoral levels. Findings for nursing show a markedly different pattern. At the two-year level, ACEN accreditation is associated with a 7% increase in associate degree conferrals. The effect for baccalaureate degrees is much higher but results show significant divergence in pre-treatment trends. The inclusion of unit-specific trends and of the switcher-only samples yield null findings for the effect of ACEN accreditation at the bachelor's level. Attainment of CCNE accreditation is associated with subsequent increases in degree conferrals at the baccalaureate, master's, and doctoral levels across samples, with well-behaved parallel pre-trends.

Event study estimates reported in Figures 3.3 through 3.6 illustrate the heterogeneous effects of accreditation on degree conferral over time. Among AACSB-accredited programs, seemingly null average effects are the result of steadily increasing average treatment effects over time. The magnitude of the effect five years after accreditation is 6% at the bachelor's level and 7% for master's degrees. Effects for doctoral degrees also increase over time but are imprecisely estimated because of the low number of "switchers" driving identification of each event study estimate.

Results for ACBSP are reported separately for two- and four-year institutions in Figure 3.4. As was the case with AACSB, there is something of a lag between accreditation and observed changes in enrollment, with larger coefficients in later post-accreditation years;

estimated ATE two to five years from accreditation are almost twice the magnitude of short-run effects. show apart from baccalaureate, where results suggest that degree conferrals *decrease* relative to unaccredited programs and do so at a steady pace. This is a somewhat surprising finding to be discussed later.

The same pattern repeats for CCNE accreditation. For bachelor's degrees, the effect ranges from 4 to 10% and is higher for later periods. Effects are larger at the graduate level, reaching as 17% for master's degrees and 55% for doctoral degrees in the later event study estimates. Caution is warranted when interpreting event study estimates for doctoral degrees because of the small number of programs accredited for more than a few years as CCNE only began accrediting such programs in 2002. The pattern of coefficients is consistent with the somewhat constrained ability to grow baccalaureate cohorts in the short run that many nursing programs face and with the professionalization and credentialization of the nursing profession that AACN has advocated for since founding CCNE (AACN, 2004). For ACEN accreditation, event study estimates show a more constant treatment effect over time at the associate's level, which seems consistent with the shorter duration of such programs. The estimates for bachelor's degrees clearly illustrate the absence of parallel pre-trends that precludes interpreting these coefficients as causal.

As an additional robustness check, panel A of Table 3.6 reports results for the association of accreditation in business or nursing with degree conferrals in an unrelated field (psychology for four-years, liberal arts for two-years). Results lend further credence to the estimates presented in this section. For example, they suggest that AACSB and CCNE accreditation are uncorrelated with baccalaureate degree conferrals in psychology (but are for their respective fields) and that ACBSP accreditation in not associated with conferrals of associate's degrees in the liberal arts.

These results suggest that there is no confounding relationship between specialized accreditation and a secular increase in degree conferrals generally.

In an environment of increased scrutiny and calls for accountability in higher education, third-party validation of academic programs can become a signal desirable to administrators pursuing legitimacy in a competitive enrollment environment and to prospective students facing uncertain and complex educational decisions. Business and nursing are fields with longstanding accreditation practices facing fundamental questions about the impact that accreditors have on the field. Research question 1 focuses on the impact that accreditation has in programs' degree conferrals. For business, I find that AACSB accreditation may increases degree conferrals in the long run among programs liable to seek such accreditation in the first place – with effects of large magnitude at the master's level, which may come with significant revenue implications. AACSB accreditation carries significant prestige and is a prerequisite for inclusion in many rankings of business schools; the organization also places significant (though diminishing) emphasis on research. It is perhaps unsurprising, then, that AACSB-accredited programs see increased degree conferrals relative to peer programs yet to attain such recognition.

Results for ACBSP stand in contrast to those for AACSB, as there was a negative effect on degree conferrals at the baccalaureate and null for higher degree levels. ACBSP lacks the recognition and prestige that AACSB possesses, accrediting business programs mostly at less selective regional comprehensive and for-profit institutions. Though these may be programs best positioned to expand enrollments, it seems to be the case that ACBSP is not a sufficient differentiator to do so. Programs pursuing accreditation in response to falling enrollments could also account for the negative effects observed at the bachelor's level, though placebo tests suggest degree conferrals have trends similar to unaccredited programs before accreditation. To

the extent that specialized accreditation carries costs, it is incumbent on academic leaders to identify what about ACBSP accreditation justifies those costs – increased enrollment (as proxied by degree conferrals) likely an unsupported justification for four-year institutions. I do find a positive and meaningful effect of ACBSP accreditation on two-year programs. Two-year institutions are open-access and thus may be more able and willing to grow programs in response to increased demand. Community colleges are also highly responsive to the quality improvement mandates of accreditors (Head & Johnson, 2011), so it is possible that improvements to programmatic performance partly account for increased degree conferrals.

Nursing provides a somewhat different story, as I find positive effects of sizable magnitude on degree conferrals across degree levels. Nursing is a more professionalized field than business, with aspiring nurses' career prospects governed by licensure requirements at the state and federal levels. Eligibility for the NCLEX exam, for example, generally requires graduation from a program that is either accredited or approved a state's Board of Nursing (or both). So, it is unsurprising that programs attaining accreditation that directly aligns to licensure exams and to graduates' eligibility to practice would increase degree conferrals. As was the case in business, the magnitude of the effect on degree conferrals varies by accreditor. CCNE has experienced significant growth in terms of programs accredited, while ACEN appears to have somewhat shifted in focus. Since 1985, ACEN has accredited about three times as many two-year programs as baccalaureate programs, whereas CCNE has made significant and quick headway to become the leading accreditor of four-year and graduate-level nursing programs – including numerous accelerated nursing programs (AACN, 2019). These trends for both accreditors have allowed each to remain relevant rather than purely compete. A growing share of the nursing profession graduates from two-year associate degree programs after substantial time

in other careers or out of the workforce or via accelerated (12-18 months) baccalaureate programs designed for holders of four-year degrees (Auerbach et al., 2007). The willingness of both accreditors to work with for-profit providers has also proven critical as those institutions account for a growing share of nursing degrees granted annually.

Accreditation and instructional costs

Because of the sample size limitations associated with the Delaware Cost Study, estimates for the relationship between costs and accreditation are presented for difference-in-differences models only (no event study estimates). Table 3.5 reports the estimated effect that each accreditor has on instructional costs. I find that AACSB accreditation results in a 13 percent increase in instructional costs when compared to all business programs and among switchers only. Program-specific trends attenuate the magnitude of the relationship to an increase of 8%. Unit-specific trends control for any time trends at the program level that could affect the outcome, but they carry a high cost in terms of degrees of freedom and introduce the risk of overfitting the model, obscuring the effect of accreditation on costs by leaving too little unexplained variation (see, e.g., Kahn-Lang and Lang, 2020 and Wolfers, 2006). For CCNE accreditation, I find a small and statistically insignificant estimated effect ranging in magnitude from 0.05 to 2.7%. Robustness checks reported in panel B of Table 3.6 appear to rule out two potential threats to identification. First, a placebo test (shifting the timing of treatment by four years) finds no effect of the placebo accreditation on costs, suggesting that trends are parallel absent accreditation. Second, an analysis of a non-equivalent outcome (instructional costs in

psychology) finds that accreditation by either body is uncorrelated with changes to costs of an unrelated discipline.

As far back as the 1950s, critics already expressed concern over the costs of accreditation (Pinkham, 1955). Most criticism over specialized accreditation centers on its direct costs – the multiple fees that institutions are assessed and the time they must spend documenting compliance with accreditation standards. This paper adds to our understanding of the costs of specialized accreditation by documenting its impact on instructional costs. It is certainly true that AACSB accreditation carries direct costs through membership and annual fees and other associated expenses. As shown above, however, this accreditor has a causal effect on instructional costs themselves, making each credit hour of instruction on average 13 percent more expensive. This increase is driven largely by an increase to faculty salaries (around 0.08, se = 0.029), a slight reduction in workload, and no offsetting increase in class sizes (reported in the second panel of Table 3.6). As espoused by AACSB, qualified faculty hold field-specific terminal credentials and are active in research. It is unsurprising that these faculty command higher salaries and thus increase instructional costs. Given the large increase in degree conferrals observed in RQ1 and the presence of tuition differentials for business programs at many of the public institutions AACSB accredits (Stange, 2014), accredited business schools may easily offset these increased costs. What remains unclear, however, is the impact of these rather costly accreditation standards on learning. Students in programs accredited by AACSB experience larger class sizes and are more likely to be taught by non-tenure track faculty, which prior research suggests may carry some downsides to students (Bedard & Kuhn, 2008; Kokkelenberg et al., 2008).

In the case of nursing, CCNE accreditation leads to small, essentially null impacts on costs. These results are consistent across samples (all program and among switchers only) and are most attenuated in the model including program-specific trends. Though this finding may seem surprising given the numerous criteria that CCNE espouses, it makes sense in context of the history of accreditation in nursing. CCNE is a relatively new accreditor that has drawn most of its accredited member programs away from ACEN at the baccalaureate and graduate level. Importantly, "the criteria and procedures for the two accrediting bodies are essentially similar" (Belack et al., 1999, p. 42). These criteria are not prescriptive, giving programs significant leeway in demonstrating that they are met. CCNE states that it identifies programs that engage in effective educational practices with a focus on collegiality and continuous quality improvement and in the context of each institution's mission. As such, programs that already complied with ACEN standards (and to Board of Nursing requirements) before switching to CCNE should not face significant increases to instructional costs. In addition to Board of Nursing approval, unaccredited nursing programs housed within institutionally accredited institutions are also subject to continuous quality improvement and program review practices common at most colleges and universities in the United States. In other words, the comparison group or counterfactual condition to CCNE accreditation is not so dissimilar from having such accreditation in terms of instructional costs.

Conclusion

Higher education has come to face increased scrutiny and calls for accountability in an era of growing skepticism about its value. In such an environment, third-party validation of quality can be a valuable signal desirable to administrators pursuing legitimacy in a competitive enrollment environment and to prospective students making decisions based on opaque

information about academic programs. Professional associations seeking to safeguard benefits to members of their professions continue their efforts to codify professional knowledge in higher education curricula as specialized accreditation expands within and across fields. Highly selective elite business programs continue to sort into the prestigious accreditation of AACSB, though striving middle-selectivity institutions have also pursued this accreditation – especially as AACSB has relaxed some of its standards to take a more mission-centered approach to accreditation. In contrast, ACBSP has come to accredit many institutions seeking to legitimate themselves: the least selective colleges and universities, along with the for-profit sector. In nursing, accreditation is similarly stratified as CCNE has quickly come to dominate in the baccalaureate and graduate levels while ACEN holds a monopoly on accreditation at the two-year level.

This paper provides arguably well-identified answers to two questions: do academic programs benefit from specialized accreditation through increased degree production? On the other hand, does specialized accreditation increase costs to academic programs? On the former, evidence suggests that degree conferrals do respond to specialized accreditation across fields with varying magnitude by degree level and accreditors. A vexing limitation is the lack of clarity around the mechanism by which degree conferrals increase. Does accreditation improve quality and lead to greater production of degrees, attract more prospective students, or a combination of the two? Here we can gain some insight by considering the case of nursing more carefully. As CCNE quickly drew nursing programs away from ACEN accreditation without meaningfully affecting costs and while enforcing similar standards, it seems plausible that its effect on degree conferrals comes from its signaling value – after all, little else appears to change. For business, I find that AACSB increases both degree conferrals and instructional costs. To the extent that

expenditures on instruction are a (weak) proxy for the quality of instruction, it remains unclear what channel(s) may be driving the increase in conferrals. However, data from DCS does suggest that though AACSB faculty are paid more, students do not experience either smaller class sizes or more instruction by tenure-track faculty. I interpret this pattern as again suggestive that signaling, rather (or to a greater extent) than the quality associated with accreditation is the main driver of observed effects. The impact on degree conferrals for ACBSP and for ACEN, on the other hand, were concentrated in the two-year sector, where I lack detailed information to explore mechanisms more deeply.

The preceding chapter mapped the evolution of accreditation in these two fields and how programs have come to sort into different accreditors. The chapter at hand should provide academic leaders facing decisions regarding accreditation with some parameters that make that a more informed choice. Left unaddressed, however, is the long-standing question of whether (and how) specialized accreditors improve programmatic quality. It remains the central claim of accreditors to justify their outsized role in higher education and is a critical area for future research. For highly credentialed fields such as nursing, it may be plausible to investigate how graduates of these programs fare in licensure exam and professional practice. In less professionalized fields like business, research may be more constrained to graduate outcomes like earnings. In cases of true desperation, researchers may even resort of rankings of academic programs as a measure of quality. However limited, research in this area remains desperately needed and can build on studies such as the present one by shifting the focus from programs to students and from outputs to learning.

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Table 3.1 Descriptive Statistics by Accreditation Status in 2015.

	4-yr institutions			2-yr institutions	
A. Business	AACSB Accredited (n=482)	ACBSP Accredited (n=267)	Unaccredited (n=1,022)	ACBSP Accredited (n=118)	Unaccredited (n=821)
Control					
Public	0.68	0.26	0.17	0.98	0.81
Not-for-profit	0.32	0.54	0.62	0.01	0.04
For-profit	0.00	0.21	0.20	0.01	0.15
Minority-serving Status					
HBCU	0.05	0.12	0.03		
Predominantly Black	0.01	0.02	0.02		
Hispanic Serving	0.10	0.09	0.09		
Selectivity (Barron's)					
Noncompetitive	0.01	0.08	0.06		
Less competitive	0.08	0.22	0.15		
Competitive	0.43	0.53	0.50		
Very competitive	0.29	0.16	0.20		
Highly competitive	0.10	0.01	0.04		
Most competitive	0.08	0.01	0.01		
Size					
Fall FTE enrollment	14,116.7	4,775.9	2,732.9	5,537.8	3,479.9
	(14,749.2)	(1,310.8)	(7,818.6)	(6,092.0)	(5,196.5)
Undergrad biz degrees	436.8	196.4	96.0	112.8	73.5
	(409.4)	(541.4)	(213.1)	(185.1)	(119.7)
Finances					
Tuition and fees	16,655.4	17,544.6	18,920.1	3,928.0	4,642.8
	(14,599.9)	(9,956.5)	(10,565.5)	(2395.2)	(3,886.6)
Instructional $/FTE	11,384.3	6,884.7	7,511.9	5,889.6	6,011.8
	(8070.1)	(3,143.9)	(5,620.2)	(1,796.6)	(2,796.1)

B. Nursing	4-yr institutions			2-yr institutions	
	ACEN Accredited (n=158)	CCNE Accredited (n=639)	Unaccredited (n=163)	ACEN Accredited (n=599)	Unaccredited (n=469)
Control					
Public	0.56	0.44	0.23	0.89	0.64
Not-for-profit	0.41	0.53	0.40	0.09	0.12
For-profit	0.03	0.03	0.37	0.02	0.23
Minority-serving Status					
HBCU	0.11	0.01	0.03		
Predominantly Black	0.03	0.01	0.01		
Hispanic Serving	0.07	0.10	0.15		
Selectivity (Barron's)					
Noncompetitive	0.13	0.02	0.07		
Less competitive	0.29	0.11	0.14		
Competitive	0.48	0.51	0.57		
Very competitive	0.09	0.25	0.18		
Highly competitive	0.01	0.04	0.03		
Most competitive	0.00	0.03	0.00		
Size					
Fall FTE enrollment	4,818.3	9,149.1	6547.6	5,058.8	4,409.0
	(5,202.8)	(13,538.8)	(18,762.0)	(5,532.1)	(8,146.0)
Undergrad nursing degrees	77.1	161.0	94.3	91.3	61.4
	(83.1)	(388.8)	(153.4)	(83.2)	(89.1)
Finances					
Tuition and fees	12,997.3	18,020.4	14,185.3	4,980.0	6,173.9
	(10,203.4)	(11,775.5)	(9,313.0)	(4,889.0)	(6,004.2)
Instructional $/FTE	7,695.7	10,095.3	6,947.7)	6,495.5	6,329.4
	(3,070.0)	(8,400.3)	(6,595.7)	(3,234.8)	(3,758.7)

Notes: Statistics for reporting year 2014-2015 by accreditation status in year 2015. Standard deviations in parentheses.
Source: Author's calculations from accreditation data and IPEDS.

Table 3.2 Descriptive Statistics for Costs and Cost Drivers by Accreditation Status.

	AACSB Accredited (n=337)	Unaccredited (n=127)	CCNE Accredited (n=278)	Unaccredited (n=44)
Total credit hours	8,242.3	3,991.1	5,797.4	3,374.9
	(9,578.4)	(5,339.5)	(4,212.1)	(2,276.6)
Pct. undergraduate	0.88	0.87	0.81	0.84
Pct. graduate	0.12	0.13	0.20	0.17
Instr expenses per credit hour	283.6	222.8	405.6	452.8
	(120.76	(83.7)	(187.7)	(258.1)
Personnel expenses per faculty FTE	149,274.6	92,871.3	109,232.0	120,200.4
	(47,972.4)	(39,271.1)	(45,701.7)	(46,869.9)
Sections per faculty FTE	3.1	3.7	2.8	2.5
	(0.9)	(1.1)	(1.3)	(1.1)
Average class size				
Undergraduate	38.6	22.7	34.3	32.1
	(14.9)	(8.6)	(21.0)	(16.7)
Graduate	19.9	14.3	14.1	18.7
	(8.0)	(6.1)	(6.6)	(10.1)
Share of instruction by faculty rank				
Tenure track	0.50	0.53	0.36	0.47
Other regular	0.27	0.18	0.44	0.34
Supplemental	0.22	0.30	0.20	0.19
Teaching Assistants	0.01	0.00	0.00	0.00

Notes: Statistics for pooled cross-section of survey years 2015-2017 by accreditation status in year 2015. Standard deviations in parentheses. Salaries in 2015 dollars.
Source: Author's calculations from accreditation and Delaware Cost Study data.

Table 3.3 Naïve Difference-in-Differences Results for Impact of AACSB Accreditation on Business Degree Conferrals.

DV: Logged Degree Conferrals	Coefficients (SEs)		
	Baccalaureate	Master's	Doctoral
AACSB Accredited	-0.133***	-0.087~	-0.119
	(0.030)	(0.050)	(0.175)
N	43,009	24,928	4,048
Adj R-Squared	0.89	0.84	0.66
Year FEs	Yes	Yes	Yes
Institution FEs	Yes	Yes	Yes

Notes: Models include no additional covariates and are estimated by two-way fixed effects regression. Standard errors clustered by institution. ~p<.1; *p<.05; **p<.01; ***p<.001.
Source: Author's calculations from accreditation and IPEDS data.

Table 3.4 Difference-in-Differences Results for Impact of Specialized Accreditation on Degree Conferral (preferred model and sample).

Accreditor	Degree Lvl	ATE (SE)	Pre-trends p-value	N	Matched ATE (SE)	Matched N
AACSB	Bacc	0.024 (0.019)	0.929	14,616	-0.016 (0.018)	20,689
	Master's	-0.011 (0.035)	0.182	13,480	-0.013 (0.03)	16,808
	Doctoral	0.441 (0.513)	0.002**	3,363	0.014 (0.415)	3,492
ACBSP	Associate	0.083* (0.038)	0.104	44,154	0.108* (0.040)	15,995
	Bacc	-0.033 (0.023)	0.462	43,009	-0.027 (0.024)	36,968
	Master's	0.008 (0.041)	0.185	24,928	0.009 (0.032)	21,768
	Doctoral	0.105 (0.277)	0.003**	4,048	0.112 (0.296)	3,526
ACEN	Associate	0.068* (0.027)	0.273	22,026	0.068* (0.028)	20,012
	Bacc	0.335* (0.105)	0.022*	16,300	0.248~ (0.111)	15,539
CCNE	Bacc	0.101* (0.040)	0.309	15,302	0.042~ (0.022)	13,499
	Master's	0.142* (0.051)	0.201	7,901	0.13* (0.049)	7,065
	Doctoral	0.420* (0.121)	0.610	2,041	0.437* (0.157)	1,840

Notes: Models include no additional covariates and are estimated by the Wald-TC estimator proposed by de Chaisemartin & d'Haultfoeuille (2019). Standard errors estimated via 50 bootstrap iterations and clustered by institution. ~p<.1; *p<.05; **p<.01; ***p<.001.
Source: Author's calculations from accreditation and IPEDS data.

Table 3.5 Difference-in-Differences Results for Impact of Specialized Accreditation on Instructional Costs.

