Where Do Students Go when For-Profit Colleges Lose Federal Aid?*

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Abstract

Recent policy debates have focused on whether restricting for-profit institutions' access to federal student financial aid could reduce student loan defaults without restricting prospective students' access to higher education. We examine the effects of similar restrictions imposed on over 1,200 for-profit colleges in the 1990s. Using variation in the timing and magnitude of sanctions linked to student loan default rates, we estimate the impact of the loss of federal aid on the enrollment of Pell Grant recipients in sanctioned institutions and their local unsanctioned competitors. Sanctioned for-profit colleges experience a 40 percent decrease in annual enrollment for up to 10 years after sanction receipt. Enrollment losses due to for-profit sanctions are offset by enrollment increases within local community colleges. For-profit sanctions also produce negative enrollment spillovers on unsanctioned for-profit competitors, and we provide evidence that these effects are likely due to improved information about local higher education options and/or reputational spillovers to for-profit institutions offering similar programs. Given these offsetting effects, we estimate that within the average county, the public sector absorbs between 40 and 68 percent of the enrollment decline generated by an additional for-profit sanction. Overall, market enrollment by just 2-3 percent. Finally, we provide suggestive evidence that students induced to enroll in community colleges following a for-profit competitor's sanction are less likely to default on their federal loans. *Keywords*: *college financial aid, for-profit colleges, student loans, college choice. JEL Codes*: *H52, I22, I23, I28*

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1 Introduction

After more than a decade of substantial growth, for-profit higher education has been the target of increased scrutiny, new regulation, and heated debate in recent years.[1] For-profit colleges expand the market for higher education and may provide important pathways to college for underserved students, but high student loan default rates, accusations of unethical marketing practices, and allegations of financial aid fraud sparked a wave of government investigations beginning in 2010 (U.S. Government Accountability Office 2010; U.S. Senate Committee on Health, Education, Labor and Pensions 2010). Under the Obama administration, the U.S. Department of Education (ED) imposed "Gainful Employment" (GE) regulations that sought to restrict low-performing for-profit colleges' access to federal student aid (U.S. Department of Education 2010). ED also imposed sanctions on two large national for-profit chains - Corinthian Colleges and ITT Technical Institute.[2] Both companies subsequently filed for bankruptcy, shuttering hundreds of campuses across the country, and leaving behind tens of thousands of students (Fain 2014*a*; Stratford 2015; Smith 2016). The Trump administration has signaled a reversal of these policies by reopening negotiated rulemaking and proposing the elimination of accountability measures under GE (Fain 2018), but the fate of the rule, and with it for-profit institutions and their students, remains uncertain. As these policies are debated, a key concern is how students will fare if colleges lose access to federal student aid or are otherwise induced to close by federal regulation. Previous research shows that restrictions on federal student aid at for-profit colleges led to enrollment declines within sanctioned institutions (Darolia 2013), but a key unanswered question for assessing the welfare implications of such restrictions is whether students in affected institutions enroll in other institutions or forgo college.

In this paper, we seek to answer this question by providing the first assessment of the impact of federal student aid loss imposed on a given for-profit college on the overall enrollment and distribution of students across higher education sectors. Specifically, we quantify the extent to which threatened restrictions to aid for an additional for-profit institution affects enrollment in nearby unsanctioned competitor institutions. To carry out our analysis, we use variation due to regulations imposed in the late 1980s and early 1990s that were very similar to the restrictions and regulations imposed in recent years and at the root of current policy debates. As in the current case of GE, the previous round of regulations restricted institutions' eligibility to disburse federal student aid to students if the institutions' alumni had difficulty repaying their student

[1] For-profit institutions currently enroll over 1.3 million students, down from a peak of 2 million students in 2010. Authors' calculations using Table 303.10 of U.S. Department of Education (2016).

[2] Regulators threatened to cut off the colleges' access to federal student aid programs for misrepresenting job placement rates of graduates (Corinthian) and failing to comply with accreditation standards (ITT Tech). See http://www.ed.gov/news/press-releases/us-department-education-heightens-oversight-corinthian-colleges and http://www.ed.gov/news/press-releases/department-education-bans-itt-enrolling-new-title-iv-students-adds-tough-new-financial-oversight for details.

loans. While these cohort default rate (CDR) regulations applied to all colleges, the vast majority of affected institutions were for-profit institutions. The CDR regulations led to widespread enrollment declines and institutional closures in this sector.

We use a generalized difference-in-differences strategy and comprehensive institution-level administrative data to estimate the first causal effects of how restrictions on institutional eligibility for student aid affect market-level access to higher education and the distribution of students across local public, private nonprofit, and private for-profit institutions. We focus on students who are most affected by access to federal aid — those receiving means-tested federal Pell Grants. In this way, we directly examine whether vulnerable students, whose enrollment decisions may be especially tied to student aid access, are disproportionately affected by federal regulation. Our use of administrative data on Pell Grant recipient enrollment also represents an improvement over the data used in prior estimates of the effects of for-profit sanctions on enrollment and in examinations of the for-profit sector more generally before 2000, since institution-level postsecondary data most commonly used – ED's Integrated Postsecondary Education Data System (IPEDS) – includes only a small share of for-profit institutions that were in operation and potentially sanctioned in the early 1990s. This more comprehensive data is important when analyzing the market-level response to sanctions we study here.

In order to fully assess the effects of federal aid restrictions on students, we need to understand whether students who would have attended sanctioned institutions ultimately switch institutions or forgo postsecondary education altogether. We empirically measure the extent to which a local higher education market contains alternatives to sanctioned for-profit institutions for federal grant recipients. The time period we study is prior to widespread broadband penetration, so most prospective two-year students' choice sets were limited to colleges in their immediate vicinity (e.g., county). We can therefore assess the consequences of institution closures and the loss of federal student aid on the college-going of the most vulnerable students.

On average, sanctioned for-profit institutions experience a 40 percent decline in enrollment in the five years following sanction receipt. Each additional for-profit sanction led to a 5 percent increase in local community colleges' enrollment. Across all community colleges within a local market, the increase in enrollment, albeit small relative to community colleges' overall size, was enough to completely compensate for the enrollment decline in the sanctioned institution.

We also find evidence of negative enrollment spillovers within the for-profit sector, with unsanctioned for-profit institutions experiencing declines in Pell Grant recipient enrollment when an additional for-profit institution in the same market is sanctioned. After taking into account these negative spillovers on enrollment within unsanctioned for-profit colleges, and thus the total reduction in for-profit enrollment, we estimate that public community colleges absorbed 40-68 percent of the overall enrollment decline in the for-profit sector

from an additional for-profit sanction. On average, each additional for-profit sanction led to an approximately 2-3 percent decrease in aggregate enrollment within the local higher education market.

Examining the mechanisms driving the negative spillovers to for-profit competitors, we find evidence of reputational effects within fields. In many cases, spillovers are larger in magnitude for institutions within the same field or industry (e.g., beauty, business, culinary/arts) as the sanctioned for-profit institution relative than they are for institutions in other industries. Sanctions may also improve student information about the quality and costs of colleges in the sector, leading students to make more informed choices that lead to better outcomes. To explore the welfare effects of students switching from for-profit to public institutions, we present descriptive evidence on how sanctions correspond to student borrowing and loan default. We find that sanctions are associated with sizable reductions in county-wide borrowing and default in the for-profit sector. Despite increasing enrollment in the public sector, for-profit sanctions do not increase public sector borrowing or defaults. Back-of-the-envelope estimates suggest that roughly 70 percent of the students induced to stop borrowing by switching sectors would have defaulted on their loans in the absence of sanctions. Therefore, the shift of vulnerable students to colleges where they are likely to reduce borrowing and be less likely to default suggests even though aggregate market enrollment declined with for-profit college sanction, the sanctions did not harm welfare in the market.

Our findings contribute to a growing body of research on for-profit postsecondary education. Several recent studies describe for-profit business practices and missions, advising systems, students, faculty work, and costs.[3] Researchers generally find similar or negative returns to for-profit attendance college attendance relative to other sectors (e.g., Deming, Goldin and Katz 2012; Cellini and Chaudhary 2014; Lang and Weinstein 2013; Cellini and Turner 2016). These findings are supported by Darolia et al. (2015) and Deming et al. (2016) who use resume audit study experimental designs and find that for-profit attendance results in an increase in interview requests. Our paper also contributes more broadly to research on the supply side of the market for higher education. The question of whether for-profit and public institutions compete for students is independently important given the overlap in programs offered by two-year public and for-profit institutions (e.g., Cellini 2009) and disparate costs (e.g., Laband and Lentz 2004; Cellini 2012). Two recent papers examine enrollment spillovers between the for-profit and public sectors due to changes in prices, resources, or institutional availability and find evidence of substitution (Goodman and Henriques 2015; Armona, Chakrabarti and Lovenheim 2016). Similarly, our analysis contributes to broader debates

[3]For research on for-profit institutions' business practices, see Breneman, Pusser and Turner (2006); Kinser (2007); and Tierney and Hentschke (2007). Rosenbaum, Deil-Amien and Person (2006) examine for-profit institutions' advising systems. Chung (2012) and Deming, Goldin and Katz (2012) provide information on the characteristics of for-profit students while Lechuga (2008) focuses on for-profit faculty. Gilpin, Saunders and Stoddard (2015)examine whether for-profit colleges are responsive to labor markets. Finally, Laband and Lentz (2004) and Cellini (2012) assess the costs related to receiving a for-profit postsecondary education.

in education policy, as issues of competition and public-private crowd-out arise in debates over universal preschool, charter schools, and voucher programs (e.g., Bassok, Fitzpatrick and Loeb 2014; Epple, Figlio and Romano 2004).

Finally, this study contributes to the broader literature on the effects of federal student aid policy. Research on the impact of federal student aid programs on students' enrollment and persistence decisions has produced mixed results. Pell Grant aid does not appear to increase college entry among traditional-aged students (e.g., Kane 1995; Rubin 2011; Turner 2014; Carruthers and Welch 2015), although it may enhance enrolled students' attainment (Denning 2016; Denning, Marx and Turner 2017; Marx and Turner forthcoming) and older individuals' initial enrollment decisions (Seftor and Turner 2002). Focusing on student loans, Dunlop (2013) and Wiederspan (2016) show that access to federal loan aid increases low-income community college students' educational attainment. Marx and Turner (2017) provide experimental evidence that borrowing increases credits earned and grade point average among community college students.

Several studies provide evidence that institutions respond to federal student aid by altering tuition or institutional discounts (e.g., Singell and Stone 2007; Turner 2012; Turner 2014). For-profit institutions may have particularly strong reactions to changes in access to federal aid programs, as these institutions may receive up to 90 percent of their revenue from federal student aid. Cellini (2010) finds that increases in Pell Grant generosity are correlated with for-profit college openings, particularly in areas with high concentrations of low-income students. Cellini and Goldin (2014) estimate that aid-eligible for-profit programs charge about 78 percent more than similar programs in for-profit institutions that are not eligible to disburse federal student aid.

The remainder of this paper proceeds as follows. In section 2 we describe federal student aid programs and the standards that institutions must meet to maintain eligibility to disburse federal aid. Section 2.2 contains discussion of our data and sample, while Section 3 describes our identification strategy. In Section 4, we present estimates of the impact of loss of Title IV eligibility on enrollment in sanctioned institutions and their competitors and in Section 5, we provide descriptive evidence on borrowing and default. Section 6 concludes.

2 Institutional Background and Empirical Setting

College students receive substantial sums of aid from the federal government. The largest federal financial aid programs, including Pell Grants, work-study, and Stafford Loans, are authorized under Title IV of the Higher Education Act of 1965 and subsequent amendments (hereafter, Title IV). Title IV programs provide subsidies to low-income college students. At their recent peak, for-profit colleges received as much as a

quarter of aggregate Pell Grant and subsidized student loan aid, nearly double the sector's enrollment share (Baum and Payea 2013).

Colleges must comply with a set of administrative and fiscal requirements to be eligible to disburse Title IV aid to students. Until the recent GE regulations passed under the Obama administration, the most stringent student performance-based requirement relied on CDRs. During the time period we study, CDRs were defined as the percentage of an institution's former borrowers who default on their federal student loans within two years of entering repayment. Institutions were required to maintain CDRs less than 25 percent in any three-year period and less than 40 percent in any given year. In the absence of a successful appeal, institutions violating these thresholds lost access to student loans, and potentially all federal student aid, for at least the remainder of the year and the following two fiscal years.[4] Between 60 and 90 percent of all sanctioned institutions appealed this decision. However, we do not observe whether a sanction was ultimately applied (either due to an unsuccessful appeal or lack of an appeal) prior to the 1996-97 (1997) academic year. However, of the sanctions threatened between 1997 and 2000, 95 percent ultimately resulted in federal aid loss.

CDR regulations were enacted in 1989 in response to concerns of poor student outcomes and abuse of federal student aid programs in the for-profit sector (U.S. General Accounting Office 1988; Fraas 1989; Dynarski 1991). While the regulations applied to all institutions, a disproportionate number of for-profit institutions were affected. Prior to the regulation, close to 3,000 for-profit institutions participated in Title IV federal student aid programs. The first CDR-driven sanctions were announced in September 1991. By September 1995, over 1,200 for-profit institutions received sanctions, along with a handful of institutions in other sectors (Figure 1).[5]

Although ED did not gather complete – or even systematic – data on for-profits in the 1980s and 1990s in the IPEDS, research using these data from the time period suggests that the market for sub-baccalaureate education in the late 1980s had many important similarities to the market today. Using the 1989 IPEDS and related NPSAS data, Apling (1993) reports that, as is the case today, for-profit "proprietary schools" enrolled a disproportionate share of women, minority students, and older students in programs ranging from

[4]Exceeding the 25 percent threshold for three consecutive cohort years resulted in loss of access to loans (and potential loss of access to Pell Grants beginning with the 1997 cohort). Exceeding the 40 percent threshold resulted in "limitation, suspension, or termination" of all Title IV aid programs. These thresholds were higher in the early years of enforcement. For instance, in 1991, institutions had to maintain CDRs below 35 percent for the 1987, 1988, and 1989 repayment cohorts and below 60 percent for the 1989 cohort. In 2012, the ED moved to a three-year CDR measure and higher sanction thresholds: institutions with CDRs exceeding 30 percent for three consecutive years lose eligibility to disburse both federal Pell Grants and federal loans, while institutions with CDRs exceeding 40 percent in any single year lose access to federal loans. Appendix Table B.1 displays the full set of sanction triggers and penalties by year.

[5]Between 2003 and 2013, only 27 institutions received CDR-related sanctions. Of these, 23 ultimately avoided federal aid loss due to successful appeals. Despite heightened concern about the loan repayment challenges of for-profit college students, most for-profits avoided CDR sanctions in recent years, possibly due to strategic behavior in managing defaults (for example, see letters between Secretary of Education Arne Duncan and Senator Tom Harkin dated December 12, 2012, and February 27, 2013, in Appendix E).

cosmetology to computer science that were typically less than two years in length. Most proprietary schools were small, though a few large institutions existed. Unlike today's chains that enroll tens or even hundreds of thousands of students, however, the largest institutions enrolled roughly 12,000 students. While online education was not prevalent in the early 1990s, a number of schools offered correspondence courses by mail. Apling (1993) reports that in 1988, 235 proprietary schools with median enrollment of 800 delivered at least some coursework by mail. However, many of these schools were not eligible for federal aid under Title IV; only 68 institutions with home school programs were accredited (and therefore potentially eligible for Title IV), suggesting that relatively few students with access to federal aid pursued correspondence education beyond county borders in the early 1990s.

Drawing on our own Pell Grant data that more accurately capture enrollment in Title IV for-profit institutions, we show that in the years prior to the implementation of the CDR regulations, the share of Pell Grant recipients attending for-profit institutions steadily increased from the mid-1970s, peaking at 27 percent in 1988, while the share of these students enrolled in public institutions concurrently fell from 70 to less than 60 percent (Figure 2). Following the implementation of the CDR regulations, the for-profit share of Pell Grant recipients fell over the next decade to a low of 13 percent in 1998, while the public share of Pell Grant recipients increased over this same period. This shift in the sector of enrollment for Pell Grant recipients was not due to a decline in Pell Grant take-up, as aggregate enrollment grew steadily over this period. These patterns provide suggestive evidence that as many sanctioned for-profit institutions lost eligibility to disburse federal student aid, at least some of the low-income students that would have enrolled in these institutions shifted to the public sector.

