

A Comprehensive View of For-Profit Postsecondary Education and the Role of Title IV in Tuition-Setting

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ABSTRACT

For-profit higher education is among the most rapidly growing sectors in the economy. There is a strong presumption that the size and growth of its institutions are largely due to the implicit subsidy received from federal student aid programs under Title IV. But not all for-profit institutions are eligible for Title IV aid. Because only Title IV eligible institutions are captured in the official data, those that are not eligible are not counted. In this paper, we use administrative data from five states to provide the first estimates of the total for-profit higher education sector. We find that the actual number of for-profit institutions is double the official count and the actual number of students is between one-quarter and one-third greater. Many for-profit institutions that are not Title IV eligible offer programs and certificates that are similar, if not identical, to those given by institutions that are part of Title IV. We find that Title IV institutions charge tuition that is about 55 log points higher than that charged by comparable institutions whose students cannot apply for federal financial aid. The dollar value of the premium is about equal to the amount of financial aid received by students in eligible institutions, lending credence to the “Bennett” hypothesis that aid-eligible institutions raise tuition to maximize aid.

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For-profit postsecondary education has expanded rapidly in recent years. The sector’s “colleges,” also known as occupational or career colleges, technical institutes, or proprietary schools, offer degrees, certificates, and non-degree programs in fields ranging from computer science to cosmetology. They serve millions of students every year, while generating substantial profits for investors.

In 2008/09 for-profits, as tracked by the U.S. Department of Education, produced 42 percent of vocational certificates, 18 percent of associate’s degrees, 5 percent of bachelor’s degrees, and 10 percent of master’s degrees. Not only do the for-profits account for a substantial fraction of each of these programs, they have grown enormously in the past decade. The fall enrollment fraction accounted for by the for-profits increased from 4.3 percent in 2000 to 10.7 percent in 2009.¹

There is a strong presumption that the size and growth of these institutions are largely due to the implicit subsidy received from federal student aid programs. Under Title IV of the Higher Education Act of 1965, the federal government provides grants and (subsidized and unsubsidized) loans amounting to about \$125 billion per year to postsecondary students. For-profit post-secondary institutions account for about 23 percent of the total.² Title IV eligible institutions (which we will term T4 institutions) may, and often do, receive up to 90 percent of their revenue from federal aid programs.

Not all for-profit institutions participate in Title IV programs. As we will demonstrate, schools that are not Title IV eligible (hereafter referred to as “non-Title IV” or NT4 institutions) probably outnumber T4 institutions in the United States. Yet, most previous research on the for-profit sector has ignored these institutions, as they are not captured in official U.S. Department of Education counts.

¹ Data are from Deming, Goldin, and Katz (2012 forthcoming). Because these data are from the U.S. Department of Education, they are only for institutions that are eligible for federal financial aid programs. “Fall enrollment” will understate the for-profits because many non-degree programs enroll students throughout the year.

² Totals for student aid are for 2007/08 and can be found in <http://nces.edu.gov/fastfacts/display.asp?id=31>. The fraction accounted for by the for-profits is for 2008 from Deming, Goldin, and Katz (2012 forthcoming, figure 5).

In this paper, we draw on administrative data from five states to provide the first estimates the number of institutions, enrollments, and completions in NT4 institutions. We also describe the types of programs offered by these institutions. We add these figures to those of T4 institutions, thereby providing the first comprehensive accounting of the size of the for-profit sector in its entirety.

More importantly, our analysis of institutions that are not currently Title IV eligible can provide valuable insights into the role of Title IV in tuition-setting. By comparing the tuition charged by NT4 institutions to the tuition charged for similar programs in T4 institutions we can estimate the premium to Title IV eligibility. Our estimates can control for program length, enrollment, and a rich set of program, county, and year fixed effects among other covariates. We also compare NT4 programs and institutions that appear to be eligible for Title IV funding with observationally equivalent programs that actually are eligible.

Our analysis allows us to evaluate the so-called “Bennett Hypothesis,” which argues that aid-eligible institutions capture part of federal aid by increasing tuition above the cost of education.³ It also has implications for current debates over the role of Title IV in the survival and expansion of the for-profit sector. Recent regulations by the U.S. Department of Education require new tests of the “gainful employment” of graduates, leading some analysts to predict that the Title IV status of some, and possibly many, institutions will be revoked or suspended.⁴ An understanding of the large number of NT4 institutions that appear to operate without the support of federal student aid programs can provide an important lens through which the future of the for-profit sector can be viewed.

We find that NT4 institutions educate roughly 670,000 students each year—students who are missed in official U.S. Department of Education counts. After accounting for these students, we find that the entire for-profit sector provides education and training to 2.47 million students annually. We also demonstrate that NT4 institutions offer programs in many of the same fields

³ See *New York Times*, February 18, 1987, opinion piece by William J. Bennett, then U.S. Secretary of Education. In it he famously said: “increases in financial aid in recent years have enabled colleges and universities blithely to raise their tuitions, confident that Federal loan subsidies would help cushion the increase.” <http://www.nytimes.com/1987/02/18/opinion/our-greedy-colleges.html>

⁴ See, for example, Guryan and Thompson (2010), although their analysis was not based on the final regulations.

as T4 institutions. Further, our analysis suggests that, rather than being new or ephemeral, many NT4 institutions are long-lived, surviving and thriving without access to Title IV funds and the imprimatur of the U.S. Department of Education.

In our tuition analysis, we find that T4 institutions charge much higher tuition than NT4 institutions across all states, samples, and specifications, with estimates ranging from 31 log points to more than 100. When we compare similar full-time non-degree programs—thus more of an “apples to apples” comparison—the difference narrows to a range of 52 to 66 log points (or 68 to 93 percent). Our “best estimate” of the tuition premium is about 55 log points (or 73 percent). Our findings suggest that T4 institutions raise tuition above the cost of education to match average student grant aid under Title IV. However, we cannot rule out that unobservable dimensions of quality or high costs of Title IV eligibility and accreditation are driving the large measured differences.⁵

Section I provides background on Title IV and its role in for-profit postsecondary education. Section II describes our data. Section III discusses the characteristics of NT4 institutions and generates an estimate of the size of the whole for-profit sector. Section IV describes our empirical approach to estimating the Title IV tuition premium and Section V reports our results. Section VI concludes.

I. Background: Title IV and For-Profit Higher Education

Title IV of the Higher Education Act of 1965 allows institutions meeting certain criteria to be eligible to participate in federal student aid programs. Title IV programs come in three forms: grants, loans, and work-study. By far the largest Title IV grant program is the Pell Grant, which offers scholarships of up to \$5,500 per year for low-income students in eligible institutions. Loan programs include subsidized (for students demonstrating financial need) and unsubsidized Stafford loans, Perkins loans, and PLUS loans for parents—all of which are administered directly by the U.S. Department of Education. During the 2007/08 academic year,

⁵ We are in the process of obtaining school-level data on the pass rates for the state cosmetology licensing exam in Florida.

more than \$125 billion in federal loans and grants were made to almost 14 million students.⁶ Almost two-thirds of all undergraduates receive some form of federal financial aid.