DV: Logged Instructional costs per credit in Business/Nursing	Coefficients (SEs)					
	AACSB			CCNE		
Accredited	0.127**	0.129**	0.077	0.027	0.022	0.005
	(0.046)	(0.045)	(0.058)	(0.047)	(0.041)	(0.037)
Program FEs		Yes			Yes	
Year FEs		Yes			Yes	
Program-specific trends	No	No	Yes	No	No	Yes
Sample	All	Switchers	All	All	Switchers	All
Adj R-Squared	0.722	0.718	0.859	0.560	0.573	0.760
N	3,226	2,263	3,226	2,128	1,745	2,128

DV: Logged Cost Driver…	Coefficients for AACSB Accredited
Salary	0.073*
	(0.031)
Workload	-0.054
	(0.113)
Class Size	-0.036
	(0.029)

Notes: Models include no additional covariates and are estimated by two-way fixed effects regression. Standard errors clustered by institution. ~p<.1; *p<.05; **p<.01; ***p<.001.
Source: Author's calculations from accreditation and Delaware Cost Study data.

Table 3.6 Robustness Checks for Degree Conferrals and Instructional Costs Using Nonequivalent Outcomes.

a. Degree Conferrals

Accred	Level	-5	-4	-3	-2	-1	0	1	2	3	4	5
AACSB	4-yr	-0.003	-0.003	0.016	0.014	0.017	-0.012	-0.009	-0.007	0.038	0.060	0.019
		(0.032)	(0.027)	(0.028)	(0.027)	(0.027)	(0.025)	(0.031)	(0.029)	(0.039)	(0.045)	(0.037)
ACBSP	2-yr	0.051	0.002	0.000	0.035	0.051	0.108	0.104	0.095	0.062	0.090	0.076
		(0.051)	(0.065)	(0.058)	(0.047)	(0.053)	(0.050)	(0.052)	(0.059)	(0.067)	(0.081)	(0.076)
	4-yr	-0.002	-0.017	0.025	0.078	0.016	-0.015	-0.051	0.081	0.016	-0.019	-0.014
		(0.037)	(0.034)	(0.032)	(0.036)	(0.031)	(0.034)	(0.040)	(0.040)	(0.045)	(0.049)	(0.046)
ACEN	2-yr	-0.066	0.056	-0.008	0.142	0.030	0.024	0.063	0.043	0.143	0.128	0.051
		(0.031)	(0.040)	(0.027)	(0.060)	(0.058)	(0.047)	(0.051)	(0.074)	(0.076)	(0.098)	(0.084)
	4-yr	-0.092	-0.159	-0.185	0.235	-0.004	-0.041	-0.241	-0.029	-0.148	-0.085	-0.171
		(0.071)	(0.123)	(0.285)	(0.258)	(0.110)	(0.104)	(0.145)	(0.062)	(0.111)	(0.105)	(0.101)
CCNE	4-yr	0.000	-0.016	-0.012	0.014	0.010	-0.040	-0.010	-0.006	-0.005	-0.003	0.001
		(0.016)	(0.018)	(0.016)	(0.021)	(0.018)	(0.018)	(0.017)	(0.020)	(0.024)	(0.026)	(0.023)

Notes: Outcome is (logged) degrees conferred in psychology for four-year level and liberal arts for two-year level. Models based on preferred specifications and samples for each accreditor. SEs estimated via 50 bootstrap iterations. ~p<.1; *p<.05; **p<.01; ***p<.001.

Source: Author's calculations from accreditation and IPEDS data.

b. Instructional Costs

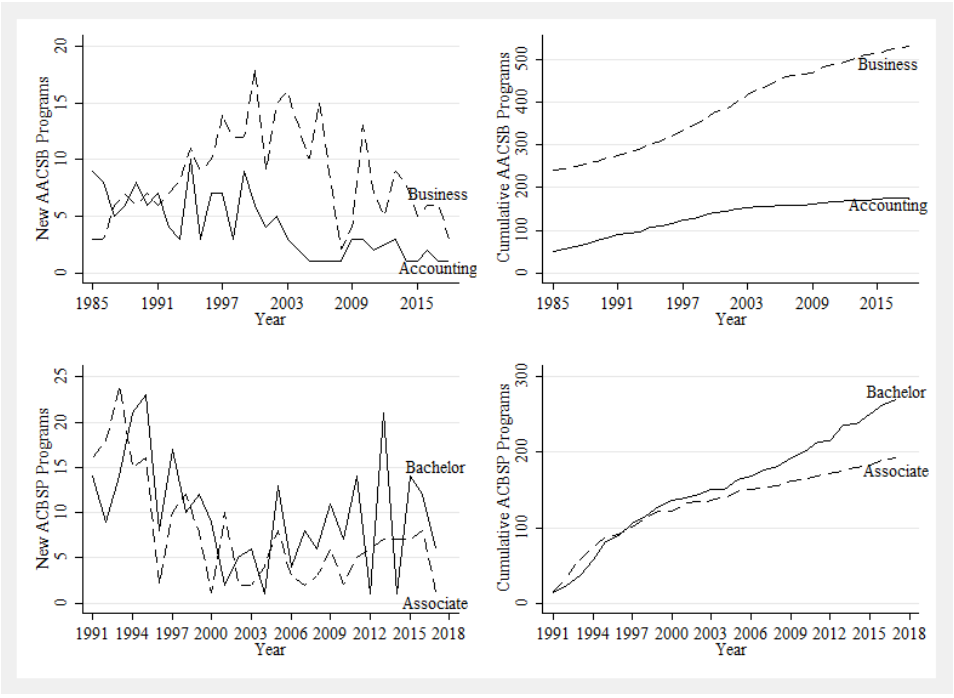
DV: Logged Instructional costs per credit in Psychology	Coefficients (SEs)					
	AACSB			CCNE		
Accredited	-0.034	-0.036	0.013	-0.005	-0.007	-0.005
	(0.031)	(0.031)	(0.048)	(0.032)	(0.029)	(0.032)
Program FEs	Yes	Yes	Yes	Yes	Yes	Yes
Year FEs	Yes	Yes	Yes	Yes	Yes	Yes
Program-specific trends	No	No	Yes	No	No	Yes
Sample	All	Switchers	All	All	Switchers	All
Adj R-Squared	0.788	0.799	0.904	0.822	0.830	0.914
N	3,014	2,157	3,004	1,971	1,626	1,971

DV: Logged Instructional costs per credit in Business/Nursing (Placebo)	AACSB	CCNE
Placebo Accreditation Indicator	0.043	-0.009
	(0.072)	(0.064)
Program FEs	Yes	Yes
Year FEs	Yes	Yes
Adj R-Squared	0.602	0.615
N	1,106	710

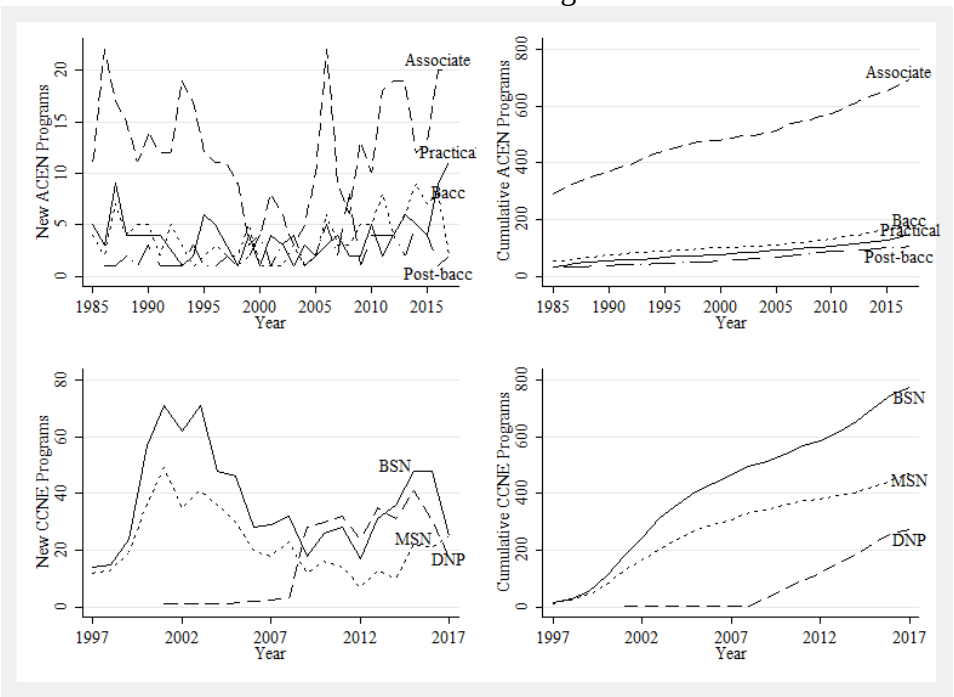
Notes: Models include no additional covariates and are estimated by two-way fixed effects regression. Placebo accreditation defined as four years before actual accreditation. Standard errors clustered by institution. ~p<.1; *p<.05; **p<.01; ***p<.001.
Source: Author's calculations from accreditation and Delaware Cost Study data.

Figure 3.1 Annual and Cumulative Count of Accredited Programs.

a. Business

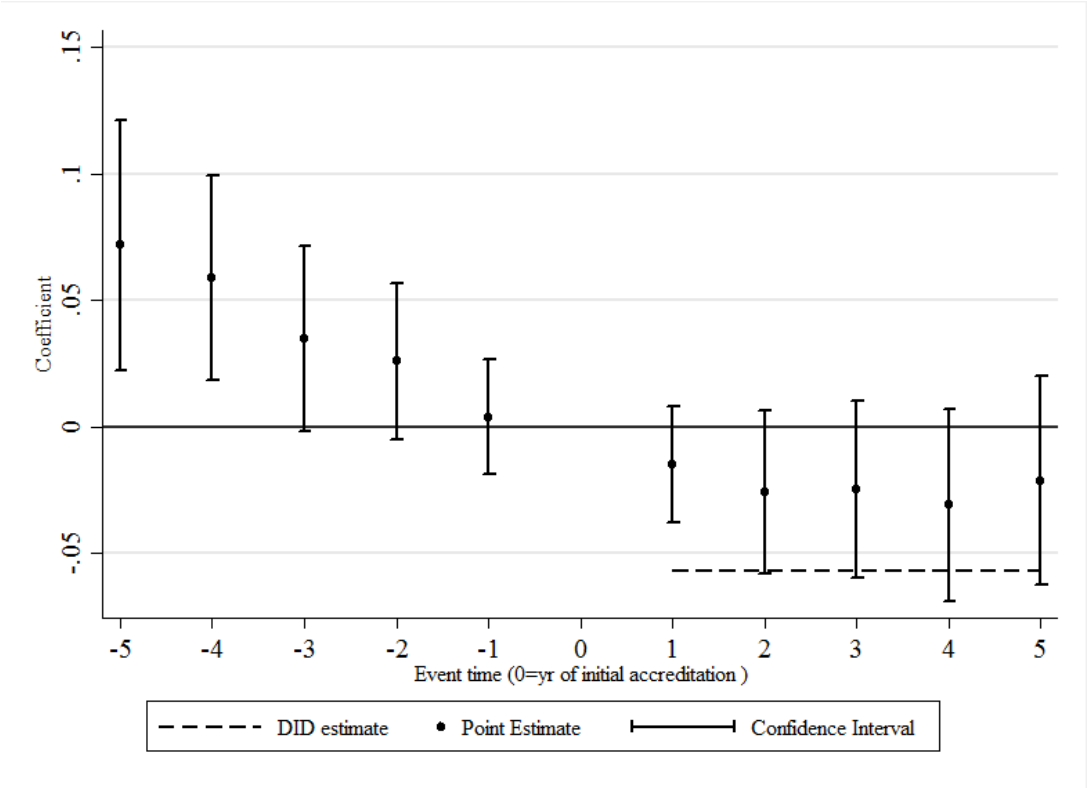


b. Nursing



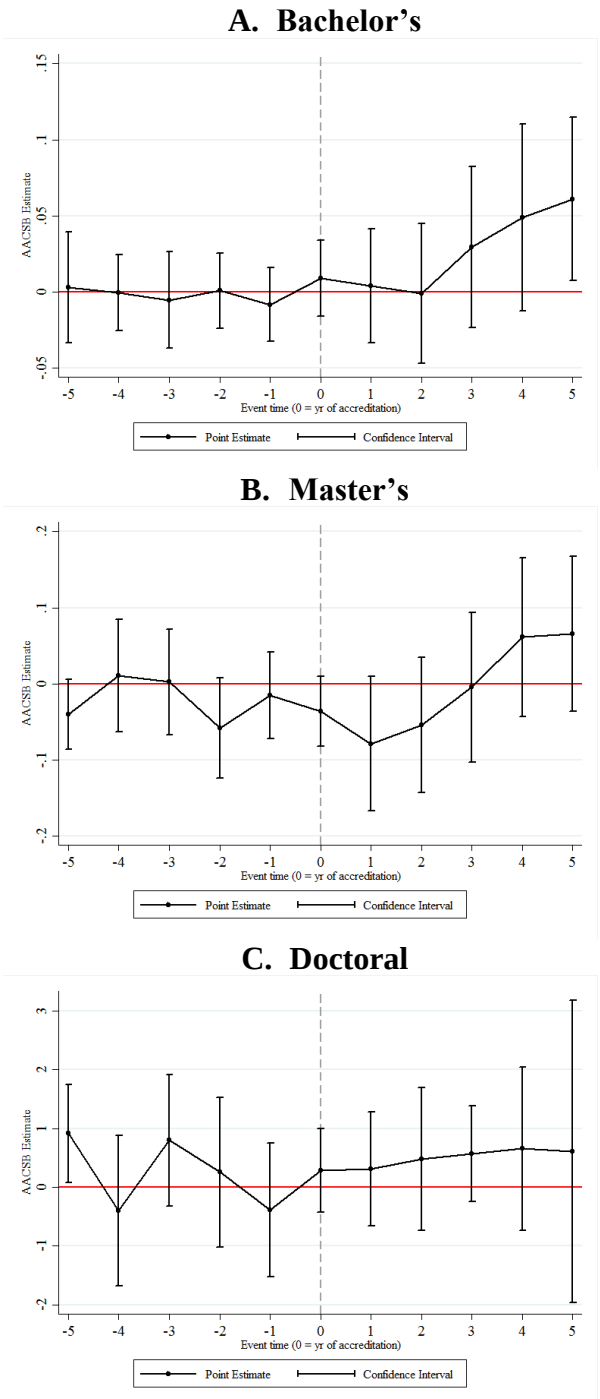
Notes: Left panels reflect the number of programs earning initial accreditation each year; right panels plot the overall number of accredited programs as of each year.
Source: Author's calculations based on information derived from accreditors' websites.

Figure 3.2 Naïve Event Study Estimates for Effect of AACSB Accreditation on Logged Business Degree Conferrals.



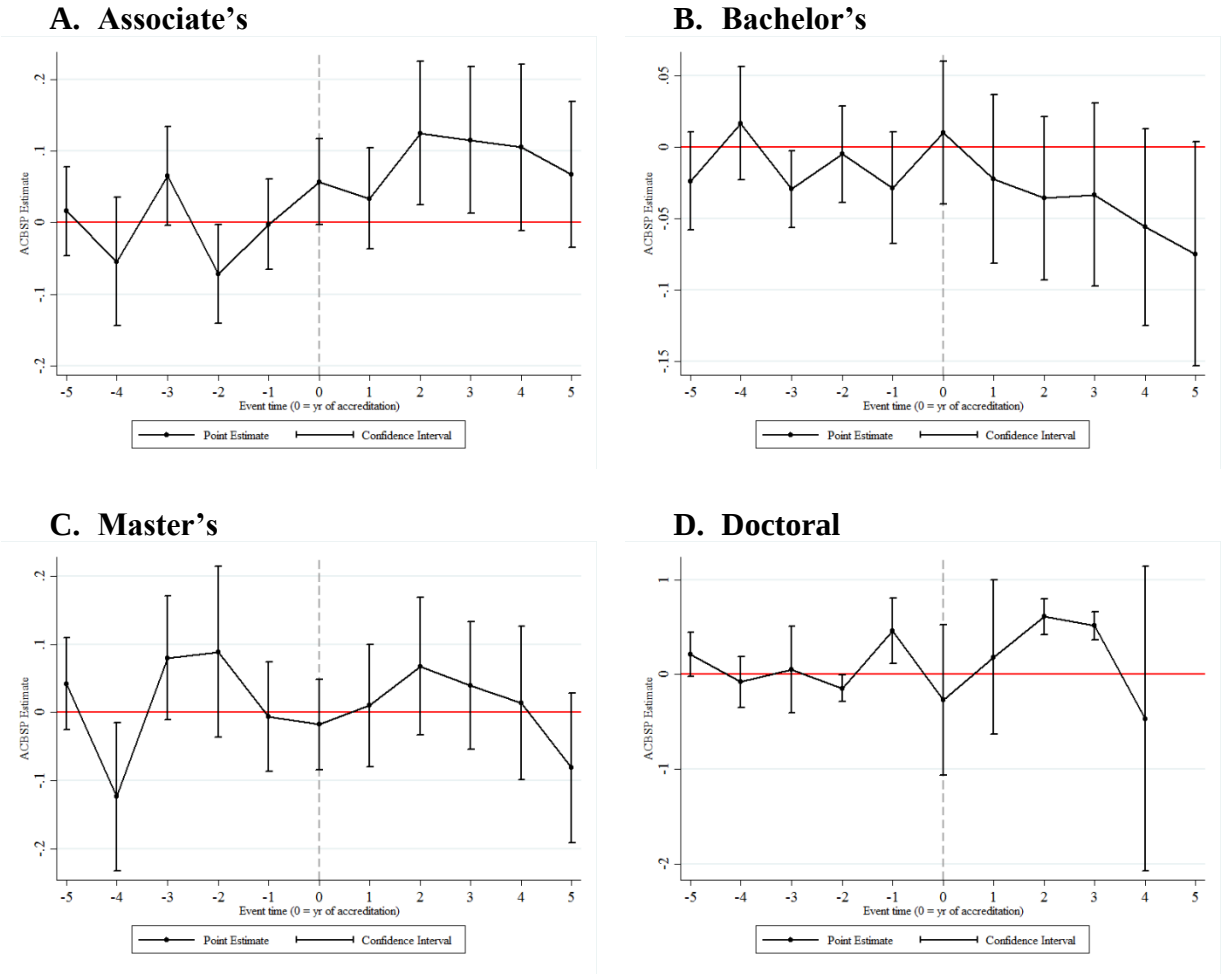
Notes: Coefficients estimated by two-way fixed effects model with no additional covariates. Estimates refer to baccalaureate degrees only. Sample includes all degree-granting business programs. Standard errors clustered by institution. 95% confidence interval plotted.
Source: Author's calculations from accreditation and IPEDS data.

Figure 3.3 Event Study Estimates of AACSB Accreditation and Business Degree Conferrals.



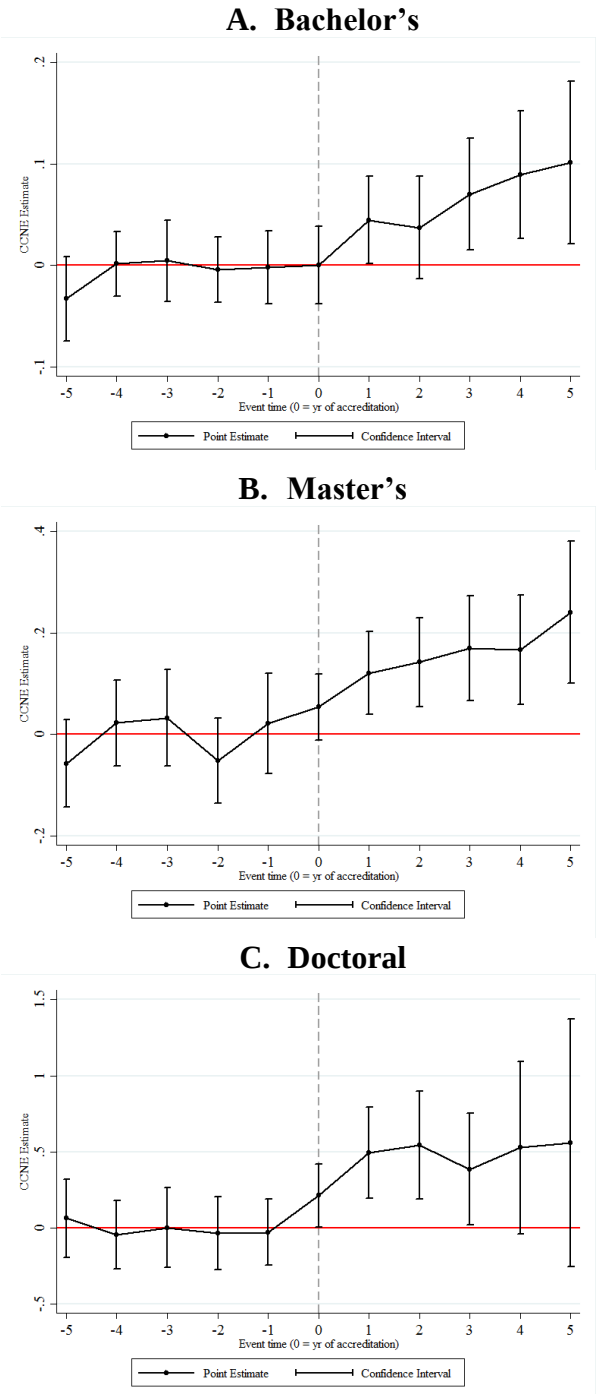
Notes: Models include no additional covariates and use the Wald-TC estimator. Sample includes AACSB switchers only. Standard errors estimated by 50 bootstrap replications and clustered by institution. 95% confidence interval plotted.
Source: Author's calculations from accreditation and IPEDS data.