The climate of rapid for-profit college growth, questionable practices in this sector, and subsequent regulations in the late 1980s and early 1990s bears a strong resemblance to the current U.S. higher education landscape. After rapid growth in the for-profit sector in the first decade of the 2000s, renewed concern over student outcomes led to the 2014 GE regulations. Under GE, eligibility for federal student aid is based on graduates' loan payment-to-earnings ratios, calculated at the program level.[6] At the time they issued the regulation, ED estimated that about 1,400 programs (99 percent of which are in for-profit colleges) would fail GE standards, impacting approximately 840,000 students.[7] Under the Trump administration, implementation of the rule has been delayed and a new negotiated rulemaking process is underway to consider various modifications. While proponents argue that the GE standards will protect vulnerable

[6]Specifically, payment-to-earnings ratios are categorized as pass (average loan payments are less than 8 percent of total or 20 percent of discretionary earnings), zone (average loan payments are 8–12 percent of total or 20–30 percent of discretionary earnings), or fail (average loan payments are greater than 12 percent of total or greater than 30 percent of discretionary earnings). Programs become ineligible to disburse Title IV funds if they fail this measure in two out of of any three consecutive years or are in the zone for four consecutive years.

[7]See http://www.ed.gov/news/press-releases/obama-administration-announces-final-rules-protect-students-poor-performing-career-college-programs for details.

students from profit-seeking firms that do not prioritize students' interests, opponents argue that the rules will limit underserved students' access to higher education (Fain 2014*b*; Gleason and Mitchell 2014; Mitchell and Zibel 2014; Fain 2018). An understanding of whether and how the loss of federal aid for for-profit colleges affects postsecondary enrollment is essential for predicting the impacts of GE and similar regulations that disproportionately impact the for-profit sector.

2.1 Conceptual Framework

We begin with a basic model of college choice loosely following Long (2004) and Jacob, McCall and Stange (forthcoming). Student i chooses from $j \in J^m$ colleges in local higher education market m. Institutions are characterized by the expected out-of-pocket price paid by the student P_{ij}, academic characteristics A_j (e.g., programs, quality, or reputation), and distance D_{ij} to the institution. Prices vary both across and within institutions and depend on student characteristics X_i (e.g., family income, academic ability, in-state) and college characteristics Z_j (e.g., listed tuition, sector). A student's income is denoted I_i, such that $I_i - P_{ij}$ represents consumption of all other goods and ε_{ij} is an unobserved individual-specific preference for institution j. Both A and P are functions of S, where $S_j = 1$ when institution j receives a CDR sanction and is unable to give out federal student aid. An institution's reputation also may depend on whether other institutions in the same market and sector $c \in \{public,\ nonprofit,\ for\text{-}profit\}$ have also been sanctioned (S_{-jc}).

Individuals assess their expected utility from attending each institution U_{ij}, while also considering the option of attending no postsecondary education, and choose the option that maximizes their utility, where:

$$U_{ij} = \alpha_0 \left(I\left(X_i\right) - P\left(X_i, Z_j, S_j\right)\right) + \alpha_1 A\left(Z_j, S_j, S_{-jc}\right) + \alpha_2 D_{ij} + \gamma X_i + \varepsilon_{ij}. \tag{1}$$

When an institution is sanctioned, it affects students' college choice decisions through two main channels. First, sanctions may provide information to prospective students on the quality of a particular institution or sector, reducing perceived academic quality (A) and lowering the potential utility from attendance. Institutions sanctioned under the CDR regulations have, by definition, a high percentage of students who cannot repay their student loans. Prospective students may consider a sanction to indicate poor quality and therefore estimate a lower probability of their own success and lower expected lifetime benefits from attendance at the sanctioned institution. Such a calculation would lead to a lower probability of enrolling in college j and would induce students to enroll in a competing institution rather than forgo education altogether, unless suitable alternative institutions or programs are unavailable locally or offer much lower utility than nonenrollment. These reputational effects of a sanction may also spill over onto similar institutions — likely

those in the same sector (e.g., for-profits) with similar characteristics (e.g., size, tuition, or field of study) — leading students to switch to local institutions in a different sector.[8]

Second, CDR sanctions may impact a student's expected cost of attendance. The amount that a student pays out-of-pocket for college equals the gross cost of attendance, less available financial aid. A sanctioned institution loses eligibility to disburse federal loans, and in some cases, Pell Grants and other federal aid. Sanctioned institutions could provide funds to offset the loss of aid from federal sources, but Cellini and Darolia (2017) and Turner (2014) find that for-profit colleges typically provide very little institutional aid. As a result, current and prospective students of sanctioned institutions are likely to experience an increase in their expected out-of-pocket college costs (P). Students could absorb these costs, for example, by taking on more expensive private student loans or increasing work hours. They may also choose to forgo a college education or may switch to a lower-cost competitor institution. Even if a sanction is not upheld, the threat of a sanction might still affect students' expectations of their future cost of continuing in a threatened institution.

Finally, sanctioned institutions may be unable to support their operations if reductions in student enrollment are sufficiently large, leading some sanctioned institutions to close. This in turn limits prospective students' choice sets and induces further switching to unsanctioned competitor institutions or leaving higher education altogether. Our reduced form estimates of the impact of sanctions on enrollment in a local market will encompass all three of these effects. We focus our analyses on students who are likely to only seek out local college options — those that attend colleges that offer two-year and less-than-two-year degrees — and approximate a student's choice set with counties.[9]

The extent to which students are dissuaded from education or diverted to a different institution following a sanction depends on the availability of institutions offering similarly appealing programs, prices at these institutions, and whether students are fully informed of their options beyond the sanctioned school. All of these factors relate to the degree of competition between colleges in a given higher education market, which has been addressed to a limited extent in previous literature. Peltzman (1973) provides a theoretical framework for modeling how higher education institutions compete for students in an environment with both federal subsidies (Pell Grants and federal loans) and state subsidies (direct funding for public institutions). Cellini (2009) provides evidence that public funding for California community colleges drives for-profit col-

[8]It is also possible that branches of "chain" colleges would experience negative spillovers if another branch campus is sanctioned. Unfortunately, given idiosyncratic reporting of chains, it is difficult to identify branches in our data (for example, some colleges may have separate Office of Postsecondary Education Identification (OPEID) numbers for each branch campus, while others have only one OPEID for all branches). However, in light of the fact that there were substantially fewer for-profit chains in the 1990s (Deming, Goldin and Katz 2012) and that chains are less likely to open multiple branches in the same local market, we believe that our estimates of spillovers are primarily capturing effects on different colleges with similar features. We expand upon this point and explicitly test the role of chains in Section 4.2.

[9]Our results are robust to including both two- and four-year colleges (Section 4.1).

leges out of the local market, with a corresponding increase in community college enrollment. Using national data, Goodman and Henriques (2015) estimate that the elasticity of for-profit enrollment with respect to state and local appropriations to public institutions is 0.2.

2.2 Data and Sample

We rely primarily on administrative data on Pell Grant recipients and on institutions subject to CDR sanctions obtained from the ED. The Pell Grant data include the total number of Pell Grant recipients in each federal-aid eligible institution for the 1973–74 through 2011–12 (hereafter, 1974 through 2012) academic years. Pell Grant recipient enrollment provides a reasonable proxy for the enrollment of financially vulnerable undergraduate college students. Students with low income and assets — as measured by the federal government's calculation of need — are eligible to receive Pell Grants. We are particularly interested in these relatively low-income and low-asset students since they are most likely to be sensitive to the loss of federal student aid and are also the target of policy efforts to encourage college attendance and completion.[10]

Data on sanctioned institutions include the specific CDR threshold that was violated in all years, and institution-specific default rates for all but the first three cohorts of borrowers (i.e., those who entered repayment between 1989 and 1991). In most years, institutions had to maintain CDRs less than 25 percent in any three-year period and less than 40 percent each year.[11] Violation of these thresholds resulted in loss of at least some federal financial aid for a minimum of two academic years. Specifically, institutions that were sanctioned due to three years of CDRs exceeding 25 percent lost eligibility to disburse federal loans but maintained eligibility for grant programs. Institutions that were sanctioned due to a single year's CDR exceeding 40 percent could lose eligibility to disburse both grants and loans for an indefinite period. Following the ED's definition, in our main specifications, our definition of a sanctioned institution includes both sets of institutions. However, we also explore heterogeneous effects by sanction type to assess whether the loss of all Title IV aid has a larger effect on enrollment than the loss of access to loans alone.

Typically, sanctions were effective immediately and restricted aid access for both current and prospective students. However, a sanctioned institution could appeal its case to ED in a process that typically lasted one to two years. During this time, the institution was allowed to continue participating in Title IV programs but would be responsible for repaying any loans disbursed during the appeals period if the sanction was ultimately upheld. An important limitation of our data is that we cannot observe whether institutions successfully appealed a sanction before the 1997 academic year.[12] Thus, our main estimates can be thought

[10]The ratio of Pell Grant recipients to IPEDS fall enrollment is approximately 0.2 in two-year public institutions during the period we examine.

[11]Institutions faced slightly higher threshold levels for pre-1992 repayment cohorts. See Appendix Table B.1 for details.

[12]Through a Freedom of Information Act request, we were able to obtain information on institutions that unsuccessfully appealed their sanctions for the 1990 through 1994 repayment cohort related sanctions. However, this data does not allow us

of as intent-to-treat (ITT) effects that encompass both the impact of the actual loss of federal student aid (in cases where institutions did not appeal or lost an appeal) and a threatened sanction with no subsequent loss of aid (due to a successful appeal) on enrollment. To the extent that students and/or institutions respond to threatened sanctions (even if the sanction is ultimately overturned on appeal), our estimates will represent the policy relevant treatment effect of federal regulation.

We supplement our administrative data with information on total enrollment between the 1988 and 2012 academic years from the Integrated Postsecondary Education Data System (IPEDS). The IPEDS excludes a large number of for-profit institutions that participated in federal student aid programs in the late 1980s and early 1990s and schools that were sanctioned were more likely to be omitted. Thus, our primary purpose for using IPEDS enrollment data is to validate the estimated impacts on Pell Grant recipient enrollment in the public sector.

We do not observe institutions that do not participate in Title IV federal student aid programs.[13] We therefore cannot distinguish between prospective students who forgo higher education in response to a sanction and those that give up their Pell Grant to attend a nonparticipating institution. One might interpret such non-Title IV offerings as potentially inferior, since students cannot obtain public financial aid to attend these institutions and because these programs would be generally unaccredited. Nonetheless, to the extent that students leaving sanctioned institutions enroll in these non-Title IV institutions, our estimates will understate the extent to which unsanctioned institutions absorb enrollment declines in sanctioned institutions.

We use counties to proxy for local higher education markets, as in Cellini (2009). We match institutions with counties using their address and/or zip code, when available in the Pell Grant administrative data or CDR data.[14] For institutions with missing location information in these data sets, we use the Postsecondary Education Participants System (PEPS) to link institutions to counties.[15] PEPS also contains information on Title IV institution closures. All institutions that closed between 1988 and 2008 remain in our sample and are assigned Pell Grant recipient enrollment equal to zero in the closed years to account for sanction-driven enrollment declines due to closure.

Finally, we limit our main sample in a few ways. First, we focus on sub-baccalaureate institutions (institutions offering two-year and less-than-two-year credentials).[16] Few for-profit institutions offered baccalau-

to distinguish between institutions that successfully appealed their sanction and institutions that never submitted an appeal, and thus, we cannot determine the set of institutions that were ultimately penalized during these years. We observe all appeals and outcomes starting with the 1995 repayment cohort.

[13]Cellini and Goldin (2014) document the large number of these institutions in the for-profit sector in more recent years.

[14]Since our sample spans three decades, we use the 2010 county definitions to ensure that institutions are consistently assigned to local markets.

[15]See http://www2.ed.gov/offices/OSFAP/PEPS/index.html for details.

[16]We cannot distinguish between two-year and less-than-two-year institutions in our main data sources (Pell Grant and CDR administrative data).

reate degrees during this time period, and even fewer baccalaureate-granting for-profits received sanctions.[17] Nonetheless, we show that our estimates are robust to the inclusion of four-year institutions. We also limit our analysis to the effects of sanctions imposed between 1991 and 2000, focusing on changes in enrollment between the five years before and after sanction receipt. Of the total number of threatened sanctions between 1991 and 2012, 99 percent fell within the years we examine. Third, our main sample excludes counties that contain more than 50 two-year institutions (on average, in a given year between 1986 and 2005) as we are unlikely to be able to detect enrollment spillovers from an additional for-profit sanction in these 12 large markets.[18] Our estimates are robust to the inclusion of all counties in our analysis sample. Appendix A provides a detailed description of our data sources and main analysis sample.

2.3 Characteristics of Institutions by Sector and Sanction Receipt

Table 1 displays the characteristics of the institutions form the basis of our analytic sample. Beginning in 1991, a given institution could potentially receive a CDR-related sanction on an annual basis. Thus, for the purpose of describing our analysis sample, we construct an institution by sanction-year data set. Panel A contains information on all school by sanction-year observations within our sample, regardless of own or competitor sanction receipt. Over the period we examine, 73 percent of all Pell Grant recipients attending 2-year schools attended public institutions, 3 percent attended a nonprofit schools, and the remaining 23 percent were enrolled in the for-profit sector. In contrast, among students enrolled in sanctioned institutions, only 20 percent attended public community colleges, while 78 percent were enrolled in a for-profit school. Enrollment in unsanctioned schools with at least one sanctioned local competitor was similar to overall enrollment, with 67 percent of students attending community colleges and 29 percent in for-profit schools.

Enrollment in public institutions was generally increasing over the period we examine, even for sanctioned community colleges. In contrast, for-profit institutions lost students over this period. The enrollment declines in sanctioned for-profits and unsanctioned for-profit competitors were larger in both levels and percentage terms than overall enrollment declines in this sector.

2.4 Trends in Pell Grant Enrollment, Borrowers, and Closures

In the years prior to the implementation of federal regulations that tied CDRs to sanctions (1980–1988), the overall number of Pell Grant recipients was weakly increasing. The share of Pell Grant recipients attending

[17] Only 4 baccalaureate-granting public institutions, 23 baccalaureate-granting nonprofits, and 10 baccalaureate-granting for-profits were sanctioned over the period we examine. In the year prior to the release of the first set of CDR sanctions (1990), only 6 percent of for-profit colleges offered four-year degrees.

[18] These counties include: Maricopa County (AZ), Los Angeles County (CA), Orange County (CA), San Diego County (CA), Miami-Dade County (FL), Cook County (IL), Wayne County (MI), New York County (NY), Allegheny County (PA), Philadelphia County (PA), Dallas County (TX), and Harris County (TX). Robustness checks including these counties can be found in Appendix Table X. Results are similar.

for-profit institutions grew from less than 10 percent to just under 30 percent (Figure 2). Over this same period, the share of these students enrolled in public institutions fell from 75 to just under 60 percent. Beginning in 1989, when the first set of institution-level CDRs were released, the for-profit share of Pell Grant recipients fell continuously until 1998, while public institutions enrolled an increasing percentage of recipients. Total Pell Grant recipient enrollment increased continuously until 1993 and remained constant for the next nine years.

These patterns are even more pronounced among two-year public and for-profit institutions, which experienced the majority of sanctions and/or competitor sanctions (Figure 3). Between 1988 and 1998, the share of Pell Grant recipients enrolled in two-year for-profit institutions fell by 15 percentage points (close to 60 percent), while the share enrolled in public two-year institutions grew by almost an equal magnitude.

