

The Effect of the Gainful Employment Regulations on
Student Enrollment at For-Profit Institutions of Higher Education

Joselynn Fountain
George Washington University

Abstract

In 2010, the Obama Administration proposed new regulations designed to hold institutions of higher education (IHEs) accountable for student outcomes. I examine the effects of the regulatory uncertainty surrounding these “Gainful Employment” (GE) regulations on enrollment at for-profit IHEs. I utilize informational debt rates of GE institutions along with enrollment data from the Integrated Postsecondary Education Data System to employ a difference in difference design that compares enrollment before and after the GE regulatory proposal at for-profit IHEs to enrollment at public and nonprofit IHEs. My results suggest that for-profit IHEs experienced slower enrollment growth relative to public and nonprofit IHEs in the post-GE period. Additionally, enrollment of low-income students appears to be disproportionately affected by the GE regulatory uncertainty.

Introduction

For-profit institutions of higher education¹ have experienced tremendous growth that has increased their visibility in the higher education sector. From 2000 to 2010, enrollment at for-profit institutions increased by 261 percent from 672,000 to 2.4 million, while enrollment at public and nonprofit institutions increased by 28 percent and 24 percent respectively (NCES Digest of Education Statistics 2015 table 303.20). For-profit institutions are owned and operated by businesses, and have been praised for their innovativeness and ability to scale rapidly to reach millions of students. For-profit colleges have been especially effective at providing higher education access to students typically underserved in the nonprofit and public sector (i.e. minorities and working adults), thus enabling for-profit institutions to play an important role in the higher education sector.

With the growth of the for-profit sector has come increased attention on student outcomes and institutional practices at for-profit institutions. Investigations into the for-profit sector have uncovered fraud in financial aid programs, high student loan default rates, and aggressive recruitment practices at for-profit institutions (GAO, 2010; HELP, 2012). The concerns over undesirable practices at for-profit institutions have led to new regulatory and legislative proposals to increase the accountability of the sector² including the controversial Gainful Employment Regulations (GE) proposed by the Department of Education (ED) in 2010.³ Under

¹ Throughout the paper, I also refer to for-profit institutions of higher education as “for-profit colleges” and “for-profit institutions”

² See Protecting Students from Worthless Degrees Act at <https://www.congress.gov/bill/114th-congress/senate-bill/1165S.2098>; Students Before Profits Act of 2015 at <https://www.congress.gov/bill/114th-congress/senate-bill/2098/text>; Defense to repayment at <https://federalregister.gov/a/2016-14052>

³ See <https://federalregister.gov/a/2010-17845>

GE, nearly all education programs at for-profit institutions⁴ and non-degree and certificate programs at public and nonprofit institutions are required to publicly disclose information about program graduates and to ensure the debt-to-earnings ratio of program graduates is within the limits set by the regulations. Programs that fail to meet the requirements of GE would be at risk for losing access to federal financial aid.

GE represents a major shift in federal policy, as institutions are held accountable for both the debt and earnings of program graduates at the program level. While GE applies to all sector schools including public and nonprofit colleges that offer non-degree and certificate programs, the effects of GE are likely to be most prominent at for-profit institutions for three key reasons. First, nearly all programs at for-profit institutions are subject to GE.⁵ Using data⁶ released by ED during the regulatory discussion, I calculate that 94 percent of all for-profit institutions have programs that fall under GE, while 58 percent of public and 19 percent of nonprofit institutions are subject to the GE regulations (see table 1). Second, students at for-profit institutions tend to borrow more in federal aid and experience higher rates of unemployment than students at public and non-profit institutions (Deming, Goldin & Katz, 2012; Belfield, 2013; Cellini & Darolia, 2013; Looney & Yanellis, 2015). As a result, students at for-profit institutions have higher student loan debt burdens relative to earnings. Lastly, many for-profit institutions are highly dependent on federal financial aid with many receiving more than 80 percent of their revenue

⁴ According to the GE Manual, “Debt-to-Earnings Ratios are measures of the average share of the GE Program’s former students’ income that must be used to repay student loan debt incurred by the students for attendance in the GE Program”

⁵ All for-profit educational programs are subject to GE except for preparatory course work needed for enrollment in an eligible program; postsecondary programs for students with intellectual disabilities, and programs that lead to a bachelor’s degree in liberal arts that have been offered by the institution since January 2009 and have been regionally accredited since 2007. See <https://www.ifap.ed.gov/GainfulEmploymentOperationsManual/attachments/01PurposeOverview2015.pdf>.

⁶ See <https://studentaid.ed.gov/sa/about/data-center/school/ge>; GE Data is merged with IPEDS data on all Title IV schools

from federal financial aid.⁷ The prevalence of GE programs within the for-profit sector and high student debt burdens puts the for-profit sector at risk for losing federal aid. If for-profit institutions lose access to federal aid, some may be forced to shut down due to the loss of a major portion of their revenue. GE thus raises the question of the future of the for-profit sector, and how changes in the for-profit sector could affect student access to higher education (Guruyan and Thompson, 2010; Darolia, 2015).

While the final GE rules went into effect July 2015, the GE proposal appeared to serve as a signal of increased federal scrutiny that could adversely affect their business (Hentschke & Parry, 2015).⁸ Since the time of the GE proposal, some for-profit institutions have adopted new initiatives, such as mandatory orientation, limited financial aid, and more selective admissions requirements, which could suggest increased attention on student outcomes at for-profit schools (Fain, 2011; Hentschke & Parry, 2015). On the other hand, reports of declines in enrollment at for-profit institutions⁹ and the closures of major for-profit chains including Corinthian Colleges and ITT Technical Institute, suggest the increased oversight of the for-profit sector may have resulted in unintended consequences for those students who are left with uncertainty about their options for finishing their programs and repaying their loans.¹⁰

⁷ See <https://studentaid.ed.gov/sa/about/data-center/school/proprietary>

⁸ The author reviewed the annual financial reports of the publicly traded parent companies that own for-profit colleges. The reports suggest that the companies were concerned about the potential effects of GE on their business operations

⁹ NCES digest 2015 table 303.20 Also refer to Figure 2 in paper.

¹⁰ See <https://studentaid.ed.gov/sa/about/announcements/itt/faq> and <https://studentaid.ed.gov/sa/about/announcements/corinthian>

Increased regulations of the for-profit sector and ongoing regulatory and legislative proposals suggest policymakers' efforts to increase accountability of the sector are far from over. Yet, little research has been done on how institutions of higher education respond to increased federal oversight.

This paper contributes to the literature by exploring the effects of the regulatory uncertainty created by the 2010 GE proposal on enrollment at for-profit institutions. For the first time in June 2012, the Department of Education released informational debt measures on GE programs to provide institutions with a preliminary idea of how many programs would be at risk for failing the GE requirements. Using the GE data and enrollment data from the Integrated Postsecondary Education Data System (IPEDS), I employ a difference-in-difference design that compares enrollment before and after the 2010 GE regulatory proposal at for-profit institutions to enrollment at public and non-profit institutions to determine if the regulatory uncertainty surrounding GE has led to any significant changes at for-profit institutions. I also look at changes in enrollment of student demographic groups to examine whether there is any variation in the types of students that enrolled at for-profit institutions in the pre and post GE period. To my knowledge, this is the first academic paper to utilize the GE information rates and to explore the preliminary effects of GE on student enrollment. By understanding the effects of the GE regulatory proposal, policymakers may gain a better sense of how federal policy impacts the behavior of students and institutions of higher education, and the extent to which the response is in line with the intentions of the policy.

Overall, my results suggest that average enrollment at for-profit colleges increased by about 600 students in the post GE-period when controlling for institution and year fixed effects. However, the increase in enrollment is significantly less than the average increase in enrollment at public and nonprofit institutions of about 1100 students. I also find that among the student subgroups, for-profit institutions enrolled significantly fewer Pell grant recipients in the post-GE period. Overall, the results suggest that GE may have slowed the rapid growth of for-profit colleges, and that low-income students may be disproportionately affected by the GE regulatory uncertainty.

This paper is organized as follows: Section 1 provides a discussion of the history of federal oversight of for-profit colleges and my conceptual framework; Section 2 describes the data. Section 3 introduces the difference-in-difference methodology. Section 4 reports results of the analysis and Section 5 concludes by highlighting the policy implications of this work.

A History of Federal Oversight of For-profit Institutions of Higher Education

Federal oversight of for-profit colleges has been an ongoing policy concern. Title IV of the Higher Education Act (HEA) 1965 was enacted to provide middle and lower income students with greater opportunities to attend college through the creation of “Educational Opportunity Grants” (currently Pell Grants) and the guaranteed student loan program (Carleton, 2002). The 1972 Amendment to the HEA made for-profit institutions eligible for federal financial aid and resulted in a subsequent growth spurt in enrollment at for-profit institutions. Figure 1 provides a timeline that shows the major regulatory and legislative events that have affected for-profit institutions between 1972 and 2014.