Figure 3.4 Event Study Estimates of ACBSP Accreditation and Business Degree Conferrals.



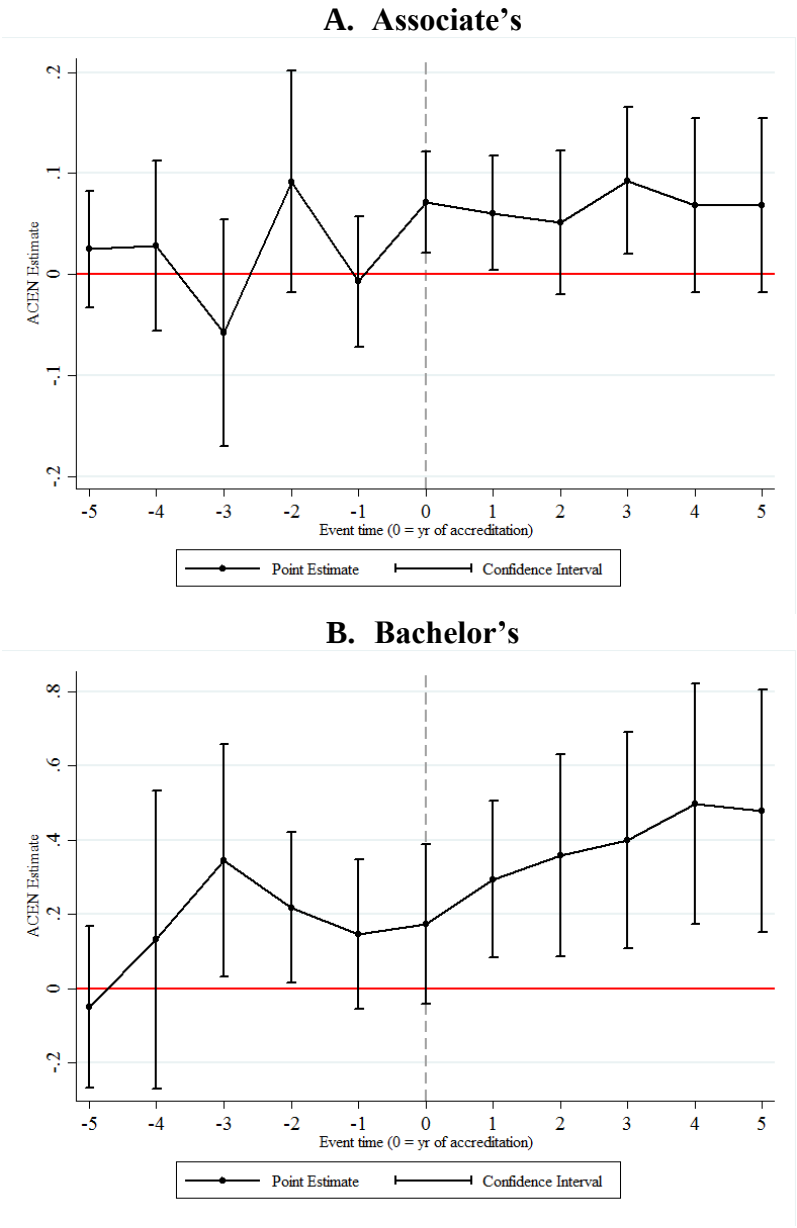
Notes: Models include no additional covariates and use the Wald-TC estimator. Sample includes unaccredited programs and ACBSP switchers only. Standard errors estimated by 50 bootstrap replications and clustered by institution. 95% confidence interval plotted.
Source: Author's calculations from accreditation and IPEDS data.

Figure 3.5 Event Study Estimates of CCNE Accreditation and Nursing Degree Conferrals.



Notes: Models include no additional covariates and use the Wald-TC estimator. Sample includes unaccredited programs and CCNE switchers. Standard errors estimated by 50 bootstrap replications and clustered by institution. 95% confidence interval plotted.
Source: Author's calculations from accreditation and IPEDS data.

Figure 3.6 Event Study Estimates of ACEN Accreditation on Nursing Degree Conferrals.



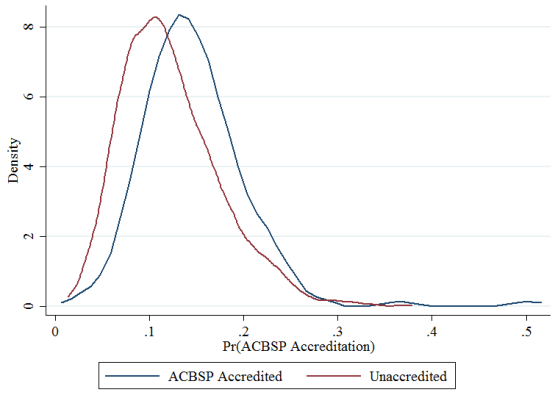
Notes: Models include no additional covariates and use the Wald-TC estimator. Sample includes all degree-granting nursing programs. Standard errors estimated by 50 bootstrap replications and clustered by institution. 95% confidence interval plotted.
Source: Author's calculations from accreditation and IPEDS data.

Supplemental Materials

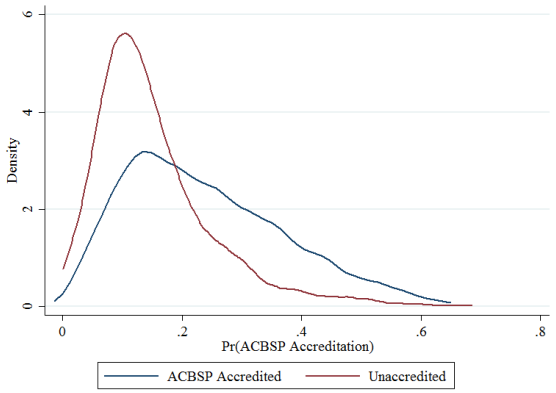
The six figures below plot the common support area for the matched sample used as a robustness check for the degree conferral analysis.

Figure 3.7A Distribution of Accreditation Propensity Scores.

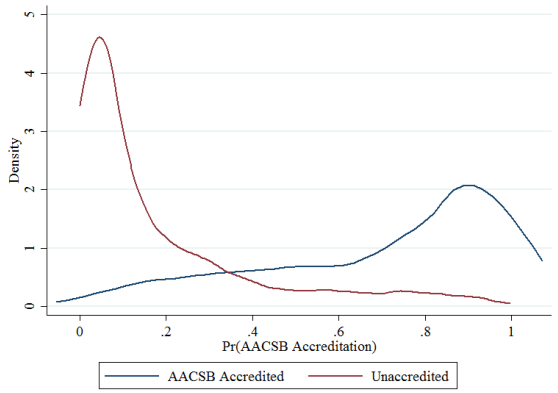
a. ACBSP 2-year



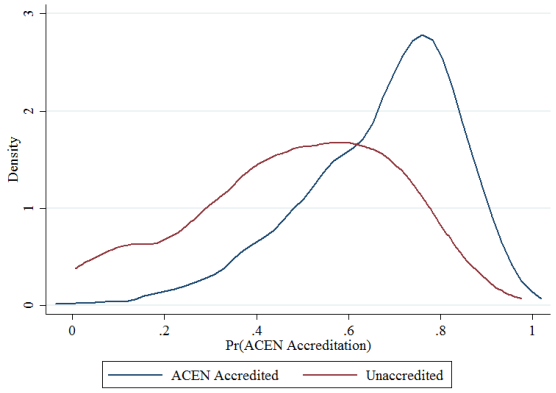
b. ACBSP 4-year



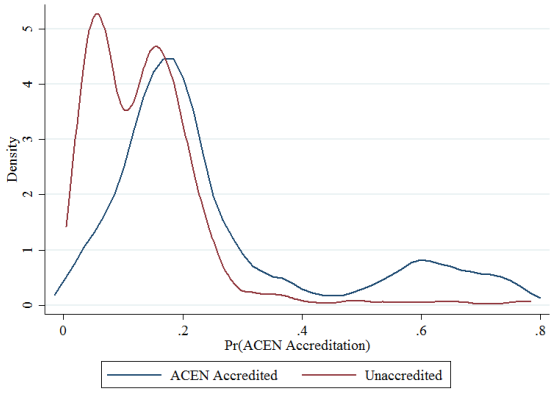
c. AACSB



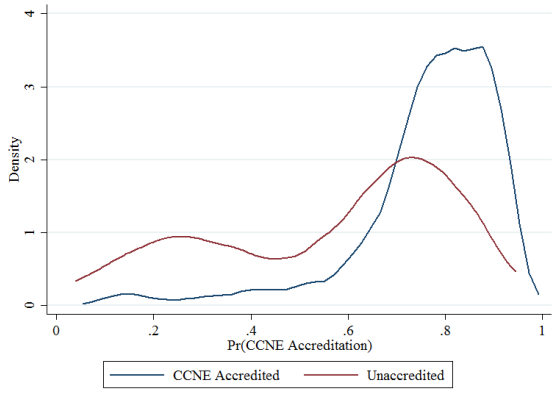
d. ACEN 2-year



e. ACEN 4-year



f. CCNE



These program-specific probabilities of (ever) attaining accreditation are estimated by logistic regression. At the four-year level, the regression includes covariates accounting for institutional control, HBCU status, predominantly Black-serving institution status, Hispanic-Serving institution status, *Barron's* selectivity category, enrollment, and field-specific degree conferrals. For two-year programs, covariates include transfer intensity (measured by Carnegie class), enrollment, and field-specific degree conferrals. Time-varying covariates are measured in 1985, the beginning of the panel.

Chapter 4 Like Any Other Trap: The Circuitous Path of Student Loan Repayment [1]

Postsecondary credentials are more critical than ever for economic security and social mobility as the employment prospects of individuals without a college degree continue to deteriorate (Ma et al., 2016). An ever-increasing share of jobs and employers expect prospective employees to have earned at least some postsecondary credential. This "credentialism" has recently been framed as a key driver behind the growth of student debt (e.g., McMillan Cottom, 2017; Morgan & Steinbaum, 2018). Even as employers demand more educated workers, investing in one's college education has become riskier: Completion rates remain stagnant (Bound et al., 2010) and students bear a growing share of education costs (Desrochers & Hurlburt, 2016) financed largely through student loans (Akers & Chingos, 2016). Millions of borrowers face significant challenges repaying those loans (Looney & Yannelis, 2015), with much of this burden borne disproportionately by students historically underserved by higher education.

The culmination of these trends is a student loan system in distress. As outstanding balances edge over $1.7 trillion[2] (Board of Governors of the Federal Reserve System, 2020), the rising credentialization of the labor market obscures that median earnings are essentially stagnant or declining even for holders of college or graduate degrees—earnings have just declined even

[1] This chapter is coauthored with KC Deane, Brian McCall, and Stephen DesJardins. An authorship statement is included in Supplemental Materials.

[2] Over the years of drafting this paper we have revised this number upward by more than a quarter-trillion dollars. It is sure to be out of date by publication.

more sharply for those with no college (Morgan & Steinbaum, 2018). Though this pattern leads some to argue that the college earnings premium is at an all-time high, the debt many incur to finance their education leaves them in a precarious financial position. Many borrowers face high student loan payments soon after leaving college when their earnings are lower than their full potential (Dynarski & Kreisman, 2013). It is no surprise, then, that there is a student loan "repayment crisis" (Dynarski, 2014, p. 2): Upwards of 30% of borrowers default within five years (Mueller & Yannelis, 2017) and more than half of borrowers do not pay down any of their principal balance within three years (Kelchen & Li, 2017). In fact, many borrowers—57% of those entering repayment in 2012—owe more on student loans after two years of payments than they did initially, accruing interest faster than they pay down their loans (Looney & Yannelis, 2015).

This paper analyzes student loan repayment as a longitudinal process by constructing repayment histories for a nationally representative sample of borrowers from initial college enrollment for up to twelve years post-college. These histories capture a stretch of individuals' lives through formative ages. Rather than focusing on single loan events such as default, the unit of analysis is the borrowers' entire sequence and duration of events that borrowers experience during repayment. The findings indicate that borrowers carry student loans for long stretches of time and have their progress toward repayment frequently interrupted by cycles of deferment, forbearance or negative amortization, and default. Frequently cited metrics of the "repayment crisis" understate the struggles and racial disparities of student loan repayment when considering longer periods of time and accounting for the complex array of repayment events that borrowers can experience. Drawing on these findings, reform efforts—be they student loan forgiveness,

renewed institutional accountability regimes, or financial aid packaging and counseling—can account for a more complete picture of loan repayment.

We identify five common archetypes of repayment histories. Two of these groups, which we call *persistent defaulters* and *perpetual payers*, experience perhaps the most adverse repayment histories; the former has frequent and long-lasting spells of unresolved student loan default, whereas the latter alternates between repaying loans and spells of deferment and forbearance. Both groups owe more on average at the end of the observation period than when they begin repayment. Two clusters, dubbed *rapid full payers*, *late full payers*, take different routes to fully repaying their loans. The first group has the lowest loan balances among all borrowers and reaches full repayment quickly. The second group takes longer to repay their loans fully and goes through stretches of deferment, forbearance, and default before doing so. The final group of borrowers, *consolidators*, uses consolidation to settle their original debt quickly in their repayment period, but face new repayment obligations on those consolidated loans. No group is immune from adverse loan outcomes, with at least 10% of borrowers in each cluster defaulting on loans and 51% or more having periods of negative amortization or forbearance. Black students, Pell recipients, first-generation college-goers, students at for-profit institutions, and students who do not earn a credential are disproportionately represented among *persistent defaulters.* White borrowers are over-represented among *full payer* and *consolidator* clusters. Baccalaureate-degree recipients are over-represented among *perpetual payers* and *consolidators*, with for-profit students also concentrated in the latter.

Literature Review

Student loans are integral to higher education finance, comprising one-third of the total aid the average student received in 2018-2019 (College Board, 2019). Loans account for as much

as two-thirds of federal spending on postsecondary aid, owing to the growing prevalence of borrowing, higher amounts borrowed by students, and stagnant spending on grant aid (Akers & Chingos, 2016). Though overall borrowing has declined slightly since 2014, the long-term trend is unambiguous: From 1990 to 2008, the percentage of undergraduates borrowing almost doubled from 19 to 35% while total federal loan dollars tripled over the same period (Avery & Turner, 2012). Completers of bachelor's degrees in 2018 owed on average $16,800—or $29,000 among the 58% of graduates who borrowed (College Board, 2019). Coinciding with this increase in borrowing was a deterioration of student loan repayment, whether measured by incidence of delinquency or default (Looney & Yannelis, 2015), institutional cohort default rates (Looney & Yannelis, 2019), or negative amortization on loans (College Board, 2019; Looney & Yannelis, 2015).

Taking on Student Debt

Aggregate debt statistics obscure the variation across students. Of particular concern is the way that debt accumulates for historically minoritized students. A large body of research has documented that Black students leave college with a disproportionate share of student debt (e.g., Goldrick-Rab et al., 2014, Despard et al., 2016; Hillman, 2015; Price, 2004) and such disparities grow over time. Addo et al. (2016) found that by age 25, Black students have loan burdens that are 68% higher than their White counterparts, or 40% higher when controlling for institutional characteristics and familial contributions to college expenses (Addo et al., 2016). Houle and Addo (2019) documented that the Black-White disparity in student debt "increases across the early adult life course from around the early 20s to mid-30s" (p. 571), accounting for close to one-quarter of the wealth gap between the two groups at age 30. Studying a sample of college entrants in 2004, Scott-Clayton and Li (2016) noted that the initial difference in debt of $7,400

between Black and White students at graduation triples within four years, owing largely to debt accumulated for graduate education and accrued interest.

Student debt disproportionately burdens other marginalized populations, including first-generation college-goers (Furquim et al., 2017; Javine, 2013) and women, who hold almost two-thirds of student loan balances (American Association of University Women, 2017, 2020; Kaba, 2017). An exception is that Latinx college students borrow at lower rates than their peers (Cunningham & Santiago, 2008) and currently have lower levels of indebtedness (Taylor et al., 2020). McDonough et al. (2015) found that borrowing decisions among Latinx students are familial rather than individual and are closely tied to "[p]arents' trust perceptions of financial institutions" (p. 144), resulting in heightened loan aversion (Elengold et al., 2020).

The sorting of students across institutions partly shapes the distribution of debt. Perhaps most notable is the high level of debt in the for-profit sector, which in 2009-2010 enrolled 14% of students but accounted for 25% of loan disbursements (Jaquette & Hillman, 2015). Cellini and Darolia (2017) demonstrated that observed student and institution characteristics explain less than 40% of the difference in the incidence and amount of borrowing by for-profit enrollees. Though the for-profit sector is responsible for the highest levels of indebtedness, debt has risen across higher education, including at public institutions that have historically had lower levels of debt (College Board, 2019). The divestment of states from public higher education, particularly during the Great Recession (Desrochers & Hurlburt, 2016), has resulted in an accelerating "cost-shifting from public subsidies to individual payments in higher education" (Barr & Turner, 2013, p. 168) likely to intensify due to the budgetary effects of the COVID-19 pandemic. The disparities in borrowing across student characteristics and sectors of higher education are mutually reinforcing given the stratified nature of postsecondary enrollment, as minoritized

students are more likely to attend the least well-resourced public institutions (Carnevale et al., 2018) and higher-cost for-profit colleges (Iloh & Toldson, 2013).

In the absence of sufficient federal and state efforts to curb tuition increases, student loans have become integral to higher education affordability and seem, in most cases, justified by borrowers' expected returns to higher education (Avery & Turner, 2012). Student loans can also positively affect student outcomes beyond college access. Marx and Turner (2019) used a randomized controlled trial to vary the information provided to students about student loans at a community college, finding that higher loan offers increased borrowing but also grade point averages, credit accumulation, and transfer rates to four-year institutions. Analyzing the consequences of increased student borrowing limits, Black et al. (2020) found that greater loan availability enabled credit-constrained students to borrow more, improved short-term academic attainment (congruent with Barr et al., 2019 and Wiederspan, 2016), and increased degree completion, earnings, and long-term financial well-being. These results stand in contrast to earlier mixed findings between loans and similar outcomes (e.g., DesJardins et al., 2002; Dowd & Coury, 2006; Singell, 2004), but improvements to methodology and data sources lend greater credence to this emerging research.

Paying off Student Debt

For most borrowers, federal student loans function as mortgage-like loans carrying a repayment schedule of ten years with fixed payments that does not reflect the life course and earnings trajectories of most individuals (Chapman & Dearden, 2017). As a result, many borrowers frequently experience repayment trajectories more complex than standard loan terms suggest. Some repay loans well in advance of their 10-year term (Gonzáles Canché, 2017), others enroll in alternative repayment plans such as income-driven repayment (Collier et al.,

2020), and still others consolidate their loans and start a new payment process. Borrowers also have their repayments interrupted by frequent transitions between schooling, employment, and unemployment (Monaghan, 2020), resulting in cycles of college attendance and borrowing, loan repayment, delinquency, default, deferment, and forbearance that stretch over many years.