Institutions play a central role in determining a student's financial aid award. Federal student aid awards are based on two main factors: Expected Family Contribution (EFC) and the Cost of Attendance (COA). Each student's EFC is determined by family income, assets, number of siblings, and other student-specific considerations reported on the Free Application for Federal Student Aid (FAFSA).⁷ The information is then furnished to each institution that a student is considering. The institution calculates its COA and weighs this against the EFC to determine the size and composition of the federal aid award. Several different factors may be considered in assessing the COA (e.g., cost of books and materials, part-time attendance, program length), but tuition is typically the most important element. All else equal, an institution with higher tuition will have a higher COA and the student in question will thereby qualify for more federal aid. This undoubtedly creates an incentive for T4 institutions to raise tuition above the true cost of education to capture a larger amount of federal aid.

Not all postsecondary institutions are Title IV eligible. To be eligible, the institution must have existed for at least two years, have received accreditation from a U.S. Department of Education approved accrediting agency, and be licensed or authorized by the state in which it operates. A T4 institution must have at least one program that meets the requirement of being full time, but its other programs, if sufficiently long in terms of weeks or clock hours, can be approved for funding of some type.⁸

For institutions that are already Title IV eligible, there are other criteria for maintaining eligibility. They include a maximum default rate on federal loans for students who have completed programs. Further, institutions are not allowed to receive more than 90 percent of their revenue from Title IV loans and grants. In the coming years, these restrictions will be tightened under the U.S. Department of Education's new regulations. The new "gainful

⁶ See <http://nces.ed.gov/fastfacts/display.asp?id=31>

⁷ On the complexity of the FAFSA form and the difficulty many students have in filling out student loan and grant applications, see Scott-Clayton and Dynarski (2008).

⁸ Until 2005 for-profit institutions of higher education could not have more than 50 percent of their students engaged in "distance education," now called "on-line coursework." The rule was changed in 2005 and there were exemptions before that year. Mega-institutions now exist that are entirely on-line.

employment” criterion lowers the maximum allowable cohort default rate and adds new restrictions involving income-to-debt ratios of former students.⁹

The structure and eligibility requirements of Title IV generate some important incentives regarding for-profit postsecondary institutions. First and foremost, as noted above, institutions that are Title IV eligible might be able to increase tuition further above cost to capture more aid. Their ability to do so depends on their market power and on their ability to get their needy students attractive loans and (even more attractive) grants.

Second, institutions may engage in strategic recruiting. For example, for-profit institutions may locate in low-income neighborhoods (Cellini 2010) or otherwise recruit low-income students who are likely to meet the criteria for need-based aid. They may also recruit military veterans eligible for the GI Bill—a source of federal aid that does not count toward the 90 percent aid threshold.¹⁰ Alternatively, they may avoid serving high-risk students for fear of approaching default rate limits. A third possibility is that the requirements concerning default may offer incentives for the institution to provide higher-quality education or career counseling to ensure that students have skills to succeed in the labor market.

To date, there has been little research on for-profit postsecondary education and, not surprisingly, most studies have focused exclusively on T4 institutions.¹¹ Data on NT4 institutions has been difficult to locate, since the U.S. Department of Education collects information almost entirely from institutions that are Title IV eligible (or are in the process of applying for Title IV eligibility). These data are published in the Department’s Integrated Postsecondary Data System (IPEDS), the primary data set used by researchers studying institutional characteristics. Further, the U.S. Department of Education draws on this same group of institutions to gather data for its student-level surveys, including the National Postsecondary Student Aid Study (NPSAS) and the Beginning Postsecondary Student Survey (BPS). Therefore, the most important national sources of information on the for-profit sector

⁹ For the new regulations (as of June 2, 2011), see <http://www.ed.gov/news/press-releases/gainful-employment-regulations>

¹⁰ See http://frwebgate.access.gpo.gov/cgi-bin/getdoc.cgi?dbname=1999_register&docid=99-19724-filed.pdf on Title IV rules concerning loans and grants to veterans.

¹¹ See Bailey, Badway, and Gumpert (2001), Chung (2008, 2009), Deming, Goldin, and Katz (2012 forthcoming), Rosenbaum, Deil-Amien, and Person (2006), and Turner (2006), for example.

have virtually no information on NT4 institutions, their programs, and their students.

Only a handful of studies have included NT4 institutions in analyses of the sector. Research on California has suggested that these institutions may be a large share of the for-profit sector (Cellini 2009, 2010). Nonetheless, no study has focused specifically on NT4 institutions and none has provided estimates of the total size of the for-profit sector. We draw on newly compiled administrative data from five states to generate such an estimate and to explore tuition differences for comparable programs in T4 and NT4 institutions.

II. Data on For-Profit Institutions, Students, and Tuition

Almost every state has a private postsecondary regulatory or licensing agency devoted, at least in part, to for-profit institutions. Each of these divisions requires that proprietary schools register with the state in order to operate, regardless of Title IV eligibility. Most state agencies collect and make public a list of open institutions each year, but very few report detailed information on enrollments and programs—information we need to assess the overall size of the for-profit sector and the tuition cost.¹² In addition, we require that the information collected be easily accessible either in electronic form or in a form we could obtain and easily manipulate. Five states meet these requirements. We analyze data on T4 and NT4 for-profit postsecondary institutions registered in Florida, Michigan, Missouri, Tennessee, and Wisconsin.

Among these states, differences exist in the type of data available. Table 1 describes the data availability for each state. In many respects, Florida has the most comprehensive data. It reports five years (2005 to 2009) of enrollment and program data for all for-profit institutions. Data on programs include six-digit Classification of Instructional Programs (CIP) codes, clock or credit hours required for each program, the degree type (e.g., BA, AA, diploma), and tuition. The other states in our sample have some, but not all of this program information.

Title IV eligibility must be inferred for most of these states. Only Wisconsin reports directly whether a school is eligible for federal funding under Title IV. In the other four states,

¹² See Cellini, Davila, and McHugh (2011) for a summary of every state's regulatory body and data availability. Some states include institutions with no enrollments but that have not yet formally closed.

the accrediting agency or agencies, approved by the U.S. Department of Education, are listed when the school has received accreditation. In Florida, Michigan, Missouri, and Tennessee we assume that institutions with accreditation are Title IV eligible. The most recent IPEDS listing was checked for these states to see if the institutions with valid accreditation were listed and thus Title IV eligible.¹³

Information on enrollments and completions also varies by state. Total program-level enrollment was fairly consistently reported across states as a 12-month count, although Michigan listed the number of students starting a program, rather than enrollment.¹⁴ Wisconsin listed “prior” and “new” students, which were added to obtain the total. Measures of program completion were more varied, with some states listing the number of graduates, completions, or the number of students considered “placeable.”

Notably, as is common in most other states, four of the states in our sample (Michigan, Missouri, Tennessee, and Wisconsin) exempt certain institutions from registering if they are covered by other parts of the state’s bureaucracy. The largest group of exempt institutions is cosmetology schools. They are required to obtain a license from the state board of examiners and are not required to register with the post-secondary proprietary school division of the state. Further, graduates of these schools cannot practice their craft without passing the state license examination. For one or both of these reasons, most state for-profit licensing agencies do not collect information on cosmetology schools. To track these institutions we have used other methods, described in the Data Appendix.