Nearly two decades after for-profit colleges gained access to federal aid, reports of abuse in the student loan program and high student loan default rates, particularly at for-profit colleges, led lawmakers to issue stricter requirements on institutions receiving federal financial aid in the 1992 amendment to the HEA. Key among the provisions was the establishment of a program integrity triad that consisted of accrediting agencies, states, and the Department of Education to control access to financial aid programs. In addition, in order for for-profit institutions to remain eligible for federal aid, they were required to receive at least 15 percent of their total revenue from non-title IV funds and no more than 50 percent of their programs could be offered online.¹¹

Between 1998 and 2008, the restrictions on for-profit institutions loosened. Under current rules, institutions are allowed to receive up to 90 percent of their revenue from financial aid, as opposed to the original 85 percent limit, and institutions have to violate the rule two consecutive years before losing eligibility for federal aid. In the 2013-14 academic year, for-profit colleges received 23 billion dollars in federal funds, with many of those colleges receiving more than 80 percent of their revenue from federal funds. In addition, federal aid benefits for active and former military members are not included in the 90 percent revenue calculation, which creates an incentive for for-profit institutions to target military students, and essentially exceed the 90 percent threshold (Wong, 2015).

While for-profit institutions continue to receive billions of dollars in federal aid, concerns over student outcomes continues to grow. Student loan default rates are higher at for-profit institutions than any other sector. In 2015, 11.8 percent of student borrowers at all institutions defaulted on loans within 3 years of repayment, and 15.8 percent of those defaulters attended for-profit

¹¹ See <https://www.congress.gov/bill/102nd-congress/senate-bill/1150>

institutions, while 11.7 percent and 6.8 percent attended public and non-profit institutions respectively.¹² In addition, research on student outcomes at for-profit institutions, relative to students at public and non-profit institutions, suggests that students at for-profit institutions borrow more money, have higher levels of unemployment, lower earnings, and are less satisfied with the education and price of for-profit institutions (Deming et al., 2012, Cellini, 2012; Belfield, 2013; Cellini & Darolia, 2013; Cellini & Chaudhary, 2014; Looney & Yanellis, 2015). Beyond student outcomes, allegations of fraud and abuse at for-profit institutions are of particular concern to policymakers. In a 2010 report, undercover GAO investigators found that several for-profit colleges provided students with misleading information on tuition costs, encouraged students to enter fraudulent information on financial aid forms, and engaged in aggressive recruitment strategies (GAO, 2010).

Concerns over undesirable practices at for-profit colleges led to the GE proposal in 2010. In line with the 1992 HEA amendment requirement that vocational programs provide training to students that leads to gainful employment, through GE, the Department defines “gainful employment” as the debt to earnings ratio of program graduates. In order for a GE program to remain eligible for federal financial aid, the debt to earnings ratio of the program graduates has to be less than or equal to 8 percent when calculated on total earnings, or less than or equal to 20 percent when calculated on discretionary earnings. Programs with debt-to-earnings ratios that exceed these rates for consecutive years risk becoming ineligible for financial aid¹³ (Federal

¹² <http://www2.ed.gov/offices/OSFAP/defaultmanagement/cdr.html>

¹³ Programs pass, fail, or are placed in a “zone” based on the metrics. Programs that pass the metrics have a debt to earnings ratio that is less than or equal to 8 percent of total earnings or less than or equal to 20 percent of discretionary earnings. Programs are placed in a “zone” if they have a debt to earning ratio that is greater than 8 percent but less than 12 percent of annual earnings or greater than 20 percent but less than 30 percent of discretionary earnings. Programs with a debt to earnings ratio that exceeds 12 percent of annual

Register, 2014). Prior to GE, the Omnibus Reconciliation Act of 1990 made institutions accountable for the student loan debt measured by the cohort default rate. GE takes institutional accountability a step further by holding institutions accountable for the income that students are able to bring in after completing a GE program, and whether or not it is sufficient enough to repay their student loans. The new accountability system under GE puts a major burden on institutions to ensure students repay their student loans, and could create incentives for institutions (i.e. lower costs for students, increase enrollment requirements) and students (i.e. choose institutions with better student outcomes, not enroll in school at all).

Conceptual Framework

For-profit institutions are unlike non-profit and public institutions in that they are owned and operated by businesses and are “ultimately accountable by law for the returns they produce for shareholders” (HELP, 2012). Thus, for-profit institutions have a major incentive to earn a profit, which could come at the expense of the quality of education and services provided to students.

Economic theory would suggest that two market failures exist in the higher education market that put students at risk of becoming susceptible to unscrupulous practices. First, the structure of the student loan program creates a moral hazard problem where one party is willing to take on more risk because another party essentially bears the risk. Institutions of higher education get the benefit of financial aid revenue generated from student loans, regardless of whether or not the student actually finishes the program and finds a job to pay back the student loan. Institutions thus have an incentive to increase tuition, and encourage students to take out higher loans, while

earnings or 30 percent of discretionary earnings fail the metrics. A program loses eligibility for financial aid if it “fails” for 2 out of 3 consecutive years or if it is placed in the zone for 4 years.

the burden of repaying the student loan falls on the student as well as taxpayers if the student defaults. The high costs of tuition and high student loan debt have led to allegations of for-profit institutions engaging in such behavior (Lynch, Engle, & Cruz, 2010).

Despite the moral hazard issue created by the student loan program structure, in a perfectly competitive market, students would be able to identify the poor performing schools and choose a high performing competitor. The reality of the higher education market is that institutions know more about their own institutional quality than students, and institutions lack any incentive to provide students with that information. This creates a second market failure caused by asymmetric information in the higher education market that limits the ability of students to make an informed decision when choosing an institution (Beales, Craswell, & Salop, 1981). While some smaller for-profit institutions may somewhat rely on student word of mouth to recruit students, the strength of for-profit colleges depend on their ability to effectively market to students (Rovai & Downey, 2010). The aggressive and misleading marketing strategies that investigations have uncovered suggest that for-profit institutions have not been forthcoming with information on student outcomes when recruiting students.

Accountability

The Gainful Employment regulations were designed to correct the market failures in the higher education market by issuing requirements that promote both accountability and transparency (Federal Register, 2014). For accountability, the GE regulations require institutions to certify that their gainful employment programs meet state and federal licensure, certification, and

accreditation requirements and that they meet the debt to earnings ratio limits. Institutions that fail to meet either accountability standard risk losing their eligibility for financial aid.

Little research has been done on how institutions of higher education respond to increased federal oversight, although several studies have discussed the high cost for institutions of higher education to comply with federal laws and regulations (Bender, 1977; Perlman, 1977; Stein, 1979; Hunter and Gehring, 2005). Two recent studies explore how federal policy influences institutions of higher education using Pfeffer and Salancik's (1978; 2003) resource dependence theory (Hossler & Kwon, 2015; Hentschke & Parry 2015). Resource dependence theory suggests that organizations that depend on outside resources for survival will change their behavior in response to policies that threaten those resources. Many for-profit institutions rely heavily on federal financial aid, and may not be able to survive in the higher education market without it (Moore 1995), although researchers have found that many for-profit institutions without financial aid are still thriving (Cellini & Goldin, 2012). In response to the threat of losing federal aid under GE, Hentschke and Parry found that for-profit institutions considered initiatives that generally fell into four categories: price, admissions/students, program, and staff (Hentschke & Parry, 2015).

In terms of price, GE's emphasis on student debt and earnings could incentivize for-profit institutions to lower the cost for students to attend a GE program. Some initiatives that for-profit institutions have taken include reductions in the cost of tuition and course materials and increased institutional aid (Fain, 2011; Hentschke & Parry, 2015). In addition, some institutions have reduced the length of GE programs in order to reduce the cost to students (Karp, 2011;

Hentschke & Parry, 2015). Lower costs of attendance at for-profit institutions could increase student access. However, to the extent that the incentives created by GE conflict with incentives created by other federal policies (ie. 90/10 rule),¹⁴ for-profit institutions may be limited in their ability to lower tuition in response to GE (Hentschke & Parry, 2015).

Another approach to addressing student debt and earnings is to enroll students that have a higher likelihood of repaying their student debts. There is a body of research that suggests that student demographics may play a role in the student loan default rate (Christman, 2000; Dynarski, 1994; Gladieux & Perna, 2005; Goodwin, 1991; Greene, 1989; Harrast, 2004; Herr & Burt, 2005; Knapp & Seaks, 1992; Podgursky, Ehlert, Monroe, & Watson, 2002; Steiner & Teszler, 2003; Volkwein & Cabrera, 1998; Volkwein & Szelest, 1995; Wilms, Moore, & Bolus, 1987; Woo, 2002a, 2002b). For-profit institutions tend to enroll more “non-traditional” students that tend to come from lower-income families, are more likely to be first generation college students, and are more likely to experience poorer labor market outcomes (Looney & Yannelis, 2015). Currently, most for-profit institutions have open admissions policies with minimal enrollment requirements for new students. GE could create the incentive for institutions to increase admission requirements that could have mixed effects on student access. For instance, some institutions have implemented conditional enrollment measures to ensure students are progressing in their program before taking on student debt, thus maintaining student access but ensuring that students are successful (Fain, 2011; Hentshke & Parry, 2015). On the other hand, for-profit institutions could implement more selective admissions policies that could negatively impact access for certain groups of students.

