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Student Loan Default: Do Characteristics of Four-Year Institutions Contribute to the Puzzle?

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Student Loan Default: Do Characteristics of Four-Year Institutions Contribute to the Puzzle?

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College student debt and loan default are growing concerns in the United States. For each U.S. institution, the federal government is now reporting a cohort default rate, which is the percent of students who defaulted on their loan, averaged over a three-year period. Previous studies have amply shown that student characteristics are strongly associated with educational debt and one's ability to repay student loans; however, few studies have deeply examined the relationship between institutional characteristics and student loan default. This study examined characteristics of 1,399 four-year not-for-profit U.S. institutions and found significant differences in the 2010 federal student loan default rate by some important institutional variables, including admissions yield, geographic region, percent of minority students, institution control (private versus public), endowment, and expenditures for student services. Findings related to institutional characteristics can illuminate our understanding of the student loan default puzzle, and have implications for student success, academic policy, and resource allocation decisions.

Key Words: *Student loan default, cohort default rates, characteristics of student loan default*

In fiscal year 2013, students borrowed nearly $106 billion through federal loan programs. The aggregate student loan debt reached $1.2 trillion, of which $1 trillion can be attributed to federal student loans (Consumer Financial Protection Bureau, 2013). For federal student loans, the three-year federal student loan Cohort Default Rate (CDR) for fiscal year 2010 was 14.7 percent nationally, which represented 600,000 of the more than four million borrowers (U.S. Department of Education, 2012). As outlined in federal regulations, the consequences of student loan default for individual borrowers include, but are not limited to, garnishment of wages and Social Security benefit payments, ineligibility for additional federal financial aid and associated deferments, denial of subsidized interest benefits, irreparable damage to credit history, and possible prohibition of Armed Forces enlistment (FinAid, 2012).

However, there are broader and perhaps more significant long-term consequences of aggregate student loan default for students who are faced

with long repayment periods, as well as for institutions of higher education, given the potential loss of Title IV student financial assistance program eligibility. While numerous studies address how individual characteristics influence borrower behavior, there has been very little systematic inquiry exploring how postsecondary institutions (specifically not-for-profit, four-year institutions) influence student loan default. In this study, we seek to examine not-for-profit, four-year institutions because student loan default and its consequences affect this sector, which serves a large portion of students seeking baccalaureate degrees. Constraints or freedoms that may come from an institution's affiliation with private versus public constituents (and subsequent funding sources), geographic region, and overall fiscal robustness likely affect decisions made by institutional officials. Some of these decisions affect allocations for student financial aid and other support services related to student aid. An exploration of institutional characteristics is also relevant for financial aid practitioners who can facilitate financial literacy to position borrowers for success in meeting their student loan repayment obligations.

Section 435(a)(2) of the Higher Education Act of 1965 requires the revocation of institutional eligibility to participate in the William D. Ford Federal Direct Loans (Direct Loans) and Federal Pell Grant programs for any institution whose CDR exceeds 30% for each of the three most recently completed federal fiscal years. With the national three-year cohort default rate at nearly 15%, institutions with a one-year default rate of 40% receive automatic sanctions. Darolia (2013) found that sanctioning and potential revocation of institutional eligibility to disburse federal financial aid have consequences for enrollment and student body composition, suggesting a tie between an institution's ability to allocate resources to financial aid and to provide access to postsecondary education.

Along with a review of the recent literature on default (Gross, Cecik, Hossler, & Hillman, 2009), we find that most studies on student loan default group predictors fall into four broad themes. One strand of literature focuses on the influence of borrower characteristics and background, including race, ethnicity, gender, and/or age (Dillon, 2007; Harrast, 2004; Herr & Burt, 2005; Podgursky, Ehlert, Monroe, & Watson, 2002). A second strand examines the effect of socioeconomic status, including parental educational attainment, dual- versus single-parent households, parental income, and/or familial status. A third strand examines academic factors such as preparation (SAT and ACT scores, high school GPA), college success (GPA, time to degree completion, continuous enrollment, failure of credits) and/or undergraduate and graduate attainment (Flint, 1997; Gladieux & Perna, 2005; Ionescu, 2009; Knapp & Seaks, 1992; Volkwein & Szelest, 1995). A fourth strand, more limited in scope than the first three, focuses on the relationship between default and institution type, including factors such as student enrollment size, public versus private, proprietary versus not-for-profit, selectivity, geographic region (Looney, 2011), and highest degree offered (Christman, 2000; Cunningham & Kienzl, 2011; Field & Brainard, 2010; Hillman, 2014; Nguyen, 2012; U.S. Department of Education, 2012).

While there is extensive literature on borrower characteristics (e.g., background characteristics, college achievements, and post-college success), few studies have examined institution-specific factors associated with default. Wilms, Moore and Bolus (1987) and Woo (2002) found some improvement when adding institution type to their models that included individual characteristics. In addition, Hillman (2014) found default rates much higher at two-year institutions compared to four-year, and suggested "institutions play a non-trivial role in preventing and managing student loan default risks" (p. 178). Hillman (2014) further suggested that default is a shared responsibility between students and institutions, and that student and institutional characteristics should be considered in addressing default strategies and federal policy.

In general, however, we know little about the relationship between institutional characteristics and student decisions about financial aid. This gap in the literature is problematic, given the persistent rise in the default rate on federal student loans, and thus merits further study. Escalating student loan debt levels and the significant costs associated with default and recovery have major implications for the risk level of the federal student loan portfolio (Kesterman, 2006), thus we need to better understand the relationship between institutional (and other) characteristics and both student indebtedness and student loan default. Knowledge of such relationships would be instrumental in informing policymakers in establishing federal financial aid policy, as well as assisting lenders and the U.S. Department of Education in efforts to develop effective default aversion strategies. As noted by Gross et al. (2009), use of such research in policymaking is critical, given prior empirical research suggesting that default rates should not be used to assess institutional quality of effectiveness, the quality of a given loan type, or what type of student is likely to default. Their findings suggest that attention should be given to the relationship between federal financial aid policy and default as it impacts both institutions and students. Further, such knowledge would be critical in informing not-for-profit institutions eligible for federal student aid programs in their efforts to develop or refine student retention programs that can expedite degree attainment and employment through career placement services. Finally, such knowledge would help institutions and practitioners manage their federal student loan exit counseling process (e.g., providing guidance to borrowers regarding their responsibilities, repayment options, and consequences of default) such that their three-year CDR does not exceed maximums, thereby jeopardizing that eligibility.