Since the federal sanctions we focus on were explicitly linked to student loan default rates, we also examine changes in the number of borrowers and CDRs across sectors since 1992 (unfortunately, sector-specific CDRs are not available before 1992). Panel A of Figure 4 displays the total number of federal borrowers (solid line, right y-axis) and the share of federal borrowers entering repayment by sector and cohort year. Echoing the patterns in Pell Grant recipient enrollment, the distribution of borrowers across sectors shifted during the years when federal sanctions were most prevalent. The share of borrowers entering repayment from public institutions increased and the share leaving for-profit institutions fell. As shown in Panel B, the CDRs of for-profit colleges dropped precipitously in the years in which sanctions were most frequently imposed, while CDRs remained fairly constant in the public and nonprofit sectors.

Finally, we describe trends in institution closures over this period. A large number of for-profit institutions closed their doors beginning in 1989, the first year that institution-specific CDRs were released. During the next decade, more than 2,000 Title IV for-profit institutions closed (Appendix Figure B.1). To further investigate the correlation between federal sanctions and changes in institution closure rates, we estimate a descriptive hazard model as described in Appendix B. Appendix Figure B.2 displays the correlation between sanction receipt and the cumulative hazard of closure over the following five years. These results suggest that sanction receipt in the for-profit sector is correlated with an over 40 percent increase in the likelihood of closure within the next five years.[19] Sanctioned nonprofit institutions also have an increased hazard of closure, while public institutions appear to be unaffected. These results suggest that the "treatment" of an additional for-profit competitor being sanctioned likely affects institutions through multiple channels, with detrimental impacts on the prices and reputation of competitors that remain open paired with a reduction

[19] Our measure of closure comes from the PEPS data. The PEPS data allow us to distinguish between closures and mergers, but only contain information on Title IV institutions. Thus, we do not observe closures for institutions that exit the Title IV program prior to closing. To the extent that CDR-related federal regulations induced institutions to leave Title IV, Appendix Figures B.1 and B.2 will underestimate the number of closures and the correlation between sanction receipt and closure..

in the number of competitor institutions.

3 Empirical Framework

We use a generalized difference-in-differences framework to estimate the causal effect of sanctions on enrollment within sanctioned schools and their unsanctioned competitors within the same local higher education market (county). We are also interested in assessing whether sanctions differentially affect public, nonprofit, and for-profit institutions' own enrollment and whether the enrollment spillovers due to a competitor's sanction depends on interactions between an institution's own and competitors' sectors. The latter allows us to test explicitly whether for-profit students switch to public institutions in response to institutional aid loss. To do so, we estimate equation (2):

$$enrl_{jy\tau} = \boldsymbol{\beta^c}\left(\mathbf{s^c_{j\tau}post_{y\tau}}\right) + \sum_d \left\{\boldsymbol{\gamma^c_d}\mathbf{s^c_{-jdm\tau}post_{y\tau}}\right\} + \alpha_{j\tau} + \alpha_y + \alpha_t + t\alpha_c + \epsilon_{jmy\tau} \tag{2}$$

where j indexes institutions, y indexes calendar years, τ indexes potential sanction years (hereafter "sanction-years"), m indexes local higher education markets, $c \in \{p,\ np,\ fp\}$ indicates the sector to which institution j belongs (i.e., public, nonprofit, and for-profit, respectively) and bold terms represent vectors. Likewise, $d \in \{p,\ np,\ fp\}$ represents the sector of the sanctioned competitor. The treatments of interest are $\mathbf{s^c_{j\tau}}$, an indicator for whether institution j in sector c received a sanction in sanction-year τ, and $\mathbf{s^c_{-jdm\tau}}$, which indicates the number of institution j competitors that belonged to sector d that were sanctioned in sanction-year τ. Both of these terms are interacted with $\mathbf{post_{y\tau}}$, an indicator for the year of the sanction and the five following academic years. Main effects of own and competitor sanctions are accounted for by institution by sanction-year fixed effects ($\alpha_{j\tau}$) and fixed effects for the number of years before or after the sanction (α_t, where $t = y - \tau$) account for main effects of $\mathbf{post_{y\tau}}$. Calendar year fixed effects (α_y) account for year-specific shocks that affected all institutions similarly (e.g., changes in the maximum Pell Grant or rules dictating Pell Grant eligibility). We include a linear time trend that varies by sector, $t\alpha_c$, to account for changes in sector-specific features over time (e.g., reductions in state funding for community colleges). $\epsilon_{jmy\tau}$ is a composite error term.

The main empirical contribution of this paper comes from the coefficients the $\boldsymbol{\gamma^c_{2,d}}$ terms in equation (2), which represent the estimated impact of an additional sector d sanction on enrollment within unsanctioned competitor institution in sector c. For instance, $\gamma^p_{2,fp}$ represents the impact of an additional sanctioned for-profit institution on the enrollment of unsanctioned public institutions in the same local higher education market. To test whether the threat of Title IV ineligibility has different effects on institutions in different

sectors, we can test the equality of the $\boldsymbol{\beta^c}$ coefficients. Likewise, to test for cross-sector spillovers between sanctioned institutions and their competitors within a given local market, we can test the equality of the $\gamma^{p}_{2,d}$, $\gamma^{np}_{2,d}$, and $\gamma^{fp}_{2,d}$ coefficients for a given sector d.

Our key identifying assumption is that no other factors affecting enrollment in either the sanctioned or competitor institutions were contemporaneous with the timing of the sanction. With respect to identifying effects on sanctioned institutions own enrollment, this assumption implies that counterfactual Pell Grant recipient enrollment trends should be similar in institutions that do and do not receive sanctions in the same sector in the years after the sanction is applied.[20] In the case of identifying spillover effects, this assumption implies similar trends for unsanctioned competitor institutions in the same sector that were in markets that differed only in the number of sanctioned institutions in a particular sector. As an example, this assumption implies that counterfactual enrollment trends for unsanctioned public institutions should be similar in markets that had 1 versus 2 sanctioned for-profit institutions. It is unlikely that competitors anticipate and preemptively adjust to sanctions that will be imposed on neighboring institutions in future years. However, in larger markets, schools might be exposed to more sanctioned competitors and it may be the case that overall enrollment trends in larger versus smaller markets differ. We address this concern in three ways. First, we include market-specific time-trends in our main specification. The exclusion of these trends does not substantially alter our estimates (available upon request). Second, we divide markets into quartiles based on market size (number of institutions) in the year before the first sanctions were imposed (1990). Effects are quite similar across large and small markets, although for the largest 12 markets we exclude from our main sample, as expected, estimated spillovers are relatively imprecise.

Finally, we estimate event-study models, in which $post_{y\boldsymbol{\tau}}$ in equation (2) is replaced by a set of indicators for years before and after the sanction was imposed or an additional competitor received a sanction:

$$\begin{aligned} enrl_{jy\tau} = & \sum_{k=-10}^{10} \left\{ \boldsymbol{\beta^{c,k}} \left(\mathbf{s^c_{j\tau}} \mathbf{1}\left[\mathbf{t}=\mathbf{k}\right]_{\tau} \right) \right\} + \sum_{k=-10}^{10} \left\{ \sum_d \left\{ \boldsymbol{\gamma^{c,k}_{d}} \left(\mathbf{s^c_{-jdm\tau}} \mathbf{1}\left[\mathbf{t}=\mathbf{k}\right]_{\tau} \right) \right\} \right\} \\ & + \alpha_{j\tau} + \alpha_y + \alpha_t + t\alpha_c + \epsilon_{jmy\tau} \end{aligned} \tag{3}$$

where $\mathbf{1}\left[t=k\right]_{\tau}$ indicates that the school is observed k years before or after sanction year τ (with $k \in (-10, 10)$). This allows for an explicit test of whether enrollment trends in years prior to the sanction are statistically distinguishable for schools in the same sector that did and did not receive sanctions (i.e., $\beta^{c,-10} = ... = \beta^{c,-1} = 0$) and whether pre-period enrollment trends within unsanctioned institutions that had one additional sanctioned competitor differed from pre-period trends of unsanctioned schools with one

[20] This assumption will be violated if institutions endogenously adjust their recruitment, tuition, and institutional aid practices in anticipation of being sanctioned (Darolia (2013) does not find evidence of an enrollment expectations effect when institutions exceeded the three year 25 percent CDR threshold for one or two years).

fewer sanctioned competitor (i.e., $\boldsymbol{\gamma}_d^{c,-10} = ... = \boldsymbol{\gamma}_d^{c,-1} = 0$).

4 The Impact of Sanctions on Enrollment

We start our analysis of the impact of sanctions on enrollment by estimating equation (2). The top row of Table 2 presents empirical results of the impact of sanctions on an institution's own enrollment (i.e., β^p, β^{np}, and β^{fp}). We find small, statistically insignificant declines in enrollment within sanctioned public institutions in the five years following receipt of a sanction, representing an approximately 9 percent decline relative to baseline enrollment. Sanctioned nonprofit institutions lose 65 students per year, on average, in the five years following sanction receipt, representing an approximately 30 percent reduction relative to enrollment in the year prior to sanction receipt. Finally, enrollment in sanctioned for-profits declines by 97 students per year in each of the five years after the sanction. Since average baseline enrollment in sanctioned for-profits was 238 (see Table 1), this represents an approximately 40 percent decrease. Event study estimates of own enrollment effects for for-profit institutions reveal a sharp decline in enrollment in the year of the sanction and following two years, which is consistent with the period of federal student aid loss associated with a sanction (Panel C of Appendix Figure C.1).[21] Enrollment within sanctioned for-profits continues to decline, albeit at a slower rate, for up to 10 years after the sanction, suggesting effects that persist beyond the period in which a sanctioned school was directly impacted. One explanation is the increased rate of closure among sanctioned for-profits. As described in Appendix B, sanctioned for-profits experienced a 40 percent increase in the cumulative hazard of closure in the five years following sanction receipt.

These own-enrollment effects do not take into account spillovers from sanctioned institutions to their unsanctioned competitors, and these effects are critically important to assessing the overall impact of federal regulation on students' access to higher education. The second set of estimates in Table 2 represent the effect of an additional school sanctioned in the specified sector on a given unsanctioned competitor's own enrollment. Given the small number of public and nonprofit institutions receiving sanctions, spillover effects are relatively imprecise. Within the nonprofit sector, we find marginally significant ($p < 0.10$) increases in unsanctioned nonprofit competitors when an one additional nonprofit within the same market is sanctioned. However, given the small number of nonprofit institutions in the two-year sector, and the even smaller number of nonprofits receiving sanctions during this period, this result should be interpreted with caution.

We find evidence of significant enrollment spillovers following a sanctions applied to for-profit schools. The estimated effects in column 3 suggest that, on average, each public community college enrolls an additional

[21] Furthermore, sanctioned for-profits appear to have significantly larger enrollment increases over the 10 years prior to sanction receipt than unsanctioned competitors, suggesting that for-profit schools that were especially fast growing were also generating more student borrowers and/or worse post-college outcomes .

50 students when one additional for-profit college within the same market is sanctioned. In contrast, the average unsanctioned for-profit school experiences a loss of 14 students when an additional local for-profit competitor is sanctioned.[22]

The enrollment spillovers we estimate represent the enrollment gain or loss for a given competitor. But each sanctioned for-profit has multiple competitors in each sector. On average, a sanctioned for-profit has 2 unsanctioned public competitors, 2 unsanctioned nonprofits, and 12 unsanctioned for-profit competitor institutions in the same market (Table 2). Thus, we scale the estimated per-institution enrollment spillovers by the number of competitor institutions exposed to a sanctioned for-profit institution to estimate the effect of for-profit sanctions on market-wide enrollment. We estimate that the average enrollment decline for a given sanctioned for-profit college is completely absorbed by the increase in community college enrollment of 107 additional students. At the same time, an additional sanctioned for-profit generates a total enrollment decline of 164 students within unsanctioned for-profit competitors. Combining the direct and spillover effects in the for-profit sector, our estimates suggest an additional for-profit sanction leads to loss of 261 students, and about 41 percent of these students are absorbed by local community colleges. Given the size of the average market with at least one sanctioned for-profit institution, this enrollment drop represents an approximately 3 percent decrease in countywide enrollment.[23]

In Table 3, we lengthen our time frame to observe a 10-year window. Although markets changed dramatically over this longer time-frame and our assumptions about parallel counterfactual trends in enrollment for schools exposed to more versus fewer sanctioned competitors are necessarily stronger, the results are consistent with those generated using shorter panel, but suggest great absorption in the public sector. Sanctioned for-profits lose about 77 students, and an equivalent 77 students are absorbed by the average public institution when one additional for-profit is sanctioned. Negative spillovers among competitor for-profits remain the same at 14 students lost per year for each additional sanctioned for-profit competitor. Multiplying through by the number of institutions to calculate the overall effects in the market, suggests that over a ten-year time frame about two-thirds of students (68 percent) are absorbed by the public sector and overall county enrollment falls by just 2 percent. We explore temporal patterns further in the robustness checks below.

[22] Appendix Table C.2 show that estimated impacts of own and competitor sanctions on ln(enrollment) yields similar findings.

[23] As shown in Appendix Table C.2, estimated effects on ln(enrollment+1) are largely similar. We examine ln(enrollment+1) rather than ln(enrollment) to be able to capture enrollment declines due to school closures and open schools that lose Title IV eligibility and thus have 0 Pell Grant recipients. For instance, the estimated 0.645 reduction in log enrollment within sanctioned for-profits represents a 48 percent decline, which is larger, but comparable to the 30 percent enrollment decline we find in Table 2. Likewise, we estimate that an additional sanctioned for-profit competitor leads to an 8 percent increase in each local community college's enrollment and a 5 percent decrease in each local unsanctioned for-profit competitor's enrollment. Scaling the estimated increase of 50 students within a given community college due to an additional for-profit competitor (Table 2) by baseline community college enrollment (Table 1) suggests these schools experienced a 5 percent increase in annual enrollment. Likewise, the negative spillovers on unsanctioned for-profit competitors due to an additional local for-profit being sanctioned represents a 10 percent decrease relative to baseline enrollment.

4.1 Robustness

We first consider an alternative specification that allows for nonlinearities in enrollment responses to sanctions within sanctioned schools and their local unsanctioned competitors. There is substantial variation in enrollment levels across sanctioned for-profits, ranging from 0 to over 7000, so an additional for-profit institution receiving a sanction would likely have larger effects on unsanctioned competitors' enrollment in markets where sanctioned for-profit enrollment is larger than average. Thus, we create an alternative measure of the "bite" or magnitude of the extent of competitor sanctions by constructing a measure of the number of students potentially exposed to a sanction within a given sector and market. We use enrollment within sanctioned institutions in the year before the sanction was announced to approximate the number of recipients exposed to the future sanction, as enrollment in the year of the sanction itself will likely endogenously respond to the loss (or threat of loss) of federal aid. Focusing on markets in which at least one for-profit institution was sanctioned, the number of for-profit students potentially exposed to a sanction ranges from 0 to 8819, with a mean of 614 and median of 273. Finally, because baseline enrollment within unsanctioned competitors also varies substantially, we estimate specifications with ln(enrollment+1) as the dependent variable and likewise, use the log of our measure of number of students potentially exposed to sanctions. Specifically, we estimate:

$$ln\left(enrl\right)_{jy\tau} = \boldsymbol{\beta^c}\left(\mathbf{s^c_{j\tau}post_{y\tau}}\right) + \sum_d \left\{\boldsymbol{\gamma^c_d ln}\left(\mathbf{rs^c}\right)_{\mathbf{-jdm\tau}}\mathbf{post_{y\tau}}\right\} + \alpha_{j\tau} + \alpha_y + \alpha_t + t\alpha_c + \epsilon_{jmy\tau} \quad (4)$$

where $ln\left(rs\right)^c_{-jdm\boldsymbol{\tau}}$ is the natural log of the number of recipients in sector d that were potentially exposed to a sanction in competitors of institution j in sector c, market m, and sanction-year τ.