Student loan repayment is a temporal process that occurs in conjunction with an individual's life circumstances like choices about career (Field, 2009; Rothstein & Rouse, 2011) and family formation (Bozick & Estacion, 2014; Stivers & Berman, 2020), as well as other financial decisions such as home ownership (Mezza et al., 2020) and starting a new business (Ambrose, Cordell, & Ma, 2015). However, most research into student loans is focused on the student- and institution-level correlates of one event: default, and in particular default occurring within the three-year window that defines cohort default rates (CDRs). Many of the early studies of default documented the correlations of student body characteristics such as race/ethnicity, Pell eligibility, and standardized test scores to CDRs (see Gross et al., 2009 for a summary of 30 years of default research). Early work on CDRs generally argued that institutions played little to no role in students' default outcomes (e.g., Flint, 1997; Knapp & Seaks, 1992; Monteverde, 2000; Hakim & Rashidian, 1995). More recent studies, however, have established a clear relationship between the two (e.g., Darolia, 2013; Deming et al., 2012; Hillman, 2014; Ishitani & McKitrick, 2016; Webber & Rogers, 2014). In this newer body of research, the for-profit sector has emerged as consistently having the highest default rates and is associated with two to three times the odds of default as public institutions (Hillman, 2014). Two-year institutions also have high default rates, though a low incidence of borrowing (e.g., Scott-Clayton, 2018). The high default rate at public two-year institutions relative to public four-year institutions is largely

accounted for by those same covariates of student characteristics, completions, and employment (Hillman, 2014).

An important confounder to loan repayment is degree attainment. Non-completers are more than twice as likely to default on loans than students who earn their degree (Gladieux & Perna, 2005; Perna et al., 2017). Following the Great Recession, enrollments and the flow of federal dollars via student aid programs expanded greatly among institutions with higher default and lower graduation rates (Jaquette & Hillman, 2015). The fastest-growing group of borrowers is older, independent students attending college part-time, who are primarily concentrated in the two sectors most available to them but also with the lowest completion and highest default rates: for-profit institutions and community colleges. These sectors account for about half of all new borrowers but 70% of all defaults (Looney & Yannelis, 2015).

Overlooked in much of this literature are the intricate trajectories of borrowers over the repayment process. The typical three-year default window does not capture well even default itself. Scott-Clayton (2018) showed that borrowers remain at risk of default far beyond the three years that define the CDR; for borrowers tracked over 20 years from enrollment, 40% of defaults occurred 12 years or more after students begin college. These longer tracking periods reveal greater disparities by sector, with nearly half of all students at for-profits eventually defaulting, and by race, as just 20 percent of White students defaulted within 20 years compared to nearly 50 percent of Black students (Scott-Clayton, 2018).

Default is not a terminal status for a loan or borrower. Among defaulters, 70% eventually exit default, while another 17% enter default multiple times over the life of their loans (Delisle et al., 2018). Besides defaulting, borrowers may deviate from loan repayment through periods of non-payment, deferment, forbearance, or by consolidating loans. Consolidation can simplify

repayment of multiple loans and may provide some savings on interest, but repayment obligations on the consolidated loan remain and may extend loan repayment well beyond the typical ten-year term. Borrowers must also consider a multitude of income-driven repayment (IDR) plans now available. These plans may lower monthly payments and protect borrowers from default but at the cost of slower progress toward paying down principal balances. Less than half of borrowers on IDR plans pay off any principal after three years in repayment (Lacy et al., 2018).

Each of these numerous statuses has its own associated bureaucratic and administrative processes that borrowers face and, as our repayment histories show, face repeatedly. Navigating this system is a cost mostly absent from discussions of the student loan repayment process, but that may contribute to adverse outcomes. Cox et al. (2020) showed that the complicated messaging about student loan repayment options led many students into the standard repayment plan when IDR would better serve them. What mechanisms do exist to orient students appear ineffective: Loan entry and exit counseling are of limited utility as they are too distal from repayment (Baker, 2019), so that one-third of students underestimate their indebtedness (Andruska et al., 2014). Exit counseling has grown to encompass over 25 topics but is inadequate preparation for borrowers given its content and timing (Baker, 2019) and the fact that many borrowers simply do not complete exit counseling (Klepfer et al., 2015).

Taken together, limitations in how prior research has treated relevant outcomes (focusing on single, dichotomous outcomes) and time (studying outcomes that occur early in repayment) present opportunities for additional research that reflects the complexity of students' repayment experiences and contextualizes them. A better understanding of student loan repayment requires

treating repayment as a *process* and employing appropriate research methods to study it as such. Thus, we ask two research questions.

Research Question 1 (RQ1): What patterns of student loan repayment do borrowers experience?

Research Question 2 (RQ2): What student and institutional factors are associated with different patterns of repayment?

The empirical approach employed to answer these questions is framed by the concepts discussed next.

Conceptual Framework

Our empirical work provides a detailed description of the student loan repayment process. However, there is no integrated conceptual framework that speaks directly to this phenomenon. We draw from life course perspectives, which gained traction as researchers grappled with the patterns and structures of individuals' lives (Elder & Rockwell, 1979). We conceptualize student loan repayment as possessing a lifecycle during which individuals experience transitions across various statuses of repayment, which are themselves partly the product of individuals' contexts and higher education experiences. Our unit of analysis is not a repayment status at a point in time. Rather, we define the outcome of interest as the full temporal sequencing and duration of repayment events, in recognition that "single events should not be isolated from each other but have to be understood in their continuity" (Aisenbray & Fasang, 2010, p. 421).

Two recent studies of higher education make use of life course perspectives. Monaghan (2020) studied individuals' transitions between college enrollment, employment, and family formation through early adulthood. His approach revealed the trade-offs that individuals face

between schooling and work, how these tradeoffs evolve as individuals age, and what they imply for other milestones such as family formation. Such analysis makes clear the value of "moving from separate investigations of specific enrollment behaviors (e.g., delayed enrollment) to grasping how individuals combine such behaviors to form complex patterns of discontinuous educational participation" (p. 424). Houle and Addo's (2019) work on the accumulation of student debt over early adulthood also draws on a life course perspective. The authors argue that "Although social scientists have suggested that social inequalities in debt are a function of processes that play out across the life course, cross-sectional or point-in-time debt estimates do not adequately reflect these processes" (p. 566). Our argument is similar: Cross-section or point-in-time measures of repayment do not reflect the temporal experiences of borrowers.

Once we document borrowers' longitudinal patterns of repayment, we use a multilevel framework to study the individual- and institutional-level correlates of those patterns. Following Hillman (2014), who argued that "default is a combination of student-level and institution-level factors" (p. 178), we posit that correlates of default are in fact correlates of repayment histories more holistically. Thus, we situate student loan repayment as the joint product of individuals, institutions, and educational outcomes. We map these factors temporally: pre-enrollment factors that are time-invariant or measured before initial enrollment; collegiate influences that occur during college; and post-college outcomes that unfold in parallel with repayment.

Figure 4.1 suggests that individual characteristics such as demographics, socioeconomic status, financial aid use, attendance patterns, degree attainment, and labor market outcomes condition borrowers' overall level of indebtedness and ability to repay. In recognition of the role that institutions play in influencing students' level of debt and outcomes, we also posit that factors such as institutional control, level of academic offerings, selectivity, and tuition correlate

with student loan repayment. These variables (partly) condition where students enroll, level of indebtedness, degree attainment, and the labor market returns that borrowers can expect—thus correlating to their repayment trajectories. There is nothing particularly novel in this framework—prior research has long established the relationship between these factors and loan default, repayment rates, and overall debt. Arguably novel, however, is that we extend the unit of analysis from single measures of repayment at fixed points in time to holistic, longitudinal repayment patterns of individuals.

Empirical Approach

Data

Student and institutional characteristics. The Beginning Postsecondary Students 2004/2009 (BPS:04/09) survey from the National Center for Education Statistics (NCES) is the data source for all measured repayment outcomes and covariates of interest. The BPS:04/09 survey followed a nationally representative subset of respondents from the National Postsecondary Student Aid Study (NPSAS) from the Fall of 2003 for up to six years after initial enrollment. It contains information on students' backgrounds, academic experiences, enrollment histories, degree attainment, and work experiences. Data were collected over three waves: at the end of students' first year of enrollment followed by waves three and six years thereafter. We use information collected across all waves to capture the variables relevant to the conceptual framework. These include race/ethnicity, gender, parental education, institutions attended, patterns of attendance, financial aid use, degree attainment, and post-collegiate support. Institution-level variables are measured both for the first institution that students attend and for any institution ever attended; these measures include control and level of academic offerings.

The analytical sample focuses on borrowers only (n ~ 9,990)[3] after a series of exclusions from the original ~ 12,040 borrowers in the BPS:04/09 sample (detailed in Supplemental Materials). Summary statistics for borrowers and non-borrowers are provided in Table 4.1.

The borrower sample differs from non-borrowers across virtually all student- and institution-level measures. Borrowers are more likely to be female, to be Black and Native Hawaiian / Pacific Islander, and to come from lower-income households than their non-borrower counterparts. Non-borrowers are more likely to attend lower cost institutions, including public colleges and universities at the two-year or less than two-year level; as a result, borrowers face 70% higher tuition and fee charges than non-borrowers.

Student loan repayment. The December 2017 release of the BPS added detailed student loan repayment records sourced from the National Student Loan Data System (NSLDS). From the origination of each loan, this data tracks borrowers' principal and interest balances, loan payments, and instances of default, deferment, and forbearance. The data is at the student-loan-transaction level. We construct holistic repayment histories at the student-quarter level through several transformations of the source data (detailed in Supplemental Materials). Each transformation implies a trade-off between nuance and ease of interpretation. We lose some detail by aggregating across loans for borrowers, and from months to quarters, but at significant gains in the simplicity of repayment histories and analytical clarity. We believe this trade-off is worthwhile because individual loans are not of interest per se, but rather the aggregated experiences of borrowers within the student loan system—what we term holistic repayment

[3] All numbers rounded in accordance to reporting guidelines from National Center for Education Statistics.

histories. These individual-level histories span 56 quarters. For each quarter, borrowers are assigned to one of the statuses described in Table 4.2.

Methods

Research Question 1. In RQ1, we identify patterns in the trajectories of student loan repayment using social sequence analysis (SSA). Abbott (1995) pioneered the use of this method in the social sciences in his analyses of career trajectories; recent applications of this method include Monaghan (2020) and Humphries (2019). Social sequence analysis treats as the unit of analysis the entire longitudinal trajectory of repayment statuses for each borrower. The approach taken is a standard application of SSA: treating the temporally arranged sequence of statuses for each borrower as a 56-character string (given 56 quarters observed), we compute the (dis)similarity across each pair of strings (or pair of borrowers) and group them by similarity. With seven possible statuses over 56 quarters, there are 7^56 possible unique sequences, though only ~ 7,970 unique strings are observed in the data. Akin to cluster analysis, after constructing repayment histories the aim of SSA "is to reduce each sequence to some simplest form and then to gather all sequences with similar 'simplest forms' under one heading" (Abbott, 1995, p. 105). Cluster analysis methods apply to continuous variables; as the outcome variable in this instance is a string, the analysis requires some algorithm to transform strings into a numeric variable comparable across pairs of observations (Abbott & Tsay, 2000). We apply the standard optimal matching (OM) method to quantify the similarity of repayment patterns, calculate a matrix of the similarity of each pair of statuses, and then cluster borrowers based on that matrix.

The OM algorithm estimates similarities by assigning a cost to the changes to a string of repayment status required to equalize it to another string and computing the "edit distance" – that is, it quantifies the "edits" required for one string to turn into another string. The costs associated

with these changes are defined as such: Insertions and deletions into the string each carry a cost of one. Because every deletion requires an insertion (and vice-versa), the cost of this operation is defined as two. For replacements, we follow the approach of Aassve et al. (2007) and Monaghan (2020), deriving the cost of replacements empirically. Rarer replacements (less likely transitions based on the data) carry a higher cost. For example, it is rare for a borrower to transition from the status of Deferment to Paid in Full, so such a replacement is more costly than the more frequently observed transition from Repayment to Paid in Full. Formally, as noted in Aassve et al. (2007), the probability of a change in status is:

$$p_{t,t+1}(a,b) = \frac{\sum_{t=1}^{T-1} N_{t,t+1}(a,b)}{\sum_{t=1}^{T-1} N_t(a)} \quad (1)$$

Equation (1) defines the probability of transitioning from status *a* to *b* for interval *t* to *t+1* as the ratio of the number of individuals transitioning from *a* to *b* to the number starting in status *a*. The replacement cost between *a* and *b* is higher the less likely such transitions are:

$$Cost(a,b) = 2 - p_{t,t+1}(a,b) - p_{t,t+1}(b,a) \quad (2)$$

Note that the cost of a replacement is less than two so long as $0 < p_{t,t-1}(a,b)$ or $0 < p_{t,t-1}(b,a)$, whereas the cost of an insertion and deletion is always two. Table 4.3 reports the replacement costs used to compute the similarity of repayment histories. The intuition behind these costs is just to treat as least costly those transitions that are most frequently observed.

Based on the costs of insertions and deletions and of replacements, we create a symmetric matrix with *N* rows and *N* columns (~ 9,990 by ~ 9,990 in our case) that contains the distances between all observed pairs of strings. In other words, the matrix contains a dissimilarity measure for each individual repayment history relative to every other individual repayment history. From this matrix, we use agglomerative clustering methods (Ward's distance) to identify clusters of similar patterns. Our preferred clustering identifies five distinct clusters of holistic repayment

histories. We explored alternative clustering solutions ranging from three to eight clusters, which made it readily apparent that five maximized the between-group differentiation of the clusters.[4]

Research Question 2. After grouping borrowers into repayment history clusters, we study the student- and institution-level characteristics associated with each cluster. The analysis starts with descriptive statistics reported for each cluster. A multinomial logit model is used to explore conditional relationships between student and institution characteristics and repayment clusters. The probability of being assigned to cluster *m* out of *j* possibilities is:

$$ln\frac{\Pr\,(y=m|x)}{\Pr\,(y=b|x)} = X'\beta_{m|b}\;for\;m=1\;to\;J \tag{3}$$

where *b* designates a reference outcome (or cluster). The terms $X'\beta_{m|b}$ are vectors of covariates at the student and institution level and their associated parameters. Estimates of these parameters measure the relationship between each covariate and the probability of a borrower being in category *m* relative to the reference category *b.*

Limitations

Though this analysis expands our understanding of student loan repayment histories, there are several limitations. First are the nuances lost in constructing such repayment histories. Each data transformation reduces granularity temporally (from months to quarters) and cross-sectionally (collapsing multiple loans of each borrower). Another data limitation relates to what is collected by BPS:04/09. There are no survey waves past 2009 even though repayment histories are tracked through 2016, meaning there is little information about borrowers during repayment, such as earnings. Another limitation is that repayment histories are necessarily right-censored as

[4] Because three of the clusters are quite distinct from all others, all clustering solutions above five merely subdivided the *consolidator* cluster based on timing of consolidation. Solutions with fewer than five clusters obscured differences in the timing of loan payoff.

many borrowers still hold student loans past the end of 2016. We also make compromises between data availability and our conceptual framework and acknowledge there are likely variables omitted from the model. A methodological limitation is that sequence analysis is highly inductive, with many decisions left to researchers. Others analyzing these same data may construct repayment histories differently, use alternative algorithms to compare histories and arrive at different findings. We provide a detailed explanation of data processing steps as part of the Supplemental Materials.

Results

Visualizing Repayment Histories

Using the holistic repayment histories of all borrowers, Figure 4.2 displays the distribution of repayment statuses by quarter of initial enrollment. There is a long lag for many borrowers from college to repayment—it takes about 16 quarters for half of borrowers to enter repayment; by 24 quarters, 75% have done so. Within the observation period, about one-quarter of all borrowers fully repay their loans, with another ~ 25% taking on a new consolidation loans on which they still face payments. The proportion of borrowers in default increases monotonically through the first 12 years of repayment, whereas deferment peaks in the middle period of the panel. All borrowers begin in a pre-payment status of varying length. For clarity, Panel B of Figure 4.2 summarizes the length of actual repayment statuses observed across the sample. Over 97% of borrowers are in one of the repayment statuses for at least five years; approximately 50% of the sample is observed in some form of repayment for ten years.

The status distribution plot can be subset by characteristics of interest as illustrated in Figure 4.3. Panel A displays status distributions for Black, Latinx, and White borrowers. The plots are illustrative of the higher frequency, earlier occurrence, and longer duration of default

for Black and Latinx students relative to their White peers. Black and Latinx borrowers are also more likely to defer or have negative amortization/forbearance and to do so for longer stretches of time, reflecting both the more variable college attendance patterns of marginalized students and greater economic adversity these students face. Status distribution plots for Asian and multiracial borrowers (available by request) reveal patterns similar to those of White and Black borrowers respectively. Panel B divides the sample based on for-profit attendance. Borrowers attending for-profit institutions (either initially or through transfer) exit pre-payment more rapidly, have more frequent instances of negative amortization, and default at higher rates. Finally, Panel C reports repayment patterns by completion status. Consistent with prior research, borrowers who do not complete a credential are at higher risk for adverse repayment outcomes such as negative amortization/forbearance and default. This group also enters deferment more frequently, during which borrowers may take on yet more student loans.

Figures 2 and 3 report the share of repayment statuses by quarter (the stock). The flow of transitions across statuses is reported in Supplemental Materials. Some statuses are persistent, such as "paid in full," as borrowers who pay off their loans are unlikely to exit that state barring re-enrollment and new borrowing. Perhaps more worrying is the stability of default as a status; the probability of exiting default in any given quarter never exceeds 0.10. Based on the NSLDS data for defaulters, the most likely pathway out of default is full repayment of loans through a lump sum payment (especially for defaulters with relatively low balances) or through a consolidation loan carrying its own repayment obligations. About half as frequently, borrowers rehabilitate loans by making the necessary number of consecutive payments. Repayment is most frequently interrupted by spells of deferment or negative amortization/forbearance. Such loan repayment interruptions are consistent with the "swirling" patterns of attendance and transfer that

characterize the postsecondary experiences of many students (Monaghan, 2020), particularly for lower-income individuals and those attending less selective or two-year institutions (e.g., Goldrick-Rab, 2006). Once borrowers find themselves in negative amortization/forbearance, about half eventually return to making payments or consolidate their loans, though an equal share enter default or deferment.

Patterns of Holistic Repayment Histories

The next step in the analysis is to identify clusters of borrowers with similar repayment histories that reflect the variety of repayment trajectories observed in the data. Our preferred solution, based on the distinctiveness of the clusters and how parsimoniously they captured prevailing repayment patterns, yields five clusters. We have named the five clusters *persistent defaulters*, *perpetual payers*, *rapid full payers*, *late full payers*, and *consolidators*, and introduce them in Figure 4.5 and Table 4.4. Panel A of Figure 4.4 details the distribution of statuses by quarter for each cluster, whereas Panel B presents the repayment histories of ~ 150 representative borrowers in each cluster.

Persistent defaulters account for 12% of all borrowers. The defining characteristic of the repayment pattern for this cluster is that all borrowers have repeated and long periods of default that remain unresolved through 2016. Default is preceded by multiple periods of repayment when borrowers do not make payments, with 72% of the time spent in repayment for this cluster having negative amortization or forbearance. Half of these borrowers enter this status at least once, with spells lasting on average 5.5 quarters. *Persistent defaulters* average 21 quarters in default; by the end of the observation period, 81% are in default whereas only 13% of these borrowers were able to fully repay their loans (but half do so through consolidation). This cluster includes the largest shares of Black (29%), Latinx (18%), and multiracial (3%) students, Pell

recipients (65%), and first-generation collegegoers (68%). It is also the cluster with the largest share of for-profit enrollees (43% attended a for-profit institution) and with the lowest degree attainment as 68% did not complete a credential by 2009. Almost half (47%) of all borrowers who ever default are *persistent defaulters*.

The cluster of *perpetual payers* is characterized by long spells of regular loan payments (on average 15 quarters in the repayment status). This group seems to follow the intended repayment terms of federal student loans most closely, but *perpetual payers* still go through frequent deferment (60% defer at least once, spending on average 8 quarter in deferment) and one in ten default on loans. Twenty-nine percent of *perpetual payers* pay their originating loans in full, but 86% do so via consolidation. The high incidence of consolidation loans, deferment, and borrowing for graduate school (25% of this cluster takes on graduate loans) means that *perpetual payers* face repayment obligations well beyond the period of observation for this analysis. Their parents may face similar obligations as 22% of *perpetual payers* make use of Parent PLUS loans as well. This is the largest cluster, accounting for 38% of borrowers, and the most highly educated with 42% of *perpetual payers* earning a baccalaureate degree, 11% earning an associate degree, and 7% earning a certificate. Borrowers in this cluster also reported the highest family income at the start of college (~ $49,000).