The purpose of this study is to examine factors that contributed to FY2010 three-year federal student loan CDRs among public and private, primarily baccalaureate, not-for-profit institutions, with a particular focus on institutional characteristics. We have not focused on for-profit institutions, as the characteristics of such institutions (e.g., mission, structure, demographic served, etc.) may be fundamentally different from those of non-profits.

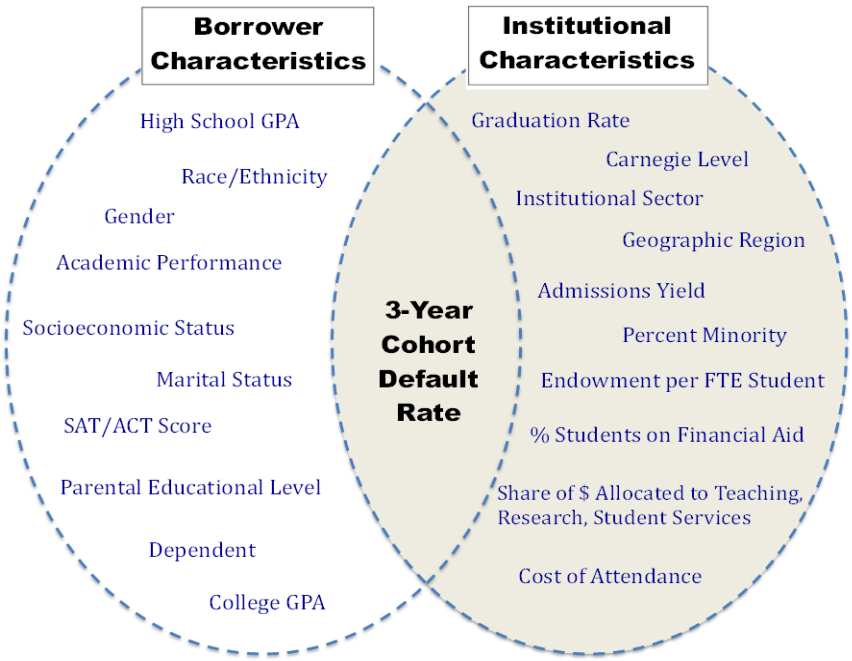
Declines in state appropriations and other external funds have greatly challenged officials at nonprofit institutions to carry out their institution's mission on fewer funds overall. In the mid to late 2000s, many baccalaure-

ate institutions experienced increased demand for student financial aid, drastically smaller gains from endowment funds, and a subsequent shift to greater reliance on tuition and fees (Desrochers & Hurlbert, 2014). Thus, this study also examines institution-level characteristics that may serve as predictors of the three-year federal student loan CDR. These variables include: institution selectivity, type (private, public), institution funds allocated for financial aid, graduation rate, endowment per full time equivalent student (FTE), and the expenditure of funds on instruction, student services, and research. The overarching research question is this: To what extent do institutional characteristics at four-year, not-for-profit institutions contribute to our understanding of variation in CDR?

Literature Review

Over the past decade, average student loan debt has steadily increased, as has the number of borrowers who default on their federal student loans. With the average undergraduate borrower owing more than $25,000, 71% of the class of 2012 graduated with student loan debt (The Institute for College Access and Success, 2013). This represented a 6% increase in overall student indebtedness between 2008 and 2012. Of the more than four million borrowers who entered repayment between October 2010 and September 2011, 475,000 (10%) defaulted on their federal student loans before September 2012 (U.S. Department of Education, 2013). One factor alone cannot fully explain borrower default. Ample literature has examined borrower characteristics, borrower academic performance, and willingness and ability to pay, and many of those studies are briefly summarized below. However, substantially less attention has been given to if or how institutional characteristics may contribute to this puzzle, thus we focus our attention on this area, acknowledging the importance of individual borrower and institutional characteristics, as shown in Figure 1.

Figure 1. Factors Associated with Student Loan Default



Borrower Characteristics

A number of studies link default with characteristics related to the individual student, including demographics, background characteristics, and education level of parents. The available research suggests differences in default rates by gender, age, race/ethnicity, socioeconomic status, marital status, and whether they have dependents. We point to an excellent review by Gross et al. (2009) as well as other literature by Dynarski (1994), Flint (1997), Herr (2005), Herr and Burt (2005), Knapp and Seaks (1992), and Podgursky et al. (2002).

Borrower Academic Performance

Previous studies that have focused on borrower academic performance suggest its impact on default. High pre-college and college GPAs, SAT scores, and ACT scores, as well as enrollment in hard science or business courses, continuous enrollment and persistence in college, college completion, and graduate school completion were significantly associated with lower default rates (Flint, 1997; Gladieux & Perna, 2005; Herr & Burt, 2005; Ionescu, 2009; Knapp & Seaks, 1992; Podgursky et al., 2002; Volkwein & Szelest, 1995). Borrowers who dropped out of their degree programs had significantly greater tendencies toward default (Cunningham, 2011; Ionescu, 2009; Nguyen, 2012), and Flint (1997) found that incongruence between undergraduate major and current employment increased odds of default.