¹⁴ Critics of the 90/10 rule suggests that the rule incentivizes for-profit institutions to raise tuition when federal student aid funding increases. See <http://www.finaid.org/loans/90-10-rule.phtml>

In terms of program and staff, GE could create an incentive for for-profit institutions to improve GE programs and allocate resources towards services that can help students succeed. One way that for-profits can improve programs is to ensure their programs are effectively linked to employment opportunities (Hentschke and Parry, 2015). For-profit institutions can also improve student outcomes by spending more on academic support and student services. For-profit colleges have been criticized by lawmakers for the large amount of expenditures that are spent on marketing services, while expenditures for instruction and student services are lower than what is spent at public and nonprofit institutions that offer similar programs (HELP, 2012). The accountability measures of GE could thus incentivize for-profit colleges to change their spending practices to ensure students are provided with adequate services to complete their programs and find jobs to repay student loans.¹⁵

Overall, the accountability measures of GE could lead institutions to implement initiatives that could have mixed impacts on student access. If for-profit institutions implement strategies that improve GE programs and provide additional support for struggling students, then student enrollment could remain the same. On the other hand, if for-profit institutions implement strategies that increase the cost to students or raise the requirements for students to enroll, then for-profit institutions might see a drop in enrollment.

Transparency

¹⁵ Institutional expenditures are explored further in Fountain (2016).

For transparency, under the GE regulation, institutions are required to make public disclosures regarding the performance and outcomes of their gainful employment programs including information on costs, earnings, debt and completion rates. The idea behind the information disclosures is the notion that providing consumers with information about price and quality of a product will enable the consumers to make better decisions. However, providing this information can be burdensome, and consumers may not always gather and fully evaluate the information before choosing a product (Beales, Craswell, & Salop, 1981; Stanley, 1991). Thus, the extent to which the GE measures can address the asymmetric information in the higher education market depends on institutions' willingness to provide students with complete accurate information and students' awareness and level of understanding of the information disclosures.

Some studies have found that students are generally misinformed about financial aid and future earnings, and that better information can lead to changes in student behavior (Betts, 1996; Bettinger, Long, Oreopoulos, & Sanbonmatsu, 2009; Dinkelman & Martinez, 2014; Long, Goldhaber, & Huntington-Klein, 2014; Wiswall & Zafar, 2011). For instance, researchers have found that students who are provided with more simplified information on the financial aid application process are more likely to enroll in college (Bettinger et al. 2009), and that early exposure to financial aid information can even lead students to make college preparatory decisions as early as high school (Dinkelman & Martinez, 2014). Researchers have also found that students tend to select majors based on potential earnings, and better information on earnings can lead students to adjust their expectations (Wiswall & Zafar, 2011). Thus, the GE informational disclosures could lead students to enroll in better performing programs. Thus,

drops in enrollment would be targeted at those institutions with programs whose completers have higher debt relative to earnings.

One commonality among the studies of the effects of information on student behavior, is that the information provided to students was issued through a targeted effort. For instance, Bettinger et al. found that providing information on financial aid eligibility without providing assistance with completing the form was not an effective way to increase access (2009). If students are unable to understand the disclosures, or access them, then the disclosures may do little to affect student behavior, and students may continue to enroll in poor performing programs.

The final GE regulations went into effect in 2015, therefore, not enough data are yet available to determine the impacts of GE. However, the reports of institutions implementing changes after the Department initially proposed the rules, suggests that the uncertainty surrounding the regulations may have led to changes at for-profit colleges. For instance, data retrieved from IPEDS illustrate a decline in enrollment at for-profit colleges since 2010, when the regulations were initially proposed (see figure 1).¹⁶ In order to explore the preliminary effects of the regulations, this paper addresses the following research question: Has the uncertainty surrounding the gainful employment regulations led to a change in enrollment at institutions subject to the regulations? By answering this question, policymakers can get a sense of the type of effects that increased federal regulatory oversight may have on student access to higher education.

¹⁶ See https://nces.ed.gov/programs/digest/d13/tables/dt13_303.10.asp

Data

This paper uses data from 2000 through 2014 pulled from IPEDS, which consists of annual surveys of postsecondary institutions that participate in federal financial aid programs. IPEDS includes various institutional characteristics that are important for my model such as enrollment, admissions policies, student demographics, size of institution, and cost of tuition.

My outcome variable is student enrollment at postsecondary institutions. IPEDS measures enrollment three ways: fall enrollment, unduplicated headcount, and full-time equivalent enrollment. The fall enrollment variable measures the number of students who were enrolled for credit in the fall;¹⁷ the unduplicated headcount measures the number of students who enrolled over a 12-month period; and the full-time equivalent enrollment uses data on instructional activity to derive the 12-month full-time equivalent enrollment. For my analysis, I use the fall enrollment count, as I believe it provides the most comparable measure of enrollment at a specific point in time across different types of institution. It is also the only enrollment variable that is available for all the pre-period years, and has complete information on student demographic groups. However, I run my model using all three measures of enrollment, and find the results to be quite consistent across each measure (see Appendix B).

In looking at the change in enrollment at institutions, I am also interested in the effects of the regulations on the enrollment patterns of student subpopulations. As previously mentioned, research suggests that students from certain demographic groups (i.e., low-income) may face additional barriers to completing postsecondary programs and repaying student loans

¹⁷ Institutions with traditional academic calendars report the enrollment by Oct 15 or the official fall reporting date of the institutions; institutions with 12-month academic calendars report it for students that enrolled anytime between August and October 31.

(Christman, 2000; Flint, 1997; Harrast, 2004; Herr & Burt, 2005; Podgursky et al., 2002; Steiner & Teszler, 2005; Woo, 2002a, 2002b.). I hypothesize that GE could incentivize for-profit institutions to implement more selective admissions and recruitment policies that could negatively impact enrollment of underserved groups. To explore this hypothesis, I look at the change in enrollment by race, income, and gender after GE to determine if there are any changes in student demographics that could suggest increased selectivity by the institutions.

In order to explore the treatment effects of GE, I merge the IPEDS data with the 2011 GE informational rates released by the Department of Education. The GE dataset provides a list of the institutions with GE programs and is useful for identifying the number of public and nonprofit institutions affected by GE. Table 1 shows that 58 percent of public institutions, 19 percent of nonprofit, and 94 percent of for-profit institutions have programs that fall under GE. My calculations likely underestimate the number of for-profit institutions affected by GE since for-profit institutions that entered the sector after the release of the informational rates are excluded from the calculation.¹⁸ In my model, I thus assume that all for-profit institutions are subject to GE, and are more likely to be affected by GE.

Figure 2 illustrates the trends in enrollment of for-profit, public, and nonprofit institutions from 2000 to 2014. Enrollment at all institutions appears to experience a steady growth until it reached its peak of 21.6 million in 2010 (NCES Digest 2015 Table 303.20). By 2014, enrollment dropped to 20.6 million at all institutions and appears to be largely driven by the decline in enrollment at for-profit institutions of 23 percent. Public institutions also saw a slight drop in enrollment of 3 percent while enrollment at nonprofit institutions increased by 3 percent. The overall trends

¹⁸ The number of nonprofit and public institutions decreased in the post GE period, so I am less concerned about my estimated calculation of GE public and nonprofit institutions.

suggest that for-profit institutions that are most affected by GE may have experienced a larger decline in enrollment relative to public and nonprofit institutions in the post GE period. The GE informational rates also provide the number of programs within an institution that are subject to GE, and the annual and discretionary debt-to-earnings ratio for each GE program. Given the structure of GE, I hypothesize that institutions with more GE programs or with higher debt-to-earnings ratios are more likely to see enrollment declines after GE. .

Table 2 shows the number of institutions affected by GE by level of institution. Twenty-three percent of four-year institutions, 77 percent of two-year, institutions and 93 percent of less than two-year institutions fall under GE.

Methodology

In order to isolate the effects of the GE proposal on enrollment at for-profit institution, I employ a difference-in-difference (DID) design that compares the pre- GE versus post-GE trends in enrollment at for-profit institutions relative to trends at public and nonprofit institutions. An important assumption of the DID model is that the treatment and comparison groups experience similar trends in the outcome variable prior to the treatment, so that the comparison group serves as a counterfactual of what would have happened without the treatment. Figure 2 suggests similar trends in enrollment among public, nonprofit and for-profit institutions in the pre-GE period, so I run my model first using all nonprofit and public institutions as my comparison group. To determine whether the GE proposal affected all schools with GE programs, irrespective of sector, I run my model a second time using just the nonprofit and public GE institutions as my comparison group.

I control for many unobserved differences between for-profit and public and nonprofit institutions by including institution fixed effects to control for differences in time-invariant characteristics of institutions (e.g., admissions policies, sector) and year fixed effects to control for changes over time that should affect all schools similarly (e.g., population growth, the economy). I also control for any remaining factors available in IPEDS that vary within schools over time (e.g., tuition).