Finally, the types of institutions captured in the data vary by state, as described in Table 1, but the data for each of the states allows us to identify for-profit institutions (we drop non-

¹³ Recall that a major condition for Title IV eligibility is accreditation by an agency recognized by the U.S. Department of Education. In some cases the year of the IPEDS and that of the state data were not the same and mergers among schools changed the names of some. But, by and large, there was a close association between those with accreditation and those that were actually Title IV eligible. In MO, for example, out of 50 institutions with national (not the higher regional) accreditation, there were nine that were not in the IPEDS (two were Montessori teaching schools) and of the 90 without accreditation just two were in the IPEDS. We acknowledge that, for all but WI, our definition of Title IV eligibility is indirect and may serve to attenuate the differences we observe between T4 and NT4 institutions.

¹⁴ We compared the Michigan data to the IPEDS data for some of institutions and found that, on average, the number of “starts” was similar to the 12-month enrollment figure. The reason for the similarity is that the non-degree programs are almost always less than a year.

profit and public institutions where they appear). Michigan reports data for only non-degree granting for-profits in the state (i.e., institutions offering diplomas, vocational certificates, and other short-term programs), while the other states include institutions offering associate's degrees, bachelor's and graduate degrees.¹⁵ In producing aggregate figures for Michigan we supplement the state data with the IPEDS on for-profit degree-granting schools.¹⁶ For all states except Florida, where the data are reported, we add our estimate of the cosmetology schools and their enrollment.

III. A Comprehensive Look at the For-profit Sector

Institutions, Enrollments, and Completions

Our first task is to measure of the size of the for-profit sector by accounting for NT4 institutions that have been missing from previous analyses. Table 2 documents the raw and full-time equivalent enrollments and completions, as well as the number of for-profit institutions in each of our five states. Although the five states differ in various ways that affect these data, it appears that many aspects of the for-profit sector are similar across the states.

In each of the states, the number of for-profit institutions at least doubles when the NT4 institutions are included (Table 1, rows 1 and 2). In all states except Florida, where the number of T4 and NT4 institutions are roughly equal, the NT4 institutions greatly exceed the T4 institutions. In Michigan NT4 institutions outnumber T4 institutions almost four to one, with NT4 institutions accounting for 80 percent of the total. Focusing solely on T4 institutions, as in most previous analyses, would vastly understate the number of for-profit post-secondary schools. In these five states alone, we would miss almost 1,200 schools each year.

Although the number of NT4 for-profit institutions is sizable relative to all for-profits, enrollment estimates are less understated because NT4 schools are smaller than the average Title

¹⁵ We drop bachelors and graduate degree programs in our analysis of tuition, but we include all students in our enrollment counts.

¹⁶ Virtually all degree granting institutions are accredited and thus by our definition, and in actuality, are Title IV eligible.

IV for-profit. They would not include, for example, the large national and regional chains. Across all five states, NT4 enrollments comprise between 12 and 66 percent of the total for-profit enrollment (Table 2, row 4). In most of the states, the NT4 schools have about 150 enrollees and the T4 institutions about 450. Florida has larger T4 institutions because many large chains are located there.

Even in Florida, where enrollments in NT4 institutions make up the smallest share, more than 38,000 for-profit students would be omitted every year by considering only the T4 institutions. One would miss more than 155,000 students in all five states.

NT4 students make up a larger share of completions than enrollments relative to the Title IV group (see rows 5 and 6 of Table 2) largely because of their shorter program length. There are more completions relative to enrollments each year for a one-year program than for a two-year program, for example. In Florida in 2009 the ratio of completions to enrollments for the NT4 programs was 0.86 whereas the ratio for the T4 programs was 0.35, even restricting the sample to non-degree programs and considering only programs with positive enrollments and graduates in each group.

To measure the intensity of education, rather than its incidence, we construct full-time equivalent (FTE) enrollment and completion statistics by weighting enrollments and completions by program length (measured by either clock or credit hours). The adjustments, given in Table 2, rows (7) to (10), lower the proportion of enrollments and completions in NT4 programs, and in some cases the decrease is substantial. In Wisconsin, for example, the non-Title IV group accounts for 39.3 percent of for-profit enrollments in the raw data, but 15.2 percent when measured in FTEs. Completions drop from 72.1 percent in the raw data to 35.6 percent in terms of FTEs. Similar differences are found in the Florida data but the NT4 institutions are a lower fraction of the total compared with other states because Florida has more Title IV chains.

It is worth noting that Michigan has a substantial fraction of its total for-profit students and schools in the non-Title IV group and is an outlier relative to the other states. The distinction holds even when scaled by hours. Of the for-profit post-secondary institutions in the state 75 percent are not Title IV eligible and 66 percent of the students attend NT4 institutions (53 percent on a FTE basis). A disproportionate share of Michigan's for-profit students take

programs in business, computer science, construction, engineering, and security and law enforcement (see Appendix A2). Even though the non-Title IV group in Michigan enrolls 66 percent of all for-profit students, more than 80 percent of for-profit students in these fields are in NT4 schools.

Michigan presents an interesting case to understand the differences between T4 and NT4 for-profit institutions. One possible reason for the size of the non-Title IV for-profit higher education sector in Michigan concerns job training money provided by the state. In 2010 Michigan provided two years of free training (or \$10,000 per person) for unemployed and displaced workers.¹⁷ Displaced Michigan workers can also apply for Trade Adjustment Act funds, although the amount is low. The availability of state funds means that federally guaranteed loans may be less important for students in Michigan. The NT4 institutions in Michigan, as will be discussed further below, are well-established institutions and may have a long-standing training relationship with the automakers and other large firms in the Detroit area.

Finally, using the data from the IPEDS for T4 institutions and the proportions of NT4 institutions in Table 2, we generate a rough estimate of the size of the whole U.S. for-profit sector. The IPEDS reports a total of 2,944 degree- and non-degree granting for-profit T4 institutions in 2009/10 (NCES 2010, tables 276 and 277). If NT4 institutions account for roughly 61 percent of the total (the average for the five states taken together), then we estimate that the whole for-profit sector includes 7,549 institutions. Based on the IPEDS fall enrollment counts, including NT4 students raises the raw number of enrollments in for-profits from 1.8 million to 2.47 million, assuming that NT4 institutions account for 27 percent (the average for all five states) or almost 670,000 students.¹⁸ Our estimates suggest that studies that ignore NT4 institutions greatly understate the size of the sector.¹⁹

Program distribution

¹⁷ See <http://www.lcmw.org/pages/NWLBtraining.cfm> for information on the *Michigan Works!* tuition assistance program.

¹⁸ The 12-month enrollment counts are not available for non-degree institutions. Fall enrollment counts will understate the total because of the shorter programs and multiple enrollment dates over the year.