Institutional Type and Expenditures

Available studies that focus on default rate as a function of institutional type are limited and yield mixed results. Unlike Hillman (2014) and Deming, Goldin and Katz (2012), Knapp and Seaks (1992) found no significant effect when examining default rates for four-year versus two-year colleges and universities. Consistent with Volkwein & Sezlest (1995) and Knapp and Seaks 1992, Flint (1997) and Monteverde (2000) found that institutional sector, selectivity, and enrollment did not contribute to the prediction of default. An important caveat is that many of the aforementioned studies did not address or control for institutional characteristics. Monteverde (2000), for example, argued that the tendency toward default is a preexisting factor. Further, Knapp argued that institutions are irrelevant vis-à-vis default.

In addition to type of institution, expenditure allocations can also affect student success and default. Looking at the influence of institutional finance on persistence, Titus (2006) found that an institution's total expenditures positively influence student persistence. Relatedly, Powell, Gilleland, and Pearson (2012) found that expenditures on instruction, academic support, and student services at four-year institutions contributed to several measures of efficiency, including graduation and persistence rates. Also examining expenditures, Webber and Ehrenberg (2010) found that allocations to student service expenditures positively contribute to graduation and retention rates. Their findings suggest that reallocating some funds from instruction to student services expenditures would have a

stronger effect at institutions with more students who receive Federal Pell Grants or who matriculate with lower admissions scores.

Along with literature on type of institution and resource allocations, studies conducted by Cunningham (2011) Field (2010), Nguyen (2012), and Podgursky (2002) suggest that borrowers who attended less-than-four-year or proprietary institutions accounted for a disproportionate percentage of all borrowers who defaulted on their student loans. Discussed in propositions of the "iron triangle" (e.g., Immewhar, Johnson, & Gasbarra, 2008), institutions that enroll students with lower academic preparation and/or high financial need may need to allocate greater resources for support services such as tutoring, academic advising, and institutionally-funded financial aid. As recent as 2012, the U.S. Department of Education reported that the three-year cohort default rate for proprietary institutions was 22.7%, with public and private non-profit institutions at significantly lower default rates of 11% and 7.5%, respectively (U.S. Department of Education, 2012). Most recently, Hillman (2014) found institution sector to have a significant association with default. While pointing out that the relationship between debt and default is not linear, Hillman found that students in two-year and proprietary institutions have significantly greater odds of defaulting on educational loans than those in public four-year institutions. Even after controlling for student demographic, socioeconomic, and academic characteristics, Hillman found that the odds of default differed significantly by sector. Default rates differ within four-year institutions as well. Furthermore, Hillman's finding of the nonlinear relationship between debt and default (a stronger relationship between default and debt at both low and high debt levels, but a weaker relationship in the middle) prompts us to explore differences within the four-year sector to more precisely determine what institutional factors (e.g., control, Carnegie classification, selectivity, endowment per FTE, geographic region) contribute to differences in CDRs among four-year institutions.

Institutional Commitment to Increasing Financial Literacy

Some studies that focused on individual characteristics indicate that young adults, minorities, low-income populations, and those without a college degree are most at risk for not developing financial literacy (Chen & Volpe 1998; Johnson & Sherraden 2007; Lusardi, Mitchell, & Curto 2010; Mandell 2007). Further, Looney (2011) found that institutional financial literacy programs and initiatives (perhaps in conjunction with or as part of retention strategies) may influence student loan default, especially at minority-serving institutions. In addition, they found that the extent to which postsecondary institutions invest and encourage participation in programs to deter default (i.e., entrance and exit counseling, curriculum-based initiatives, orientation, programs) has a direct impact on repayment behavior. This finding aligns well with Volkwein and Szelest (1995), who concluded that greater institutional investment and instructional support contributes to decreased student loan default. It also aligns with studies (Seifert & Worden, 2004; Steiner & Teszler, 2005) that examined the effects of institutional financial literacy programs on student loan default. Although an early study by Flint (1997) found loan counseling to be inconsequential, more evidence suggests that institutions play an important role in

default management and have an obligation to implement default management systems that may have implications on students' loan portfolios and completion rates, both of which influence repayment (Burdman, 2012; Dillon & Smiles, 2010; Dowd, 2008). Such systems have proven successful in lowering the student loan default rate, even among a consortium of 12 Texas-based Historically Black Colleges and Universities (HBCUs) that traditionally enroll a high proportion of low-income, first-generation, minority students (Burdman, 2012).

Institutional Geographic Region

The nature of the labor market in the United States can be assumed to create differences in general economic conditions and unemployment by region of the country. Interestingly, Dai (2013) reported a correlation between student loan default and the health of the labor market, and Looney (2011) found that institutions located in states with high levels of unemployment and burgeoning growth in minority populations have higher student loan default rates. Further, McMillon (2004) found that a mismatch between institutional degree programs that support the local employment market and job offerings in that market had a direct correlation to higher student loan default. Thus, an institution's degree offerings matter, especially for institutions situated in a region experiencing higher than average economic downturn (e.g., Southern, Western, and Southwestern regions).

Taken together, the studies discussed above show a clear need to consider the contribution of institutional characteristics to student loan default. Indeed, student demographic characteristics are very important to understanding this issue, but the gathering evidence prompts us to further explore broader characteristics to help understand the default puzzle.

Theoretical Framework

This study is guided by tenets of organizational theory that examine principles of institutional management and resource allocation decisions. Research over the past three decades provides multiple perspectives on organization behavior (e.g., Argyris, 1973, Baum & Singh, 1994; Pfeffer, 1982; Scott, 1987). Pfeffer (1982) explains that the rational goal-directed perspective views actions within the organization as purposive, bounded, and prospectively goal-oriented. When behaving rationally, organization leaders act with intention to achieve goals that include efficiency and/or high performance. Contrasted to bounded rationality, the external constraint perspective emphasizes the impact of external stimuli or effects. Action is seen not as the result of conscious choice but rather as the result of external demands and/or constraints. Here, administrator behaviors have less to do with preferences, but reflect the constraints of the external elements (Pfeffer, 1982). In addition, Pfeffer stresses the sequential, unfolding nature of activities in organizations. In this explanation of organizational behavior, people, problems, and solutions come together with results determined by the process and constraints on that process (Pfeffer, 1982). Because organizational realities are socially constructed, change is inevitable and preferences may change and shift over time.