Spillover effects estimated from this model ($\boldsymbol{\gamma}^c_d$) can be interpreted as enrollment elasticities, specifically, the elasticity of enrollment in sector c institution with respect to the number of students in sector d who are exposed to sanctions. Estimated own enrollment and spillover effects are presented in Table 4. Sanctioned for-profits experience a 0.64 log point (47 percent) enrollment decrease in the five years after sanction receipt. The lower panel indicates that a one percent increase in the number of Pell recipients in the for-profit sector that were exposed to a sanction generates a 0.044 percent increase in enrollment within a given unsanctioned public sector institution and and a -0.023 percent decline in unsanctioned for-profits. These results suggest a relatively small enrollment elasticity with respect to enrollment of students exposed to sanctions in competitor institutions. Given the much greater size of the average community college in markets with sanctioned for-profits (1100), it is not surprising that these schools did not experience large changes in overall enrollment,

even though the increase in Pell recipients (50) is more than 50 percent of the fall in enrollment within sanctioned for-profits (97).

We further test the robustness of our results by estimating own and spillover enrollment effects of sanctions within markets that vary in size. Specifically, we divide our main sample into quartiles based on the total number of institutions in 1990 to address the concern that markets with more schools sanctioned are very different in structure than markets with fewer schools sanctioned. Results are shown in the first four-columns of Table 6. Estimated effects of for-profit sanctions on own and competitor enrollment levels is increasing in county size, but the overall reduction in market enrollment due to an additional for-profit sanction is between a 3 and 5 percent. In all four quartiles, we find evidence of significant decreases in enrollment within sanctioned for-profits and significant increases in unsanctioned public competitors from an additional for-profit sanction. Enrollment spillovers of an additional for-profit sanction on unsanctioned for-profits are negative and statistically significant in three of the four quartiles. These results provide evidence that the spillover effects we estimate using our main sample cannot be explained by differences in the size of markets with more versus fewer sanctioned schools, and that in percentage terms, enrollment responses to sanctioned for-profits were quite similar.

The last column of Table 6 focuses on the 12 largest counties with more than 50 two-year institutions that are excluded from our main sample. Each additional sanctioned for-profit within these very large markets leads to a 1 percent decrease in overall enrollment. Estimated enrollment spillovers for a given public (for-profit) competitor are smaller than in other markets, most likely due to the large number of such schools available to absorb students displaced from sanctioned for-profits.

In our next robustness test, we include four-year institutions to our sample. Many selective four-year public and nonprofit institutions draw students from outside of the local market, and thus, we would not expect to see a response to changes in local demand. Outside of the for-profit sector, we would not expect four-year college enrollment to be responsive to sanctions that primarily targeted two-year institutions, and there were very few for-profits classified as four-year institutions in the 1990s. Nonetheless, we check to be sure our results are unaffected by the inclusion of these institutions. As shown in Table 7, we obtain similar results when we include this broader group of institutions in our sample and estimate that each additional for-profit sanction leads to a 1 percent drop in county-wide enrollment.

We explore heterogeneity by sanction-year; results are contained in Table 8. The largest decrease in own-enrollment following a sanction occurs in 1991, the first year that sanctions were imposed. One interpretation of this finding is that the for-profit institutions that were most affected by a sanction closed or left Title IV, leaving a (relatively) positively selected sample of for-profits that could potentially be sanctioned in subsequent years. The finding of both positive spillovers to public institutions and negative spillovers to for-

profit competitors (when an additional for-profit competitor is sanctioned) is consistent with an industry-wide reputational effect: impacts appear strongest in the first several years of the policy (1991–1995) as potential students learn more about for-profit colleges, and then (with an exception in 1998) decrease in magnitude when later-year sanctions are imposed, when many sanctioned and unsanctioned for-profit schools have closed or left the Title IV program, and (presumably) potential students already gained more information about the sector as a whole.

4.2 Mechanisms

As discussed previously, when a local for-profit college is sanctioned and its students are exposed to a loss of federal student aid, we would expect to see weakly positive enrollment changes in other institutions and sectors, as these schools have become relatively cheaper. Thus, the negative spillovers we find for competing for-profit institutions in the same county are surprising. One explanation is that — not unlike today — the reputation of the sector was tarnished when individual institutions were sanctioned. To explore this hypothesis we conducted an archival analysis of newspaper records.[24] We found several national news stories on cohort default rates and the problems of student loan repayment in "private trade schools." Perhaps more relevant to our study were numerous stories in local newspapers reporting on sanctions and the closure of local institutions. We present select quotations in Appendix D. These quotes suggest that when one school gets sanctioned, other private trade schools may suffer; for example, after a local competitor shut down in 1991, a for-profit college founder suggested that the image of the local trade school industry "has taken a pretty heavy beating. Any damage to any private career school affects every other school" (Morgan, 1991).

Our archival analysis also suggested that spillovers might be more likely among branches of the same chain of institutions. To assess this empirically, we code chains by matching names of colleges in more than one location. Our match is necessarily imprecise, but we identify three types of chains in the data: single-state, multi-state, and chains with multiple locations in the same county. We may be most concerned that our negative within-county spillovers are driven by chains in the same county, but just only 6 percent of all for-profits had multiple locations in same county during the 1990s. Of the 9688 for-profit schools located in markets within which at least one for-profit competitor was sanctioned, only 137 (1 percent) belonged to the same chain as the sanctioned school. Thus, it is unlikely that preemptive actions taken by unsanctioned locations within a chain that also contains sanctioned institutions in the same county can explain the negative spillovers. We confirm this hypothesis in Table 9, which presents point estimates from a specification that allows spillover effects of an additional for-profit competitor sanction to vary by whether

[24] We ran queries in Lexis-Nexis using the names of the 20 largest for-profit colleges as well as 10 other randomly selected smaller colleges.

the sanctioned competitor belonged to the same chain. The point estimate is positive and not statistically distinguishable from either 0 or the estimated spillover effect on other unsanctioned for-profits.

While chain-wide responses to a single location being sanctioned cannot explain our finding of negative enrollment spillovers in unsanctioned for-profits, it may be that reputational effects are stronger among institutions that offer programs in fields similar to those offered by sanctioned institutions. For example, an article describing a local sanctioned beauty school noted,"[h]air-dressing schools are also prevalent on state and national lists," perhaps leading students away from other for-profit cosmetology schools in the local market. To asses spillovers by field, we grouped for-profit colleges into five broad "field" categories using keywords appearing in college names, with the remainder whose names do not indicate a particular field depicted as "General" for-profits, as described in Appendix **??**.

For-profit institutions vary substantially in size across industries.[25] For example, schools classified as offering beauty programs enroll 47 students on average, while general for-profits had 289 Pell Grant recipients in 1990. Thus, we test for heterogeneity in spillovers by industry via equation (4). Enrollment responses to sanctions vary significantly across industries ($p < 0.001$). The largest own enrollment declines due to sanction receipt occur among general for-profits (0.86 log points or 58 percent), and those focusing on computing/business (1.29 log points or 73 percent), culinary/arts/hospitality (-1.47 log points or 77 percent), and engineering/mechanical trade programs (0.91 log points or 60 percent). Beauty schools also experience significant enrollment decreases, albeit of a smaller magnitude (0.43 log points or 35 percent). Across all for-profit industries, own enrollment effects are negative, and jointly significant with $p < 0.001$. Sanctions applied to general for-profits produce larger positive enrollment spillovers within the public institutions, which typically offer a range of fields. Although estimated enrollment gains from a marginal increase in the number of students exposed to sanctions are jointly significant ($p < 0.001$), we cannot reject that effects are statistically different by for-profit industry ($p = 0.538$).

Supporting the argument that within-field reputations matter, in every industry but one, spillovers from sanctioned for-profit competitors in the same industry are negative and larger in magnitude than spillovers from sanctioned for-profits in other industries. The largest industry-specific spillovers are in the culinary/arts/hospital and engineering/mechanical trade industries. A one percent increase in the number of Pell Grant recipients exposed to sanctions within these sectors leads to a 0.22 and 0.25 percent enrollment decline within other local culinary/arts and engineering/mechanical trades schools, respectively. Unsanctioned beauty schools also experience a significant enrollment loss when an additional beauty school competitor is

[25] Appendix Table A.1 shows that total number of unique for-profit institutions and average enrollment by industry, the number and average enrollment of sanctioned for-profit institutions by industry, and the number and average enrollment of unsanctioned for-profit competitors of different-industry sanctioned for profits and same-industry sanctioned for-profits, by industry. The final two columns display characteristics of public competitors of sanctioned for-profits, by industry.

sanctioned, with a 1 percent increase in the number of beauty school students exposed to sanctions leading to a 0.03 percent decline in unsanctioned competitor beauty schools' enrollment. Although not definitive, the direction and magnitudes of these results suggest that reputational effects within fields may be at play, at least for some fields. A final, optimistic interpretation of the negative spillovers to competitor for-profits is that sanctions may have improved student information about the quality and costs of colleges in this sector, leading students to make more informed choices. We cannot assess this hypothesis directly, but we examine patterns of student outcomes on default and borrowing in section 5 that provide suggestive evidence that this may be the case.

5 Descriptive Evidence on Borrowing and Default

In the previous section, we show that when for-profit institutions are threatened with federal sanctions, their own enrollment falls, enrollment in competitor for-profit institutions likewise decreases, and public institutions absorb these students. However, it is unclear whether this reallocation of students across sectors in response to for-profit sanctions represents a gain in private or social welfare. Ideally, we would compare attainment and earnings outcomes of students affected by sanctions to their outcomes in the absence of sanctions. Given data limitations, we can only proxy for student outcomes by examining changes in borrowing and defaults across sectors in response to sanctions. Specifically, we estimate market-level regressions by regressing the total number of borrowers or defaulters within a market on the number of institutions, N, in market m and sector c that had ever been sanctioned as of year t and market and year fixed effects:

$$Y_{mt}^{c} = \boldsymbol{\gamma}_{\boldsymbol{mt}}^{\mathbf{c}} \mathbf{N}_{\mathbf{mt}}^{\mathbf{c}} + \delta_m + \delta_t + \nu_{mt}. \tag{5}$$

We examine whether the changes in enrollment that occurred following for-profit sanctions are correlated with changes in borrowing and repayment outcomes. Because entry into repayment lags enrollment, we lag our measure of the number of institutions in a market that were threatened with sanctions by two years. Unfortunately, since we first observe borrowers and defaulters beginning with the 1992 cohort, we cannot identify the effects of earlier sanctions.

As shown in Panel A of Table 11, each additional sanctioned institution is significantly correlated with a decrease in the number of borrowers in a local higher education market. Specifically, the point estimate in column (1) indicates that 44 fewer students took on federal loans — a 12 percent decline from baseline borrowing — when one additional institution was sanctioned in any sector. The reduction was driven by a drop in borrowers entering repayment from nonprofit and for-profit institutions in response to sanctions

in these same sectors. Specifically, 26 fewer nonprofit students borrowed following a nonprofit sanction and 59 fewer for-profit students borrowed following a for-profit sanction. Community colleges appear to gain 24 percent of the would-be for-profit borrowers (e.g., Panel A, column (2), last row) suggesting that a large number of students who were shifted to community colleges following the sanction of a for-profit institution also shifted out of borrowing. The decline in borrowing in nonprofit institutions following a nonprofit sanction does not appear to be absorbed by any other sector. Finally, public sector sanctions are associated with an increased number of for-profit borrowers. This correlation may be due to prospective or current community college students shifting into for-profit institutions after losing access to federal student aid within the public sector, although we do not find a corresponding increase in Pell Grant recipient enrollment.

In Panel B of Table 11, we examine the correlation between sanctions and defaults. The dependent variable is the number of students who entered repayment and defaulted on their federal loans within two years in the specified sector. As shown in column (1), one additional institution receiving a sanction results in 31 fewer borrowers defaulting within two years. Own sector sanctions in all three sectors correlate with significant reductions in defaults. Despite the small increase in the number of borrowers attending community colleges following a for-profit sanction indicated in Panel A, defaults in the public sector do not change (Panel B, column (2), last row).

Finally, to get a rough estimate of the share of students induced to stop borrowing who would have eventually defaulted in the absence of federal sanctions, we can compare the changes in the number of borrowers in Panel A to the changes in the number of defaulters in Panel B. Comparing these estimates from column (1) suggest that roughly 70 percent of the students induced to stop borrowing would have defaulted on their loans in the absence of threatened sanctions.

6 Conclusions

In recent years, expansive growth followed by increased scrutiny of the for-profit sector has led to the closure of several large for-profit college chains and new regulations that will further restrict federal student aid at many other institutions in this sector. To shed light on how these changes might affect aggregate college enrollment and the distribution of students across sectors, this study draws on historical data when policymakers implemented similarly restrictive regulations. We use these cohort default rate regulations with a difference-in-differences design to assess whether and how student enrollment shifts within and across sectors when (primarily) for-profit institutions lose eligibility for federal student aid due to federal sanctions.

We find that Pell Grant recipient enrollment falls when for-profit institutions are threatened with the loss of federal aid. Compared to previous research and using data with a broader scope (Darolia 2013), the

magnitude of our results suggests that the enrollment of vulnerable students — recipients of the means-tested Pell Grant — is more strongly affected by federal aid loss. Further extending the literature, our results reveal that when a for-profit college is sanctioned, enrollment in other local competitor for-profit colleges also declines. Archival news analysis and analysis by field suggests that — much like today — the whole sector suffers the reputational impacts of federal sanctions placed on individual institutions. About 40-68 percent of for-profit students deterred from going to college in the sector shift to the public community college sector. On net, we find evidence that the decline in for-profit sector enrollment reduces aggregate educational attainment in a local market of about 2-3 percent.

Overall, our results suggest several important implications for the sub-baccalaureate market. First, it is evident that students in sanctioned for-profit institutions can and do find programs to fit their needs in the public sector. Our results confirm the findings of Cellini (2009) and Goodman and Henriques (2015), in that there appears to be strong competition for students across sectors at the two-year college level. Second, capacity constraints at lower-cost competitor public institutions did not appear to be a concern in the time period and context that we study, as public institutions were generally able to accommodate students who switched sectors in response to federal sanctions. However, declining public support for community colleges and concerns over capacity constraints in some states may suggest a weaker public sector response in more recent years.[26] On the other hand, the growth of distance learning in both public and for-profit institutions will likely loosen capacity constraints and at the same time allow students to shift to a much broader set of institutions outside of their local higher education market.

But is the shift of students from for-profit to public institutions and the loss of some enrollment in the local market welfare enhancing? Two-year public institutions charge about one-fifth the tuition of two-year for-profits, and public sector students are less likely to borrow to cover the cost of college (U.S. Department of Education 2015). Moreover, research suggests that these higher direct costs of a for-profit education do not lead to higher returns or better job prospects on average (e.g., Cellini and Chaudhary 2014; Darolia et al. 2015; Deming et al. 2016; Cellini and Turner 2016; Lang and Weinstein 2013). In this study, we provide further descriptive evidence that federal student loan borrowing and defaults declined as students shifted into public institutions in response to sanctions on for-profit colleges in the 1980s and 1990s. Thus, our results suggest that restrictions on federal student aid provided to poorly performing for-profit colleges can lead to better outcomes for students and public loan programs, with only minor reductions on higher education consumption.

[26] See for example Bohn, Reyes and Johnson (2013) and Keller (2011) on capacity constraints in California community colleges.