Model

I estimate enrollment for institution i in year t as follows:

$$Enroll_{it} = \beta_0 + \beta_1(Post_t) + \beta_2(Post_t \times Forprofit_i) + \beta_3X_{it} + d_t + d_i + \varepsilon_{it}$$

$Enroll_{it}$ is the outcome of interest measuring fall enrollment in each institution and year. For my model, I rely on the fall enrollment variable, but also run the model using full-time equivalent and unduplicated headcount for robustness. $Post_t$ is a binary variable that takes on a value of 1 for 2011 and beyond and a value of 0 for years prior to gainful employment discussions.¹⁹ $Forprofit_i$ is a binary variable set to 1 for for-profit institutions and 0 for public and nonprofit institutions. β_1 measures the change in enrollment for institution i before and after the gainful employment uncertainty; β_2 measures the differential effect of GE on for-profit institutions relative to public and non-profit institutions. The total effect of GE on the for-profit sector is then measured by $\beta_1 + \beta_2$. The model also includes a vector, X_{it} , to control for time-varying factors that may also affect enrollment, such as tuition. I also include year fixed effects d_t , to capture changes in the economy before and after GE that are common to all institution.

¹⁹ The Department of Education first mentioned “Gainful Employment” in 2009 and anecdotal information from the securities exchange commission suggests that institutions began paying attention to the GE talks in 2010. Therefore, I expect any enrollment response to begin in the fall of 2011.

Most importantly, I also include fixed effects for each institution, d_i , to control for time-invariant unobservable characteristics of institutions that may be correlated with both enrollment and the sector such as admissions policies. I cluster standard errors at the institution level to account for serial correlation in the observations.

DID Assumptions and Model Limitations

One assumption of the DID design is that there are no other simultaneous policy changes or shocks that could have had a differential effect of enrollment at for-profit institutions than at public and nonprofit institutions. For instance, in 2010 the GAO report on deceptive and aggressive recruitment practices at for-profit institutions was released, and the Senate HELP Committee conducted investigations into the business practices of some of the major for-profit institutions. In addition, around the 2010 GE proposal, there were numerous news reports discussing the ongoing investigations of the for-profit sector. To the extent that these various investigations led to a change in behavior by for-profit institutions or students, their effect on enrollment is likely being picked up in my model. However, I argue that these additional investigations do not necessarily violate the assumptions of the DID model as they all demonstrate the increased oversight of the sector and are related to the general regulatory uncertainty surrounding GE.

An additional limitation of my model is that I am using institution-level data to identify changes in enrollment when GE actually affects institutions at the program level. The GE data will allow me to look at the intensity of GE within the institution, and I hypothesize that institutions with many GE programs or with more programs that are at risk for failing the GE metrics are more likely to see a change in enrollment than institutions with fewer programs or those with more

programs that pass the GE metrics. I run my model adding various measures of the “intensity” of the treatment to test my hypothesis

Using institution-level data also limits my ability to disentangle the effects of student behavior from institutional selectivity. Specifically, if I observe a significant effect of GE on enrollment, it will be difficult to determine if the effect is due to students choosing different institutions or institutions choosing different students. To partially address this limitation, I run different models to look at enrollment changes of certain groups of students. Under GE, students more likely to default on student loans pose a greater risk to institutions that heavily rely on Title IV funds. Thus, GE could inadvertently incentivize institutions to implement more selective enrollment policies that adversely affect these groups of students. I explore enrollment trends of these subgroups to examine if there is variation in the types of students the for-profit institutions admitted pre and post GE.

Results

In Table 3, I provide mean descriptive statistics of my key variables, and in Table 4, I provide summary statistics of the pre- and post-GE means by sector. Consistent with the literature, for-profit institutions enroll more Pell grant recipients, women, blacks and Hispanics, and older students than public and nonprofit institutions. For-profit institutions also have more GE programs than public and nonprofit institutions. Both public and for-profit institutions tend to have open admissions policies, and there appears to be no change in the percent of institutions with open admissions policies in the post-GE period. In the post GE period, for-profit institutions experienced a decline in the enrollment of Pell grant recipients while both public and nonprofit

institutions saw gains. I explore the extent to which these declines are explained by GE in my discussion below on student subgroups.

Regression Results

In Table 5, I run my baseline DID model on my full sample of institutions.²⁰ In all of my specifications, the coefficient on $Post_t$ is positive and statistically significant suggesting that public and nonprofit institutions experienced an increase in enrollment after GE. The result might be expected if public and nonprofit institutions absorbed students from the for-profit sector in the post-GE period.

In contrast, the coefficient on the variable of interest, $Post_t \times Forprofit_i$ is negative across all specifications, revealing slower enrollment growth in the for-profit sector. In specification (1), I run an ordinary least squares regression (OLS) while controlling for institutional characteristics including dummy variables for institutional control and level, HBCU status, and whether the institution has an open admissions policy. I observe a decrease in enrollment of 307 students at for-profit institutions relative to public and nonprofit institutions. When combined with the estimated difference in enrollment of 296 students at public and non-profit institutions, the overall effect of GE on for-profit institutions is a small decrease in enrollment of 11 students, on average.

In specification (2) of table 5, I add calendar year fixed effects and the change in enrollment at for-profit institutions jumps to about 1100, while the change in enrollment at for-profit

²⁰ My full sample excludes institutions missing one or more years of data. Therefore, schools that closed since GE are not included in the sample.

institutions is approximately 500 for an overall gain of 600 students at for-profit institutions in the post-GE period. In my fully loaded DID model (4) with institution and year fixed effects, the overall gain in enrollment at for-profit institutions is relatively unchanged at about 600 students. In Appendix A, I include the coefficients for the year fixed effects, which illustrates lower enrollment in years 2012-2014 relative to my omitted years (2000 and 2011).

To mitigate the influence of outliers and to generate coefficients in percentage terms, I rerun my model using the natural logarithm of fall enrollment (see Appendix B). The results suggest a 4.8 log point (5 percent) difference in enrollment at for-profit institutions compared to public and non-profit institutions.

In Table 6, I run the fully loaded DID model again, limiting my sample to GE institutions, which includes all for-profit institutions, and all public and nonprofit institutions that have programs that fall under GE. As with the full sample, the coefficient on $Post_t$ is positive and statistically significant while the coefficient on $Post_t \times Forprofit_i$ is negative suggesting that public and nonprofit institutions experienced slower gains in enrollment than public and nonprofit GE schools in the post-GE period. Similar to the full sample results, for-profit institutions experience a change in enrollment of about 600 students for an overall gain of 670 students in the post GE period. In column (3), I run my model again dropping nonprofit institutions to explore the relative differences in enrollment of for-profit to public institutions and the results remain the same.

In specification (4), I run my model using nonprofit GE institutions as my comparison group. The results suggest similar changes in enrollment of about 600 students at for-profit institutions relative to public and nonprofit institutions and a slightly lower overall gain of 400 students at for-profit institutions.

Overall, the results suggest that for-profit institutions experienced gains in enrollment in the post-GE period when controlling for institution and year effects, but the gains were significantly lower than those of the public and nonprofit institutions. The results could suggest that students have switched from for-profit institutions to public or nonprofit institutions that offer similar programs. To explore this theory further, I look at the enrollment of different subgroups of students below.

Heterogeneous Effects of GE

In Table 7, I explore the differential effect of GE on for-profit institutions by level, size of the institution, and number of GE programs. As previously mentioned, for-profit and two-year institutions²¹ appear to be most affected by GE, so I expand my model to test whether these institutions saw larger changes in enrollment. In specification (1) I run a DID and a triple difference (DDD) using two-year institutions. The results suggest that two-year institutions experienced smaller gains in enrollment of about 700 students relative to four-year institutions. I run my DID and DDD with an indicator for the size of the institution.²² The results are similar to two-year institutions, and suggest that smaller institutions experienced losses in enrollment of

²¹ For simplicity, my references to “two-year” include both two year and less than two-year institutions.

²² Small schools are those schools classified as having fewer than 1000 students in the first Carnegie classification completed in 2005

about 700 students relative to larger institutions, while the effects on small for-profit institutions are smaller and not statistically significant.

In specifications (3) and (4), I explore the intensity of the GE treatment and its effect on enrollment. GE affects institutions at the program level, so I would expect institutions with more GE programs to experience stronger effects from GE. The number of GE programs within an institution ranges between 1 and 98 programs, and among those programs, each institutions has between 0 and 14 programs that fail the GE metrics (refer to Table 3). In specification (3), I run a DID using the number of GE programs, and the results suggests that for every additional GE program, institutions saw a small gain in enrollment of 73 students. When interacted with for-profit, the coefficient is negative and not statistically significant. Next, I run my model on the number of failing GE programs. The results suggest that for every additional failing GE program, institutions saw a drop in enrollment of about 326 students. Interestingly, when I add the interaction for for-profit institutions, enrollment increases by 402, suggesting a smaller relative effect of failing GE programs on for-profit schools than public and nonprofit GE schools. However, this could be due to the fact that nonprofits and public had very few failing GE programs. Overall, the results suggest that two-year, smaller institutions, and institutions with more failing GE programs may have experienced smaller relative gains in enrollment in the post GE period.