When considering issues related to student default, it is possible to see how facets of each perspective could be at play. In this article, we take the perspective that while individual characteristics of students play an important role in explaining federal student loan default, so do characteristics of the institution. It is reasonable to assume that college administrators who desire to attract the best and brightest students act rationally and purposively. College administrators acknowledge that institutional success rests on student success, and to ensure student success they allocate resources to related programs and services. Thus, resources are allocated rationally to enhance organizational effectiveness and goal attainment.

Particularly in light of current economic conditions that affect U.S. colleges and universities today, it is also reasonable to understand organizational decisions as motivated by external control and situational constraints (Etzioni, 1975). Because institutions are also constrained by external demands and contributions to the organization (Pfeffer & Salancik, 2003), resource allocation decisions are influenced, in part, by external stakeholders. For example, governmental regulations can be considered a form of coercive power, which, in turn, impose conformity on affected leaders within the organization. This can regulate norms and the culture (Scott, 2008).

In light of the multiple roles that institutions play and the subsequent complexities that contribute to the management of postsecondary institutions, we acknowledge that external forces affect internal organization decisions, yet agree that internal forces also play a role. DiMaggio and Powell (1983) believe that bureaucratization and other forms of organizational change result in organizational similarity. In the pursuit to attract new students, colleges and universities may market themselves as unique in some way; however, there may be forces at play that encourage them to look more similar than different. Challenges abound for today's higher education institutions; strategic plans may seek to broaden student access, yet decreased external funds (including state appropriations and gains from endowment investments) require institution officials to thoughtfully allocate resources that will yield new enrollees who are poised for success.

According to Toutkoushian (2001), college and university officials apply business models to academic institutions; they use inputs (e.g., faculty, staff, and buildings) to provide services to customers (e.g., students). Financial revenues that accrue from students as payment for services allow institution officials to provide better inputs. In that vein, students' level of financial need and academic preparation will have a substantial impact on resource allocations, particularly financial aid, academic tutoring, and remedial course offerings.

Rising educational prices are due to both rising costs of education and falling subsidies from government and private sources (Toutkoushian, 2001). Some scholars argue that, due to its overarching mission of educating its citizenry, the higher education sector does not and should not follow a strict financial model based solely on profit maximization (Bowen, 1980). Charges to students rarely cover all costs incurred by the institution, thus it must rely on subsidies to fully fund the organization's operations

(Winston, Carbone, & Lewis, 1998). Even though private institutions invest more institutional funds (on a per-student basis) than publics, private institutions receive higher revenues per student in endowment income, tuition and fees, and private gifts, grants, and contracts (Toutkoushian, 2001).

Further, Bowen (1980) argues that institutions spend all resources available in the never-ending quest for greater prestige. This revenue theory of costs can be seen in resource allocations and may reflect student interest in the institution. The quest for greater prestige creates additional challenges for institutions that simultaneously seek to diversify the student population and increase success indicators such as graduation rates. Overall, institutional leaders must make decisions on resource allocations that balance the institution's internal and external needs, while being cognizant of the institution's mission. Decisions must also reflect internal programs and procedures that ensure student success. This balance is likely reflected in the institution's ability to attract students, which is manifested in characteristics of the institution, including the percentage of students who request financial aid, who need academic support services, and who plan to continue their education beyond the baccalaureate degree.

A key question left unanswered by the existing literature on student loan default is what institutional factors contribute to three-year federal student loan CDRs for four-year institutions in the United States? Based on and informed by prior research on why students default on their loans, our specific research question was:

Do institutional characteristics at not-for-profit four-year colleges and universities contribute to our understanding of the three-year cohort default rate? Specifically, we ask the following questions:

a. Does the contribution of institutional characteristics to CDR vary for private versus public institutions, by Carnegie classification, by racial composition of the student body, or by geographic region?

b. What is the relationship between CDR and institutional reliance on tuition, institutional expenditures, and financial aid?

Description of the Data

The federal student loan default rate for this study was derived from a source file generated by the data center of the U.S. Department of Education's Office of Federal Student Aid, which provides public access to the CDR Database containing FY2010 official three-year CDRs for schools participating in the Title IV student financial assistance program. The three-year federal student loan CDR was calculated as the percentage of an institution's borrowers participating in the William D. Ford Federal Direct Loans Program (Direct Loans) or Federal Family Education Loan Program (FFEL) who enter repayment during a federal fiscal year (October 1 – September 30), and who are in default. Note that there is a six-month grace period after graduation or the last semester of enrollment before the start of repayment.

The scope of this study was limited to those institutions with default rates for baccalaureate degree seekers. Further, because institutions with fewer than 30 borrowers are exempt from sanctions, only those institutions with more than 30 borrowers were included. This study assumes a 150% graduation rate for baccalaureate degree seekers (i.e., degree attainment six years post matriculation). Assuming a majority of students in the 2010 default rate cohort would have matriculated approximately six years earlier, the three-year average default rate data were matched against 2003-04 institutional characteristics data in the Integrated Postsecondary Education Data System (IPEDS) and Delta Cost Project variables[1]. Specialty institutions (e.g., law, medicine, and engineering) were excluded. The resulting matched file included 1,399 public and private not-for-profit four-year colleges and universities. As shown in Table 1, nearly 38% of the sample were bachelor's level institutions and 37% of the sample were public not-for-profit institutions. The institutions in this sample were reasonably distributed across four major geographic regions; 29 institutions located in islands or outer U.S. territories were included in descriptive statistics, but were not included in subsequent regression analyses.

To examine the contribution of institution characteristics to default, we examined the contribution of broad institutional descriptors including Carnegie classification level, private versus public sector, admissions yield (the institution's percent of students admitted who actually enroll), geographic region, and the institution's percent of student enrolled who are of minority race/ethnicity. These variables were extracted from IPEDS.