¹⁹ On the other hand, because the fastest growing part of the for-profit higher education sector is the large chains and they are all Title IV eligible (Deming, Goldin, and Katz, 2012 forthcoming), the growth of the sector is probably not understated as much as the level.

Students in NT4 institutions dominate some programs, yet are a small fraction of others. To give a flavor for the range of programs offered by these institutions, Table 3 lists the three largest programs by enrollment offered by NT4 institutions in the states for which we have program data and the fraction of all for-profit enrollments for each of them.²⁰ The first point to note in Table 3 is that the three largest programs in each state account from two-thirds to 80 percent of the total enrollment in the NT4 group (Table 3, Panel A). Further, the principal NT4 programs are fairly consistent across states. Business, computer, health, transportation, and personal and culinary all represent a large share of the total NT4 enrollment in these five states. But there are a few differences and Michigan is again an outlier having a larger fraction in computer and information sciences.

The next point to note is that NT4 institutions are a substantial fraction of all for-profit enrollments in these areas (Table 3, Panel B). Take the health professions group (two-digit CIP code 51), which is the most important group by enrollment among all the non-degree for-profits. In Michigan and Wisconsin the NT4 institutions accounts for more than 40 percent of the total for-profit enrollment in the health programs. The health group accounts for somewhat less in Florida and Tennessee (13 and 25 percent respectively) but is still a substantial share. Although transportation and materials moving is a smaller share of all NT4 enrollments than is health it is dominated by NT4 institutions, which are 80 and 90 percent of the group's enrollments in Florida and Tennessee. The bottom line from this table is that omitting the NT4 group leaves out a large group of students in some of the most important of the non-degree for-profit programs.

The Title IV non-degree group (see Appendix Table A2) is almost entirely dominated by two program categories: health professions and personal and culinary services. These two groups are more than 50 percent of the total and are more than 75 percent in three of the states, suggesting that programs are even more concentrated among T4 institutions. Nonetheless, the data indicate substantial overlap in the programs offered by the non-degree T4 and the NT4 institutions.

²⁰ For a full list of the programs by two-digit CIP code and fraction of all for-profit enrollments and completions in the NT4 group see Panels A and B of Appendix Table A1. Panels C and D contain the same calculation where the underlying data are in FTE form. The share of NT4 and T4 enrollments represented by each program are reported in Appendix Table A2.

IV. Tuition Differences between Title IV and Non-Title IV Institutions

Title IV eligibility has allowed students in postsecondary institutions to have access to federally-guaranteed, now federally-granted, loans and a wide range of other grants. These loans and grants can, by law, account for up to 90 percent of the revenues in the for-profit Title IV sector. In the absence of these loans and grants students would have to fund tuition themselves, rely on state aid programs, or obtain private loans, often with higher interest rates and other more costly conditions.

Why, then, would a school not obtain Title IV eligibility? One obvious reason is that a school and its programs do not qualify, for example if the school has not been open for two years, could not gain accreditation by a qualified agency, or does not offer programs of sufficient length. Alternatively, the school may have lost eligibility due to high cohort default rates. But there are many institutions without Title IV eligibility that offer programs that would appear to qualify. The costs of eligibility (e.g., accreditation) may be too high and the schools might not gain sufficient financial benefit. Many of these institutions, we should add, survive with this apparent hindrance, presumably by charging tuition that covers the cost of education. In Michigan, we observe that NT4 institutions have been open, on average, for almost 11 years and about 200 programs are offered in institutions that meet the requirement of having one program of sufficient length to apply for Title IV eligibility. We further address these issues below.

Institutions that are Title IV eligible, on the other hand, may be able to charge higher tuition and capture more federal funding. Both T4 and NT4 schools have some incentive to accept students without regard to preparation for the program, but are constrained by reputation and, in the case of the T4 institutions, by the accrediting agency's rules and the U.S. Department of Education's regulations.²¹ If T4 institutions charge a premium it could reflect differences in the types of programs offered, unobserved quality, or simply an ability to capture the maximum amount of federal aid. In this section, we provide the first estimates of the difference in tuition

²¹ The U.S. Department of Education requires that more than 50 percent of the regularly enrolled students in a non-degree T4 institution have a high school degree or its equivalent. For degree-granting institutions, the accrediting agency's regulations apply, which generally require a high school degree or equivalent. The rules that state a maximum default rate should place some constraints on the acceptance of individuals with reading and other limitations, even if they have a high school diploma or GED.

between T4 and NT4 for-profit institutions and begin to untangle some of the possible explanations for the large premiums that we observe being charged by T4 institutions.

Methods

Our analysis of the role of Title IV in tuition-setting is limited to the three states in our sample that provide tuition data by program: Florida, Michigan, and Wisconsin. We analyze each state separately, but our approach is similar for each. We describe our general empirical model in the context of the Florida data (the state with the richest data), then discuss modifications to our approach for Michigan and Wisconsin.

To accurately identify the causal effect of Title IV eligibility on tuition levels, the ideal experiment would randomly assign Title IV eligibility across institutions and/or over time. In the absence of such an experiment, and with limited data, our analysis relies on a number of observable controls and fixed effects. Our results can be interpreted causally only with some caution. Nonetheless, we believe that our approach goes far in controlling for differences in the programs offered by T4 and NT4 institutions to provide a first estimate of the premium to Title 4 eligibility for similar programs.

For Florida we estimate regressions of the following form:

$$\ln(\text{tuition}_{sitc}) = \beta_0 + \beta_1(\text{Title IV}_{st}) + \beta_2 X_{si} + d_i + d_t + d_c + \varepsilon_{sitc} \quad (1)$$

where Title IV equals one if an institution lists an accrediting organization (our proxy for Title IV eligibility in the Florida data), zero otherwise for school s in year t . Our dependent variable is the natural log of tuition in school s , program i , year t , and county c . X is a vector of school and program characteristics, including the natural log of program length, the number of years the institution has been open, and whether the institution is part of a chain. Program length is measured as a proportion of full-time clock or credit hours. Years open is the number of years since the institution was first licensed by the state. We code schools as being part of a chain if they operated in several states or had many campus branches within a state.²²

²² Deming, Goldin, and Katz (2012 forthcoming) defines a “national chain” as a for-profit institution that operates in at least three separate census divisions and a “regional chain” as one that operates in more

We also include the natural log of program enrollment in X . Enrollment largely determines the marginal cost (and therefore the price) of education, and may reflect a program's reputation. Both mechanisms should influence tuition, but have no impact on Title IV eligibility.²³ d_i is a vector of indicator variables for each program, as measured by six-digit CIP codes. d_t is a year fixed effect to control for common time trends and d_c is a county-level fixed effect, to control for competition among institutions in the same geographic market.²⁴

With the county, year, and six-digit CIP code fixed effects, identification comes from differences in tuition between T4 and NT4 institutions for the same programs (e.g., medical assisting) in the same year and county. We cluster the standard errors at the school level to account for correlation between programs in the same institution.