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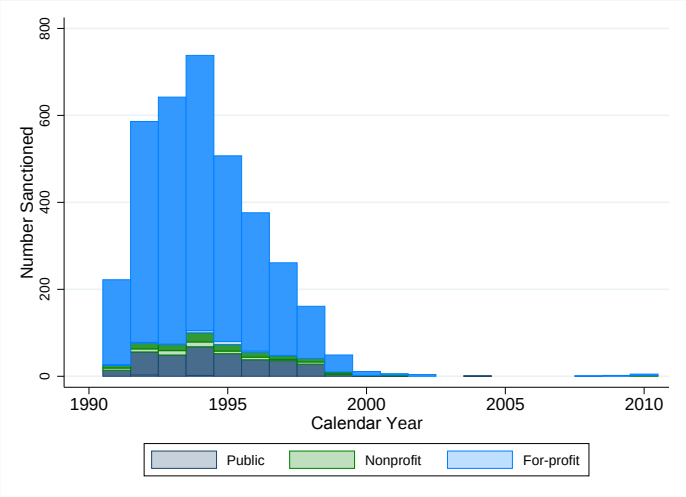
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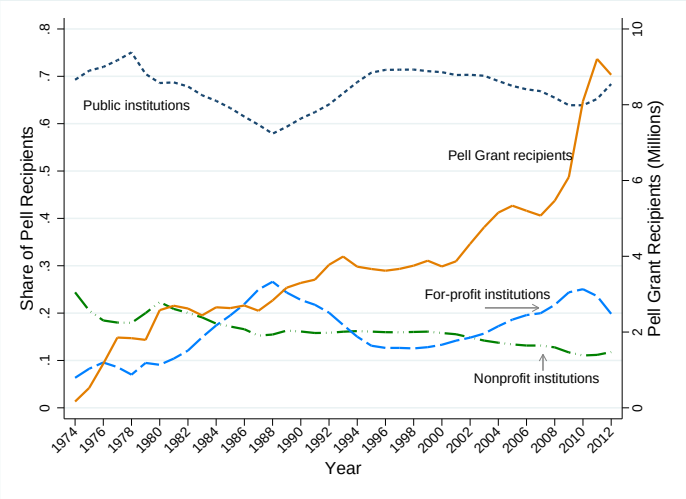
Figures and Tables

Figure 1: Sanctions by Sector and Year



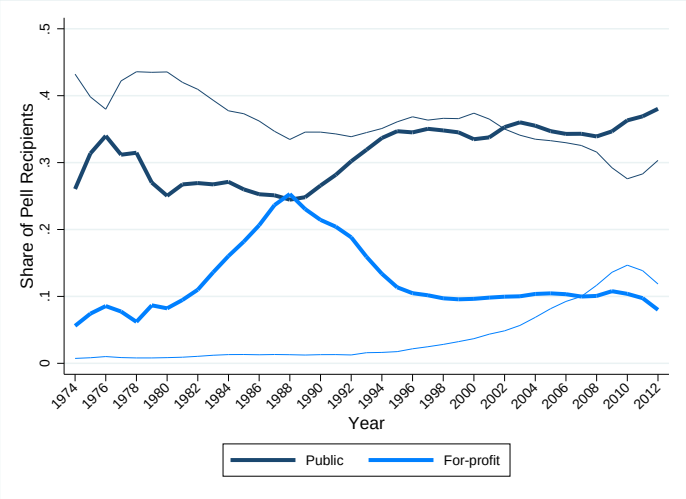
Source: Sanction administrative data. *Notes:* Sample includes all two- and four-year institutions with federal borrowers entering repayment. Dark bars represent two-year institutions, light bars represent four-year institutions.

Figure 2: The Number and Distribution of Pell Grant Recipients across Sectors by Year



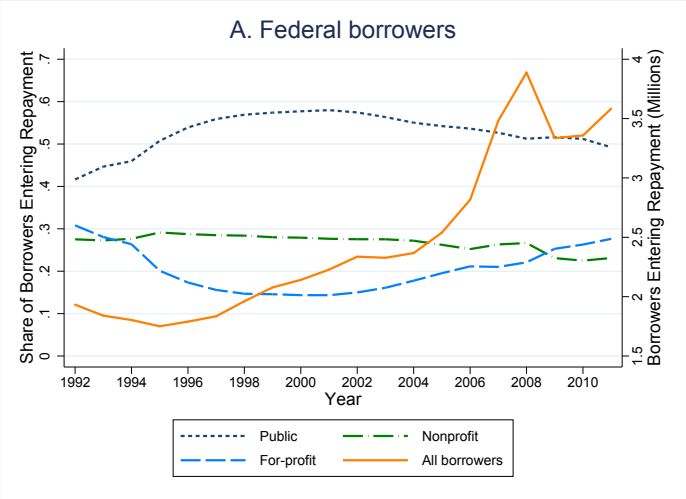
Source: Pell Grant administrative data. *Notes:* Sample includes two- and four-year institutions with Pell Grant enrollment in the specified academic year. The solid orange line represents total Pell Grant recipients (in millions, on right y-axis), the short-dashed dark blue line represents the share of Pell Grant recipients enrolled in public institutions, the long-dashed light blue line represents the share of Pell Grant recipients attending for-profit institutions, and the long-dashed-dotted green line represents the share of Pell Grant recipients attending nonprofit institutions (on left y-axis).

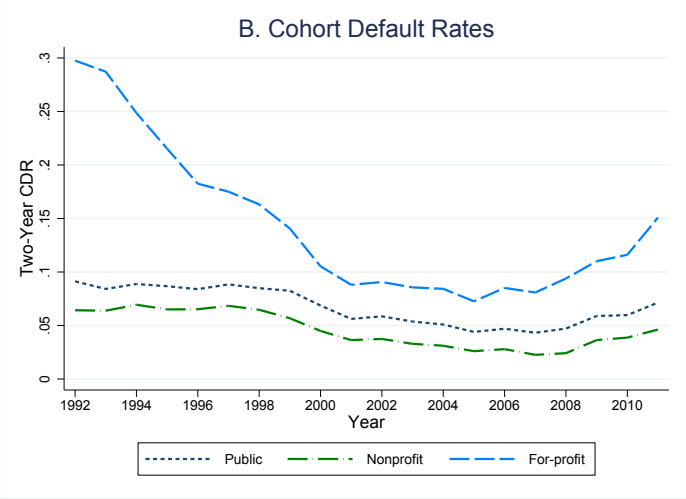
Figure 3: The Distribution of Pell Grant Recipients across Sectors by Year and Level



Source: Pell Grant administrative data. *Notes:* Sample includes two- and four-year public and for-profit institutions with Pell Grant enrollment in the specified academic year. Thick lines represent two-year institutions (including less than two-year institutions), and thin lines represent four-year institutions. Nonprofit institutions' share is omitted.

Figure 4: Borrowers and CDRs by Sector and Year

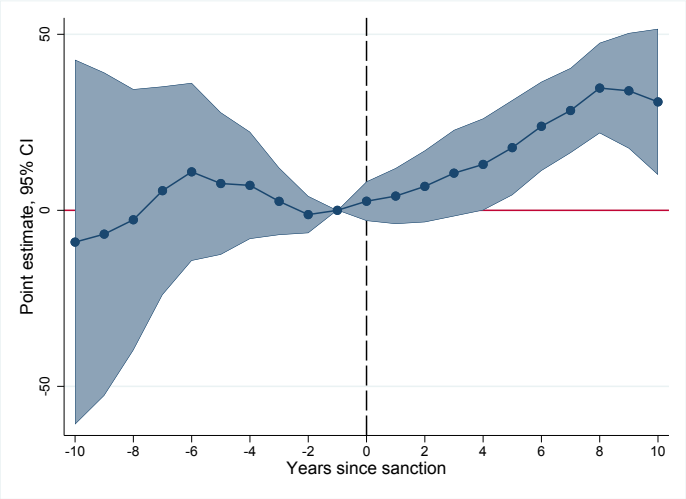




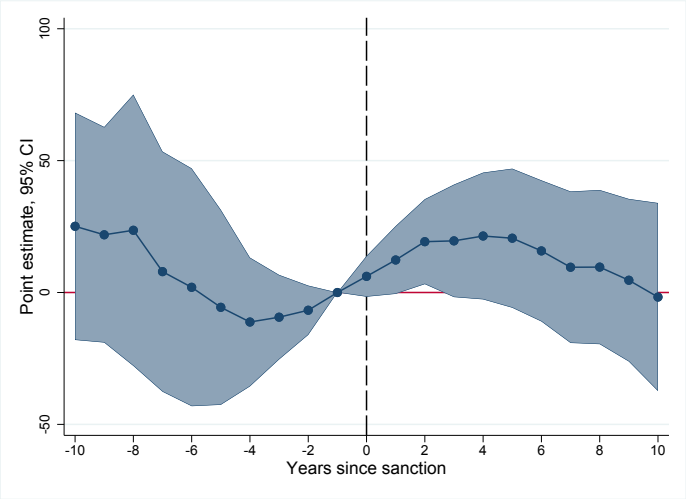
Source: CDR administrative data. *Notes:* Sample includes two- and four-year institutions with CDR data. Panel A displays the total number of federal borrowers entering repayment in the specified cohort-year. Panel B displays the ratio of total federal borrowers who defaulted within two years of entering repayment to the total number of federal borrowers who entered repayment in the specified cohort-year.

Figure 5: Effect of Sanctioned Competitor Institutions on Pell Enrollment

A. Competitor ×# Sanctioned Publics



B. Competitor ×# Sanctioned Nonprofits



C. Competitor × # Sanctioned For-profits

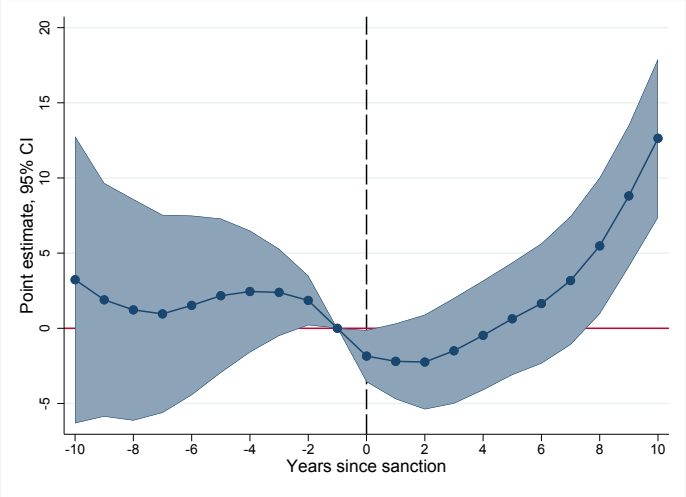


Table 1: Characteristics of Institutions by Sector and Sanction Receipt

	(1) Public	(2) Nonprofit	(3) For-profit
A. All institutions within sector			
Average Pell Grant recipient enrollment			
Pre-sanction (t - 5 to t - 1)	644	82	113
Post-sanction (t = 0 to t + 5)	804	85	91
Share of Pell recipients (t - 1)	0.73	0.03	0.23
Observations (school by sanction year)	14,635	5,642	31,923
B. Sanctioned institutions			
Average Pell Grant recipient enrollment			
Pre-sanction (t - 5 to t - 1)	462	238	248
Post-sanction (t = 0 to t + 5)	539	169	142
Share of Pell recipients (t - 1)	0.20	0.02	0.78
Observations (school by sanction year)	280	66	2,025
C. Unsanctioned Competitors			
Average Pell Grant recipient enrollment			
Pre-sanction (t - 5 to t - 1)	929	74	135
Post-sanction (t = 0 to t + 5)	1232	76	93
Share of Pell recipients (t - 1)	0.67	0.03	0.29
Observations (school by sanction year)	2,415	1,591	10,264

Source: Pell Grant, CDR, sanction, and PEPS administrative data. *Note*s: Sample includes two-year institutions participating in Title IV programs between 1986 and 2005. Competitor institutions are other two-year institutions in the local higher education market (county).

Table 2: The Impact of Sanctions on Enrollment in Sanctioned and Competitor Institutions

Sanctioned sector:	*1. Public*	*2. Nonprofit*	*3. For-profit*	Test of equality (*p* -value)
Post x Threatened sanction	-44	-65	-97	0.231
	(36)	(31)*	(11)**	
Post x # competitors with threatened sanction				
x Public	19	122	50	0.529
	(32)	(100)	(12)**	
x Nonprofit	18	23	-1	0.219
	(15)	(13)+	(3)	
x For-profit	-8	13	-14	0.174
	(10)	(13)	(4)**	
Test of equality (*p*- value)	0.200	0.581	<0.001	
Number of institutions | threatened sanction				
Threatened sanction	1	1	1	
Public competitor	1.3	1.5	2.1	
NP competitor	0.8	1.7	1.5	
FP competitor	6.2	10.4	11.7	
Predicted change in county enrollment				
Threatened sanction	-44	**-65**	**-97**	
Public competitor	25	181	**107**	
NP competitor	14	**39**	-1	
FP competitor	-50	22	**-164**	
Change in market enrollment	*-54*	*286*	*-154*	
	(49)	(164)+	(35)**	
% change (rel. to baseline)	*-2%*	*9%*	*-3%*	
Counties		1331		
Institutions		5,364		
Observations		574,200		

Source: Pell Grant, CDR, sanction, and PEPS administrative data. *Note*s: Sample is limited to two-year institutions with a Title IV program participation agreement in 1986 through 2005. Closed institution enrollment is set to zero. Dependent variable is *log(Pell Grant recipient enrollment + 1)*. Each observation represents an institution by year by potential sanction year. Estimates from a regression of enrollment on whether the institution received a sanction in the sanction year, interacted with post-sanction receipt, institution fixed effects, year fixed effects, sanction-year fixed effects, and sanction-year linear trends. Column (2) includes an indicator for whether a competitor institution received a sanction in the sanction-year and post-sanction receipt for competitor institutions. See Section 3 for additional details. Robust standard errors clustered by institution in parentheses; ** p<0.01, * p<0.05, + p<0.1. Sample is limited to institutions in counties with fewer than 50 institutions (on average, across years).

Table 3: The Impact of Threatened Sanctions on Pell Grant Recipient Enrollment: 10 year window

Sanctioned sector:	*1. Public*	*2. Nonprofit*	*3. For-profit*	Test of equality (p -value)
Post x Threatened sanction	-102	-66	-77	0.864
	(61)+	(31)*	(11)**	
Post x # competitors with threatened sanction				
x Public	76	119	77	0.956
	(54)	(141)	(19)**	
x Nonprofit	32	6	-5	0.026
	(12)**	(19)	(4)	
x For-profit	-6	-2	-14	0.735
	(14)	(15)	(4)**	
Test of equality (p- value)	0.017	0.728	<0.001	
Number of institutions | threatened sanction				
Threatened sanction	1	1	1	
Public competitor	1.3	1.5	2.1	
NP competitor	0.8	1.8	1.5	
FP competitor	6.3	10.3	11.9	
Predicted change in county enrollment				
Threatened sanction	-102	-66	-77	
Public competitor	100	178	165	
NP competitor	25	11	-8	
FP competitor	-38	-21	-166	
Change in market enrollment	*-14*	*99*	*-78*	
	(50)	(122)	(27)**	
% change (rel to baseline)	*-1%*	*3%*	*-2%*	
Counties		1,337		
Institutions		5,523		
Observations		1,027,160		

Source: Pell Grant, CDR, sanction, and PEPS administrative data. *Notes*: See Table 2 for sample and specification description.
** p<0.01, * p<0.05, + p<0.1.

Table 4: The Impact of Sanctions and the Size of the Population Exposed to Sanctions on ln(enrollment)

Sanctioned sector:	*1. Public*	*2. Nonprofit*	*3. For-profit*	Test of equality (p -value)
Post x Threatened sanction	-0.117	-0.715	-0.639	<0.001
	(0.077)	(0.343)*	(0.062)**	
Post x ln(recpients enrolled in sanctioned competitors)				
x Public	-0.009	0.017	0.044	0.035
	(0.019)	(0.020)	(0.008)**	
x Nonprofit	-0.002	0.028	0.027	0.448
	(0.019)	(0.044)	(0.012)*	
x For-profit	-0.016	-0.009	-0.023	0.793
	(0.013)	(0.020)	(0.006)**	
Test of equality (p- value)	0.869	0.584	<0.001	

Source: Pell Grant, CDR, sanction, and PEPS administrative data. *Notes*: See Table 2 for sample and specification description.