Enrollment of Student Subgroups

The results thus far suggest a slowdown in enrollment at for-profit institutions in the post-GE time period. In Table 8, I explore the changes in enrollment by income, age, gender and race in

order to determine whether certain groups were more affected by GE. The coefficient on $Post_t \times Forprofit_i$ is negative on all but one of my demographic groups. For Pell grant recipients and Asian students, the total effect of GE is a decrease in enrollment, while the remaining groups saw smaller gains in enrollment relative to public and nonprofit institutions. The effect on Pell Grant recipients is quite large as for-profit institutions experience a decline of 144 Pell grant recipients²³ relative to public and nonprofit institutions that experienced a gain of 230 Pell grant recipients. When I run the regression on the natural log of Pell grant student enrollment, the results suggest a 53 log point (70 percent) drop in Pell grant enrollment at for-profit institutions relative to public and nonprofit institutions. However, given the smaller relative gains in enrollment of other key demographic groups, I am hesitant to conclude that the drop in enrollment of Pell Grant recipients provides enough evidence of a change in the demographics of students enrolling at for-profit institutions. The results could suggest however that irrespective of race, age and gender, that for-profit institutions could be concerned about enrolling Pell grant students, as they may be more likely to accrue federal student loans.

Discussion & Conclusion

The recent investigations into the for-profit sector have led to some uncertainty of the future of the sector. GE was established to increase the transparency and accountability framework of the federal financial aid program by requiring institutions to disclose information on student outcomes and by holding them accountable for the debt and earnings of students. For-profit institutions represent more than 90 percent of the institutions that fall under GE and data trends

²³ Prior to 2008, Pell grant recipients were lumped in with other federal grant aid recipients in the IPEDS. Based on the author's calculations, grant recipients comprise between 96 to 99 percent of federal grant aid recipients from 2008 through 2014. Thus, in order to ensure consistency, I use the federal grant aid measure for all my years.

suggest that for-profits have experienced a drop in enrollment since GE began. Using a DID design, this paper explores whether the regulatory uncertainty around GE led to a change in enrollment at for-profit institutions.

Using data from IPEDS and the GE information rates, I find that on average, for-profit institutions actually experienced an increase in enrollment during the post-GE period of about 600 students when controlling for institution and year fixed effects. However, the increase is significantly lower than the average increase in enrollment of around 1100 students at public and non-profit institutions, suggesting that GE may have slowed the rapid growth of for-profit institutions. When I look at the change in enrollment for the subsample of schools that are accountable under GE, I find slightly higher gains in enrollment of about 700 students at for-profit institutions, while public and nonprofit GE institutions experienced gains of about 1300 students. Thus among the GE schools, the regulation seems to have had more adverse effects on for-profit schools than nonprofit and public GE schools. In addition, when I look at the effects of GE by level and size of institution, the results suggest that GE may have had more negative effects on enrollment in two-year and smaller institutions.

Understanding what could be driving the differential effects of GE on enrollment has important policy implications. If institutions are responding to GE by closing the poorest performing programs, or students are responding to the increased transparency by choosing higher performing institutions, then GE might have achieved its objective to protect students and taxpayers. I do find some evidence that the effect of GE was more prominent at schools with more GE programs in any sector and on institutions with more failing GE programs. However,

the effect of failing GE programs seems to be more important for public and nonprofit institutions than for-profit institutions, which is surprising since on average, for-profit schools had more failing GE programs.

On the other hand, if the change in enrollment at for-profit institutions is due to increased selectivity that puts certain at-risk groups at a disadvantage, and then policymakers could be concerned about GE's effect on student access to higher education. My results suggest large significant declines in enrollment of Pell grant recipients at for-profit institutions, which could suggest that for-profit institutions have implemented more selective recruitment strategies to avoid enrolling low-income students that participate in Title IV programs. However, I also find smaller relative gains in enrollment of other key demographic groups including women, older students, and blacks and Hispanics, which suggests the effects of GE have been widespread among student groups. In short, GE may be reducing the enrollment of low-income students in for-profit colleges, but this selectivity does not appear to differentially affect students in other underserved groups.

A key policy concern that remains is the extent to which students who do not enroll in for-profit colleges enroll in other institutions. While my results are not definitive, the positive effects I find in public and nonprofit institutions suggest that perhaps for-profit students are re-absorbed into lower-cost institutions that may have more positive outcomes. In this sense, GE may be effective in improving student outcomes, but much more research is needed to know if this is indeed the case. My research is further limited in that I cannot disentangle whether the changes

in enrollment are driven by changes in student or institution behavior. Nevertheless, my research does suggest some preliminary effects of GE on for-profit institutions, and it could be a signal of further changes to the sector in the years to come.

References

- Beales, H., Craswell, R., & Salop, S. C. (1981). The efficient regulation of consumer information. *The Journal of Law & Economics*, 24(3), 491-539.
- Belfield, C. R. (2013). Student loans and repayment rates: The role of for-profit colleges. *Research in Higher Education*, 54(1), 1-29.
- Bender, L. W. (1977). *Federal regulation and higher education*. American Association for Higher Education.
- Bettinger, E. P., Long, B. T., Oreopoulos, P., & Sanbonmatsu, L. (2009). The role of simplification and information in college decisions: Results from the H&R Block FAFSA experiment (No. w15361). *National Bureau of Economic Research*.
- Betts, J. (1996). "What do Students Know about Wages? Evidence from a Survey of Undergraduates." *Journal of Human Resources*, 31(1): 27-56
- Brenneman, D. W., Pusser, B., & Turner, S. E. (2006). *Earnings from Learnings: The Rise of For-Profit Universities*. New York: State University of New York Press
- Carleton, D. (2002). *Landmark Congressional Laws on Education*. Connecticut: Greenwood Press
- Cellini, S. R. (2012) For-Profit Higher Education: An Assessment of Costs and Benefits. *National Tax Journal*. 65(1): 153-80
- Cellini, S. R., & Goldin, C. (2012). Does federal student aid raise tuition? New evidence on for-profit colleges (No. w17827). *National Bureau of Economic Research*.
- Cellini, S. R., & Darolia, R. (2013). College costs and financial constraints: Student borrowing at for-profit institutions.
- Cellini, S. R., & Chaudhary, L. (2014). The labor market returns to a for-profit college education. *Economics of Education Review*, 43, 125-140.
- Cellini, S. R., & Turner, N. (2016) Gainfully Employed? Assessing the Employment and Earnings of For-Profit College Students Using Administrative Data. (No. w22287). *National Bureau of Economic Research*.
- Christman, D. E. (2000). Multiple realities: Characteristics of loan defaulters at a two-year public institution. *Community College Review*, 27(4), 16-32.
- Darolia, R. (2015). Messengers of Bad News or Bad Apples? Student Debt and College Accountability. *Education Finance and Policy*.

- De Groot, H., McMahon, W. W., & Volkwein, J. F. (1991). The cost structure of american research universities. *The Review of Economics and Statistics*, , 424-431.
- Deming, D. J., Goldin, C., & Katz, L. F. (2012). The for-profit postsecondary school sector: Nimble critters or agile predators?. *The Journal of Economic Perspectives*, 26(1), 139-163.
- Department of Education (2014). Retrieved from:
<http://www2.ed.gov/offices/OSFAP/defaultmanagement/schooltyperates.pdf>
- Dill, D. D. (2001). The regulation of public research universities: Changes in academic competition and implications for university autonomy and accountability. *Higher Education Policy*, 14(1), 21-35.
- Dinkelman, T., & Martínez A, C. (2014). Investing in schooling in Chile: The role of information about financial aid for higher education. *Review of Economics and Statistics*, 96(2), 244-257.
- Dynarski, M. (1994). Who defaults on student loans? Findings from the National Postsecondary Student Aid Study. *Economics of Education Review*, 13(1), 55-68.
- Fain, P. (2011). More Selective For Profits. Inside higher ed.
- Federal Register (October 31,2014) Program Integrity: Gainful Employment; Final Rule 79 Fed. Reg. 64889.
- Fountain, J. (2016). Exploring the Institutional Expenditures of For-profit Institutions in Light of the Gainful Employment Regulations. Manuscript. *George Washington University*
- Gansemer-Topf, A. M., & Schuh, J. H. (2006). Institutional selectivity and institutional expenditures: Examining organizational factors that contribute to retention and graduation. *Research in Higher Education*, 47(6), 613-642.
- George-Jackson, Casey and Gast, Melanie Jones (2015) "Addressing Information Gaps: Disparities in Financial Awareness and Preparedness on the Road to College," *Journal of Student Financial Aid*: Vol. 44: Iss. 3, Article 3.
- Gladieux, L., & Perna, L. (2005). Borrowers who drop out: A neglected aspect of the college student loan trend. National Center report #05-2. *National Center for Public Policy and Higher Education*.
- Goodwin, D. (1991). Beyond defaults: Indicators for assessing proprietary school quality. Washington, DC: Department of Education, Office of the Under Secretary.
- Greene, L. L. (1989). An economic analysis of student loan default. *Educational Evaluation and Policy Analysis*, 11(1), 61-68.