Our approach can control for many observable characteristics of programs that might be correlated with both tuition and Title IV status, but sample selection remains problematic if T4 programs are meaningfully different from NT4 programs. To address this issue, after estimating equation (1) for the full sample of two-year and non-degree for-profit program-years in each state, we test the robustness of our estimates to several different sample restrictions.²⁵ Our goal is to create a sample of T4 and NT4 programs that are comparable along as many dimensions as possible (comparing “apples to apples”). In the case of NT4 programs, our focus is on the programs and institutions that appear to meet some of the requirements for Title IV eligibility.

In line with the requirements for Title IV eligibility, our first sample restriction limits the analysis to programs in institutions that offer at least one program of at least 900 clock hours (or 45 credit hours). We then further limit the sample to full-time programs within those institutions. Our full-time designation requires that programs be at least 600 clock hours (or the equivalent)—the full-time definition under Title IV rules for non-degree programs. Our next

than one state or has more than five campus branches within a single state and operates in no more than two census divisions. We define the schools that meet either of these criteria as chains.

²³ As a robustness check, we added a potentially endogenous variable—the number of program completions—to the model as a proxy for program quality. Its inclusion had virtually no impact on our results in any state or specification.

²⁴ City and zip code fixed effects yielded almost identical estimates in every state.

²⁵ We focus exclusively on two-year associate's degree and certificate and diploma (non-degree) programs because there are almost no NT4 programs that grant BA and higher degrees since accreditation is critical for most degree granting programs.

restriction limits the sample to non-degree programs (e.g., programs that offer diplomas or certificates rather than associate's degrees) that are full-time and are in institutions offering at least one 900-hour program. A final restriction is that we use only programs within the two-digit CIP code having the most observations in each state's data to compare T4 and NT4 programs that are similar.

Florida

In the Florida data, our main analytical sample of sub-baccalaureate programs contains 8,613 school-program-year observations, of which 3,373 are for those given by NT4 institutions. As shown in Panel A of Table 4, average tuition in T4 programs is about \$17,000 compared to just \$3,500 in institutions that do not participate in federal aid programs. NT4 programs are shorter (on average about 300 hours compared with 900 hours for T4 programs), have lower enrollment (50 students compared to 105), and are far less likely to be part of a chain (7 percent compared to 40 percent).²⁶

Panel B of Table 4 compares the means of the T4 and NT4 group among a more limited sample. As noted above, in some specifications we restrict the regression analysis sample to full-time non-degree programs in schools that offer at least one program of 900 or more clock hours. But in order to more accurately reflect the sample used for identification in the analysis, we further limit the set of programs to those that contribute to identification when CIP code fixed effects are included. That is, we limit the sample to the set of programs in six-digit CIP codes that have at least one T4 and one NT4 program. We call this the "overlap" sample.²⁷

A large number of program codes contain no overlap (159 of the 229 six-digit CIP codes) in the Florida data for 2009. But most schools offer programs in the 70 remaining overlap program areas, independent of Title IV eligibility.²⁸ We identify overlap for fully 78 percent of the program-school observations. After all of the restrictions in Panel B of Table 4 are imposed,

²⁶ In Table 4 (and throughout) program length is measured as a proportion of full-time, which we define as 600 clock hours (i.e., 600 clock hours = 1).

²⁷ In our regression analysis we leave in programs that are not in overlapping CIP codes to aid in the identification of other covariates. However, restricting the sample to the overlap group does not change our results.

²⁸ Of these, 129 have only T4 schools and 30 have only NT4 schools.

we are left with 365 NT4 program-years and 1,549 T4 program-years. Most of the differences in means in the full sample are smaller in the restricted sample, particularly tuition and length, but others are larger or have switched sign. For example, the gap in enrollment is larger and NT4 programs now show fewer completions in the restricted sample.

Finally, in Panel C of Table 4, we compare the means of our most restrictive sample: full-time, non-degree cosmetology programs in schools with at least one program of 900 or more hours. We chose to focus on cosmetology because it is the most numerous of the six-digit CIP codes in Florida and it is undoubtedly among the most numerous of the programs among for-profit post-secondary schools in all states. As noted in Table 1 of our five states only Florida collects detailed information on these programs.

The training given in cosmetology schools leads to the taking of a state exam, the passing of which is required to practice the trade. In that sense, these programs are somewhat unique since students can learn which schools have high and low pass rates.²⁹ Cosmetology programs are relatively homogeneous, although the six-digit code does encompass hair, nail and facial programs. Many other popular programs, including computer installation and repair, data entry and micro-computer applications, web page design, dental assisting, nursing assistant, and medical assistant have more heterogeneity in program type and length even within the six-digit CIP-code. Programs in “data entry and micro-computer applications,” for example, can vary from eight hours, for a short course in PowerPoint or Excel, to 900 hours (or more), for training to be a computer network administrator.

As reported in Panel C of Table 4, limiting the sample to cosmetology programs produces a much smaller sample (139 NT4 programs and 608 T4), but also narrower differences in means for every covariate. Differences in tuition between T4 and NT4 programs, for example, are reduced to just \$4,000 in the cosmetology sample.

Michigan

As described earlier, our Michigan data are somewhat less rich than our Florida data and the sample is considerably smaller. In consequence, we make several modifications in our

²⁹ We are in the process of gathering data on pass rates to serve as a proxy for institution quality.

regression analysis. We continue to estimate a specification similar to equation (1), however, we have only one year of data. Because the data do not include degree-granting programs, we have few chains in the Michigan data and all are Title IV eligible. We include, as we did for Florida, the number of years that an institution has been licensed by the state.

Our samples are also slightly different than those used in our Florida analysis. As noted in Table 1 and described above, our Michigan data are limited to non-degree programs, so even our broadest “full sample” excludes associate’s degree programs. Following our Florida analysis, we restrict the sample to institutions offering at least one program of 900 or more hours and then to programs that are full-time (600 or more hours for non-degree programs). Finally, since we do not have information on cosmetology programs we further limit our analysis to the most numerous two-digit CIP code, which in this case is health and medical programs. We note, however, that this two-digit CIP code contains a diverse set of programs including dental assistants, ultrasound technicians, and nursing assistants.

As shown in Panel A of Table 5, we observe 456 NT4 programs in Michigan and 151 T4 programs in the full sample. As in the Florida data, unadjusted tuition differences are large. Programs offered by T4 institutions cost more than five times those in the NT4 group. Not surprisingly, T4 institutions have been in operation much longer than NT4 institutions in the state (11 years compared with 28 years).³⁰ But to be eligible for Title IV status an institution has to be open for a minimum of only two years, suggesting that many NT4 institutions go well beyond the two-year timeframe without qualifying or participating in the aid programs.

Wisconsin

Our Wisconsin data, like those for Michigan, are more limited than are those for Florida. As in Florida, we include county and year fixed effects (we have data for three years). Because Wisconsin did not provide CIP codes we inferred them at the two-digit level from program names. Our Wisconsin models therefore include fixed effects for each inferred two-digit CIP code. Our covariates include program length, enrollments, and chains. We cannot include

³⁰ Note that the average number of years since first licensure in Michigan is longer than the average in Florida. It appears that this is because Michigan required for-profits to register with the state several years before Florida.

“years open” since the year the school first registered with the state was not listed.