Table 1. Summary Statistics of the Sample

	N	Percent*
Carnegie Level		
Research and Doctoral	249	17.8
Master's	543	38.8
Bachelor's	872	37.7
Control		
Public	520	37.2
Private – Religiously Affiliated	317	22.7
Private – Non-religiously Affiliated	562	40.2
Geographic Region		
Northeast and Mid-Atlantic	386	27.6
Midwest	365	26.1
Southeast	350	25.0
Southwest & West	269	19.2
Islands, Outer territories	29	2.1 **

* Due to rounding, percentages may not equal 100

** Not included in regression analyses shown in Table 4

We selected FY04 data for consistency with the entering year of first-year, first-time baccalaureate students who comprise the cohort for the 2010 CDR based on a 150% graduation rate (i.e., graduation within six years of matriculation).

Consistent with the tenets of resource dependency (Pfeffer & Salancik, 2003), we included additional independent variables that may provide insight into institutional decisions on resource constraints and allocations. Obtained from the Delta Cost Study data file, these variables included: the gross margin between the institution's revenues and expenditures (logged); endowment per FTE student at beginning of FY 2004; the percent of students receiving any form of financial aid; the share of financial aid from institutional grants; and the share of expenses allocated for instruction, research, academic support, and student services support.

Results

Table 2 shows descriptive statistics for these variables. As the dependent variable for this study, the mean three-year CDR was 7.75%, but ranged widely across the institutions in the sample from 0 to 41.6%. The 2004 admissions yield also varied widely with a mean of 41.26%, and a range from 10 to 100%. The average percent of nonwhite students was 34.1% and the average 6-year graduation rate was 53.3%. Eighty-five percent of students at each institution received some form of financial aid, and, on average across all institutions in the sample, 58% of financial aid came from institutional grants. The margin between revenues and expenditures was not normally distributed, thus we used the natural log value for the margin. Also included in Table 2 is information on the share of education and related (E&R) expenses allocated to instruction, research, student support services, and academic-related support services. It is noteworthy that student support services includes expenses to support programs and services such as financial aid counseling and exit counseling related to financial aid. Finer breakdowns on specific allocations for each support program, such as financial aid counseling, are not available in IPEDS data.

The correlation matrix in Table 3 highlights the relationship between relevant variables. As expected, there was a significant negative relationship between the CDR and six-year graduation rate (r = -.710) and between CDR and endowments per FTE students (r = -.236) but a positive relationship between endowments and the share of financial aid allocated from the institution (r = .312). In addition, the CDR was negatively correlated with the share of institutional E&R expenses for instruction and research, but positively related to the share of E&R expenses for academic and student services support. These relationships makes sense; it is likely that students who have high financial needs may need greater academic and student services support for financial aid, career, and personal counseling as well as skill enhancement/tutoring.

To further examine the contribution of institutional variables to loan default, we conducted a stepwise regression analysis. The model specifications as defined below included the dependent variable, $\hat{y}$ as a linear combination of the parameters, β_i. A stepwise OLS model was employed.

Table 2. Descriptive Statistics

	N	Minimum	Maximum	Mean	Standard Deviation
Official Default Rate for FY2010	1352	0.0	41.6	7.748	5.6103
150% Graduation Rate	1366	2	97	53.28	19.155
Percent Students Nonwhite	1399	1	100	34.09	24.947
Fall 2004 Admissions Yield	1272	10	100	41.26	16.935
Endowment assets per FTE, beginning of year 2004($)	1301	2.16	1,590,172.20	36,123.11	107,383.96
Percent receiving any financial aid	1375	0	100	85.01	14.720
Percent receiving federal grant aid	1375	0	100	33.59	18.915
Percent receiving inst. grant aid	1375	0	100	60.52	32.046
Percent receiving student loan aid	1375	0	100	57.95	20.706
Core revenues total ($)	1382	732,888	6,270,528,000	165,649,028.61	396,932,105.44
Core expenses total (S)	1382	1,727,981	2,434,433,000	139,808,820.07	289,253,295.51
Share of total financial aid from institutional grants	1294	.00	1.24	.5771	.28099
Share of E&R expenses, instruction	1317	.15	.86	.4757	.10713
Share of E&R expenses, research-related	737	.00	.71	.1101	.13873
Share of expenses, public service-related	805	.00	.43	.0654	.07113
E&R expenses per degree ($)	1319	8,374.10	969,226.67	65,460.69	44,522.63
Margin between total revenues and total expenditures ($)	1319	-339,047,936.00	3,747,501,056.00	24,786,442.17	164,077,346.035

Table 3. Correlation Matrix

			1	2	3	4	5	6	7	8	9	10	11	12
1	Default Rate FY2010	*r*	1	-.710**	.241**	.485**	-.236**	-.413**	-.479**	-.201**	.093**	.194**	-.172**	-.445**
		Sig.		.000	.000	.000	.000	.000	.000	.000	.001	.000	.000	.000
		N		1332	1239	1352	1288	1007	1277	1299	1298	1301	729	1266
2	150% Graduation Rate	*r*		1	-.349**	-.333**	.376**	.593**	.627**	.159**	-.061*	-.162**	.258**	.607**
		Sig.			.000	.000	.000	.000	.000	.000	.028	.000	.000	.000
		N			1268	1372	1282	1010	1277	1301	1298	1301	730	1284
3	Admissions Yield	*r*			1	.104**	.032	-.131**	-.341**	.133**	-.152**	-.061*	.054	-.384**
		Sig.				.000	.266	.000	.000	.000	.000	.034	.158	.000
		N				1272	1200	951	1197	1212	1210	1212	690	1203
4	Percent Students Nonwhite	*r*				1	.009	-.013	-.299**	-.019	-.148**	.127**	.174**	-.070*
		Sig.					.750	.681	.000	.493	.000	.000	.000	.011
		N					1301	1019	1294	1317	1316	1319	737	1286
5	BOY04 endowment assets/FTE	*r*					1	.434**	.312**	.006	-.036	.017	.148**	.364**
		Sig.						.000	.000	.834	.200	.549	.000	.000
		N						981	1235	1253	1254	1254	696	1225
6	Margin of Revenue to Expenses	*r*						1	.379**	.350**	-.254**	-.265**	.423**	.387**
		Sig.							.000	.000	.000	.000	.000	.000
		N							1003	1018	1018	1019	536	961
7	Share financial aid from institutional grants	*r*							1	-.161**	.244**	.025	.147**	.776**
		Sig.								.000	.000	.374	.000	.000
		N								1293	1292	1294	729	1215
8	Instruction share of E&R	*r*								1	-.629**	-.828**	.587**	-.223**
		Sig.									.000	0.000	.000	.000
		N									1314	1317	737	1236
9	Student services share of E&R	*r*									1	.087**	-.306**	.214**
		Sig.										.002	.000	.000
		N										1316	737	1233
10	Academic and institutional support share of E&R	*r*										1	-.547**	.134**
		Sig.											.000	.000
		N											737	1236
11	Research-related share of E&R	*r*											1	.015
		Sig.												.698
		N												692
12	Total price in-state students living on campus 2004-2005	*r*												1
		Sig.												
		N												1286