- Gross, J. P., Cekic, O., Hossler, D., & Hillman, N. (2009). What matters in student loan default: A review of the research literature. *Journal of Student Financial Aid*, 39(1), 19-29.
- Gunderson, Steve. (2014, November 12). Making 'Profit' a Dirty Word in Higher Education. *The Wall Street Journal*. Retrieved from: <http://www.wsj.com/articles/steve-gunderson-making-profit-a-dirty-word-in-higher-education-1415837070>
- Guryan, Jonathan & Matthew Thompson. (2010). Report on Gainful Employment. *Charles River Associates*. Retrieved from: <http://nwcareercolleges.org/documents/CRA-GainfulEmployment-full.pdf>
- Hamrick, F. A., Schuh, J. H., & Shelley, M. C. (2004). Predicting higher education graduation rates from institutional characteristics and resource allocation. *Education Policy Analysis Archives*, 12, 24.
- Harrast, S. A. (2004). Undergraduate borrowing: A study of debtor students and their ability to retire undergraduate loans. *Journal of Student Financial Aid*, 34(1), 21-37.
- Hentschke, G. C., & Parry, S. C. (2015). Innovation in Times of Regulatory Uncertainty: Responses to the Threat of "Gainful Employment". *Innovative Higher Education*, 40(2), 97-109.
- Herr, E., & Burt, L. (2005). Predicting student loan default for the University of Texas at Austin. *Journal of Student Financial Aid*, 35(2), 27-49.
- Hossler, D., & Kwon, J. (2015). Does Federal Financial Aid Policy Influence the Institutional Aid Policies of Four-Year Colleges and Universities? An Exploratory Analysis. *Journal of Student Financial Aid*, 45(3), 6.
- Hunter, B., & Gehring, D. D. (2005). The cost of federal legislation on higher education: The hidden tax on tuition. *NASPA Journal*, 42(4), 478-497.
- Ionescu, F., & Simpson, N. (2016). Default risk and private student loans: Implications for higher education policies. *Journal of Economic Dynamics and Control*, 64, 119-147.
- Jacoby, D. (2006). "Effects of part-time faculty employment on community college graduation rates." *The Journal of Higher Education*, 77(6), 1081-1103.
- Johnson, J. L. (1978). The role of the student in the higher education production function. *Research in Higher Education*, 9(2), 169-179.
- Karp, Gregory. (2011, June 21). "For-profit college officials say federal scrutiny could make businesses stronger." *Chicago Tribune*. Retrieved from: http://articles.chicagotribune.com/2011-06-21/business/ct-biz-0621-bf-private-college-side-20110621_1_devry-university-chamberlain-college-career-education

- Knapp, L. G., & Seaks, T. G. (1992). An analysis of the probability of default on federally guaranteed student loans. *The Review of Economics and Statistics*, 74(3), 404-411.
- Long, M. C., Goldhaber, D., & Huntington-Klein, N. (2014). Do Students' College Major Choices Respond to Changes in Wages?. In *National Center for Analysis of Longitudinal Data in Education Research (CALDER) Research Conference, American Institutes of Research, Washington, DC (February)*.
- Looney, A., & Yannelis, C. (2015). A Crisis in Student Loans?: How Changes in the Characteristics of Borrowers and in the Institutions They Attended Contributed to Rising Loan Defaults. *Brookings Papers on Economic Activity*, 2015(2), 1-89.
- Lynch, M., Engle, J., & Cruz, J. L. (2010). Subprime Opportunity: The Unfulfilled Promise of For-Profit Colleges and Universities. *Education Trust*.
- Moore, R. W. (1995). The illusion of convergence: Federal student aid policy in community colleges and proprietary schools. *New Directions for Community Colleges*, 1995(91), 71-80.
- Moosai, S. (2011). Using student and institutional characteristics to predict graduation rates at community colleges: New developments in performance measures and institutional effectiveness. *Community College Journal of Research and Practice*, 35(10), 802.
- Perlman, D. H. (1977). Self-Study Report by Roosevelt University on the Impact of Government Programs and the Cost of Compliance With Government Regulations for the Sloan Commission on Government and Higher Education.
- Pfeffer, J., & Salancik, G. R. (1978). The external control of organizations: A resource dependence perspective. New York: *Harper and Row*.
- Pfeffer, J., & Salancik, G. R. (2003). The external control of organizations: A resource dependence perspective. *Stanford University Press*.
- Podgursky, M., Ehlert, M., Monroe, R., & Watson, D. (2002). Student loan defaults and enrollment persistence. *Journal of Student Financial Aid*, 32, 27- 42.
- Rovai, A. P., & Downey, J. R. (2010). Why some distance education programs fail while others succeed in a global environment. *The Internet and Higher Education*, 13(3), 141-147.
- Ryan, J. F. (2004). The relationship between institutional expenditures and degree attainment at baccalaureate colleges. *Research in Higher Education*, 45(2), 97-114.
- Stanley, L. R. (1991). A market test of consumer response to information disclosure. *Journal of Public Policy & Marketing*, 202-218.

- Stein, R. H. (1979). Impact of federal intervention on higher education. *Research in Higher Education*, 10(1), 71-82.
- Steiner, M., & Teszler, N. (2003). The characteristics associated with student loan default at Texas A&M University. College Station, TX: Texas Guaranteed in association with Texas A&M University.
- Sullivan, T. A., Mackie, C., Massy, W. F., & Sinha, E. (Eds.). (2013). *Improving measurement of productivity in higher education*. National Academies Press.
- U.S. Government Accountability Office (GAO). (2010). For Profit Colleges: Undercover Testing Finds Colleges Encouraged Fraud and Engaged in Deceptive and Questionable Marketing Practices. GAO-10-948T. Retrieved from: <http://www.gao.gov/products/GAO-10-948T>
- U.S. House, Sub-Committee on Regulatory Affairs, Stimulus Oversight and Government Spending, Committee on Oversight and Government Reform, Joint with and the Sub-Committee on Higher Education and Workforce Training, Committee on Education and the Workforce. (2012). *The Gainful Employment Regulation: Limiting Job Growth and Student Choice*. Joint Hearing July 8, 2011. (Serial No. 112-77). Washington: Government Printing Office
- U.S. Senate Health, Education, Labor, and Pensions (HELP) Committee. (2012). For Profit Higher Education: The Failure to Safeguard the Federal Investment and Ensure Student Success. S.PRT.112-37. Retrieved from: http://www.help.senate.gov/imo/media/for_profit_report/PartI.pdf
- Volkwein, J. F., & Cabrera, A. F. (1998). Who defaults on student loans? The effects of race, class, and gender on borrower behavior. In R. Fossey & M. Bateman (Eds.), *Condemning students to debt: College Loans and Public Policy* (pp. 105-126). New York: Teachers College Press.
- Volkwein, J. F., & Szelest, B. P. (1995). Individual and campus characteristics associated with student loan default. *Research in Higher Education*, 36, 41-72.
- Webber, D. A., & Ehrenberg, R. G. (2010). Do expenditures other than instructional expenditures affect graduation and persistence rates in american higher education? *Economics of Education Review*, 29(6), 947-958.
- Wilms, W. W., Moore, R. W., & Bolus, R. E. (1987). Whose fault is default? A study of the impact of student characteristics and institutional practices on guaranteed student loan default rates in California. *Educational Evaluation and Policy Analysis*, 9(1), 41-54.
- Wiswall, M., & Zafar, B. (2015). How do college students respond to public information about earnings?. *Journal of Human Capital*, 9(2), 117-169.

Wong, A. (2015). Dollar Signs in Uniform: Why For-Profit Colleges Target Veterans. Retrieved from:<http://www.theatlantic.com/education/archive/2015/06/for-profit-college-veterans-loop-hole/396731/>

Woo, J. H. (2002a). Clearing accounts: The causes of student loan default. Rancho Cordova, CA: EdFund.

Woo, J. H. (2002b). Factors affecting the probability of default: Student loans in California. *Journal of Student Financial Aid*, 32(2), 5-23.

Table 1: Title IV Institutions GE Status¹ by Control of Institution²

Control	GE School (n=2862)		Non-GE School (n=2179)		Total
Public	58%	38%	42%	36%	100%
Private non-profit	19%	11%	81%	59%	100%
Private for-profit	94%	51%	6%	4%	100%
Total		100%		100%	

¹An institution is considered a “GE School” if it is included in the Departments 2011 GE information rates as having a program that falls under the GE regulations.

²Control (of institution) is a classification of whether an institution is operated by publicly elected or appointed officials or by privately elected or appointed officials and derives its major source of funds from private sources

Source: Author's calculations from GE2011 merged with IPEDS 2000-2014 dataset; Institutions with missing years of data dropped

Table 2: Title IV Institutions GE Status¹ by Level of Institution²

Level	GE School (n=2862)		Non-GE School (n=2179)		Total
Four or more years	23%	17%	77%	78%	100%
2-years or less than 4-years	77%	48%	23%	19%	100%
Less than 2-years	93%	35%	7%	3%	100%
Total		100%		100%	

¹An institution is considered a “GE School” if it is included in the Departments 2011 GE information rates as having a program that falls under the GE regulations

²Level of institution is a classification of whether an institution’s programs are 4-year or higher (4 year), 2-but-less-than 4-year (2 year), or less than 2-year.