Our sample restrictions are also similar to Florida, but we omit the restriction that a school must have at least one program longer than 900 hours, since this restriction drops nearly half of our 961 observations.³¹ We maintain the restrictions to full-time and non-degree programs and we also conduct separate analyses for full-time, non-degree medical and health-related programs as we did for Michigan.

Panel B of Table 5 presents comparisons of means for the full sample of sub-baccalaureate programs in Wisconsin. We observe 384 NT4 program-years and 577 T4 program-years. As in Michigan, tuition in T4 programs is again more than five times that of NT4 programs.

Tuition Difference Results for Three States

Table 6 presents the results of our regression analysis for the full Florida sample. In column (1) we include only the county, year, six-digit CIP code fixed effects, and the log of program length. We find that programs in T4 institutions charge about 39 log points or 48 percent more tuition than programs in NT4 institutions. Adding enrollment in column (2) yields almost identical estimates. Adding the number of years since first licensure causes our coefficient on tuition to drop by 2.5 log points in column (3), but the exceedingly small point estimates on years open suggests that the longevity of an institution contributes little to tuition independent of Title IV status. Chains appear to charge a premium of about 31 log points, regardless of Title IV status, as shown in column (4).³² Including this variable in the regression reduces our estimate of the correlation between tuition and Title IV status by almost 5 log points, but the coefficient on Title IV status remains significant at the one percent level.

Our analyses of the restricted samples in the Florida data are given in Table 7. Limiting

³¹ Adding the full-time restriction eliminates about forty percent of programs in the full sample and about 60 percent of the (already small) non-degree sample. Using the 900-hour restriction instead of the full-time restriction yields similar results. Another complication in the Wisconsin data is that some non-degree programs are listed in terms of the number of “lessons” (ranging from 4 to 54) rather than clock hours or credit hours. In comparing programs with lessons and hours, it appears that a lesson is approximately equal to a credit hour or about 15 clock hours. We have used that equivalence to include programs with lessons.

³² Chains without Title IV eligibility exist, particularly in the computer and information sciences group.

the sample to the 5,195 program-years in institutions with at least one 900 clock-hour program, yields estimates remarkably similar to the full sample (39 log points). The Title IV premium increases substantially to 64 log points (column 2) when we restrict the sample further to 3,577 full-time programs in this group. Column (3) limits the sample yet further to non-degree programs, but the restriction has little impact on our estimate. Finally, in our most restrictive sample of full-time non-degree cosmetology programs in institutions with at least one 900-hour program in column (4), we find a 55 percent premium to T4 eligibility, a result that remains significant at the one percent level, despite the small sample size. Overall, the evidence in Florida reveals that T4 institutions charge roughly 60 log points, or 82 percent, more than NT4 institutions for similar programs.

Our analysis of the Michigan data in Table 8 yields similar results to those for Florida. The broadest sample of non-degree programs in Michigan reveals a tuition difference of 53 log points between T4 and NT4 institutions—well within the range of estimates for Florida.³³ The estimates for schools with at least one 900-hour program and for full-time programs within those institutions in columns (2) and (3), yield estimates of 60 and 52 log points, respectively. Focusing only on the 67 full-time non-degree medical and health programs in schools with at least one 900-hour program in column (4) reduces the coefficient to 44 log points, but the difference remains significant at the one percent level. As in Florida, across all of our samples, the number of years an institution has been open does not appear to be correlated with tuition. Our analysis for the state of Michigan demonstrates that even in a state with a low fraction of students in T4 institutions and a large amount of state aid, Title IV eligibility still commands a high premium.

In Table 9, we present results for the state of Wisconsin. Tuition differences between T4 and NT4 institutions in the full sample are again highly significant but are much larger than those found in other states. Limiting the sample to full-time programs in column (2) brings the tuition premium down to 84 log points. Restricting the sample to full-time non-degree programs in column (3) results in estimates in line with the other states—62 log points. Restricting the sample further to medical/health programs in column (4) yields estimates around 72 log points.

³³ Results for alternative specifications are available on request.

Taken together our results are fairly consistent across states, samples, and specifications. We find highly statistically significant tuition premia for T4 institutions. Our smallest estimates, based on the most heterogeneous group of institutions and programs in Florida, reveal tuition differences of 31 log points. Our largest estimates, for Wisconsin’s most heterogeneous group of programs and institutions exceed 100 log points. But, among a more comparable set of full-time programs, our range of estimates narrows to 60 to 84 log points. Our most reliable apples-to-apples estimates for full-time non-degree programs range from 52 to 66 log points (68 to 93 percent) across the three states. In our most restrictive analysis, focusing only on Florida’s full-time non-degree cosmetology programs in schools with at least one program of 600 or more hours, we observe a premium of 55 log points (or 73 percent). We therefore consider 55 log points a fairly conservative “best estimate” of the average premium. Our analysis can reliably control for differences between T4 and NT4 programs across credentials, degrees, place, year, program length, enrollment, institutional age, and affiliation with a regional or national chain. Yet there are many unobservable factors making it difficult to explain the mechanisms that drive the large tuition differences we observe.

Several possible explanations for the tuition premium merit discussion. If we believe that the NT4 and T4 programs in our sample have few or no remaining unobservable differences that are correlated with Title IV receipt and tuition, then it may be the case that T4 institutions are raising tuition above the marginal cost of education to extract the maximum amount of federal funding.

According to the IPEDS, students in T4 for-profit less-than-two-year programs received on average \$3,390 in federal grant aid in 2007/08—a figure that is approximately equal to our estimate of the Title IV premium.³⁴ Drawing on our Florida data for full-time non-degree programs in overlapping CIP codes in Table 4 (Panel B), NT4 institutions charge an average tuition of \$5,907. Using an extremely conservative regression-adjusted 50 log point premium (or 65 percent) for the T4 group would amount to a similar \$3,840 in additional tuition. This finding is suggestive of the “Bennett Hypothesis” of federal aid capture, but more research needs to be done to confirm the possibility.

³⁴ This figure includes all federal grants, including the Pell Grant (under Title IV) and grants received through smaller programs, such as the GI Bill (NCES 2010, table 355). Loans are not included.

Recent work by Deming, Goldin, and Katz (2012, forthcoming) highlights the fact that T4 institutions spend a considerable amount to recruit students. Large national chains spent about 24 percent of their revenue on sales and marketing in 2009. The average new student recruit costs these institutions a whopping \$4,000, a figure that is again roughly equal to the tuition premium we estimate.³⁵ Their large recruitment expenditures may indicate that for-profit institutions are dissipating rents from excessive tuition in a manner similar to advertising for firms in oligopolistic industries such as cars, cigarettes and soda.

It is also possible that the Title IV tuition premium reflects differences in quality between the two sets of institutions that we cannot measure. However, our variable indicating the number of years since first licensure may be thought of as an indication of long-standing reputation and, may therefore serve as a proxy for at least one dimension of quality. In both Michigan and Florida, the two states for which we have data on years open, there appears to be no correlation between years an institution has been open and tuition, suggesting that the reputation of an older institution does little to explain the price differential. Of course, there are several other dimensions of quality that we cannot measure. For example, increased earnings generated by T4 institutions may outstrip those of similar NT4 programs. Still, given the average federal grant receipt by T4 students, the out-of-pocket price that students pay for T4 and NT4 programs may be almost identical, suggesting that unobserved quality should be similar too.