The next two clusters comprise borrowers who fully repay their loans but took different pathways to do so. *Rapid full payers* (13% of borrowers) repay their loans quickly, spending on average less than 6 quarters in repayment. This cluster has the lowest level of indebtedness, owing ~ $7,400 on average. The low levels of debt are partly explained by shorter college attendance: 47% of *rapid full payers* left college with no credentials or with a short-term certificate (15%) and relatively few entered deferment. Approximately 17% of borrowers in this

cluster defaulted on their loans and subsequently made a single lumpsum payment to resolve their default. *Late full payers* (16% of borrowers), on the other hand, experience long spells of repayment (an average of 14 quarters) with a low incidence of negative amortization/forbearance. Deferment and default are rare among this group, so their spells of repayment are generally uninterrupted and terminate with eventual payment in full.

Finally, 22% of borrowers are *consolidators* who pay off their original student loans by taking on a consolidation loan. This typically occurs quite quickly once borrowers exit the pre-payment status; on average, *consolidators* spend less than four quarters in repayment (and on average experience negative amortization during that period) before consolidating. Thirty-four percent of these borrowers initially enrolled in the for-profit sector, the second-highest rate, and 28% enrolled in two-year institutions, the lowest rate among clusters. Consolidators have the highest level of degree attainment, as 61% of them had earned a credential by 2009. But half go through periods of negative amortization, and 15% of them default at least once. The cluster also has the highest reported use of private loans (45%) and may face complicated financial decisions regarding student loan payment. Using NSLDS data to track the status of (most) consolidated loans, we found that 20% of *consolidators* paid off their consolidated loans, with 40% still in repayment at the end of 2016. In other words, one in five *consolidators* resemble *late full payers*, while 40% mirror *perpetual payers*.

Borrowers' loan balances reflect the distinct repayment trajectories of each cluster. Figure 4.5 plots the average total amount owed (principal and interest) over time, tracked from and indexed to the quarter when borrowers first leave pre-payment, for up to eight years (sample sizes become small past 32 quarters). *Persistent defaulters* have increasing loan balances after entering repayment, driven by compounding unpaid interest on default loans, fees associated

with loans, and additional loans taken out during deferment spells of re-enrollment. As a result, *persistent defaulters* owe, on average, 30% more eight years after they first start repaying loans than they did originally. *Perpetual payers* also appear to make little progress toward reducing their indebtedness, owing about 10% more eight years after they begin repayment than they did initially and likely much more considering the high usage of graduate loans among these borrowers. This cluster also shows the highest usage of income-driven repayment (14%), which can account for the slow progress in paying down debt and has implications for eventual loan forgiveness through IDR plans.

Rapid full payers exhibit a sharp reduction in outstanding balances within the first four quarters in repayment, with average balances declining quickly. Within five years of entering repayment, this cluster has mean outstanding loans that are essentially zero, with few borrowers carrying any balance after that point. Part of the reason for the rapid decline in average balances is that many of these borrowers make full lumpsum payments, in some cases after default. *Late full payers* exhibit a smoother continuous decline in average outstanding balances; by that same five-year mark, this cluster had paid off 60% of their total loan balances. Finally, the loan balances of *consolidators* indicate a sharp drop in balances within one or two quarters of entering repayment, caused by borrowers that are quick to consolidate. Average outstanding balances decrease linearly from that point as additional borrowers in this cluster consolidate after infrequent and brief periods of repayment, deferment, or default. Because balances on consolidated loans are not consistently observed, it cannot be determined whether these

borrowers are progressing toward repayment similarly, more quickly, or more slowly than *perpetual payers*.

Modeling cluster characteristics

Table 4.4 reports descriptive statistics for each cluster, but to disentangle the conditional relationship between characteristics of interest and repayment clusters requires the use of regression modeling. Based on Figure 4.1 and Equation 3, a multinomial model is used to regress repayment clusters on a set of student-level variables, institutions attended, patterns of attendance, borrowing behavior, and degree attainment. For simplicity and ease of interpretation, we focus on the predicted values yielded by the regression (results reported in Supplemental Materials). Each point in Figure 4.6 represents the predicted probability of a borrower with a given characteristic being in each cluster, holding all other variables at observed values.

Whereas the statistics in Table 4.4 indicate that clusters differ from one another on several dimensions, Figure 4.6 illustrates more muted conditional relationships. Table 4.4 indicated that Black and Latinx borrowers were disproportionately represented in the *persistent defaulter* and *perpetual payer* clusters and underrepresented among *rapid* or *late full payers*. The predicted probabilities reported in Figure 4.6 suggest that this finding is robust to the numerous controls included in the model, but these differences are attenuated. This pattern suggests that there are important confounding relationships not evident in unconditional statistics. Net of all controls, the most pronounced disparities across students and institutions is in the *persistent defaulter* cluster and, to a less extent, among the *rapid full payers* group. The results also make clear that the most salient characteristic associated with holistic repayment patterns is race/ethnicity, specifically the burden placed on Black and Latinx students. This finding is

consistent with and builds upon a large body of research; student loan default and other adverse loan outcomes are both more frequent and more persistent for minoritized students.

Panel B of Figure 4.6 suggests that large unconditional differences in repayment by institutional control are greatly reduced in a regression framework. For example, borrowers who attended for-profit institutions seem to have similar repayment outcomes to those attending public two- or four-year colleges. However, the indicators for attendance of various institution types are not mutually exclusive; a borrower may attend both a for-profit and a public college or any other combination thereof. Figure 4.7 compares marginal effects for select variables between borrowers who attended a for-profit institution versus those who did not, holding all else at observed values. Net of all covariates, a Black borrower who does not attend a for-profit institution has a six percentage-point lower probability of being a *persistent defaulter* than a borrower with the same observed characteristics who did attend a for-profit. Borrowers who did not attend for-profits have lower probabilities of being a *persistent defaulter* for virtually all student- and institutional characteristic.

Discussion and Conclusion

To the best of our knowledge, this paper provides one of the most comprehensive overviews of student loan borrowers' repayment experiences. It reveals the frequency of change that borrowers face in meeting their repayment obligations—a process made even more complicated by the variety of income-driven repayment plans now available to borrowers. We document that student loan repayment is frequently interrupted by spells of deferment, negative amortization/forbearance, and default that can last years. We find that half of all borrowers see their outstanding balances rise after they enter repayment even though these same borrowers make payments on their loans for years. The COVID-19 pandemic has exacerbated this

repayment crisis, as almost 90% of borrowers are making no payments toward student loans during the pandemic (Nova, 2020). Though coronavirus forbearance made available by the Department of Education provides critical relief to borrowers during an unprecedented crisis, its future is uncertain. Once lifted, borrowers may face renewed debt obligations during a tenuous economic recovery.

Even as we recognize the diversity of repayment experiences borrowers have, we were able to identify five overarching patterns. *Persistent defaulters* account for 12% of borrowers whose repayment trajectories are characterized by long spells of default that are largely unresolved within the observation period, and who owed on average 30% more in 2016 than when they started repayment. *Perpetual payers* make up 38% of borrowers who have the steadiest student loan repayments patterns. On average, balances for this group are around 15% higher at the end of the repayment period even as 30% of them fully repay their debt, driven by deferment spells during which students re-enroll and take on additional loans. The last three clusters of *rapid full payers*, *late full payers*, and *consolidators* differ most meaningfully in their path to full repayment, whether they do so rapidly after facing some adversity (*rapid full payers*), slowly and steadily (*late full payers*), or through consolidation – with the latter group facing largely unobserved repayment obligations on their consolidated loans.

The utility of analyzing holistic repayment histories over discretized repayment outcomes like default is in grasping the full extent of disruptions that borrowers experience when settling their student debt. *Persistent defaulters* not only experience default for long periods, but half of them also go through spells of deferment and only 12% of them fully repay within the observed period. Interruptions to repayment are common even among *perpetual payers*, 62% of whom go into deferment and 10% default at least once. The two clusters that fully repay their loans have

high a prevalence of disruptions, ranging from 14% to 35% undergoing deferment and 15% to 29% experiencing default at least once. *Consolidators* are both the largest group and the one about which the least is known. At least 40% of consolidators are in effect *perpetual payers* who still owe on their consolidated loans at the end of 2016, so even accounting for consolidation a minority of borrowers are observed to follow standard loan repayment terms as designed.

Student loan repayment occurs in the context of students' lives during formative early adulthood years. *Persistent defaulters* carry student loan default and its consequences into their mid-30s; the oldest quarter of these borrowers finds itself dealing with default well into their 40s. *Perpetual payers* owe as much on student loans at age 35 as they did when they started paying off loans in their early 20s, as do many *consolidators*. Future research could leverage other data sources to investigate the welfare implications of these repayment patterns. We briefly explore financial outcomes measured in the 2009 wave of the BPS:04/09 in Table 4.5. *Persistent defaulters*, *perpetual payers*, and *consolidators* are more likely to indicate that student debt influenced their employment decisions; these same groups are also least likely to own a home. *Perpetual payers* and *consolidators* are also the clusters most likely to carry credit card balances month to month; *persistent defaulters* are least likely to report having a credit card at all but, among those who do, are the most likely to carry balances. Most of these associations remain significant when controlling for a host of individual and institutional characteristics (marginal effects reported in Table 4.5; full model results are available in Supplemental Materials).

Perhaps one manifestation of frustrations with the current student loan system is the attitude of borrowers toward higher education. Borrowers across all repayment clusters are more likely than nonborrowers to report that their undergraduate education was not worth the cost: *perpetual payers* have the lowest such rate (22%) and *persistent defaulters* the highest (31%)

relative to the 17% of non-borrowers that say the same (authors' calculations). There is no causal claim to be made given the methods used in this analysis. However, these patterns present opportunity for future research into the impact that student debt has over the life course and its implications for public support for higher education.

The incoming Biden administration may pursue meaningful reform of higher education financing, ranging from greater institutional accountability for student outcomes, "debt-free" community college or tuition-free public institutions, and forgiveness of student debt. The richer understanding of the student loan repayment crisis in this paper can hopefully illuminate some of the hidden costs of the current student loan system and inform policymaking. For example, cohort default rates could be replaced by a weighted measure of not only the incidence of default but also its frequency, duration, and associated balances. Accountability metrics could incorporate dimensions of repayment difficulty like negative amortization and forbearance that occur at systematically higher rates among certain sectors of higher education. The long-term harm and disparities of student debt for millions has resulted in numerous proposals for broad-based loan forgiveness (e.g., Goldrick-Rab & Steinbaum, 2020). Even limited loan forgiveness has the potential to meaningfully change borrowers' lives for the better: $10,000 in forgiveness would have erased the total debt of 39% of all borrowers, including half of all *persistent defaulters and* one in five *perpetual payers*. In the absence of meaningful reform to student loan repayment, practitioners at college campuses may be called to provide more long-term support for borrowers and to reform student loan exit to prepare borrowers for the circuitous paths to repayment they are likely to experience. Finally, existing and emerging qualitative research on the lived realities of borrowers financing their education and later facing the student loan repayment system must guide reform of both policy and practice.

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Table 4.1 Descriptive Statistics by Student Loan Borrower Status.

	Borrowers (n ~ 10,110)	Non-borrowers (n ~ 8,110)	
Demographic data			
Female	0.60	0.54	***
White	0.61	0.62	*
Black	0.17	0.10	***
Hispanic/Latinx	0.14	0.16	**
Asian	0.04	0.06	***
American Indian	0.01	0.01	**
Native HI/PI	0.01	0.00	*
Other	0.01	0.02	
Multiracial	0.03	0.02	
Financial data (2003-2004)			
AGI (03)	45,972.5	57,654.6	
	(41,888.7)	(54,722.8)	***
Pell recipient (03)	0.48	0.22	***
Attend FT (03)	0.78	0.58	***
Institutional data (03-04)			
Four year	0.52	0.36	***
Two year	0.38	0.59	***
Less than two year	0.1	0.05	**
Public	0.6	0.84	***
For-profit	0.22	0.04	***
Not-for-profit	0.18	0.12	***
HBCU	0.02	0.02	***
HIS	0.08	0.14	***
Very selective	0.11	0.11	***
Moderately selective	0.26	0.17	***
Minimally selective	0.07	0.04	***
Open access/NA	0.57	0.68	***
Tuition and fees	6,984.0	4,126.6	
	(6,820.7)	(6,461.5)	***

Notes: All statistics weighted by WTA000. Numbers rounded in accordance with NCES guidelines for privacy. *** p<0.001, ** p<0.01, * p<0.05, ~ p<0.1
Source: Authors' calculations from BPS:04/09 survey.

Table 4.2 Loan Repayment Statuses and Rankings for Repayment History Creation.

Rank	Status	Definition
6	Paid in full	Borrower has paid all active loans in full.
5	Paid in full through consolidation	Borrower has paid all underlying loans through consolidation. Consolidation loan is not observed.
2	Default	Borrower has at least one loan in unresolved default.
3	Deferment	Borrower is in deferment for any reason. Loan balances may rise if borrower is re-enrolled and taking on additional loans.
4	In repayment – no progress	Borrower has negative amortization due to payments that are lower than interest charges, nonpayment, or is in forbearance.
4	In repayment	Borrower makes regular monthly payments that cover at least interest.
1	Pre-payment	Borrower is either enrolled in college or in the grace period before payments are due on any loans.

Notes: Statuses are derived from transaction dates included in NSLDS records. Rank column indicates order in which statuses are selected when collapsing across multiple loans for the same borrower.
Source: Authors' calculations from in BPS:04/09 survey.

Table 4.3 Costs for Replacement of Student Loan Repayment Statuses.

	PIF	PIF – C	Repay	Defer	Default	Repay – no progress
PIF	0					
PIF – C	1.9637	0				
Repay	1.8196	1.7959	0			
Defer	1.9400	1.8792	1.7324	0		
Default	1.7564	1.8273	1.8724	1.9078	0	
Repay – no progress	1.4291	1.3844	0.5609	1.1276	1.2808	0
Pre-pay	1.9913	1.9377	1.8185	1.9307	1.9997	1.4642

Notes: Cost matrix estimated from transition probabilities for each pair of statuses. PIF is paid in full; PIF-C is paid in full through consolidation; Repay is in repayment; Defer is in deferment or forbearance; Repay – no progress is in repayment with negative amortization; Pre-pay is pre-payment.
Source: Authors' calculations from BPS:04/09 survey.

Table 4.4 Means and Standard Deviations for Borrower Characteristics by Repayment Cluster.

	Persistent Defaulters (n ~ 1180)	Perpetual Payers (n ~ 3770)	Rapid Full Payers (n ~ 1270)	Late Full Payers (n ~ 1570)	Consolidators (n ~ 2200)
Repayment outcomes					
Ever in Paid in Full	0.063	0.037	1.000	0.999	0.012
Ever in Paid in Full – Consolidation	0.064	0.253	0.001	0.009	1.000
Ever in Default	1.000	0.102	0.173	0.285	0.151
Ever in Deferment	0.501	0.597	0.136	0.347	0.231
Ever in Repay – no progress	0.970	0.921	0.591	0.84	0.515
Ever in Repayment	0.713	0.912	0.681	0.91	0.382
Ever in Pre-payment	0.999	1.000	1.000	1.000	1.000
Total Qs PIF	0.36 (1.48)	0.44 (2.67)	34.69 (6.17)	15.17 (6.58)	0.05 (0.54)
Total Qs in PIF-C	0.50 (2.16)	3.24 (6.46)	0.00 (0.10)	0.032 (0.42)	34.54 (9.16)
Total Qs in Default	20.70 (10.82)	0.85 (3.13)	1.24 (3.06)	3.43 (6.80)	1.53 (4.38)
Total Qs in Deferment	5.59 (7.59)	8.06 (9.54)	0.96 (2.94)	3.51 (6.26)	2.12 (5.18)
Total Qs in Repay – no progress	9.13 (6.80)	8.25 (8.01)	1.90 (2.63)	3.85 (4.31)	2.19 (3.52)
Total Qs in Repayment	3.56 (5.58)	14.55 (11.20)	3.71 (4.40)	13.52 (10.13)	1.44 (3.13)
Total Qs in Pre-payment	16.17 (8.27)	20.60 (9.11)	13.49 (6.39)	16.58 (7.72)	14.14 (5.06)
Total ugrad loans	15,577.97 (13,891.51)	23,059.030 (15,012.86)	7,437.903 (8,510.59)	9,848.014 (8,540.31)	17,969.040 (11,358.35)
Has private loans	0.371	0.348	0.311	0.309	0.451
Has Parent PLUS loans	0.097	0.205	0.202	0.194	0.245
Has Grad PLUS loans	0.029	0.224	0.090	0.087	0.166
Enrolled in IDR	0.031	0.137	0.001	0.003	0.013
Borrower Demographics					
Age at initial enrollment	22.35 (7.11)	20.37 (5.13)	20.74 (5.54)	20.55 (5.23)	21.53 (7.05)
White	0.455	0.590	0.654	0.668	0.664
Black	0.293	0.187	0.097	0.094	0.157
Hispanic/Latinx	0.183	0.135	0.145	0.151	0.100
Asian	0.012	0.038	0.061	0.041	0.025
American Indian	0.007	0.003	0.008	0.001	0.008
Native Hawaiian/Pacif Islander	0.002	0.008	0.004	0.007	0.002
Other	0.014	0.013	0.006	0.007	0.012
Multiracial	0.034	0.026	0.025	0.031	0.031
Male	0.467	0.370	0.423	0.418	0.379
Attended full-time	0.745	0.765	0.802	0.771	0.852
Pell recipient	0.652	0.430	0.470	0.433	0.527
First-generation status	0.677	0.513	0.541	0.557	0.570
Dependent	0.598	0.784	0.793	0.778	0.722

Adjusted gross income (03-04)	31,299.64	49,339.15	48,048.43	48,703.21	45,857.73
	(37,424.88)	(41,217.61)	(43,875.14)	(40,037.73)	(44,372.32)
Degree Attainment as of 2009					
None	0.679	0.401	0.472	0.453	0.385
Certificate	0.139	0.068	0.153	0.142	0.091
Associate degree	0.071	0.111	0.063	0.079	0.117
Baccalaureate degree	0.111	0.420	0.312	0.327	0.408
Institutional Characteristics (Ever Attended)					
For-profit	0.430	0.200	0.290	0.285	0.335
Two-year	0.496	0.469	0.452	0.458	0.279
Public four-year	0.332	0.523	0.388	0.428	0.373
Not-for-profit four-year	0.154	0.272	0.201	0.197	0.268
Total # of institutions attended	1.66	1.73	1.54	1.62	1.45
	(0.74)	(0.81)	(0.75)	(0.80)	(0.69)

Notes: All statistics weighted by WTA000. Numbers rounded in accordance with NCES guidelines for privacy.
Source: Authors' calculations from BPS:04/09 survey.

Table 4.5 Means and Standard Deviations for Select Financial Outcomes in 2009 by Repayment Cluster.

	Persistent Defaulters (n ~ 1180)	Perpetual Payers (n ~ 3770)	Rapid Full Payers (n ~ 1270)	Late Full Payers (n ~ 1570)	Consolidators (n ~ 2200)
Home ownership					
Owns	0.106	0.139	0.191	0.172	0.165
Rents	0.572	0.486	0.489	0.494	0.484
Neither owns nor rents	0.323	0.378	0.320	0.333	0.351
Marginal effect for owns	(ref.)	0.041***	0.089***	0.064***	0.062***
Credit card usage					
Has no credit card	0.615	0.327	0.346	0.384	0.365
Pays balance each month	0.093	0.256	0.397	0.286	0.278
Carries balance month to month	0.291	0.418	0.257	0.330	0.357
Marginal effect for carries balance	(ref.)	0.042*	-0.072***	-0.016	0.016
Influence on employment					
Debt influenced employment	0.441	0.471	0.289	0.334	0.431
Marginal effect	(ref.)	-0.024	-0.107***	-0.062*	-0.046~
Higher education worth					
Undergraduate ed was worth cost	0.309	0.215	0.227	0.256	0.279
Marginal effect	(ref.)	0.024	0.027	0.014	-0.009

Notes: All statistics weighted by WTA000. Numbers rounded in accordance with NCES guidelines for privacy. Marginal effects for repayment cluster estimated from logistic/multinomial regression that also includes controls for race/ethnicity, gender, first-generation status, Pell recipient status, age, dependency status, adjusted gross income in 2004 (logged), indicators for attendance of 2-year, public 4-year, not-for-profit 4-year, and for-profit institutions; tuition charges in 2004 (logged), total amount borrowed (logged), indicator for use of private loans, number of institutions attended, full-time/part-time enrollment indicator, and indicators for highest degree earned. Regression weighted by WTA000. All other variables held at observed values. ~p<.1; *p<.05; **p<.01; ***p<.001.
Source: Authors' calculations from BPS:04/09 survey.

Figure 4.1 Conceptual Framework for Factors Related to Student Loan Repayment Patterns.