Table 5: The Impact of Threatened Sanctions on Pell Grant Recipient Enrollment: Heterogeneity by Sector and Type of Sanction

Sanctioned sector:	*1. Public*	*2. Nonprofit*	*3. For-profit*	Test of equality (*p* -value)
Post x Threatened loss of loans	-0.141	-0.572	-0.544	0.007
	(0.114)	(0.330)+	(0.067)**	
Post x Competitor with threatened loss of loans				
x Public	0.130	-0.056	0.071	0.262
	(0.071)+	(0.104)	(0.050)	
x Nonprofit	-0.072	0.001	0.051	0.506
	(0.104)	(0.106)	(0.037)	
x For-profit	0.028	-0.220	-0.082	0.192
	(0.116)	(0.083)**	(0.031)**	
Total pre-sanction enrollment in market				
Threatened sanction	332	307	154	
Public competitor	1,824	2,397	1,376	
NP competitor	178	164	138	
FP competitor	789	1,401	568	
Predicted change in county enrollment				
% change: total enrollment	*7%*	*-13%*	*0%*	
Post x Threatened loss of T4	-0.179	-0.376	-0.489	0.064
	(0.106)+	(0.411)	(0.073)**	
Post x Competitor threatened loss of T4				
x Public	-0.143	-0.019	0.143	0.071
	(0.129)	(0.121)	(0.043)**	
x Nonprofit	-0.116	-0.005	-0.008	0.628
	(0.102)	(0.102)	(0.040)	
x For-profit	-0.078	0.115	-0.130	0.012
	(0.117)	(0.075)	(0.036)**	
Total pre-sanction enrollment in market				
Threatened sanction	286	133	150	
Public competitor	1,491	1,624	1,367	
NP competitor	143	321	150	
FP competitor	702	1,148	706	
Predicted change in county enrollment				
% change: total enrollment	*-12%*	*2%*	*3%*	
Counties		1,421		
Institutions		6,835		
Observations		751,850		

Source: Pell Grant, CDR, sanction, and PEPS administrative data. *Notes*: See Table 2 for sample and specification description. ** p<0.01, * p<0.05, + p<0.1.

Table 6: Robustness of the Impact of Threatened Sanctions on Institutions and Competitors: Heterogeneity by County Size

	(1) 1st quartile	(2) 2nd quartile	(3) 3rd quartile	(4) 4th quartile	(5) Large markets
Post x Threatened sanction					
x Public	-21	-55	-137	-40	-310
	(10)*	(108)	(83)	(124)	(202)
x Nonprofit	8	-49	-143	-42	-84
	(33)	(72)	(28)**	(77)	(103)
x For-profit	-61	-79	-107	-100	-108
	(25)*	(16)**	(21)**	(20)**	(51)+
	[0.204]	[0.904]	[0.541]	[0.629]	[0.572]
Post x # public competitors sanctioned					
x Public	-92	119	-46	35	-28
	(95)	(67)+	(44)	(50)	(92)
x Nonprofit	80	116	19	19	-23
	(33)*	(31)**	(18)	(22)	(23)
x For-profit	25	-24	3	-1	6
	(17)	(25)	(15)	(13)	(14)
	[0.136]	[0.001]	[0.432]	[0.506]	[0.685]
Post x # NP competitors sanctioned					
x Public	-34	64	478	-102	-141
	(30)	(47)	(264)+	(103)	(194)
x Nonprofit	-47	13	30	32	20
	(46)	(16)	(21)	(19)+	(14)
x For-profit	66	-62	-13	46	18
	(22)**	(42)	(9)	(14)**	(11)
	[<0.001]	[0.208]	[0.014]	[0.188]	[0.705]
Post x # FP competitors sanctioned					
x Public	105	76	73	25	18
	(57)+	(21)**	(23)**	(14)+	(9)+
x Nonprofit	-340	-38	-2	5	2
	(193)+	(12)**	(5)	(3)+	(2)
x For-profit	-9	-29	-17	-9	-4
	(14)	(7)**	(5)**	(4)*	(1)**
	[0.133]	[<0.001]	[<0.001]	[<0.001]	[0.031]
Change in market enrollment from adtl FP sanction					
Recipients	-22	-95	-121	-203	-259
	(22)	(34)**	(65)+	(80)*	(111)*
% change (rel to baseline)	-4%	-5%	-3%	-3%	-1%
Institutions	1,348	1,429	1,306	1,281	1,178
Counties	908	285	93	45	12
Observations	145,662	153,516	138,611	136,411	124,927

Source: Pell Grant, CDR, sanction, and PEPS administrative data. *Notes*: See Table 2 for sample and specification description.

Table 7: Robustness of the Impact of Threatened Sanctions on Pell Grant Recipient Enrollment: All Institutions

Sanctioned sector:	*1. Public*	*2. Nonprofit*	*3. For-profit*	Test of equality (p-value)
Post x Threatened sanction	-62	-195	-116	0.164
	(36)+	(66)**	(12)**	
Post x # competitors with threatened sanction				
x Public	72	42	46	0.804
	(38)+	(56)	(9)**	
x Nonprofit	2	10	-2	0.575
	(15)	(11)	(3)	
x For-profit	-23	9	-19	0.171
	(13)+	(14)	(4)**	
Test of equality (p- value)	0.050	0.865	<0.001	
Number of institutions | threatened sanction				
Threatened sanction	1	1	1	
Public competitor	1.8	2.3	3.0	
NP competitor	2.2	4.3	3.8	
FP competitor	5.8	9.9	10.7	
Predicted change in county enrollment				
Threatened sanction	-62	-195	-116	
Public competitor	131	97	137	
NP competitor	4	43	-8	
FP competitor	-132	89	-203	
Change in market enrollment	*-57*	*30*	*-184*	
	(71)	(177)	(43)**	
% change (rel to baseline)	*-1%*	*0.4%*	*-2%*	
Counties		1,330		
Institutions		6,832		
Observations		661,848		

Source: Pell Grant, CDR, sanction, and PEPS administrative data. *Notes*: See Table 2 for sample and specification description.

Table 8: Impact of Threatened Sanctions on Pell Grant Recipient Enrollment: Heterogeneity by Sanction Year

Year of sanction:	(1) 1991	(2) 1992	(3) 1993	(4) 1994	(5) 1995	(6) 1996	(7) 1997	(8) 1998	(9) 1999	(10) 2000
Total threatened with sanction										
Public	10	42	37	56	44	32	30	24	4	1
Nonprofit	6	9	11	13	9	6	6	4	2	0
For-profit	120	327	378	434	303	215	136	80	25	7
Post x Threatened sanction										
x Public	-190	-106	-27	-38	26	29	-25	6	-129	-126
	(47)**	(56)+	(51)	(47)	(62)	(97)	(102)	(87)	(65)*	(2)**
x Nonprofit	-139	-91	-55	-41	-66	-75	-50	-246	10	
	(23)**	(36)*	(39)	(37)	(46)	(57)	(72)	(244)	(43)	
x For-profit	-290	-142	-135	-66	-20	-28	-22	-35	-34	-13
	(69)**	(28)**	(20)**	(14)**	(15)	(16)+	(19)	(19)+	(53)	(168)
	[0.065]	[0.482]	[0.033]	[0.709]	[0.454]	[0.596]	[0.928]	[0.620]	[0.205]	[<0.001]
Post x # FP competitors sanctioned										
x Public	88	88	72	43	46	17	27	25	25	610
	(24)**	(12)**	(16)**	(13)**	(24)+	(21)	(22)	(35)	(43)	(568)
x Nonprofit	-4	-1	1	2	5	-2	-16	-45	-94	-278
	(10)	(3)	(4)	(3)	(3)	(6)	(10)	(24)+	(50)+	(164)
x For-profit	-4	-10	-11	-12	-8	-2	-6	-24	-3	-96
	(10)	(4)*	(4)**	(5)*	(3)*	(3)	(6)	(9)**	(17)	(90)
	[0.001]	[<0.001]	[<0.001]	[<0.001]	[0.001]	[0.682]	[0.141]	[0.253]	[0.103]	[0.129]
Change in market enrollment from adtl FP sanction										
Recipients	-157	-75	-110	-112	-5	-16	-52	-324	-155	-243
	(163)	(62)	(53)*	(58)+	(51)	(47)	(81)	(142)*	(161)	(436)
% change (rel to baseline)	*-3%*	*-2%*	*-2%*	*-2%*	*-0.1%*	*-0.3%*	*-1%*	*-7%*	*-3%*	*-5%*
Institutions	5,181	5,224	5,255	5,317	5,364	5,312	5,270	5,212	5,105	4,960
Counties	1,316	1,320	1,322	1,329	1,331	1,329	1,327	1,323	1,320	1,313
Observations	56,991	57,464	57,805	58,487	59,004	58,432	57,970	57,332	56,155	54,560

Source: Pell Grant, CDR, sanction, and PEPS administrative data. *Note*s: See Table 2 for sample and specification description.

Table 9: The Impact of Threatened Sanctions on Pell Grant Recipient Enrollment: Heterogeneity by Chain Status

Sanctioned sector:	*For-profit*
Post x Threatened sanction	-97
	(11)**
Post x # competitors with threatened sanction	
x Public	50
	(12)**
x For-profit	
x Same chain as sanctioned com	13
	(23)
% change (rel. to baseline)	*13%*
x Different chain	-14
	(4)**
% change (rel. to baseline)	*-14%*

Source: Pell Grant, CDR, sanction, and PEPS administrative data. *Note*s: See Table 2 for sample and specification description. Estimated main effects of public and nonprofit sanctions, spillover effects due to public and non-profit sanctions, and spillovers from sanctioned for-profits with respect to nonprofit enrollment are not reported. ** p<0.01, * p<0.05, + p<0.1.

Table 10: The Impact of Threatened Sanctions on Pell Grant Recipient Enrollment: Industry Analysis

Sanctioned sector:	*1. General FP*	*2. Health FP*	*3. Beauty FP*	*4. Comp/Bus FP*	*5. Cul/Arts FP*	*6. Mech/Eng FP*	Test of eq. (*p* -val)
Post x Threatened sanction	-0.856	-0.647	-0.427	-1.285	-1.470	-0.905	0.001
	(0.201)**	(0.420)	(0.068)**	(0.206)**	(0.470)**	(0.286)**	
Post x ln(receipients exposed to sanction)							
x Public	0.028	-0.008	0.031	0.015	0.018	0.036	0.538
	(0.013)*	(0.022)	(0.010)**	(0.019)	(0.033)	(0.019)+	
x For-profit							
x Same industry	-0.013	0.016	-0.028	-0.063	-0.247	-0.222	<0.001
	(0.022)	(0.055)	(0.014)*	(0.041)	(0.036)**	(0.083)**	
x Different industry	-0.012	0.002	-0.023	0.009	-0.001	-0.001	0.783
	(0.012)	(0.023)	(0.014)	(0.017)	(0.021)	(0.025)	
	[0.991]	[0.827]	[0.796]	[0.124]	[<0.001]	[0.006]	

Source: Pell Grant, CDR, sanction, and PEPS administrative data. *Note*s: See Table 2 for sample and specification description. ** p<0.01, * p<0.05, + p<0.1.

Table 11: Correlations between Federal Sanctions and the Number of Borrowers and Defaulters

Dependent variable = Borrowers/defaulters in sector	*(1) All*	*(2) Public*	*(3) Nonprofit*	*(4) For-profit*
A. Borrowers				
Baseline number (1992)	382	123	13	246
Number of sanctioned schools (*t-2*)				
All sectors	-44			
	(10)**			
Public		-10	-3	34
		(14)	(3)	(17)*
Nonprofit		14	-26	-107
		(20)	(8)**	(113)
For-profit		14	-0.2	-59
		(4)**	(0.3)	(8)**
Observations	18,466	18,466	18,466	18,466
B. Defaulters				
Baseline number (1992)	139	22	3	113
Number of sanctioned schools (*t-2*)				
All sectors	-31			
	(4)**			
Public		-5	-1	12
		(2)*	(1)	(7)+
Nonprofit		1	-10	-67
		(3)	(2)**	(62)
For-profit		0.3	-0.2	-33
		(0.5)	(0.1)*	(4)**
Observations	18,466	18,466	18,466	18,466

Source: Pell Grant, CDR, sanction, and PEPS administrative data. *Note*s: Sample includes counties with two-year institutions participating in Title IV that enrolled Pell Grant recipients at any point between 1988 and 2005. Ordinary least squares estimates of the impact of an additional two-year institution in the specified sector ever being under threat of a sanction at $t-2$. Panel A dependent variable is the total number of federal borrowers formerly enrolled in a two-year institution entering repayment in a county and year in the specified sector, 1992–2005. Panel B dependent variable is the total number of federal borrowers formerly enrolled in a two-year institution entering repayment in a county and year in the specified sector who defaulted on their loans within two years, 1992–2005. Clustered standard errors by county in parentheses; ** p<0.01, * p<0.05, + p<0.1. Regressions also include county and year fixed effects.

A Data Appendix

A.1 Administrative data sets

1. ***Data on cohort default rates (CDR)*** for the academic years 1992 through 2009. There is one original file for every year, where each of these files contains information on the institution (name, address, type), the program, and the default rates for the last three preceding years. We use the most updated information on default rates. For example, the default rate corresponding to the year 2001 appears in the 2001, 2002, and 2003 original files. We thus kept the information that appears in the 2003 original file.

2. ***Data on sanctions due to CDR violations*** for the cohort years (academic years) 1989 (1991) through 2008 (2010). There is one observation per institution-cohort year for the set of institutions that had at least one borrower entering repayment in the cohort year. This data includes the reason for the sanction by institution and year.

3. ***Data on Pell Grant recipients*** and total amount disbursed per institution and year for the academic years 1974 through 2012. There is one original file for every year and each file contains information on the institution's location, number of recipients, and total amount disbursed.

4. ***Postsecondary Education Participants System (PEPS) data*** includes information pertaining to an institution's location, sector, participation in Title IV programs, and closure date (if participating in Title IV programs at the time of closure). Covers all institutions that ever participated in Title IV programs. This data also allows us to construct a crosswalk between earlier institution identifiers ("Pell IDs") and modern institution identifiers ("OPEIDs").

A.2 Analysis data set construction

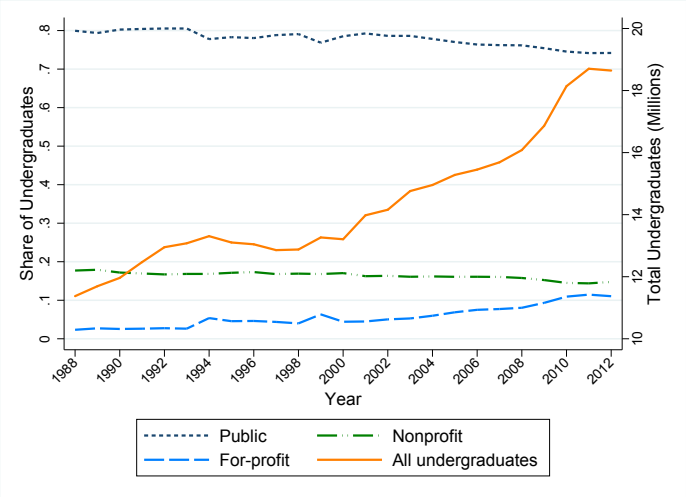
We first created the single file containing the yearly CDR information for all institutions and a single file containing the yearly information on sanctions due to CDR violations for all institutions. We cleaned the PEPS crosswalk data and created the single file containing the Pell Grant recipient information for all institutions, and matched it with the crosswalk data in order to add pre-2000 OPEIDs that are missing in the original Pell Grant data (which has Pell IDs instead of OPEIDs for all years preceding 2000). We cleaned the Pell Grant data (fixed missing information, arranged level and control variables, dropped observations not in US 50+DC, fixed zip codes, and dropped branch campuses and duplicates). We added the information on CDR and sanctions to the Pell Grant data. We cleaned and added the data on institutional closures to

fill in the missing zip codes. We cleaned and added the information on Title IV participation (using PEPS data). We linked institutions to county Federal Information Processing Standard (FIPS) codes using a zip code–FIPS code crosswalk. We manually entered FIPS codes for 153 institutions.