An alternative explanation is that T4 institutions incur additional costs that must be accounted for in setting tuition. This factor may also explain why many programs that appear to be eligible for Title IV status may choose not to be. For example, obtaining accreditation by a recognized accrediting agency involves substantial fixed costs and is, in consequence, more expensive per student for small institutions. Other costs of the T4 program include the administration of the grants and loans. Even the smallest school would need at least one employee dedicated to managing Title IV participation. But it seems unlikely that these costs could amount to the full tuition premium. Perhaps more likely is that T4 institutions spend more money on student services, such as child care or career services (especially important to ensure low default rates on federal student loans to maintain Title IV eligibility) and raise their tuition to

³⁵ See Deming, Goldin and Katz (2012 forthcoming) for sources regarding this point.

pay for it.

V. Discussion and Conclusion

Generating an accurate count of the number of for-profit higher educational institutions and students has eluded researchers. With some exceptions, researchers have generally relied on U.S. Department of Education data that omitted a large number of for-profit institutions that do not participate in federal student aid programs under Title IV of the Higher Education Act. In this paper, we draw on new state data to count these non-Title IV (NT4) institutions and generate what we believe to be the first comprehensive estimate of the size of the for-profit postsecondary education sector in the United States. We then investigate tuition differences between T4 and NT4 institutions to assess the claim that T4 schools raise tuition above the cost of education.

We find that NT4 institutions do not appear to be transitional in nature, or limited to a small number of institutions cycling in and out of eligibility. Rather, these institutions represent a sizable portion of the for-profit market and many institutions are long-lived, competing with T4 institutions and public community colleges in a market that appears to be in equilibrium. We find that accounting for NT4 institutions more than doubles the number of for-profit institutions reported in federal sources. We estimate that 7,549 for-profit institutions exist in the United States as of 2009. Our enrollment figures suggest that current counts of for-profit students based only on T4 institutions miss about 670,000 students receiving education and training every year in NT4 institutions.

Beyond generating counts, however, analyses that include NT4 institutions can provide important insights into the behavior of T4 institutions and the for-profit sector as a whole. We therefore use our data on NT4 institutions to investigate the magnitude of the tuition premium for Title IV eligibility. We compare the tuition charged by T4 institutions to that charged by similar NT4 institutions that appear to meet some of the requirements of Title IV. Using program, county, and year fixed effects as well as controls for enrollments, program length, and completions, among others, we find large and significant differences between the tuition charged by T4 and NT4 institutions. Our estimates are consistent across various states, specifications,

and samples. T4 institutions charge about 55 log points, or 73 percent, more than NT4 institutions for comparable full-time non-degree programs in the same field.

We cannot definitively disentangle the reasons for the premiums we observe. The magnitudes are comparable to average per-student federal grant aid awards, suggesting that T4 institutions may indeed raise tuition to capture the maximum grant aid available. We also find suggestive evidence that institutional age (a proxy for reputation or quality) plays little role in explaining tuitions differences. But we cannot rule out that other unobservable measures of reputation and quality do not differ between T4 and NT4 institutions. Further, we note that Title IV participation and accreditation come at a cost, and the tuition premium may, in part, reflect the added costs incurred by eligible institutions. The cost may also explain why some institutions that appear to meet eligibility requirements choose to not to participate in Title IV programs.

In sum, institutions that are not part of the Title IV programs and their students are a sizable, but overlooked, part of the for-profit postsecondary education sector. Although they do not receive federal tax dollars directly, a better understanding of these institutions can have important implications for the design of federal aid programs. In light of the U.S. Department of Education's recent move to tighten requirements for Title IV eligibility, for-profits that are not Title IV eligible may become a much larger portion of the total for-profit market in future years. Our analysis suggests that these institutions can and do survive, and even thrive, alongside their aid-eligible counterparts. Further, since many NT4 institutions offer similar programs to those in T4 institutions for a much lower price, our analysis implies that some students who lose eligibility for Pell Grants and subsidized student loans due to the new regulations may still be able to afford training in a for-profit institution that is not Title IV eligible.

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Data Appendix

As described in the text, each state postsecondary school data set contains somewhat different information. The information we have used is summarized in Table 1. The states with readily accessible and reasonably complete data are FL, MI, MO, TN, and WI.

The FL data are the most complete and list all postsecondary institutions operating in the state, including cosmetology schools. The other states did not include cosmetology schools because the state board of examiners takes responsibility for them but does not have detailed information on them. We used a combination of methods to locate all of the cosmetology school including lists from the state board of examiners and web searches (e.g., Google maps). In most cases we had to estimate the numbers of enrollments and completions and our methods are listed below.

We generally inferred Title IV status from the variables listing accrediting agencies, although WI provided information on whether students in the institution were eligible for federal funds. In many cases we checked the most recent IPEDS listing to see if institutions were listed and, thus, were Title IV eligible.

Many of our calculations are straightforward. Enrollments are measured on a 12 month standard for most of the states. The only exception is Michigan, which reports “starts.” We compared the Michigan data to the IPEDS data for some of these institutions and found that, on average, “starts” was similar to the 12-month enrollment figure. In the IPEDS, the “12-month, unduplicated headcount” is used.

Our calculation of full-time equivalents (FTE) is less straightforward. We are only able to compute FTE enrollments and completions in those states that had program-level data available because we scaled by clock hours or credit hours and these vary by program. We created a program length variable that is the proportion of each program’s credit or clock hours relative to a full-time, 12-month instructional standard, depending on the information provided. The calculation follows federal classifications by assuming that a full-time degree-granting program is 900 contact hours per year (or 45 credit hours for undergraduates on quarter system calendars or 30 credit hours for undergraduates on semester system calendars) and that a full-

time non-degree granting program is 600 hours (or 24 credit hours for students on quarter system calendars or 16 credit hours for students on semester system calendars). For the few programs in Wisconsin reporting only “lessons,” we used the conversion that a lesson equals a credit hour or 15 clock hours.

The FTE calculation affects only the non-degree (less than one-year or short) programs. The degree programs are generally meant to be more than one year in duration and the application of the 900 hour standard (or that concerning credit hours) would result in a figure greater than one. In those cases, we use the actual enrollment figure. We also did a robustness check using 900 hours (or its equivalent) for all programs. The results change only for the non-degree programs (for which we used the 600 hour figure) and the change is minimal. When we employ the IPEDS data, we use the IPEDS FTE data, although the IPEDS appears to add part-time student status in their calculation.

We used the U.S. Department of Education, NCES CIP (Classification of Instructional Programs) codes (see <http://nces.ed.gov/pubs2002/cip2000/ciplist.asp>) to classify the programs for FL and MI; for TN and WI we classified them ourselves using program descriptions since CIP codes were not given. MO did not have electronic data on programs.