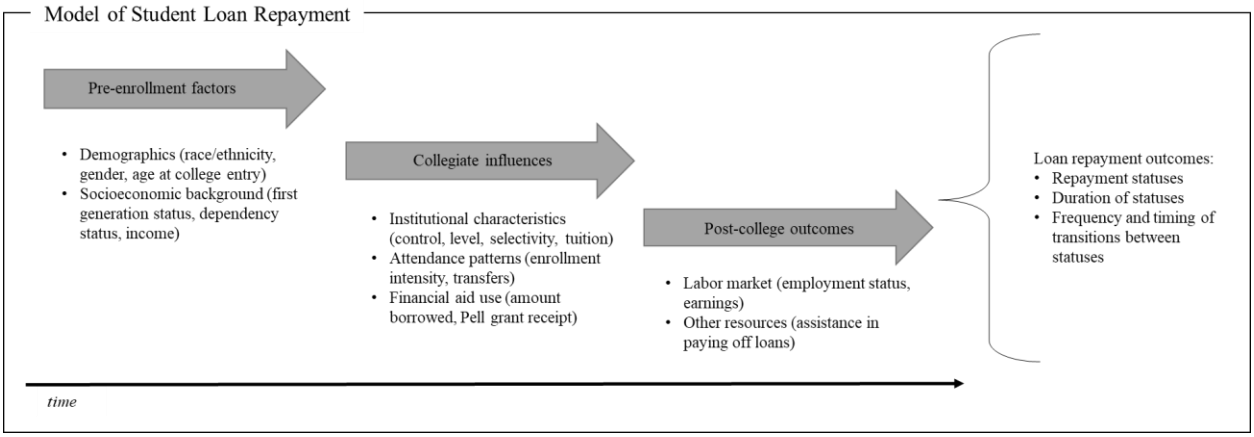
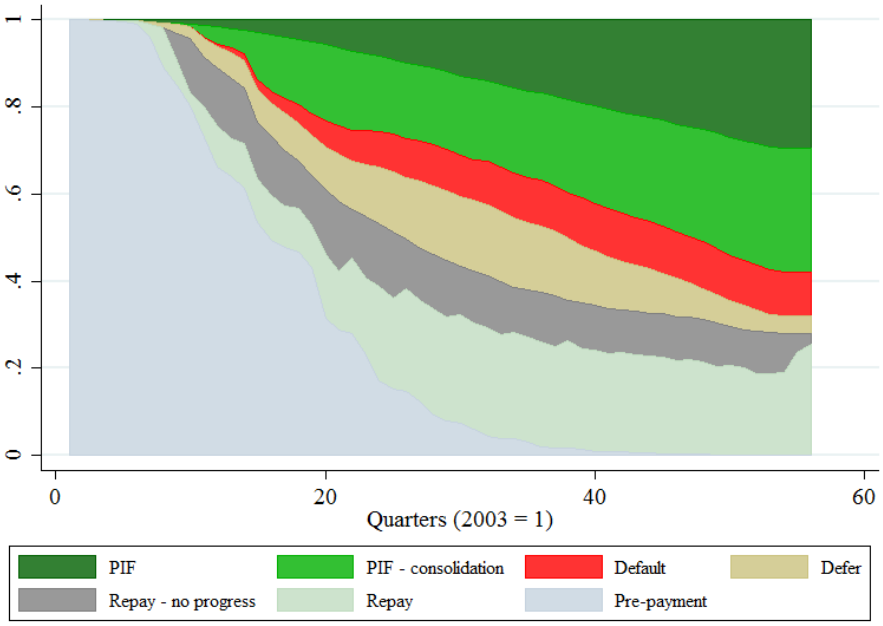
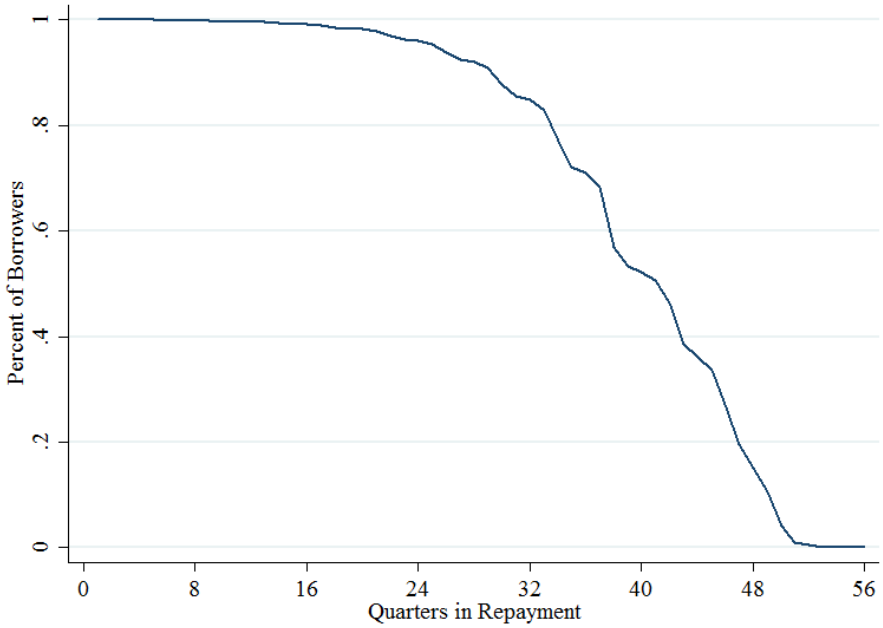


Figure 4.2 Chronogram of Repayment Statuses for All Borrowers (n ~ 9,990).

a. Chronogram of Repayment Statuses



b. Duration of Observed Repayment Histories (excludes pre-payment period)

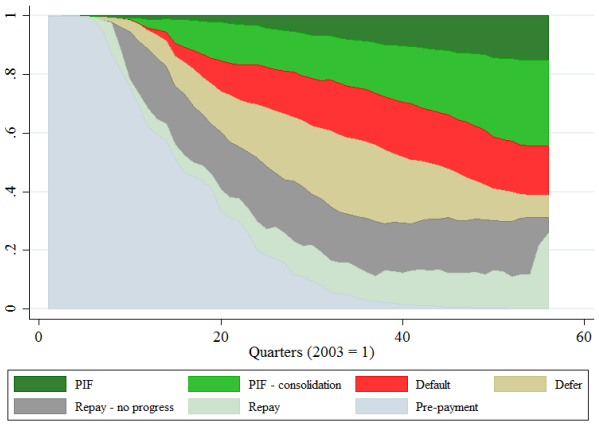


Notes: Panel A shows proportion of all borrowers in each status by quarter. Panel B shows the proportion of all borrowers *not* in the staring pre-repayment status for each quarter.
Source: Authors' calculations from BPS:04/09 survey.

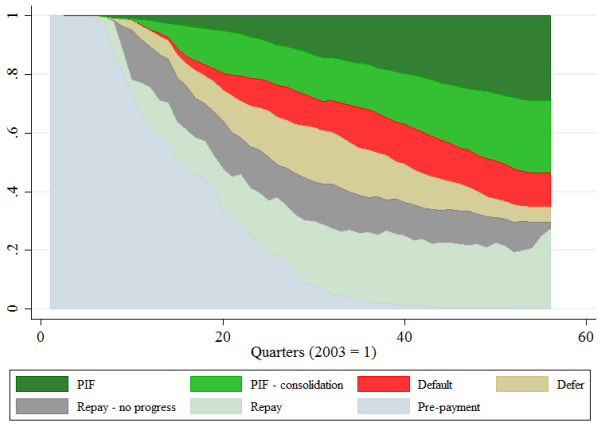
Figure 4.3 Chronograms of Repayment Statuses by Select Characteristics.

a. Race/Ethnicity

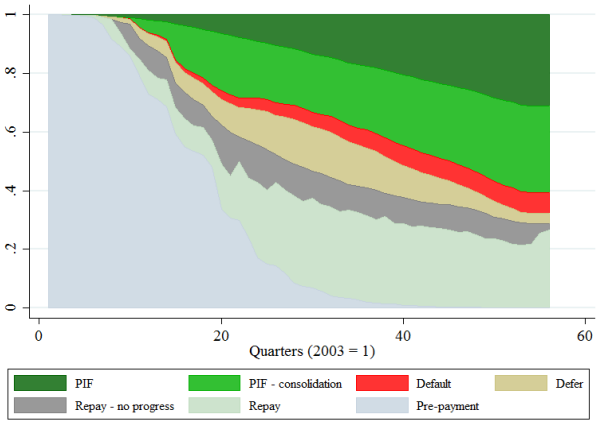
Black



Hispanic/Latinx

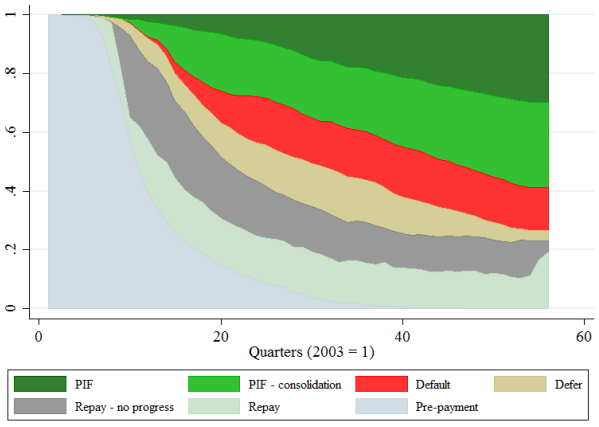


White

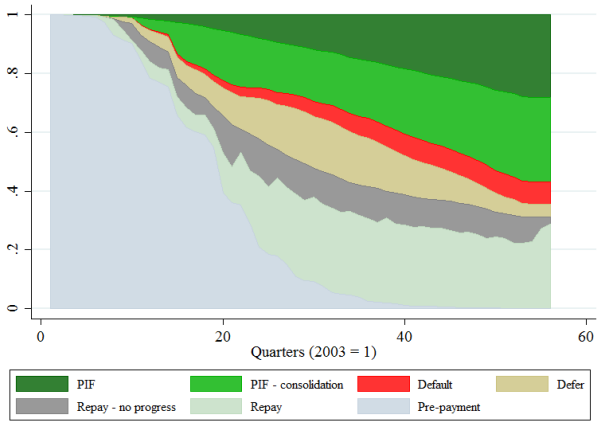


b. For-Profit Attendance

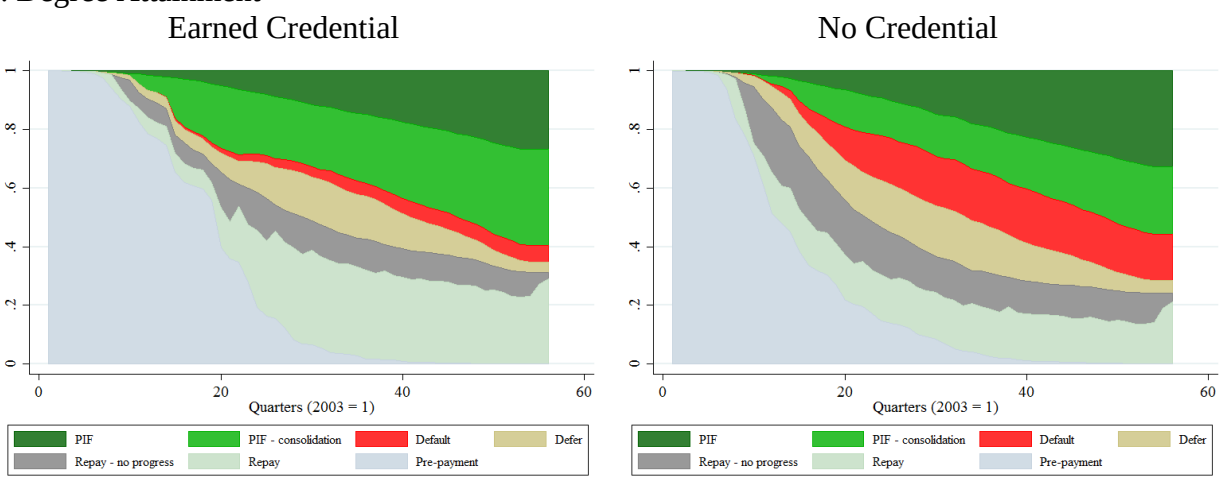
Attended For-Profit



Never Attended For-Profit



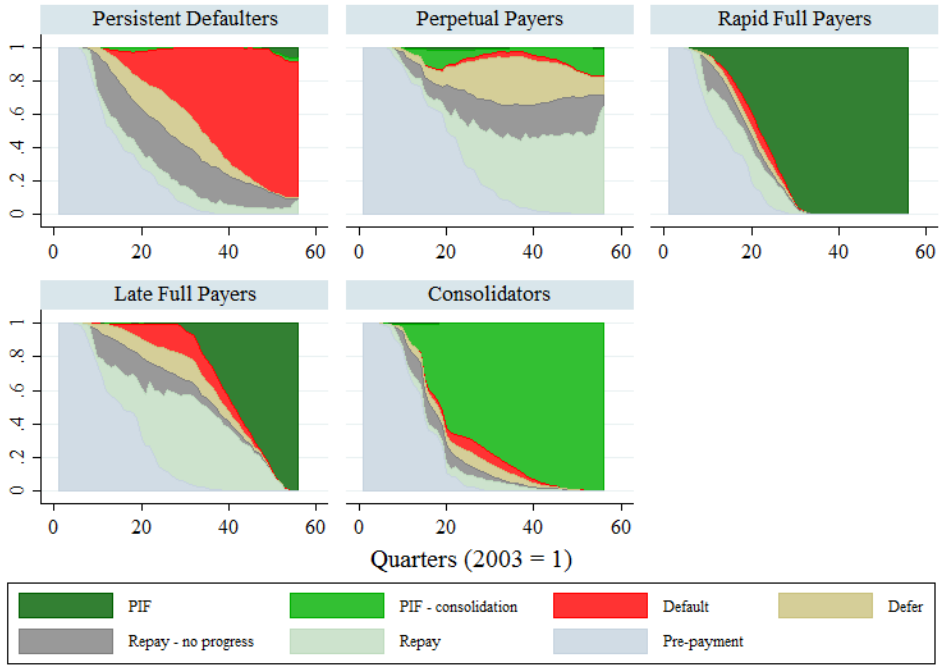
c. Degree Attainment



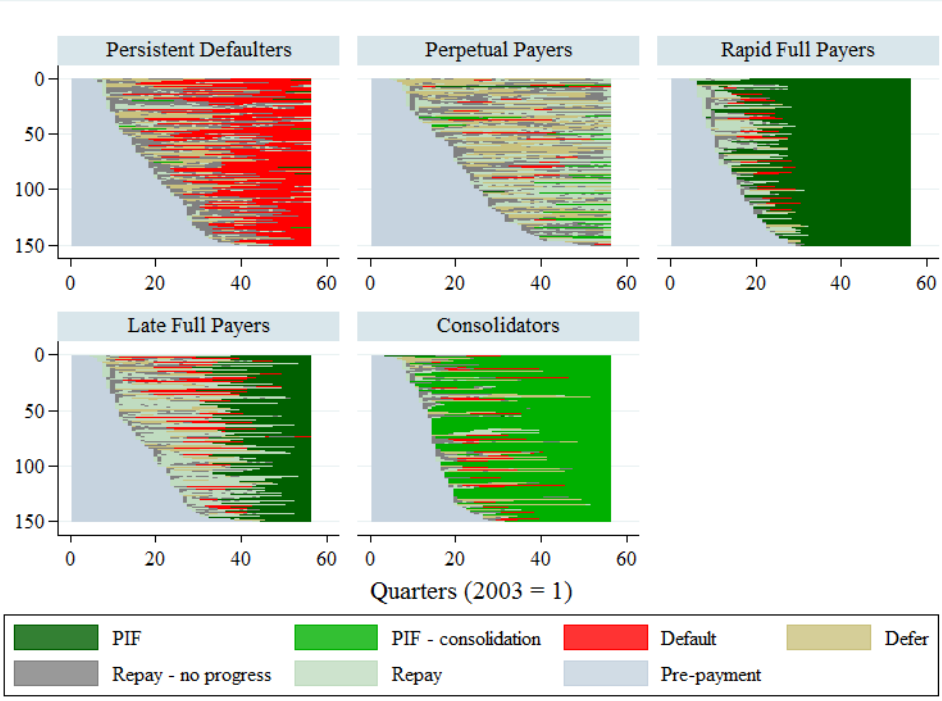
Notes: For-profit attendance reflects enrollment between 2004 and 2009. Degree attainment reflects any degrees earned as of 2009.
Source: Authors' calculations from BPS:04/09 survey.

Figure 4.4 Repayment Patterns of Five Clusters (n ~ 9,990).

a. Status distribution plot

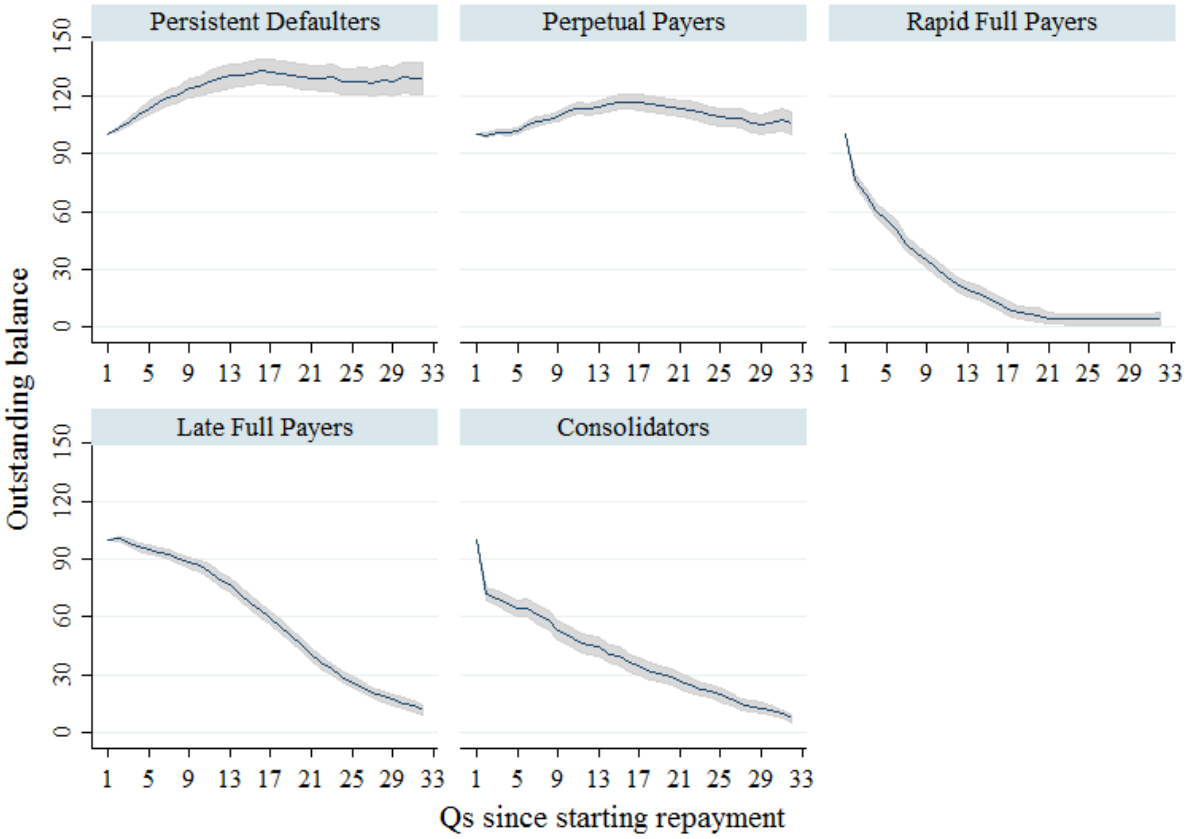


b. Index plot



Notes: Panel A shows share of borrowers in each status by quarter; Panel B shows individual histories.
Source: Authors' calculations from BPS:04/09 survey.

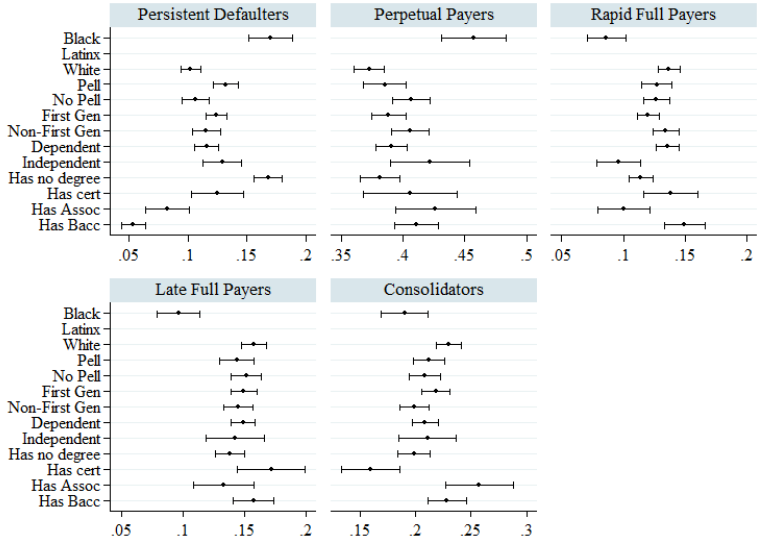
Figure 4.5 Quarterly Outstanding Loan Balances by Repayment Cluster.