A.3 IPEDS data set construction

We used data from the annual fall enrollment and institutional characteristics (IC) Integrated Postsecondary Education Data System IPEDS files to measure total undergraduate enrollment by sector, county, and year. Institutions were allocated to counties using a crosswalk between county FIPS codes and institutions' zip codes and states. Information on institutional control and level (four-year, two-year, or less than two-year) was used to allocate institutions to sectors. Fall enrollment was summed across all institutions in a sector-year-county combination. Figure A.1 displays total fall undergraduate enrollment in IPEDS institutions between 1988 and 2012 (solid line, right y-axis) as well as the distribution of IPEDS undergraduates across sectors (left y-axis).

Figure A.1: IPEDS Undergraduate Enrollment by Sector



Notes: Sample limited to counties with at least one Pell Grant recipient enrolled in a two-year institution (including less than two-year institutions) between the 1988 and 2003 academic years. Fall undergraduate enrollment from IPEDS fall enrollment files. Years represent academic years (e.g., 1988 = 1987–88 academic year).

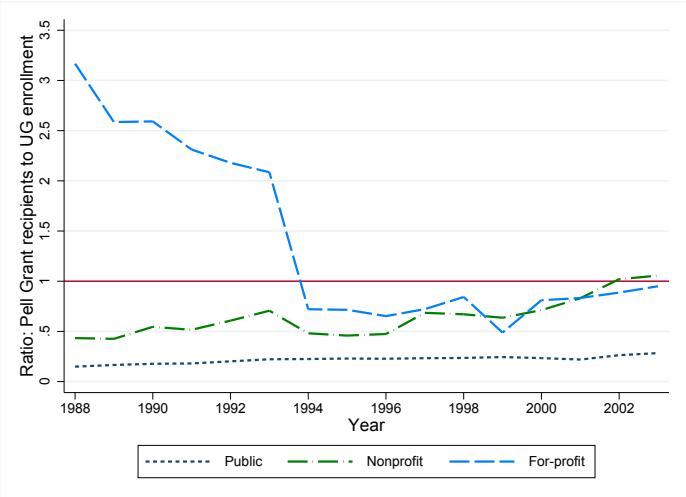
A.4 Pre-2000 representation of for-profit institutions with Pell Grant recipients in IPEDS

Theoretically, the IPEDS universe includes all institutions in a given year that participated in Title IV programs. However, prior to 2001, the IPEDS data omits a large number of for-profit institutions that show-up in administrative data as enrolling Pell Grant recipients. For example, the Digest of Education

Statistics reports 323 for-profit institutions in 1988 (U.S. Department of Education, 2015, Table 317.10) while the Pell Grant administrative data includes 2,791 for-profit institutions with at least one Pell Grant recipient enrolled in the same year. Some of these extra institutions may represent "branch campuses," which may be grouped with "parent campuses" in the IPEDS. However, the treatment of branch and parent campuses cannot account for the discrepancy between for-profit enrollment reported in the IPEDS and Pell Grant enrollment calculated from administrative data. As shown in Figure A.2, the number of Pell Grant recipients enrolled in two-year for-profit institutions exceeded the total number of undergraduates these institutions enrolled in 1988 by more than 300 percent.[27] For-profit institutions that were sanctioned and/or closed in the early 1990s are the most likely to be missing from the IPEDS.

Public and nonprofit institutions that participated in Title IV programs in the 1980s and 1990s appear to be better represented in the IPEDS. The number of Pell Grant recipients enrolled in two-year institutions in these sectors is always less than total undergraduate enrollment. The number of institutions in the IPEDS closely matches the number of institutions in the Pell Grant administrative data. For example, in 1988, the IPEDS data reports 1,673 nonprofit institutions and 1,591 public institutions, while the Pell Grant administrative data contain 1,752 nonprofits and 1,825 public institutions. Due to the large amount of measurement error in the IPEDS data relating to for-profit institutions, we limit our analyses that use IPEDS data to focus on public and nonprofit institutions.

Figure A.2: Pell Grant Enrollment as a Percentage of Total IPEDS Enrollment by Sector: Two-Year Institutions



Notes: Sample limited to counties with at least one Pell Grant recipient enrolled in a two-year institution (including less than two-year institutions) between 1988 and 2003. Undergraduate enrollment from IPEDS fall enrollment files.

[27] Results are quite similar when the sample is expanded to include four-year institutions. This is because very few for-profit institutions in the 1980s and 1990s were classified as four-years.

Table A.1: Descriptive statistics by field

	Baseline (1991)		Sanctioned*		Unsanctioned FP comp of sanctioned FP*: any industry		Unsanctioned FP comp of sanctioned FP*: same industry		Unsanctioned pub comp of sanctioned FP*	
	N	Av enrollment	N	Av enrollment	N	Av enrollment	N	Av enrollment	N	Av enrollment
General	691	289	416	509	2,663	168	1,197	170	788	1,162
Beauty, cosm.	1,706	47	1,264	120	4,100	47	3,025	42	1,681	1,135
Culinary, arts, hosp.	118	82	29	305	467	67	33	145	64	1,408
Health	141	162	46	558	684	149	47	250	99	1,295
Business, computing	417	260	205	551	1,388	195	330	153	412	1,137
Mech., transp., engin.	115	263	65	506	416	180	43	137	143	958

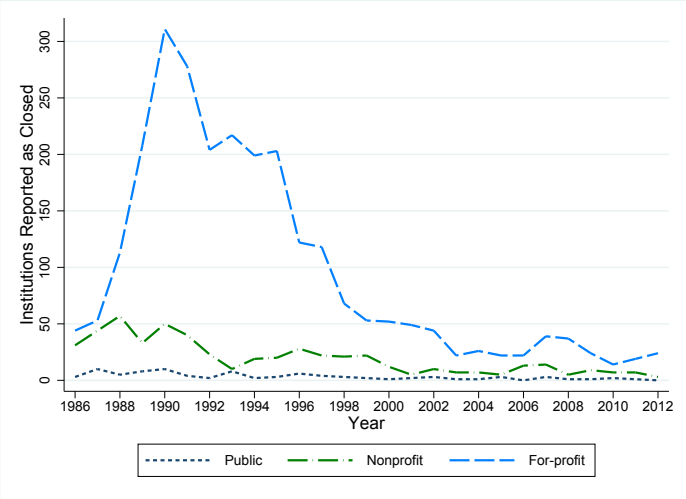
B Closures

To further investigate the correlation between federal sanctions and changes in institution closure rates, we estimate a descriptive hazard model:

$$\Pr\left(closed_{jt} = 1 | closed_{jt-1} = 0\right) = \sum_{k=0}^{5} \left(\boldsymbol{\gamma}^{\mathbf{c}}_{\mathbf{k}} \mathbf{sanct}^{\mathbf{c}}_{\mathbf{j,t-k}}\right) + \delta_c + \delta_t + \delta_m + \nu_{jmt}. \tag{6}$$

Here, we model the hazard that institution j closes in year t (conditional on remaining open until year $t-1$) as a function of the institution's sector $c \in \{public, nonprofit, for\text{-}profit\}$ in year (t), market (m), and being sanctioned in the current or past five years (k).[28] We include fixed effects for each sector δ_c, year δ_t, and market δ_m.

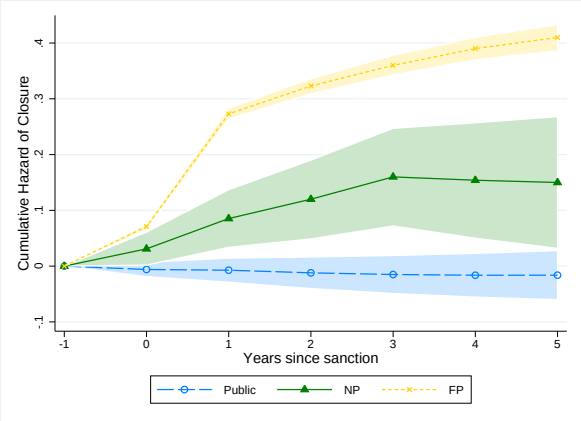
Figure B.1: Institution Closures by Sector and Year



Source: PEPS administrative data. *Notes:* Sample includes two- and four-year institutions that had an active Title IV program participation agreement at the time of closure.

[28] We have estimated models that include up to seven years of lags but only the first five years following a sanction have a statistically significant association with institution closure.

Figure B.2: The Impact of Sanctions on the Cumulative Hazard of Closure by Sector



Source: Pell Grant, CDR, sanction, and PEPS administrative data. *Notes:* Sample includes two-year institutions with a Title IV program participation agreement. Coefficients and 95% confidence intervals from a regression of the cumulative hazard of closure on any sanction receipt interacted with years since the sanction was received and sector; regressions also include year and county fixed effects. Robust standard errors clustered by institution.

C Additional Tables and Figures

Table C.1: Sanction Triggers and Penalties

Cohort year	Year informed of sanction	Range of aid loss if app. immed.	Trigger	Penalty
1989	1991	1991-1993	>=35% in 1987, 1988, 1989	Immediate loss of loans
			>60% for 1989	Limitation, suspension, or termination of Title IV
1990	1992	1992-1994	>=35% in 1988, 1989, 1990	Immediate loss of loans
			>55% in 1990	Limitation, suspension, or termination of Title IV
			>40% in 1990, <5 pp gain 1989-1990	Limitation, suspension, or termination of Title IV
1991	1993	1993-1995	>=30% in 1989, 1990, 1991	Immediate loss of loans
			>50% in 1991	Limitation, suspension, or termination of Title IV
			>40% in 1991, <5 pp gain 1990-1991	Limitation, suspension, or termination of Title IV
1992	1994	1994-1996	>=25% in 1990, 1991, 1992	Immediate loss of loans
			>45% in 1992	Limitation, suspension, or termination of Title IV
			>40% in 1991, <5 pp gain 1991-1992	Limitation, suspension, or termination of Title IV
1993	1995	1995-1997	>=25% in 1991, 1992, 1993	Immediate loss of loans
			>40% in 1993	Limitation, suspension, or termination of Title IV
1994	1996	1996-1998	>=25% in 1992, 1993, 1994	Immediate loss of loans
			>40% in 1994	Limitation, suspension, or termination of Title IV
1995	1997	1997-1999	>=25% in 1993, 1994, 1995	Immediate loss of loans
			>40% in 1995	Limitation, suspension, or termination of Title IV
1996	1998	1998-2000	>=25% in 1994, 1995, 1996	Immediate loss of loans
			>40% in 1996	Limitation, suspension, or termination of Title IV
1997	1999	1999-2001	>=25% in 1995, 1996, 1997	Immediate loss of loans, potential or immediate loss of Pell
			>40% in 1997	Limitation, suspension, or termination of Title IV
1998	2000	2000-2002	>=25% in 1996, 1997, 1998	Immediate loss of loans, potential or immediate loss of Pell
			>40% in 1998	Limitation, suspension, or termination of Title IV
1999	2001	2001-2003	>=25% in 1997, 1998, 1999	Immediate loss of loans, potential or immediate loss of Pell
			>40% in 1999	Limitation, suspension, or termination of Title IV
2000	2002	2002-2004	>=25% in 1998, 1999, 2000	Immediate loss of loans, potential or immediate loss of Pell
			>40% in 2000	Immediate loss of loans
2002	2004	2004-2006	>=25% in 2000, 2001, 2002	Immediate loss of loans and Pell
2006	2008	2008-2010	>40% in 2006	Immediate loss of loans
2007	2009	2009-2011	>40% in 2007	Immediate loss of loans
2008	2010	2010-2012	>=25% in 2006, 2007, 2008	Immediate loss of loans and pell
			>40% in 2008	Immediate loss of loans
2009	2011	2011-2013	>=25% in 2007, 2008, 2009	Immediate loss of loans and Pell
			>40% in 2009	Immediate loss of loans
2010	2012	2012-2014	>=25% in 2008, 2009, 2010	Immediate loss of loans and Pell
			>40% in 2010	Immediate loss of loans
2011	2013	2013-2015	>=25% in 2009, 2010, 2011	Immediate loss of loans and Pell
			>40% in 2011	Immediate loss of loans
Move to 3 year cdrs				
2012	2015	2015-2017	>=30% in 2010, 2011, 2012	Loss of loans and/or Pell
			>40% in 2012	Loss of loans

Source: CDR and sanction administrative data. *Note*s: No institutions triggered sanction threats for the 2001, 2003, 2004, and 2005 cohorts.

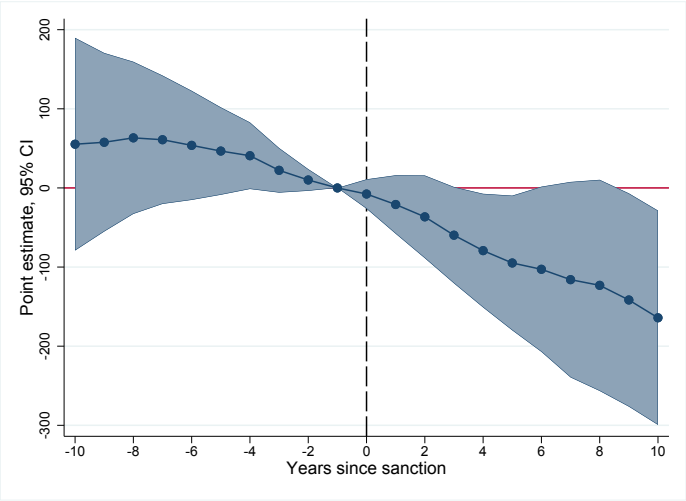
Table C.2: Impact of Sanctions on ln(Enrollment)

Sanctioned sector:	*1. Public*	*2. Nonprofit*	*3. For-profit*	Test of equality (p -value)
Post x Threatened sanction	-0.127	-0.710	-0.645	<0.001
	(0.077)+	(0.347)*	(0.063)**	
Post x # competitors with threatened sanction				
x Public	-0.050	0.089	0.075	0.407
	(0.093)	(0.103)	(0.016)**	
x Nonprofit	-0.010	0.125	0.063	0.721
	(0.100)	(0.196)	(0.020)**	
x For-profit	-0.061	0.013	-0.055	0.753
	(0.077)	(0.088)	(0.016)**	
Test of equality (p- value)	0.945	0.847	<0.001	

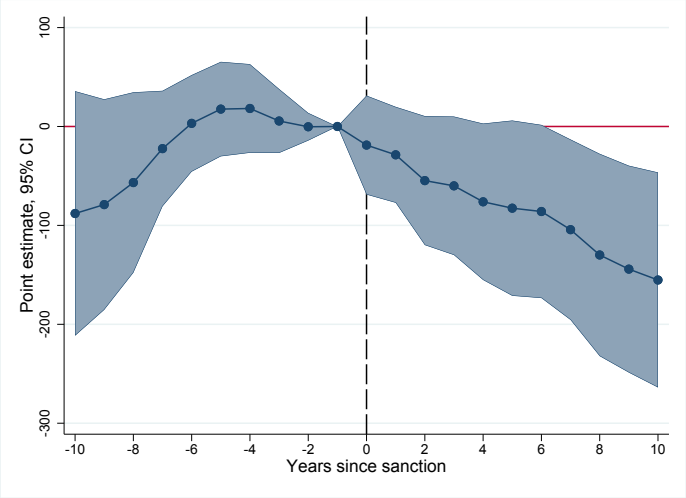
Source: Pell Grant, CDR, sanction, and PEPS administrative data. *Notes*: See Table 2 for sample and specification description.