Source: Author's calculations from GE2011 merged with IPEDS 2000-2014 dataset; Institutions with missing years of data dropped

Figure 1: Timeline of Major Federal Legislations and Regulations Affecting For Profit institutions of Higher Education (1960 – 2015)

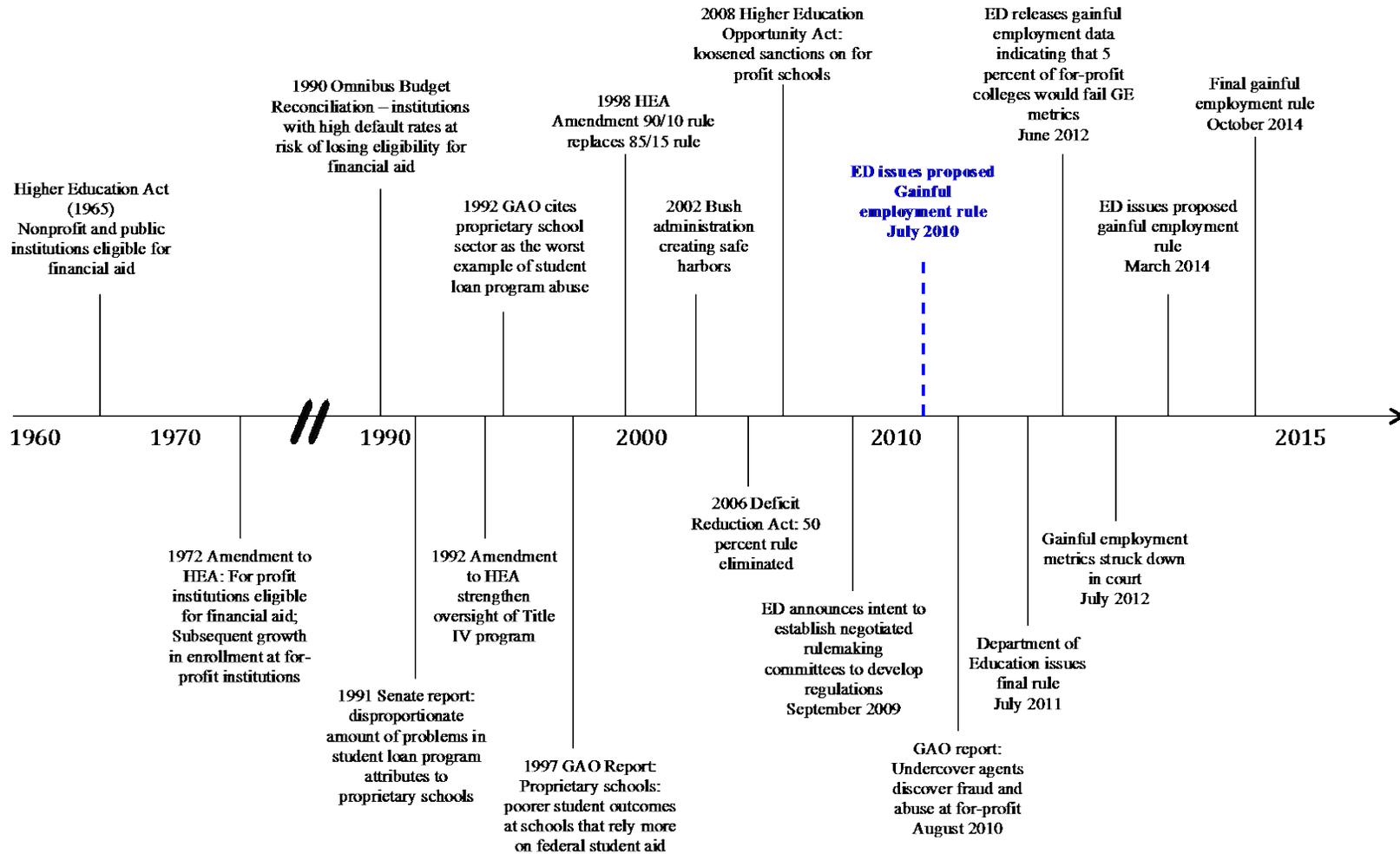
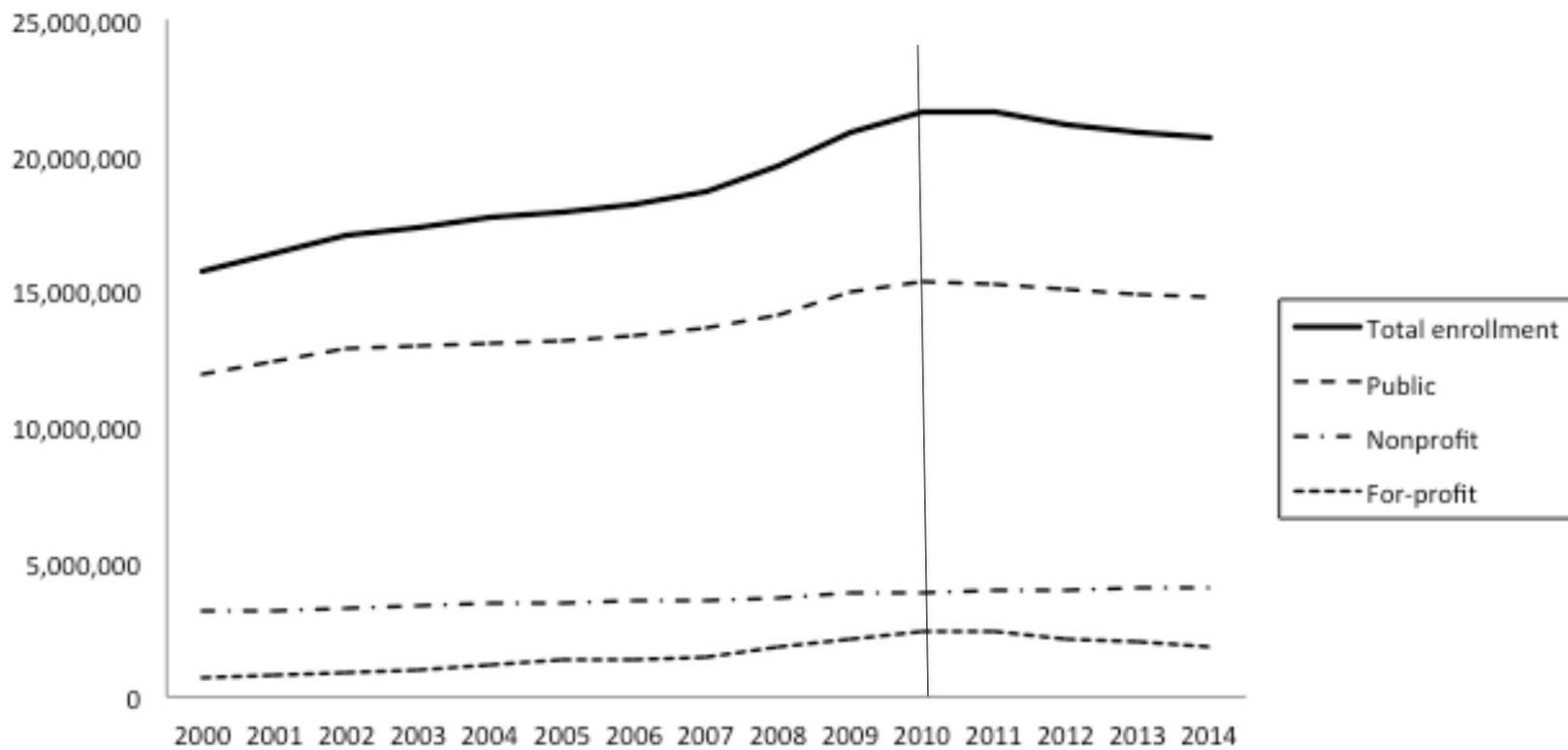


Figure 2: Trend in Fall Enrollment at Title IV Postsecondary Institutions:

Total and By Control of Institution
2000 - 2014



Source: NCES Digest of Education Statistics 2015 Table 303.20

Table 3

Descriptive Statistics

IPEDS Variables	Forprofit				Public				Nonprofit			
	Mean	Std. Dev	Min	Max	Mean	Std. Dev	Min	Max	Mean	Std. Dev	Min	Max
Fall Enrollment	527	1960	0	77966	7109	8716	0	100272	2276	4077	0	81459
Open Admissions (%)	54	50	0	1	62	0.49	0	1	11	32	0	1
Tuition ¹	4165	6765	0	150781	2916	2715	0	39060	14302	11169	0	82770
Pell grant recipients ²	155	440	0	21189	312	371	0	7406	103	163	0	2533
Women	333	1391	0	57390	4006	4757	0	59789	1315	2352	0	55747
Men	194	656	0	20576	3104	4051	0	40884	961	1825	0	33130
Black	96	515	0	18914	743	1398	0	19970	211	662	0	27889
Hispanic	98	488	0	20876	843	2256	0	46806	194	762	0	17325
White	193	670	0	26920	3747	5168	0	72299	1190	2153	0	41898
Asian	14	54	0	1391	388	1119	0	18634	104	378	0	7696
Students over age 25	192	1387	0	65785	1902	2981	0	50807	582	1822	0	65763
Students under age 25	149	463	0	13300	3464	5627	0	53735	936	2070	0	31097
Number of Observations	23460				28080				24075			
Number of Institutions	1564				1872				1605			

GE Variables	Forprofit				Public				Nonprofit			
	Mean	Std. Dev	Min	Max	Mean	Std. Dev	Min	Max	Mean	Std. Dev	Min	Max
Number of GE programs	8	11	1	93	4	5	1	33	5	6	1	39
Number of Failing GE Programs	0	1	0	14	0	0	0	0	0	0	0	3
Number of Observations	21945				16320				4665			

Note: Statistics are per institution averages from 2000 to 2014; ¹ Tuition is published tuition and fees; ² Pell grant recipient calculation is based on the number of federal grant recipients. Pell grant recipient's were not separately reported prior to 2008, but they comprise more than 80 percent of federal grant recipients within an institution; Institutions missing one or more years of data are dropped from the dataset.