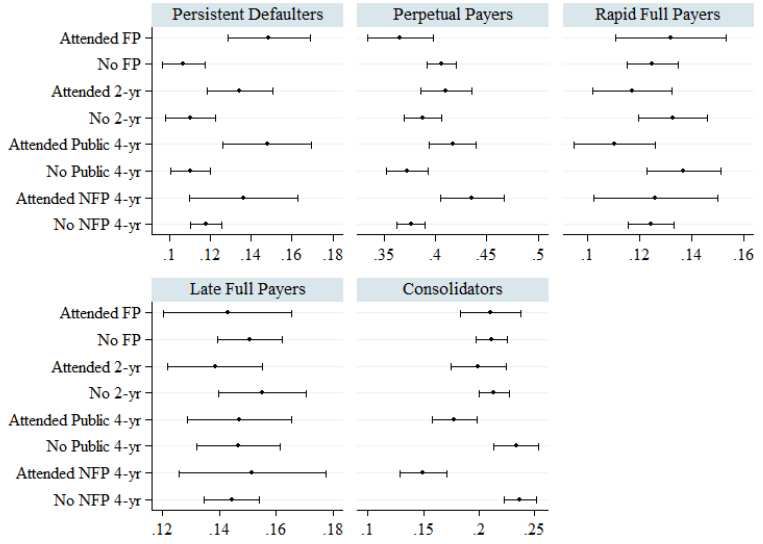
Notes: Balances are indexed to amount owed at first repayment (=100) and weighted by WTA000. Shaded area indicates 95% confidence interval for mean.
Source: Authors' calculations from BPS:04/09 survey.

Figure 4.6 Predicted Probability of Repayment Cluster by Select Individual and Institutional Characteristics.

a. Individual Characteristics

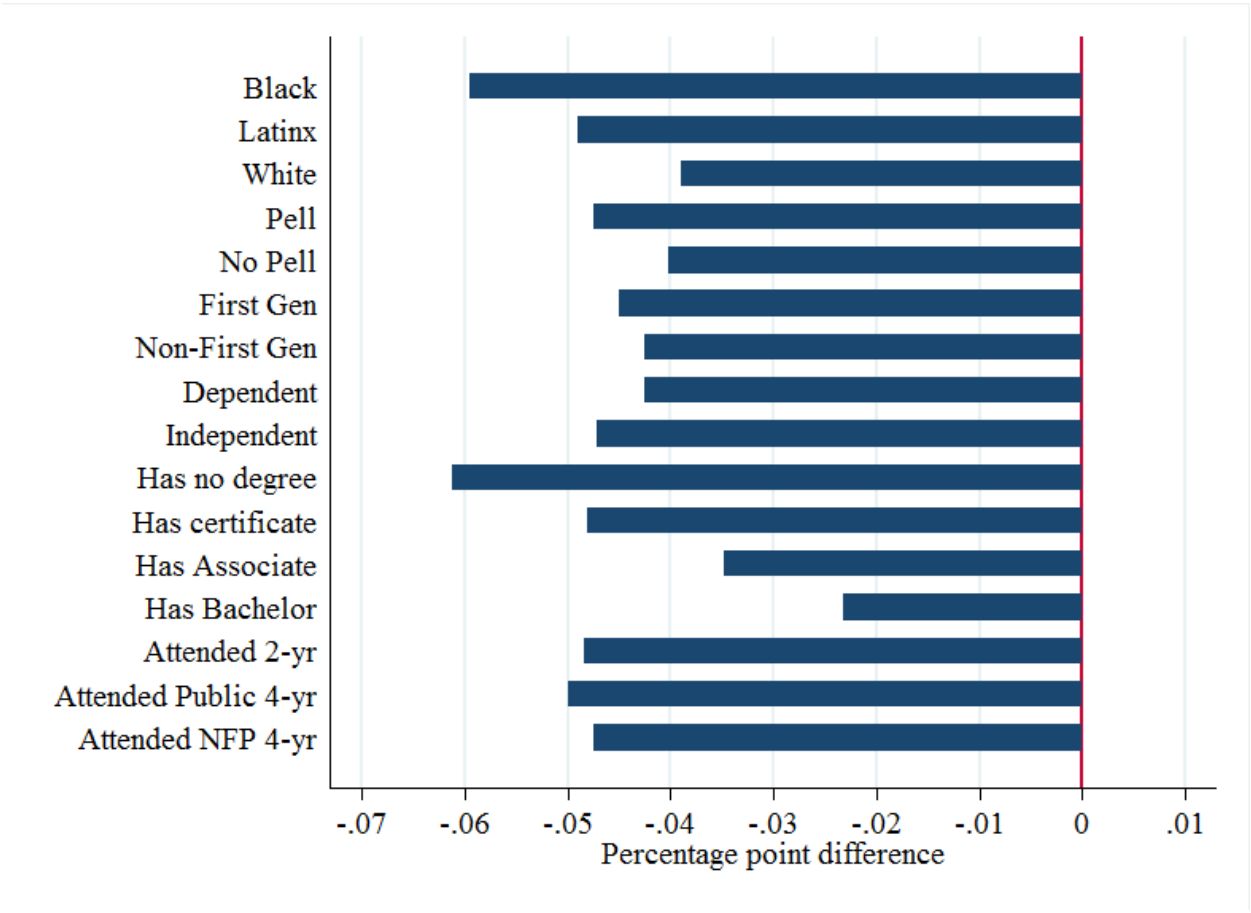


b. Institutions Attended



Notes: Predicted probabilities based on multinomial regression including race/ethnicity, gender, first-generation status, Pell recipient status, age, dependency status, adjusted gross income in 2004 (logged), indicators for attendance of 2-year, public 4-year, not-for-profit 4-year, and for-profit institutions; tuition charges in 2004 (logged), total amount borrowed (logged), indicator for use of private loans, number of institutions attended, full-time/part-time enrollment indicator, and indicators for highest degree earned. Regression weighted by WTA000. All other variables held at observed values. Lines indicate 95% confidence interval.
Source: Authors' calculations from BPS:04/09 survey.

Figure 4.7 Difference in Predicted Probability of Persistent Default when Excluding For-Profit Attendees.



Notes: Bars represent difference in predicted probability of *persistent default* for for-profit attendees vs. borrowers who never attended a for-profit institution. Predicted probabilities based on regression model described in Figure 4.6 and using WTA000 weight. All other variables held at observed values.
Source: Authors' calculations from BPS:04/09 survey.

Supplemental Materials

A. Authorship Statement

This paper is jointly authored by Fernando Furquim, KC Deane, Brian McCall, and Stephen DesJardins. Fernando Furquim and KC Deane were primarily responsible for the conceptualization of the research questions and research methods. KC Deane and Brian McCall undertook much of preparation of the student-loan-time panels used for analysis. Fernando Furquim was primarily responsible for conducting the final analysis for the two research questions and drafting of the paper, both in partnership with and building on earlier work with KC Deane. Stephen DesJardins secured access to the Beginning Postsecondary Education restricted dataset and supervised the research process. All authors contributed to editing and revising the paper.

B. Sample limitations

There are limitations to the borrowers and to the types of loans included in the analytical sample. The BPS:04/09 sample includes a total of ~ 12,040 borrowers. The analytical sample includes only borrowers whose loans originated during the survey observation period, which results in the exclusion of ~ 830 borrowers who took out loans exclusively before Fall 2003 or after 2009. The NSLDS data includes records for loans with a disbursed amount of zero that are also excluded, affecting ~ 290 borrowers. A final exclusion is the removal of ~ 120 borrowers who experienced certain rare events. Specifically, these are borrowers who were deceased during the observation period or whose loans were discharged through bankruptcy, because of disability, or due to school closure or a finding of fraud.

There are two exclusions based on loan type. The analytical sample focuses on federal loans that impose a repayment obligation on students (e.g., FFEL, Stafford, Perkins), which excludes ~ 720 borrowers with exclusively graduate and/or parent loans. Second, though the sample includes borrowers and underlying federal loans to the point of consolidation (approximately 35% of borrowers eventually consolidate their loans), it does not track the consolidated loans themselves. The NSLDS records for consolidated loans are inconsistent, providing an incomplete picture of what happens to those loans that prevent their accurate tracking over time and inclusion in the analysis.

C. Creation of holistic repayment histories

The process of constructing holistic repayment histories begins with deriving a dataset at the student-loan-month level that assigns a single status to each loan from the underlying transactional data reported by NSLDS. This is made possible by the dates associated with each loan transaction that are included in the NSLDS data. From those dates, each student-loan-month record is assigned to one of the statuses described in Table 4.2. This dataset is then collapsed across all loans held by an individual, resulting in a student-month dataset. Overall, 86% of borrowers in the analytic sample have more than one loan, with the mean number of loans per borrower equal to 4.2. For each month beginning with the initial point of entry into repayment, a borrower is assigned to the single status most representative of their current repayment across loans. We do so by imposing a logical hierarch of statuses that allows for a single status to trump all others across loans and which is reported in Table 4.2. Borrowers are classified as in default if at least one loan is in default (regardless of the status of other loans). At the other extreme, borrowers are classified as having paid in full only when all loans are fully repaid.

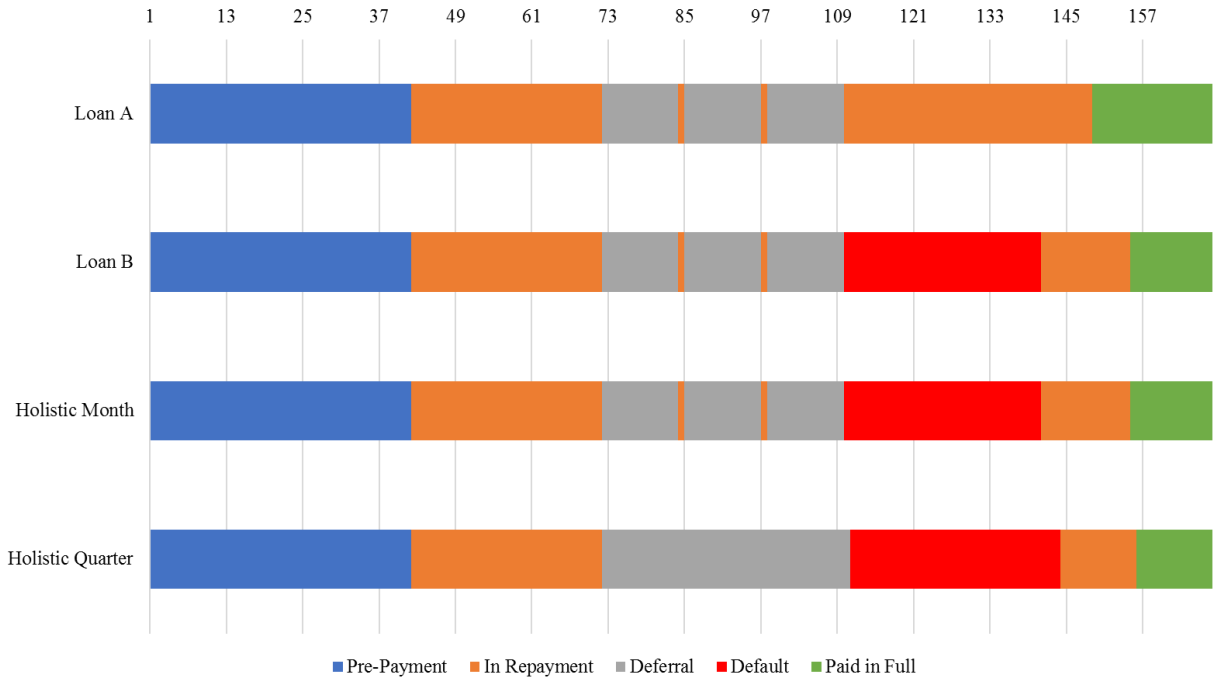
The final step in the categorization process involves deriving a student-quarter dataset from the monthly statuses. In any given quarter measured from the beginning of 2003, a borrower is assigned to the longest-lasting status within each quarter; in instances where multiple statuses tie in duration, the latest status within a quarter is selected. The only exception to this rule is that borrowers are coded as in default if they are in default in any month within a quarter, in recognition of the importance of this status to borrowers, policymakers, and researchers. Because borrowers do not all enter repayment at the same time, observations begin with a spell of "pre-payment," which reflects time spent in college enrollment and/or in the grace period after leaving college but before any loan payments are due. Fifty-two percent of borrowers are

observed for at least 40 quarters (10+ years); the average number of quarters under observation after the pre-repayment period is 39.6 (sd = 8.0).

Figure 4.8C chronicles the process of creating the holistic repayment history of a single hypothetical borrower. Borrower E took out two loans during the BPS study period, one for the 2004-05 academic year (Loan A) and one for the 2005-06 academic year (Loan B). All months in this period are recorded as "pre-payment." The borrower first began repaying both loans at the end of the 2005-06 academic year (the 43rd quarter in the history). In the ten years after this enrollment spell, both of the borrower's loans entered deferment multiple times. At the end of the borrower's last recorded deferment spell (the 111th quarter in the history), loan B entered a nearly three-year-long default that ended with rehabilitation and the return to repayment. Loan A remained in repayment for the duration of loan B's default (the spell of default) and was ultimately paid in full in June 2015 (quarter 150 in the history). Loan B transitioned from repayment to Paid in Full in December 2015 (quarter 156 in the history).

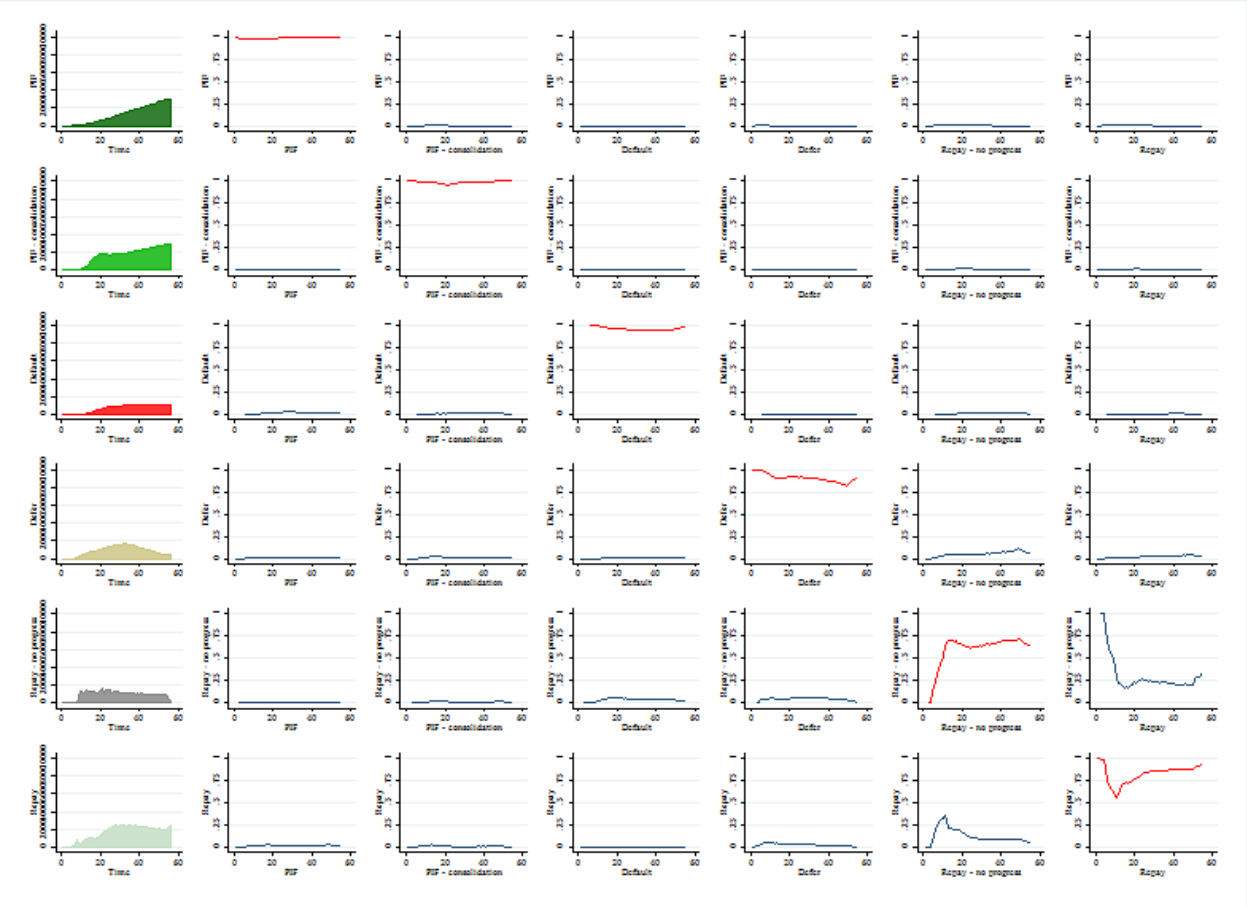
In the transition to a holistic history at the month level (labeled "Holistic Month" in Figure C1), two changes of note occur. First, the default spell for loan B takes precedence over the continued repayment of loan A during the same period. Second, loan A is paid in full six months before loan B, but the constructed history only reflects a status of paid in full when loan B reaches this milestone. The last step collapses months to quarters (labeled "Holistic Quarter" in Figure C1), eliminating spells that last only a single month (except for default, which take priority over other statuses within the quarter). Figure 4.9C summarizes all transitions of status in the student-quarter histories.

Figure 4.8C Repayment History Creation for Hypothetical Borrower.



Notes: Figure illustrates manipulation of NSLDS data for a single hypothetical borrower for moving from student-loan-transaction to student-quarter grain.
Source: Authors created hypothetical borrower based on BPS:04/09.

Figure 4.9C Transition Plot by Repayment Status for All Borrowers (n ~ 9,990).



Notes: Leftmost figures plot the number of borrowers in each status by quarter of repayment. Diagonal figures display the percent of borrowers in a status remaining in that status across quarters. Other figures plot transitions between statuses.
Source: Authors' calculations from BPS:04/09 survey.

d. Regression Results

Table 4.6D Multinomial Logistic Regression Results for Repayment Clusters (n ~ 8,010).