* Correlation is significant at the 0.05 level (2-tailed). ** Correlation is significant at the 0.01 level (2-tailed).

The third model included the largest and most comprehensive set of variables in the model. It uses a standard equation is represented below:

$$\hat{y} = \beta_0 + \beta_1(X_1) + \beta_2(X_2) \ldots + \beta_k(X_k) + e_i$$

where $\hat{y}$ = predicted value of three-year federal student loan CDR, β_0, is the intercept, β_{1-k} are the independent variables X_{1-k}, and e_i = the random error.

Collinearity statistics (VIF) were run to confirm no concerns of overinflated estimates. VIF values ranged from 0.42 - 0.65. Because only VIFs greater than 10 indicate severe multicollinearity and tolerances approaching 1.0 indicate the absence of multicollinearity, there was no cause for concern with respect to high correlation between the predictor variables in the model. The three regression models are shown in Table 4; discussion of the results below is organized by model. Where they existed, missing data were omitted casewise in each analysis.

Model 1 included only one independent variable, the institution's six-year graduation rate. As expected, this one variable was negatively correlated with CDR, and contributed substantially to the model (adj. R^2=0.531).

However, additional steps in the analysis include other variables that help explain more of the variance and show us that other institutional characteristics also contributed to the CDR. Shown in Model 2, graduation rate continued to be significant, as was admissions yield, Carnegie classification level, public-private control, percent of nonwhite students, and select geographic regions. Compared to institutions in the West, institutions in the Northeast/Mid-Atlantic and Southeast have significantly higher default rates. In addition, students enrolled at private nonreligious institutions were less likely to default on loans than peers at public institutions.

To further expand the comprehensiveness of the model, step 3 added financial characteristics of the institution. Variables included the logged value for gross margin between revenues and expenditures, endowment per FTE student, the share of financial aid coming from institutional grants, total price (for students in-state living on campus), and education and related (E&R) expenses allocated for instruction, research, and services. As shown in Model 3, endowment per FTE student was negatively associated with default, while institutions with higher student service and academic support service expenses were significantly associated with higher default rates. Collectively, variables included in Model 3 accounted for 67.7% of the variance in predicting the 2010 three-year cohort default rate.

Limitations

The major limitation of this study is that no student-level characteristics were included in our analyses. Although the overall strength of the models developed herein may be improved by increasing the scope of predictor variables, we intentionally sought to isolate and better understand the institutional variables. Our purpose is to examine the association of institutional factors with default, not necessarily inferring causality. We used Delta Cost Project data, mindful of its limitations (Jaquette & Parra, 2013), but knowing that some variables that exist, such as share of expenses and margin between revenues and expenses, were important to our

Table 4. Stepwise Regression Analysis for Institutional Variables Predicting Student Loan Default

	Model 1			Model 2			Model 3		
	Unstandardized B	*SE*	*t*	Unstandardized B	*SE*	*t*	Unstandardized B	*SE*	*t*
(Constant) 150%	16.759	0.505	33.206 ***	10.431	0.883	11.814 ***	5.875	1.939	3.029 ***
Graduation Rate	-0.174	0.008	-23.077 ***	-0.138	0.009	-15.919 ***	-0.133	0.012	-11.22 ***
Admissions yield - Fall 2004				0.018	0.009	1.883 *	0.026	0.01	2.476 **
Carnegie - Master's				0.727	0.305	2.384 **	0.56	0.391	1.431
Carnegie - Bachelor's				1.870	0.329	5.681 ***	1.509	0.459	3.289 **
Percent Nonwhite				0.076	0.006	12.081 ***	0.077	0.007	11.215 **
Private - Non-religious affiliation				-1.679	0.356	-4.719 ***	-2.052	0.715	-2.869 *
Private - Religious affiliation				-0.364	0.332	-1.095	-0.973	0.63	-1.546
Northeast & Mid-Atlantic				0.738	0.348	2.119 **	0.622	0.359	1.734 *
Midwest				0.415	0.361	1.150	0.349	0.362	0.965
Southeast				1.927	0.362	5.328 ***	1.944	0.369	5.269 ***
Endowment assets per FTE FY04							0.0000	.00	-1.675 *
Margin revenues to expenses (log)							0.113	0.104	1.081
Share total financial aid from institutional grants							0.494	0.911	0.543
Total price - in-state, live on campus							-0.001	.00	-0.163
Student services share of E&R expenses							8.143	2.959	2.752 **
Academic & institutional support share of E&R expenses							3.918	2.046	1.915 *
Research-related share of expenses							0.696	1.34	0.52
R			0.730			0.825			0.830
R^2			0.532			0.681			0.689
Adj. R^2			0.531			0.674			0.677
SE of estimate			2.973			2.4798			2.4659

* p <.10, ** p <.05, *** p <.01

Referent categories were Carnegie - Research Universities, Public institutions, and the Southwest region.

analyses. We omitted institutions for which key data were missing (less than three percent), and our sample of 1,399 represents the four-year public and private not-for-profit sectors well. Finally, future studies may want to consider accreditation status, given the policy significance of accreditation and the associated influence as a gatekeeper to financial aid.