Figure C.1: Effect of Sanctions on Pell Enrollment in Sanctioned Institutions

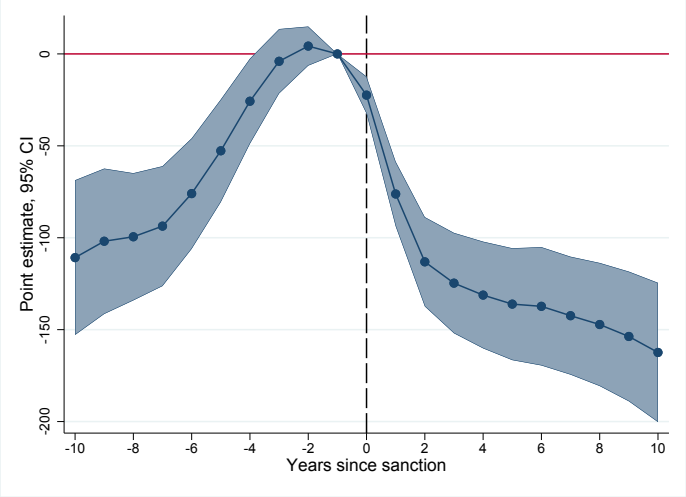
A. Sanctioned Publics



B. Sanctioned Nonprofits



C. Sanctioned For-profits



Source:

D Selected Quotations from Local News Sources on For-Profit College Sanctions

Palm Beach Post, July 18, 1991:

Five West Palm Beach trade schools were named Wednesday by the U.S. Department of Education as having default rates on guaranteed student loans higher than 35 percent, the maximum permitted. . . .Hair-dressing schools also are prevalent on state and national lists.

St. Louis Post-Dispatch, May 16, 1991:

Vatterott College in St. Ann will take over the instruction of students stranded by the closure of Draughon Business College in Springfield, Joplin and Independence, Mo., the head of Vatterott College said Wednesday. . . The agreement between the Vatterott and Draughon involves no fee paid by either party, John Vatterott said. But "we think it's a good business move" for Vatterott and good for the image of the trade and career school industry, "which has taken a pretty heavy beating," he said. "Any damage to any private career school affects every other school," he said. Daily Oklahoman, August 11, 1992 Nearly 600 schools in 40 states and the District of Columbia - including three in Oklahoma - will lose some federal financial aid or loan programs due to high rates of defaulted student loans, the Department of Education said Friday. . . In Oklahoma, the following privately owned trade schools were on the list: -American Technical Institute of Tulsa, where 76.9 percent of its student loans were in default in fiscal 1990. -Oklahoma Junior College of Business and Technology, Tulsa, with a 41.8 percent default rate. -Paul's Beauty College, Oklahoma City, with a 68.1 percent default rate.

New York Times, July 10, 1990:

The largest chain of private trade schools in New York City has agreed to pay $850,000 for recruiting violations, the largest penalty ever assessed on a trade-school operator in the state. . . .East Coast Schools operates 10 schools in New York, among them the Metropolitan Career Institute, the International Career Institute, the Empire Technical School and the Albert Merrill School. Two schools operated under the Empire name will be closed under the agreement announced here today.

Newsday (city edition), July 18, 1991:

The U.S. Department of Education has notified 178 trade schools, including 14 in New York City, that they stand to lose their eligibility to participate in the federal student loan program because more than one-third of their students defaulted on their government-guaranteed loans three years in a row. Many of the schools

are beauty schools - also known as "academies of cosmetology" - but others train truck drivers, bartenders, secretaries and even card dealers. Many are so dependent on the federal loan program that losing eligibility may force them out of business.

E Letters Between Secretary Duncan and Senator Harkin

FRANK R. LAUTENBERG
NEW JERSEY

COMMITTEES:
APPROPRIATIONS
COMMERCE, SCIENCE, AND TRANSPORTATION
ENVIRONMENT AND PUBLIC WORKS

United States Senate

WASHINGTON, DC 20510

December 12, 2012

The Honorable Arne Duncan
Secretary
U.S. Department of Education
400 Maryland Avenue, SW
Washington, DC 20202-3100

Dear Secretary Duncan:

We applaud your efforts to strengthen and protect the integrity of federal financial aid programs that enable millions of students each year to pursue a postsecondary education. Having the most educated workforce in the world is a critical national priority, and your focus on safeguarding students and taxpayers is commendable. In this spirit, we are very concerned that the tactics employed by some colleges to evade default-rate laws and sanctions are harmful to students and taxpayers. We ask the Department to investigate default-rate manipulation tactics used by some institutions in order to protect students and taxpayers from their negative consequences.

With student loan debt now exceeding $1 trillion and average student loan debt continuing to rise, an ever-growing number of students and families are saddled with unmanageable debt. An increasing share of borrowers – many of whom did not complete their studies – are unable to repay their loans, suffering significant financial consequences. More than nine percent of students default on their loans within two years of starting to repay them. This default rate is the highest in a decade and reflects not only the ability of recent graduates to find employment, but also the quality and affordability of individual higher education institutions.

The for-profit sector consistently has the highest default rates among colleges and universities. Almost one in four (22.7 percent) students at for-profits who began to repay their loans in 2009 defaulted within three years. That rate is more than double the rate for public institutions (11 percent) and more than triple the rate for private nonprofit institutions (7.5 percent). For-profit colleges enroll only 13 percent of students yet account for almost half (47 percent) of all defaulted borrowers.

But even these high default rates may not provide a complete picture. The recent "For Profit Higher Education: The Failure to Safeguard the Federal Investment and Ensure Student Success" report released by the Senate Committee on Health, Education, Labor, and Pensions sets forth compelling evidence suggesting that the for-profit sector routinely uses tactics to manipulate default rates. One of these tactics entails encouraging or even harassing borrowers to delay payments on their loans in order to artificially drive down default rates. Delaying payments, through deferment or forbearance, is often not in the best interests of the students and may force students to pay thousands of dollars in additional interest over the life of the loan. For example, by its own account, Corinthian Colleges Inc. reduced its two-year default rate from 21.5 percent in 2008 to an expected 6.7 percent for 2009 through such tactics. Additionally, the

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large discrepancy between the two-year and three-year cohort default rates of for-profit institutions raises serious questions about how widespread the use of such tactics may be across the sector. Specifically, while 152,862 for-profit college borrowers who began to repay their loans in 2009 had defaulted by the end of 2010, almost 229,315 had defaulted by the end of 2011, an increase of 50 percent. These "default management" tactics merit additional scrutiny and attention by the Department to ensure borrowers are not coerced into forbearance or deferment as a way to artificially reduce default rates.

Similarly, there is evidence that for-profit colleges manipulate their Office of Postsecondary Education Identification (OPE-ID) numbers to avoid potential sanctions, including loss of federal financial aid eligibility. These tactics help colleges artificially avoid violating restrictions on high default rates or on the amount of the school's revenues that can come from Title IV of the Higher Education Act. While colleges are allowed to identify their campuses with one or multiple OPE-IDs, some colleges may be abusing the process to avoid sanctions. For example, the Senate report noted that one executive acknowledged that their company's consolidation of 29 of its OPE-IDs into just three would change the schools' default rates and Title IV revenue calculations. Additionally, according to the *Chronicle of Higher Education*, another company recently sought to consolidate into a single OPE-ID number 19 numbers, four of which were at risk of losing eligibility for federal aid. For-profit schools should not be able to use administrative smoke and mirrors to circumvent regulations that protect students and taxpayers and the Department should take action to prevent these tactics.

The Higher Education Act gives the Department clear authority to prevent schools from manipulating loan default rates, and we urge you to immediately investigate these reported practices and take swift action to stop their use and abuse. The Department should also examine how to better define and detect default manipulation and clarify what default aversion policies are appropriate and what policies essentially constitute a default manipulation. We look forward to working with you to empower students to successfully pursue their postsecondary goals and aspirations.

Sincerely,

FRANK R. LAUTENBERG

TOM HARKIN

RICHARD DURBIN

JOHN D. ROCKEFELLER IV

RICHARD BLUMENTHAL

AL FRANKEN

JACK REED

BARBARA BOXER

THE SECRETARY OF EDUCATION
WASHINGTON, DC 20202

February 27, 2013

Honorable Tom Harkin
United States Senate
Washington, DC 20510

Dear Mr. Chairman:

Thank you for your letter of December 12, 2012, commending the Administration's efforts to strengthen and protect the integrity of the Federal student aid programs. I appreciate your recognition of the Department's significant work in this area. We are committed to using available resources to ensure that institutions are providing high-quality education that prepares students to enter the workforce. An identical response is being sent to the other signers of your letter.

Your letter expressed concern about the actions you believe some for-profit institutions are taking to evade the consequences of the institution's cohort default rate as provided in the Higher Education Act (HEA). One of the actions you cited was institutions encouraging or harassing borrowers to delay payments on their loans for the cohort period through the use of deferment or forbearance to artificially reduce the institution's cohort default rate (CDR), leaving former students with significantly increased interest over the life of the loan. The second action you cited was some institutions attempting to consolidate their Office of Postsecondary Education Identification (OPE-ID) numbers to avoid CDR sanctions and 90/10 revenue violations that could lead to an institution's loss of federal student financial aid eligibility. You asked the Department to investigate these tactics in order to protect students and taxpayers. You also asked us to examine how we might better define and detect CDR manipulation, and to provide clear guidance on appropriate default aversion or management policies.

An institution's cohort default rate, as defined in section 435(m) of the HEA, measures the percentage of an institution's current and former students who enter repayment in a given Federal fiscal year on Federal Stafford Loans, Federal Direct Subsidized and Unsubsidized Loans, or on the portion of a Federal or Direct Consolidation Loan that repaid such loans, that were received for attendance at the institution and who default on those loans by the end of the second fiscal year following the year in which the borrower entered repayment. Borrowers who are granted a non-payment forbearance or who qualify for a deferment, or who request an income-driven repayment plan (i.e., the Income-Based Repayment (IBR) Plan, the Pay As You Earn Repayment Plan, and the Income-Contingent Repayment (ICR) Plan), and have a scheduled payment of $0, are unlikely to default during the cohort period and will not be included in the numerator of the institution's CDR. Despite the distorting effect that deferments, forbearances, and income-driven repayment plans have on CDRs, however, a decision by the Department, by rule or otherwise, to change how borrowers using these benefits are counted in an institution's CDR, so as to better measure institutional and program quality or student outcomes, would not,

in our judgment, survive the legal challenges that would be certain to follow, absent a change in the CDR statutory definition.

Examining repayment in another context, the Department developed a program-based repayment rate metric as part of its recent Gainful Employment (GE) regulations. A federal court vacated several provisions of the GE regulations last year and the regulations are still involved in ongoing litigation, but the content of the published regulations address your request for information. The GE repayment rate metric in the regulations did not treat borrowers in forbearance or deferment as actively repaying their loans. The regulations also limit the dollar amount of loans in negative amortization or with interest-only payments included in the numerator of the rate to no more than 3 percent of the total amount of the original outstanding principal balance included in the denominator of the rate.

In addition, historically, given the significant negative consequences of default for borrowers and the taxpayer, the Department has encouraged institutions to be actively engaged with their borrowers so they transition successfully to repayment and avoid default. The HEA requires institutions to conduct exit counseling with their borrowers that includes information on debt management strategies designed to facilitate repayment, on forbearance, deferment, and available loan repayment plans, and on the consequences of default. The Department provides information to institutions, at their request, on former students who borrowed for attendance at the institution and who are significantly delinquent in repayment of their Direct Subsidized and Unsubsidized Loans to enable those institutions to reach out and assist those borrowers in addressing their repayment problems. Some institutions have also implemented debt management programs with their students in an effort to reduce unnecessary borrowing and to provide ongoing counseling that encourages successful borrower repayment. The Department supports many of these institutional efforts. However, I agree that institutional debt management or default aversion programs that focus only on a borrower securing short-term relief through forbearance is not a satisfactory debt management program and may benefit the institution more than the borrower. Using its authority to administer the Direct Loan Program, the Department will work with institutions and others to identify best practices and provide guidance to institutions to develop optional debt management and default aversion programs. We will also examine whether the Department should mandate certain core components and prohibit certain practices through regulation in order to protect borrowers.

In addition to the information presented in the recent "For-Profit Higher Education: The Failure to Safeguard the Federal Investment and Ensure Student Success" report, the Department received evidence of forbearance-only default aversion practices by at least one institution and its third-party agent during the 2012 Loans Negotiated Rulemaking public meetings. Concerns over these practices resulted in the Federal and non-Federal negotiators' agreement to modify the forbearance regulations in the Direct Loan and Federal Family Education Loan (FFEL) programs to limit any forbearance granted based on a borrower's oral request and affirmation to a 120-day period and to prohibit consecutive 120-day forbearance periods. This proposed change to the forbearance provisions in the Direct Loan and FFEL program regulations is expected to be published in a Notice of Proposed Rulemaking for public comment sometime in the summer of 2013. We believe this will deter, at least in part, the use of successive forbearance periods based on a borrower's oral request to cover the cohort period.

The Department also attempted outreach with some former students of one for-profit school to question borrowers about the institution's practices. Conversations with these former students support your assertion that some institutions are aggressively pursuing their former students to compel them to request forbearance from their loan servicer. According to the students' accounts, institutional representatives assisted them in completing forbearance request forms or initiated three-way calls with loan servicers to facilitate the borrower's oral request for forbearance. With the exception of one borrower, all borrowers indicated they were undergoing financial difficulties and clearly would have qualified for forbearance and other available program benefits if they had independently requested assistance from the loan servicer. Many of the borrowers expressed the view that they were pressured or "forced" to apply for forbearance and were not made aware of other options, such as deferment or the income-based repayment plan. One borrower stated that she was current in her payments, but was offered a $25 gift card to complete the forbearance process.

As you know, under HEA section 435(m)(2)(B), a loan on which a payment is made by the school, the school's owner, or the school's agent, contractor, employee, or any other entity or individual affiliated with the school in order to avoid default by the borrower, must be considered a default for purposes of calculating the school's CDR. Additionally, section 435(m)(3) directs the Secretary to prescribe regulations designed to prevent an institution from evading the consequences of its default rate through the use of such measures as branching, consolidation, a change of ownership or control, or other similar changes to the institution's structure and identity. The CDR evasion prevention regulations are found at 34 C.F.R. §§ 668.188 and 668.207. Although the HEA currently provides the Department authority to prevent an institution from evading its CDR through merger and other structural changes, it does not include the "default management" activities described in your letter as an impermissible evasion under the HEA.

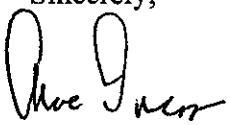
With regard to potential CDR manipulation through OPE-ID consolidations, the evasion regulations at 34 C.F.R. §§ 668.188 and 668.207 prevent an institution from evading the consequences of its CDR through a merger or other structural change that reduces the number of its OPE-IDs. Also, merger and change of ownership applications receive a heightened level of review and scrutiny by the Department, which includes a review of the Title IV participation and history of each school involved in the merger. Among many other factors, the audit and program review history, financial statements, and default rate of each school are examined. Input is specifically requested from Federal Student Aid's (FSA) program review compliance staff and its Debt Management and Default Prevention and Management Groups, the Department's Office of Inspector General and its Office of the Chief Financial Officer, State agencies and the institution's accrediting agency. The Department's extensive review process recently resulted in one potential merger being delayed and another application being withdrawn. Additionally, under the regulations at 34 C.F.R. §668.16(m) (as revised in light of restrictions placed on the Department in 2008 under HEA section 435(a)(3)), institutions may be placed on provisional certification at least one year before they are subject to sanctions for high CDRs under the statute. Notwithstanding our current review process for mergers and consolidations, and our authority to provisionally certify an institution, we will continue to examine any increased

activity in this area, and the timing of that activity, to ensure that the Department's regulations are using the available statutory authority to effectively safeguard against CDR evasion.

Finally, your letter expresses concern that mergers could be used to avoid loss of eligibility under the "90/10" requirement in HEA § 487 (a)(24). While the HEA's provisions regarding that requirement are very specific (see HEA section 487(d)), nothing in statute or regulations currently prevents companies that own more than one institution from applying for Department consent to combine them, or from applying to shift additional locations from one institution to another, in order to maintain eligibility under those provisions.

I appreciate you and your colleagues sharing with us your concerns about activities you believe undermine the integrity of the Title IV federal student aid programs which are so vital to this nation's citizens. The Department would be pleased to provide you and your colleagues with a briefing on our current efforts and to discuss future efforts we may want to undertake to increase accountability and maintain the integrity of the programs. To arrange such a briefing, please have your staff contact Kim Zarish-Becknell of the Department's Office of Legislation and Congressional Affairs at 202-401-0020.

Sincerely,



Arne Duncan