	Persistent Defaulter	Perpetual Payer	Late Full Payer	Consolidator
Female (ref. White)	0.682***	1.242*	1.074	1.152
	(0.069)	(0.108)	(0.098)	(0.107)
Race/ethnicity (ref. White)				
Black	3.312***	2.561***	1.080	1.634**
	(0.507)	(0.374)	(0.175)	(0.250)
Hispanic/Latino	1.965***	1.962***	1.393*	0.947
	(0.292)	(0.266)	(0.193)	(0.141)
Asian	0.251***	0.627*	0.598*	0.371***
	(0.093)	(0.127)	(0.129)	(0.089)
American Indian/Alaska Native	1.710	0.960	0.307	2.166
	(1.055)	(0.590)	(0.266)	(1.250)
Native Hawaiian/ Pacific Islander	0.233	0.981	1.013	0.036**
	(0.251)	(0.597)	(0.645)	(0.043)
Other	5.017**	5.614**	1.862	3.683*
	(3.074)	(3.223)	(1.179)	(2.184)
Multiracial	1.503	0.823	0.965	1.068
	(0.444)	(0.220)	(0.267)	(0.298)
First generation (ref not first gen)	1.234~	1.093	1.165	1.266*
	(0.136)	(0.102)	(0.115)	(0.126)
Pell recipient (ref. no Pell)	1.254~	0.933	0.944	1.012
	(0.169)	(0.111)	(0.119)	(0.127)
Age at first enrollment	1.011	0.990	0.983	1.015
	(0.012)	(0.011)	(0.012)	(0.012)
Is Dependent (ref. Independent)	0.565**	0.566**	0.699*	0.616**
	(0.102)	(0.098)	(0.126)	(0.111)
Adjusted gross income in 2004 (logged)	0.776***	0.997	0.959	0.853*
	(0.049)	(0.060)	(0.060)	(0.053)
Institutions ever attended (ref. did not attend specific type)				
For-Profit	1.331	0.794	0.938	0.855
	(0.240)	(0.130)	(0.159)	(0.153)
4-year Public	1.776**	1.535**	1.228	1.081
	(0.319)	(0.241)	(0.202)	(0.187)
4-year Not-for-Profit	1.149	1.180	1.008	0.646*
	(0.226)	(0.200)	(0.180)	(0.121)
2-year Public	1.503*	1.278	1.080	1.070
	(0.270)	(0.203)	(0.179)	(0.185)
Tuition and fees charged (logged)	0.912	0.847**	0.957	1.486***
	(0.058)	(0.048)	(0.057)	(0.095)
Total undergraduate loans (logged)	3.488***	6.880***	1.782***	5.013***
	(0.209)	(0.386)	(0.093)	(0.296)
Has private student loans (ref. does not)	1.162	1.067	0.915	1.484***

	(0.122)	(0.097)	(0.089)	(0.142)
Number of institutions attended through 2009	0.987	0.994	1.076	0.844
	(0.113)	(0.100)	(0.112)	(0.094)
Attended Full-Time in first year (ref. part-time)	0.941	1.097	0.920	0.993
	(0.131)	(0.135)	(0.116)	(0.134)
Highest degree earned by 2009 (ref. none)				
Certificate	0.551***	0.795	0.983	0.592***
	(0.087)	(0.121)	(0.145)	(0.093)
Associate's	0.583**	1.414*	1.129	1.636**
	(0.117)	(0.241)	(0.205)	(0.290)
Bachelor's	0.215***	0.754*	0.831	0.810
	(0.034)	(0.091)	(0.107)	(0.106)
Constant	0.000***	0.000***	0.028***	0.000***
	(0.000)	(0.000)	(0.025)	(0.000)

Notes: Coefficients reported as relative risk ratios. Reference category is *rapid full payers*. Regression weighted by WTA000. Robust standard errors reported in parenthesis. ~p<.1; *p<.05; **p<.01; ***p<.001.
Source: Authors' calculations from BPS:04/09 survey.

Table 4.7D Logistic Regression Model Results for Employment Influenced by Debt (n ~ 5,360).

	Odds Ratio (SE)
Female (ref. Male)	1.175**
	(0.070)
Race/ethnicity (ref. White)	
Black	1.371***
	(0.126)
Hispanic/Latino	1.219*
	(0.116)
Asian	1.279
	(0.211)
American Indian/Alaska Native	1.534
	(0.598)
Native Hawaiian/ Pacific Islander	2.126
	(1.003)
Other	1.330
	(0.353)
Multiracial	1.076
	(0.199)
First generation (ref not first gen)	1.068
	(0.067)
Pell recipient (ref. no Pell)	1.063
	(0.082)
Age at first enrollment	1.000
	(0.007)
Is Dependent (ref. Independent)	1.392**
	(0.163)
Adjusted gross income in 2004 (logged)	0.971
	(0.038)
Institutions ever attended (ref. did not attend type)	
For-Profit	1.053
	(0.118)
4-year Public	0.970
	(0.104)
4-year Not-for-Profit	1.058
	(0.119)
2-year Public	0.963
	(0.104)
Tuition and fees charged (logged)	1.076~
	(0.045)
Total undergraduate loans (logged)	1.374***
	(0.057)
Has private student loans (ref. does not)	1.560***
	(0.093)

Number of institutions attended through 2009	1.109
	(0.080)
Attended Full-Time in first year (ref. part-time)	0.959
	(0.085)
Highest degree earned by 2009 (ref. none)	
Certificate	0.766*
	(0.084)
Associate's	0.926
	(0.102)
Bachelor's	0.897
	(0.074)
Repayment cluster (ref. persistent defaulter)	
Perpetual payer	0.903
	(0.097)
Rapid full payer	0.631***
	(0.075)
Late full payer	0.767*
	(0.101)
Consolidator	0.822~
	(0.090)
Constant	0.017***
	(0.011)

Notes: Regression weighted by WTA000. Robust standard errors reported in parenthesis. ~p<.1; *p<.05; **p<.01; ***p<.001.
Source: Authors' calculations from BPS:04/09 survey.

Table 4.8D Logistic Regression Model Results for Education Worth the Cost (n ~ 8,010).

	Odds Ratio (SE)
Female (ref. Male)	1.121*
	(0.062)
Race/ethnicity (ref. White)	
Black	1.163~
	(0.096)
Hispanic/Latino	1.152
	(0.100)
Asian	1.065
	(0.160)
American Indian/Alaska Native	0.897
	(0.303)
Native Hawaiian/ Pacific Islander	0.772
	(0.317)
Other	1.058
	(0.253)
Multiracial	1.135
	(0.182)
First generation (ref not first gen)	0.960
	(0.056)
Pell recipient (ref. no Pell)	1.030
	(0.074)
Age at first enrollment	1.001
	(0.007)
Is Dependent (ref. Independent)	0.901
	(0.093)
Adjusted gross income in 2004 (logged)	1.050
	(0.037)
Institutions ever attended (ref. did not attend type)	
For-Profit	0.614***
	(0.060)
4-year Public	0.954
	(0.091)
4-year Not-for-Profit	0.814*
	(0.082)
2-year Public	1.058
	(0.105)
Tuition and fees charged (logged)	0.942
	(0.035)
Total undergraduate loans (logged)	1.026
	(0.035)
Has private student loans (ref. does not)	0.608***
	(0.033)

Number of institutions attended through 2009	1.283***
	(0.084)
Attended Full-Time in first year (ref. part-time)	0.935
	(0.076)
Highest degree earned by 2009 (ref. none)	
Certificate	1.562***
	(0.156)
Associate's	1.304**
	(0.124)
Bachelor's	2.264***
	(0.172)
Repayment cluster (ref. persistent defaulter)	
Perpetual payer	1.141
	(0.107)
Rapid full payer	1.163
	(0.134)
Late full payer	1.083
	(0.117)
Consolidator	0.951
	(0.095)
Constant	1.542
	(0.899)

Notes: Regression weighted by WTA000. Robust standard errors reported in parenthesis. ~p<.1; *p<.05; **p<.01; ***p<.001.
Source: Authors' calculations from BPS:04/09 survey.

Table 4.9D Multinomial Regression Results for Housing Status (n ~ 8,010).

	Neither own nor rent	Own
Female (ref. Male)	0.956	1.094
	(0.050)	(0.083)
Race/ethnicity (ref. White)		
Black	1.366***	0.377***
	(0.106)	(0.048)
Hispanic/Latino	1.065	0.653***
	(0.089)	(0.076)
Asian	1.944***	0.837
	(0.270)	(0.192)
American Indian/Alaska Native	0.860	0.784
	(0.314)	(0.333)
Native Hawaiian/ Pacific Islander	0.785	0.201*
	(0.350)	(0.151)
Other	1.157	0.525
	(0.248)	(0.222)
Multiracial	1.030	0.643~
	(0.155)	(0.150)
First generation (ref not first gen)	1.004	1.443***
	(0.055)	(0.115)
Pell recipient (ref. no Pell)	0.953	1.032
	(0.065)	(0.098)
Age at first enrollment	0.994	1.039***
	(0.010)	(0.007)
Is Dependent (ref. Independent)	2.402***	0.445***
	(0.298)	(0.057)
Adjusted gross income in 2004 (logged)	1.058	1.211***
	(0.039)	(0.059)
Institutions ever attended (ref. did not attend type)		
For-Profit	1.091	1.056
	(0.109)	(0.132)
4-year Public	0.966	1.019
	(0.085)	(0.122)
4-year Not-for-Profit	1.522***	1.311*
	(0.141)	(0.173)
2-year Public	1.086	1.146
	(0.099)	(0.143)
Tuition and fees charged (logged)	1.079*	0.910*
	(0.039)	(0.042)
Total undergraduate loans (logged)	0.943~	0.979
	(0.032)	(0.045)
Has private student loans (ref. does not)	1.089	0.918
	(0.058)	(0.070)

Number of institutions attended through 2009	0.877*	0.938
	(0.051)	(0.075)
Attended Full-Time in first year (ref. part-time)	1.143~	0.921
	(0.091)	(0.092)
Highest degree earned by 2009 (ref. none)		
Certificate	0.831~	1.122
	(0.092)	(0.134)
Associate's	1.064	1.414**
	(0.105)	(0.161)
Bachelor's	1.387***	0.765*
	(0.093)	(0.081)
Repayment cluster (ref. persistent defaulter)		
Perpetual payer	1.030	1.626***
	(0.096)	(0.218)
Rapid full payer	0.860	2.298***
	(0.095)	(0.333)
Late full payer	1.032	2.013***
	(0.121)	(0.333)
Consolidator	0.989	1.940***
	(0.098)	(0.269)
Constant	0.160**	0.046***
	(0.097)	(0.035)

Notes: Reference category is rental. Regression weighted by WTA000. Relative risk ratios reported. Robust standard errors reported in parenthesis. ~p<.1; *p<.05; **p<.01; ***p<.001.
Source: Authors' calculations from BPS:04/09 survey.

Table 4.10D Multinomial Regression Results for Credit Card Balance (n ~ 8,010).

	Has no credit card	Pays off balance monthly
Female (ref. Male)	0.749***	0.760***
	(0.044)	(0.045)
Race/ethnicity (ref. White)		
Black	2.028***	0.714**
	(0.162)	(0.077)
Hispanic/Latino	0.821*	0.726**
	(0.071)	(0.071)
Asian	0.690*	1.321~
	(0.127)	(0.190)
American Indian/Alaska Native	1.543	0.557
	(0.552)	(0.258)
Native Hawaiian/ Pacific Islander	1.159	0.102*
	(0.452)	(0.105)
Other	0.722	0.841
	(0.182)	(0.212)
Multiracial	1.116	0.642*
	(0.177)	(0.115)
First generation (ref not first gen)	0.936	0.808***
	(0.057)	(0.050)
Pell recipient (ref. no Pell)	1.091	0.896
	(0.079)	(0.072)
Age at first enrollment	0.991	0.983~
	(0.006)	(0.010)
Is Dependent (ref. Independent)	0.873	1.021
	(0.093)	(0.144)
Adjusted gross income in 2004 (logged)	0.926*	0.994
	(0.035)	(0.043)
Institutions ever attended (ref. did not attend type)		
For-Profit	1.191~	0.663**
	(0.118)	(0.083)
4-year Public	0.694***	0.940
	(0.065)	(0.097)
4-year Not-for-Profit	0.930	1.045
	(0.094)	(0.112)
2-year Public	0.865	0.948
	(0.083)	(0.102)
Tuition and fees charged (logged)	0.913*	1.101*
	(0.034)	(0.046)
Total undergraduate loans (logged)	0.943	0.955
	(0.034)	(0.038)
Has private student loans (ref. does not)	0.806***	0.688***
	(0.047)	(0.042)

Number of institutions attended through 2009	1.015	1.038
	(0.062)	(0.072)
Attended Full-Time in first year (ref. part-time)	1.209*	1.122
	(0.099)	(0.103)
Highest degree earned by 2009 (ref. none)		
Certificate	1.055	1.152
	(0.106)	(0.159)
Associate's	0.684***	1.295*
	(0.066)	(0.143)
Bachelor's	0.595***	1.802***
	(0.046)	(0.142)
Repayment cluster (ref. persistent defaulter)		
Perpetual payer	0.615***	1.361*
	(0.057)	(0.188)
Rapid full payer	0.807~	2.939***
	(0.091)	(0.442)
Late full payer	0.703**	2.020***
	(0.091)	(0.316)
Consolidator	0.614***	1.727***
	(0.061)	(0.245)
Constant	21.637***	0.523
	(12.992)	(0.372)

Notes: Reference category is borrower carries balance month to month. Regression weighted by WTA000. Relative risk ratios reported. Robust standard errors reported in parenthesis. ~p<.1; *p<.05; **p<.01; ***p<.001.
Source: Authors' calculations from BPS:04/09 survey.

Chapter 5 Conclusion

In lieu of a summary of findings, this brief chapter focuses instead on possible extensions of research into accreditation and student debt as well as the challenges researchers continue to face in advancing research in both areas.

Research into Accreditation

Chapters 2 and 3 are complementary studies of specialized accreditation in business and nursing. They make a small inroad on the broader topic of accountability for colleges and universities, which remains one of "the most advocated and least analyzed words in higher education" (Burke, 2005, p. 1). Across the numerous forms that accountability takes in higher education are three central relationships: who is held accountable, to whom, and for what (Ewell & Jones, 2006). Clark's (1983) governance triangle identified state authority, the market, and academic oligarchs as three loci of coordination in higher education systems. Burke (2005) mapped these concepts from governance to accountability as responding to three forces: state priorities that capture the needs and wants of the polity as mediated by political processes; academic concerns, or the interests of academic professionals like faculty and administrators; and market forces, which reflect demands of students, employers, and other clients of higher education. These embody, respectively, political, professional, and market accountability.

The accountability triangle is a useful taxonomy for understanding different accountability regimes along the three axes. Performance-based funding, for example, is a form of political accountability responsive to state priorities around workforce preparation and institutional efficiency. The numerous efforts mandating disclosure and improving access to

information about college-specific costs and outcomes (e.g., Steffel et al., 2020) intend to support market accountability by enabling students to make optimal enrollment choices. By centering peer review at its core, accreditation arguably represents the academic concerns of higher education professionals for the quality of the sector. As accreditors have become entwined with federal and state regulatory systems, however, and as accreditation validates institutions and credentials to the public, it has come to play important roles across all three forms of accountability. As the Spellings Commission made clear, its embeddedness has also made accreditation subject to criticism and external pressure. Among its recommended reforms are several proposals deeply antithetical to current accrediting practices, including direct comparisons among institutions of learning outcomes and student outcomes; greater flexibility that encourages innovation in the sector; specific benchmarks for institutional and programmatic performance benchmarked to national and international peers; and greater transparency of accreditation processes and outcomes to the public.

There is little research on the efficacy of accreditation as an accountability mechanism for quality improvement. A research agenda centered on accreditation is hard to conceive and challenging to execute. Quantitative researchers face at least two challenges. The first relates to the measurement of outcomes of import. Quality remains a vague and contested concept in higher education; quality improvement, what accreditors assert is their focus, seems even more challenging to measure. The (ideally exogenous) variation necessary for regression-based estimates of the relationship between accreditation and any meaningful outcome is also almost entirely absent. Virtually all institutions of higher education are accredited (Eaton, 2015) and accreditation status does not distinguish across institutions: from the perspective of, say, the Higher Learning Commission, the University of Michigan, Strayer University, and Minneapolis

Community and Technical College are indistinguishable. Qualitative researchers, on the other hand, are unlikely to gain much access to the working of accreditation processes given the potential risks to institutions involved.

The limited research in this area does not find much evidence in support of accreditation. Klasic and Hutt (2018) analyzed the characteristics of all institutions subject to the near universe of accreditor actions between 2011 and 2015. These actions ranged from termination to probation and warnings but left unscathed a very large share of colleges that perform poorly on available measures of institutional outcomes like graduation or cohort default rates. More importantly, there is no evidence that the infractions that do result in accreditor actions are themselves aligned to student outcomes. In other words, it is entirely unknown whether resolving accreditor sanctions improves colleges themselves or the outcomes that students experience. But there is some evidence that students do respond to accreditation actions. Burnett (2020) found that institutions experiencing sanctions saw a five to ten percent decrease in enrollment. Accreditors typically require that institutions disclose sanctions to current and prospective students, so it is unsurprising that enrollments would respond. Left unanswered, however, is whether this reduction in enrollment is net positive for students: do they stop out from college entirely or transfer? Will they graduate from another institution?

For a researcher, specialized accreditation overcomes some of these limitations. There is much greater variance in specialized accreditation within and across fields than for institutional accreditation, and these accreditors are typically more transparent in the standards they enforce. There are also field-specific outcomes like licensure attainment rates that can serve as proxies of programmatic quality. Beyond analytical convenience, specialized accreditors should be subject to research scrutiny because of their import and reach across the higher education sector.

Programmatic accreditation also lends itself to an arguably more meaningful unit of analysis as academic programs and the departments housing them "constitute the fundamental organizational unit of colleges and universities" (Tierney, 1980, p. 454). As Clark (1983) argued when setting disciplines as the core membership unit of academic systems, no one "can claim to know as much physics, and to know as much about its operation as a field, as the physicists. This is equally true in all the other fields" (p. 34). Academic programs and the professionals therein define the curriculum students experience, the standards that they must meet, and the hiring and promotion of the faculty teaching them (Lattuca & Stark, 2009). Outcomes like completion rates and labor market returns vary dramatically across programs (Carnevale, Cheah, & Hanson, 2015; Webber, 2014), even within institutions (Hastings, Neilson, & Zimmerman, 2013).

The obvious tradeoff is that studies of specialized accreditation likely need be field-specific, proliferating the research task at hand. Chapters 2 and 3 deal with business and nursing while leaving unaddressed dozens of other fields with hundreds of specialized accreditors. I see at least three venues for future research in this area. The first addresses scope: extend the type of analysis presented here to other fields. Little is known about the workings of specialized accreditation in fields like education even as several states now mandate this form of accreditation for teacher preparation programs and as numerous districts favor graduates from accredited programs in hiring (Kelchen, 2018). Engineering is another area ripe for research as specialized accreditation grants students quicker eligibility for licensure and certification (Yuen, 2012) and programs are highly responsive to accreditor mandates (Volkwein, Lattuca, Harper, & Domingo, 2007). A second area for future research is to study the numerous other important outcomes for programs and students that these two chapters neglect. An obvious omission is analysis of its impact on students: does specialized accreditation improve student outcomes like

completion, licensure attainment, and earnings? Finally, a third direction for future research concerns the generalizability of studies of accreditation. For example, Hagerty and Stark (1989) compared accreditation standards across professional fields and linked these standards to faculty beliefs about the professional competencies that graduates need. Stark et al. (1986) outlined a conceptual framework for understanding the similarities and differences of professional preparation programs. Building on these efforts can assist researchers in identifying alignments that make it possible to study multiple fields simultaneously and to articulate hypotheses on how accreditation may similarly or differentially impact programs.

Research into Student Debt

There is perhaps no more conspicuous failure of accountability in higher education than the student debt crisis. The scale of student debt is by now well-publicized: $1.7 trillion in outstanding debt held by more than 41 million individuals (Board of Governors of the Federal Reserve System, 2020). The scope of the crisis still occasionally surprises, however, as researchers find new ways to capture the extent to which many individuals struggle with student debt, especially minoritized borrowers (e.g., Addo et al., 2016; Houle and Addo, 2019), those who do not earn a degree (e.g., Gladieux & Perna, 2005; Perna et al., 2017), and students from for-profit institutions (e.g., Scott-Clayton, 2018). Chapter 4 represents an effort to paint a more complete picture of borrowers' experience of student loan repayment over the early life course. The analysis provides a comprehensive study for as long as 12 years for borrowers in their late 20s to mid-30s. But even as the chapter expands our longitudinal understanding of loan repayment, it is important to acknowledge that student loans in fact affect borrowers well beyond the observation window of that study. Currently, people over the age of 50 hold one of every five

dollars of student debt, have the fastest-growing balances among all borrowers, and experience rates of default as high as 30% (Trawinski et al., 2019).

Several open questions remain for more research on student loans, from student loan take-up and loan aversion to repayment. I argue that given findings from Chapter 4 and from recent research with long-term perspectives on student debt, future research should situate student debt in individuals' life course. Kasworm (2008) noted that higher education scholars treated college-going for too long as a pipeline when it is more aptly described as an airport, with multiple entry and exit points, arrival and departure times, and final destinations (e.g., Monaghan, 2020). The experience of at least a plurality of college students mirrors this metaphor as their swirling attendance patterns constitute a "new educational trajectory, one full of transitions" (Goldrick-Rab, 2006, p. 69). Student loan take-up and repayment occur on similarly interrupted spells that interact with and affect other aspects of the life course like employment and family formation. How those interactions occur and how they shape numerous outcomes of interest make for a wealth of research opportunities (mediated, of course, by data availability). In one sense, however, there is ample documentation of the extent of student debt, its disparities, and the challenges that borrowers face in meeting these obligations. The main shortcoming of the analysis in Chapter 4 is that it does not yield particularly useful prescriptions for improving the student loan system or the fate of borrowers made precarious by their student debt. For example, Seamster and Charron-Chénier (2017) aligned a set of findings (rising racial inequality in educational debt) to a mechanism (predatory inclusion) to policy prescriptions (accountability for institutions, debt jubilee for borrowers). I hope to find opportunities to build my professional and academic work in this direction in connecting fundamental questions about who and for what higher education is accountable.

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