Discussion

As student debt for postsecondary education continues to increase, officials will benefit from a deeper understanding of the drivers of three-year cohort default rate. As well, in the midst of seemingly diametrically opposed objectives to increase access, maintain high quality, and minimize costs, institution leaders must decide how to apportion limited funds in order to accomplish the objectives set forth. Consistent with Pfeffer (1982), leaders may be acting rationally while cognizant of internal and external constraints. While greater access to college can offer benefits to individuals and society in general, it often comes coupled with the institution's need to allocate greater resources to financial aid and support services that ensure student success. It is worth noting that debt level is not the sole or single most important driver for default, as those with defaulted loans may or may not carry low levels of debt (as found by Hillman, 2014). Default can be viewed as a repayment problem closely aligned with failure to attain a degree, unemployment, or underemployment, or may be due to unusual circumstances experienced by an individual that are not the norm. Increasing debt levels in the context of repayment is problematic in light of the escalating CDR, as 40% of undergraduates assume student loans today versus just 25% a decade ago.

This study examined the role of institutional characteristics in the student loan default puzzle. Previous literature has amply shown that characteristics related to the individual student are strongly associated with educational debt and one's ability to repay the loans borrowed (e.g., Dynarski (1994), Knapp (1992), Podgursky (2002), and Volkwein & Szelest (1995). However, the prior research is somewhat outdated and has design flaws that require a revisit. Findings from this study show that some characteristics of four-year institutions are associated with student loan default. Mindful of Pfeffer's (1982) assertion that organizational leaders are prompted by goals for efficiency and performance, the association between institutional characteristics and loan default may signal that leaders act rationally and purposefully in resource allocations.

Results show that institutions with a higher percent of nonwhite students and those with a higher admissions yield have a higher CDR than others. The finding on admissions yield seems somewhat counterintuitive. However, although a higher admissions yield may indicate an efficient, goal-oriented admissions process, it does not necessarily indicate more academically prepared applicants.

Based on findings from Dai (2013) and Looney (2011), we were not surprised to find differences in loan default by geographic region. Recovery from the economic recession of the mid to late 2000s varies across the country, and may continue to have an impact on state and other appropriations, which may in turn affect financial aid and student services programs.

In some analytic models herein, results showed that public institutions have higher default rates than private non-religiously affiliated institutions, and that research and doctoral-granting institutions have lower default rates than master's and bachelor's institutions. These findings may be related to the institution's mission, the collective group of students that enter the institution, the institution's reliance on external funding, and/or the administration's decisions about resource allocations. Relatedly, it is not surprising that there was a negative relationship between default rates and endowment assets per FTE student, and a positive relationship between the percent of students receiving financial aid and default. Applying the classic "iron triangle" phenomenon (Daniel, Kanwar, and Uvalic-Trumblic, 2009), when more students at the institution have high financial aid needs, greater funding may be required for academic and student support services such as financial aid counseling and tutoring. Especially in this time of lowered state and other external resource allocations, institutional dollars allocated to financial aid, tutoring, and/or support services often reduce or eliminate resources that may have been allocated to instruction and/or research support. Institution officials must balance the allocation of resources, and increasingly they must do so with fewer external resources while remaining cognizant of the needs of external stakeholders. These findings align with Pfeffer's (1982) and Scott's (2004) notions of external resource constraints and resonate with the idea that leaders may decide on resource allocations as a way to balance internal and external demands. College and universities compete for resources (such as students, faculty, and federal, state, and private funding), which can be indicators of the institution's reputation or market position (Brewer, Gates, & Goldman, 2002; Lane & Kivisto, 2008). Desire for institutional success requires leaders to consider carefully how they allocate the limited financial resources.

The percent of nonwhite students enrolled at the institution was also associated with three-year federal student loan cohort default rate across all three levels of the stepwise regression analysis. Li (2007) reminds us that minority-serving institutions (including HBCUs) have more low-income students, admit a higher percentage of applicants, and have lower graduation rates than predominantly white institutions. Compared to peer institutions with fewer nonwhites, minority-serving institutions may have fewer resources in general and may rely more heavily on revenue in the form of federally subsidized student loans. These factors may make it harder to recruit and successfully enroll highly successful students.

Compared to doctoral-granting institutions, those classified as Carnegie baccalaureate-granting institutions had a higher default rate than doctoral-granting peers. This finding may be due to the greater diversity of students in bachelor's institutions as defined by incoming achievement scores. In addition, doctoral and research universities may have opportunities for support from a variety of external sources. When private funds and unrestricted endowments are available to supplement tuition revenue, and when financial aid is not constrained by resources and other competing operational interests, the institution may be able to allocate more to student aid and rely less heavily on federally subsidized student loans as a source of revenue.

In Models 2 and 3, private nonreligious institutions had significantly lower default rates than public institutions. This finding may indicate students' lower financial aid need or individual personal characteristics (such as aversion to debt in general or motivation to complete goals), or it might indicate the institution's overall financial strength and ability to allocate funds to financial aid and support services that ensure student success. Since IPEDS data do not allow for further breakdowns within each category, we cannot know if certain kinds of institutions intentionally allocate more resources to student loan counseling. If this is happening, we applaud these efforts.

Unexpectedly, and different from previous studies, the relationship between the federal student loan three-year CDR and both the share of total financial aid from institutional grants as well as the percentage of students receiving any financial aid was not significant. We expected to see a significant contribution for this variable, assuming that as non-repayable financial aid in the form of grants increases, institutional reliance on federal student loans decreases. In addition, prior studies such as Webber and Ehrenberg (2010) and Gansemer-Topf and Schuh (2006) found that institutions with a larger number of Federal Pell Grant recipients that allocated resources for student support services have higher graduation and persistence rates; we reason that this should contribute to reducing the institution's overall CDR. We recommend further examination of the relationship between CDR and the share of institutional funds allocated to student financial aid.