Source: IPEDS and GE 2011 Informational Rates

Table 4
Summary Statistics: Pre vs Post GE

	Pre-GE Period 2000-2010			Post-GE Period 2011-2014		
	For-profit	Public	Nonprofit	Forprofit	Public	Nonprofit
Fall enrollment	498	6,902	2,186	609	7,679	2,520
Tuition (\$)	3,795	2,559	12,757	5,180	3,900	18,547
Open admissions (%)	54	62	11	54	62	11
Pell grant recipients	157	270	96	152	429	123
<i>% of enrollment</i>	32	4	4	25	6	5
Women	311	3909	1262	396	4273	1462
<i>% of enrollment</i>	62	57	58	65	56	58
Men	187	2993	925	213	3407	1058
<i>% of enrollment</i>	38	43	42	35	44	42
Black	81	671	184	139	943	284
<i>% of enrollment</i>	16	10	8	23	12	11
Hispanic	85	697	165	132	1243	272
<i>% of enrollment</i>	17	10	8	22	16	11
White	181	3592	1118	226	4172	1389
<i>% of enrollment</i>	36	52	51	37	54	55
Asian	14	366	94	15	449	134
<i>% of enrollment</i>	3	5	4	2	6	5
Students age 25 and over	177	1913	569	234	1871	619
<i>% of enrollment</i>	36	28	26	38	24	25
Students under age 25	148	3403	920	153	3629	983
<i>% of enrollment</i>	30	49	42	25	47	39

Note: Statistics are per institution averages; Institutions missing one or more years of data are dropped from dataset.

Source: IPEDS

Table 5
Change in enrollment at forprofit institutions after GE, Fall Enrollment

	(1)	(2)	(3)	(4)
Post	296*** [58]	1,103*** [31]	498*** [46]	1,114*** [59]
Post*Forprofit	-307*** [65]	-477*** [26]	-424*** [63]	-481*** [64]
Observations	71595	71595	71595	71595
Institution Characteristics	Yes	Yes	Yes	Yes
Year FE	No	Yes	No	Yes
Institution FE	No	No	Yes	Yes
Number of institutions	4773	4773	4773	4773

Robust standard errors clustered at the institution level in brackets; *Note:* Post*Forprofit is an indicator variable that turns on for institutions identified as forprofit in IPEDS for 2011 through 2014; Institution characteristics includes dummy variables for public, twoyear, fouryear, tuition, hbcu, and admissions policy. Institutions missing one or more years of data are dropped

*** p<0.01, ** p<0.05, * p<0.1

Table 6
Change in fall enrollment at for-profit insittuions, GE schools

	All		GE Schools	
	(1)	(2)	(3)	(4)
Post	1,114*** [59]	1,296*** [95]	1,297*** [79]	1,020*** [307]
Post*Forprofit	-481*** [64]	-626*** [89]	-628*** [73]	-621** [293]
Notes	Preferred specification from Table 5		Dropping non-profit institutions	Dropping public institutions
Observations	71595	41820	37,350	25,815
Number of institutions	4773	2788	2,490	1721

Robust standard errors clustered at the institution level in brackets; All regressions include year and instittuions fixed effects and controls for institutional characteristics that vary over time such as tuition. *Note:* Post*Forprofit is an indicator variable that turns on for institutions identified as forprofit in IPEDS for 2011 through 2014; GE schools include nonprofit and public GE schools and all forprofit schools.

*** p<0.01, ** p<0.05, * p<0.1

Table 7
Heterogeneous effects of GE on fall enrollment, GESchools

	Forprofit interactions			
	(1) Two-year or less than two-year	(2) Small Institutions	(3) Number of GE programs	(4) Number of failing GE programs
Post	1,873*** [284]	1,550*** [104]	969*** [179]	1,314*** [96]
Post*Forprofit	-1040** [425]	-191 [441]	-444** [192]	-647*** [90]
Post*Twoyearorless	-713*** [276]			
Post*Forprofit*Twoyearorless	583 [432]			
Post*SmallSchools		-774*** [155]		
Post*Forprofit*SmallSchools		47 [461]		
Post*GEprograms			73* [44]	
Post*Forprofit*GEprograms			-52 [45]	
Post*FailingGEprograms				-326*** [55]
Post*Forprofit*FailingGEprograms				402*** [101]
Observations	40,440	40,440	40,440	40,440
Number of institutions	2,696	2,696	2,696	2,696

Robust standard errors clustered at the institution level in brackets; All regressions include year and institutions fixed effects and controls for institutional characteristics that vary over time such as tuition *Note:* Post*twoyearorless is an indicator variable that turns on for two year and less than two year institutions for 2011 through 2014; post*forprofit*twoyearorless is an indicator variable that turns on for two year and less than two year forprofit institutions in years 2011 through 2014; post*smallschools is an indicator variable that turns on for institutions classified as small in years 2011 through 2014; post*forprofit*smallschools is an indicator variable that turns on for small forprofit institutions in years 2011 through 2014; post*GEprograms is an indicator variable that turns on in years 2000 and 2014 and is multiplied by the total number of GE programs within the institution; post*forprofit*GEprograms is an indicator variable that turns on for forprofit institutions in years 2011 through 2014 and is multiplied by the number of GE programs within the institution. Post*FailingGEprograms is an indicator variable that turn on in years 2011 through 2014 and is multiplied by the number of an institution's GE programs that fail the GE metrics. Post*Forprofit*FailingGEprograms is an indicator variable that turns on in years 2011 through 2014 for forprofit institutions and is multiplied by the number of an institution's GE programs that fail.

*** p<0.01, ** p<0.05, * p<0.1

Table 8
Effect of GE on Enrollment at Forprofit Institutions, Student Subgroups in GE Sample

	[A] Income		[B] Age		[C] Gender		[D] Race			
Post	230***	.873***	1,546***	2321***	739***	572***	330***	533***	489***	55***
	[9]	[.025]	[73]	[93]	[62]	[37]	[32]	[36]	[47]	[8]
Post*Forprofit	-144***	-.528***	82**	-186***	-279***	-337***	-213***	-468***	-446***	-62***
	[9]	[.026]	[39]	[25]	[60]	[34]	[33]	[35]	[48]	[8]
Notes	Pell Grant Enrollment	Ln Pell Grant Enrollment	Number age 25 and over	Number under age 25	Women	Men	Black	Hispanic	White	Asian
Observations	40,440	38,613	40,440	40,440	40,440	40,440	40,440	40,440	40,440	40,440
Institutions	2696	2647	2696	2696	2696	2696	2696	2696	2696	2696

Robust standard errors in brackets; All regressions includes year and institutions fixed effects and controls for institutional characteristics that vary over time; Institutions missing one or more years of data are dropped; years 2000 through 2014

*** p<0.01, ** p<0.05, * p<0.1

Appendix A

Change in enrollment at forprofit institutions after GE, Fall Enrollment (with year fixed effects)

Post	1,114***
	[59]
Post*Forprofit	-481***
	[64]
<i>Year Fixed Effects</i>	
2001	131***
	[9]
2002	269***
	[13]
2003	311***
	[15]
2004	367***
	[18]
2005	402***
	[23]
2006	442***
	[23]
2007	522***
	[26]
2008	654***
	[32]
2009	891***
	[41]
2010	987***
	[45]
2012	-44**
	[18]
2013	-91***
	[20]
2014	-118***
	[22]
Observations	71595
Institution Characteristics	Yes
Institution FE	Yes
Number of institutions	4773

Robust standard errors clustered at the institution level in brackets; *Note:* Post*Forprofit is an indicator variable that turns on for institutions identified as forprofit in IPEDS for 2011 through 2014; Institution characteristics includes dummy variables for public, twoyear, fouryear, tuition, hbcu, and admissions policy. Institutions missing one or more years of data are dropped

*** p<0.01, ** p<0.05, * p<0.1

Appendix B

Change in enrollment at forprofit institutions after GE using alternative measures of enrollment

	Fall Enrollment	Ln Fall Enrollment	Unduplicated Headcount	Full-Time Equivalent
Post	732*** [49]	.172*** [.008]	938*** [87]	631*** [146]
Post*Forprofit	-388*** [56]	-.048*** [.013]	-429*** [98]	-520*** [154]
Observations	52,503	52,479	52,503	52,503
Number of institutions	4773	4773	4773	4773

Robust standard errors clustered at the institution level in brackets; All regressions include year and institutions fixed effects and controls for institutional characteristics that vary over time such as tuition. *Note:* Post*Forprofit is an indicator variable that turns on for institutions identified as forprofit in IPEDS for 2011 through 2014; Institution characteristics includes dummy variables for public, twoyear, fouryear, tuition, hbcu, and admissions policy. Data years are 2004 through 2014; Institutions missing one or more years of data are dropped;

*** p<0.01, ** p<0.05, * p<0.1