In Models 2 and 3, the difference in default rate by geographic region is noteworthy. General economic conditions in certain regions, such as the Southeast, may reflect state resources allocated to the education sector in general, which can affect students' access to advanced placement courses or other college preparation in high school. Students who enroll in college in economically restricted regions may need more support after matriculation. The positive relationship between loan default and share of funds for general and academic support services may indicate greater needs such services at some institutions, especially in those with lower graduation rates or larger proportions of students on financial aid. Perhaps decisions by institutional officials to prioritize allocation of limited financial resources in favor of student and academic support services may have a positive impact on student success and default rates.

Implications for Financial Aid Practitioners

Many stakeholders stand to gain from heightened awareness of and intervention relative to institutional factors that influence the disproportionately high FY2010 three-year federal student loan CDR. An institution's loss of eligibility for federal direct loans may threaten the ability of students (particularly low-income students who rely on need-based financial aid to close the gap in unmet need) to gain access to higher education. Financial aid counselors need to provide information to students who seek and/or receive financial aid, perhaps at multiple times over the course of their college enrollment, about the variety of grant and loan programs for which they may qualify, and help them to stay abreast of any new institution, state, or federal financial aid programs that may become

available in the future. Importantly, financial aid counselors need to share detailed information with students about how to determine the amount of financial aid they will need each term or year and how to understand repayment options, as well as to emphasize the importance of successful degree completion and how job acquisition can greatly contribute to timely loan repayment.

CDR sanctions can significantly reduce Federal Pell Grant funds by millions of dollars for some institutions. Such sanctions may lead to baccalaureate-granting institutions opting out of loan programs, an issue which is already occurring within the community college sector (Redden, 2008).

As higher education is critical to economic mobility, financial barriers to college enrollment may perpetuate the socioeconomic stratification that persists in the United States. Losses of tuition revenue from institutional ineligibility to participate in federal loan programs would further exacerbate the problems for institutions already struggling with tight budgets. These institutions generally do not have the endowment resources needed to offset the cost of attendance via financial aid grants, or must make tough allocation choices in the face of competing priorities of financial aid, student services, academic support, and research. Thus, this study is important in informing practitioners, federal student loan default policies, and intervention programs. Institutions that can remain eligible for Title IV student financial assistance programs, create opportunities for improved access and persistence for financially disadvantaged students.

The value of this study rests in bringing attention to the fact that institutional policies and subsequent resource allocations can be a contributing factor in student loan CDRs. We agree with some previous scholars who suggest that loan default rates may not be an indicator of institutional quality per se, but our findings show linkages between resource allocations and loan default. This study is also valuable in reminding all stakeholders who have an interest in student loan default to work collaboratively toward a resolution. While student employment after college may be a primary mitigator of default, institutional policies and resource allocations that determine how much funding can be apportioned for financial aid and student loan counseling are also important.

This study is timely given the policy action happening in Congress related to the reauthorization of the HEA. According to the proposal (U.S. Congress, June 2014), these legislative provisions may include the following:

- Protect Student Borrowers Act, which would hold institutions accountable for high CDRs. As a penalty for CDRs that exceed a predetermined threshold, institutions would have to pay back a percentage of the loan default amount for their borrowers.
- Federal Student Loan Refinancing Act, which would allow borrowers to refinance their student loans to secure a lower, fixed 4% interest rate. Currently, all federal loans except Stafford loans have interest

rates that exceed 4%. Capping the interest rates may positively influence CDRs.

- Student Loan Fair Prepayment Act, which would allow student loan prepayments to be applied to loan principal first (versus fees and interest). This legislation would reduce borrowers' balances and accrued interest, and potential risk of default.

- Simplifying Access to Student Loan Information Act, which would provide borrowers with more information on debt and repayment options. The U.S. Department of Education has seen a reduction in default rates by as much as 47% from similar initiatives (U.S. Congress, June 2014). This legislation, which would make provisions for a 5-year pilot grant program centered on proactive outreach, communication, and education to borrowers, aligns with prior studies (Burdman, 2012; Dillon & Smiles, 2010; Dowd, 2008; Seifert & Worden, 2004; Steiner & Teszler, 2005) suggesting that default management strategies that include financial literacy positively influence student loan default.

In addition, President Obama has proposed the Performance Improvement Rating Systems (PIRS), which would tie institutional eligibility for federal financial aid (including loans and Federal Pell Grants) to graduation rates, and link accreditation to pre-determined criteria that could include CDR as well as long-discussed variables like graduation rates.

Future researchers in this area may wish to include in their studies additional causal analyses, such as a more comprehensive multilevel linear model that can account for a robust set of individual and institutional level predictors and minimize biased parameters. Alternatively, when the three-year federal student loan CDR data becomes available for subsequent periods (e.g., FY11, FY12, FY13), future studies may benefit from using a fixed or random effects model with a panel data set. Such an analysis may help us further understand the puzzle of college student loan default.

Nexus: Putting Research Into Practice

- Financial aid administrators should be aware of the cost, access, and quality (iron triangle) trade-offs relative to CDRs. An institution wishing to address its default rate will benefit from the input of financial aid administrators who understand that decreasing CDRs may have unintended impacts on other aspects of institutional missions and mandates.

- As with prior research, graduation rates were related to CDR in this study. This points to the importance of financial aid administrators reminding colleagues (e.g., academic advising, faculty) that preventing default begins with ensuring students graduate from the institution.

Endnote

[1] We chose 2003-04 institutional characteristics to reflect policies and programs, particularly related to institutional finance and student financial aid, which would have been available to students at matriculation. We acknowledge that students in the 2010 default rate calculation would have matriculated at somewhat different dates; however, we chose the six-year graduation rate knowing that graduation rates are, on average, higher than four years and that a majority of the students in the 2009-10 default rate calculation would have matriculated in 2003-04.

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