Most of the states list only non-degree granting programs. Because most degree granting programs are Title IV eligible we used the IPEDS (2008) to obtain data on all Title IV institutions and exclude the overlap group when the state data includes some that are Title IV eligible. For some states, the state data are more recent than are the IPEDS data.

When cosmetology (and barbering) schools are excluded we obtained a count of these schools using various sources and subtract those that were already in the IPEDS data. Because the FL data contain all cosmetology schools, we used those data to get estimates of enrollments and completions, also as FTEs, for the non-Title IV group. Because we had data for the Title IV cosmetology schools in each state from the IPEDS, we used the ratio of the FL non-Title IV enrollments or completions to that for the Title IV schools and then scaled by the Title IV data in the states for which we did not have non-Title IV data. Similarly, we estimated FTEs in a similar manner.

Sources

Florida: Florida Commission for Independent Education

<http://www.fldoe.org/cie/>

The Commission provided us with four XLS files of their data.

Michigan: Michigan Proprietary Schools Unit

<http://www.michiganps.net/>

Michigan has a website listing its schools and the separate programs in each school, but they could not provide electronic data. Instead, we captured the website information on institutions and programs within each institution.

Missouri: Missouri Department of Higher Education

<http://www.dhe.mo.gov/data/propstatsum.php>

The website contains XLS files that provided our data.

Tennessee: Tennessee Higher Education Commission

<http://www.state.tn.us/thec/Divisions/LRA/PostsecondaryAuth/psa.html>

The TN Commission provided four XLS files with the data for all but the exempt (e.g., cosmetology) schools. State colleges and universities, small liberal arts universities, non-profit organizations (e.g., Red Cross and United Way), and theological schools were removed for this project.

Wisconsin: Wisconsin Educational Approval Board

<http://eab.state.wi.us/default.asp>

The website contained a PDF file of schools and programs and the Board provided us with the electronic version of the file.

Table 1. Summary of Available For-Profit Data for Five States

Variables	FL	MI	MO	TN	WI
Latest year for student data	2008/09	2010	2007/08	2009	2010
Number of years of data available	5	1	1	1	3
<i>Title IV information</i>					
Accrediting group	✓	✓	✓	✓	
Eligible for federal funds					✓
<i>Program information</i>					
Program name	✓	✓		✓	✓
CIP (program) code	✓	✓		✓ ^a	✓ ^a
Clock hours, credit hours by program	✓	✓			✓
Degree type	✓		✓		✓
Tuition	✓	✓			
<i>Student information</i>					
Total enrollment	✓		✓	✓	✓ ^b
Total graduates	✓				
Total “completions”		✓	✓		✓
Total “placeable”				✓	
<i>Schools included in data</i>					
All (for-profit, public, non-profit)	✓			✓	
For-profits only (all types)			✓		✓
For-profits non-degree only		✓			
Cosmetology schools included	✓				
<i>Supplementary data from non-state sources</i>					
IPEDS for-profit degree programs		✓			
IPEDS/Google Maps for cosmetology		✓	✓	✓	✓

Notes: ^a Inferred from description of program. CIP codes not provided.

^b Prior students plus new students.

Source: State regulatory agencies. See Data Appendix.

Table 2. For-Profit Post-Secondary School Students and Schools in FL, MI, MO, TN, and WI

	FL (2009)	MI (2010)	MO (2008)	TN (2009)	WI (2009)
<i>Schools</i>					
(1) Total For-Profit (T4 +NT4)	671	488	266	291	168
(2) Fraction Non-Title 4	0.490	0.795	0.575	0.581	0.655
<i>Enrollments</i>					
(3) Total For-Profit (T4 +NT4)	333,620	120,109	64,877	84,226	46,669
(4) Fraction Non-Title 4	0.115	0.656	0.242	0.296	0.393
<i>Completions</i>					
(5) Total For-Profit (T4 +NT4)	91,360	79,588	25,078	23,201	18,865
(6) Fraction Non-Title 4	0.354	0.869	0.498	0.524	0.721
<i>Full-time Equivalent (FTE) Enrollments</i>					
(7) Total For-Profit (T4 +NT4)	304,792	54,836	n.a.	n.a.	31,978
(8) Fraction Non-Title 4	0.044	0.534	n.a.	n.a.	0.152
(9) Total For-Profit (T4 +NT4)	66,777	36,241	n.a.	n.a.	7,165
(10) Fraction Non-Title 4	0.152	0.744	n.a.	n.a.	0.356

Notes: Years for the state data are given in parentheses. n.a. = data not available. TN and MO are missing information on programs and/or length.

Source: State regulatory agencies. See Data Appendix.

Table 3. Share of NT4 Enrollments in Top Three Programs, by State

<i>Program Name (CIP code)</i>	<i>A. Program's Share of NT4 Enrollment</i>				<i>B. NT4 Share of Program</i>			
	FL	MI	TN	WI	FL	MI	TN	WI
Business, management, marketing (52)		0.255		0.227		0.878		0.360
Computer and information sciences (11)		0.230				0.785		
Health professions (51)	0.389	0.169	0.244	0.301	0.131	0.467	0.246	0.434
Personal and culinary services (12)	0.295		0.205	0.138	0.307		0.894	0.479
Transportation and materials moving (49)	0.119		0.214		0.797		0.898	
Total enrollment in NT4 accounted for by the three major programs	0.803	0.654	0.663	0.666				

Notes : For each state the three most important programs for the NT4 group by enrollment are given. Panel A reports the fraction of all NT4 enrollment in each of the three most important NT4 programs in that state (enrollment in program i/total NT4 enrollment). Panel B reports the fraction of all for-profit enrollment in that program accounted for by the NT4 institutions (NT4 enrollment in program i/total enrollment in program i in all for-profit institutions (NT4+T4)).

Source: State regulatory agencies. See Data Appendix.

Table 4. Mean Differences, Title IV and Non-Title IV Programs, Florida 2005-2009

	<i>A. All Sub-Baccalaureate Programs</i>			<i>B. Hrs900, FT, Non-Deg, Overlap Prgms</i>			<i>C. Hrs900, FT, Non-Deg Cosmetology Prgms</i>		
	Non-Title IV (sd)	Title IV (sd)	Diff (t-stat)	Non-Title IV (sd)	Title IV (sd)	Diff (t-stat)	Non-Title IV (sd)	Title IV (sd)	Diff (t-stat)
Tuition	\$3,507 (\$4,507)	\$17,095 (\$12,204)	-\$13,589 (73.2)	\$5,907 (\$4,679)	\$12,332 (\$5,689)	-\$6,425 (22.6)	\$5,655 (\$2,791)	\$9,558 (\$3,892)	-\$3,903 (13.7)
Length	0.5 (0.6)	1.5 (0.7)	-1.0 (71.7)	1.7 (0.5)	1.6 (0.5)	0.1 (2.1)	1.9 (0.4)	1.7 (0.5)	0.2 (4.2)
Enrollment	50.98 (115.67)	105.05 (187.26)	-54.07 (16.6)	31.72 (52.43)	98.96 (137.45)	-67.25 (15.1)	30.53 (39.28)	77.33 (111.70)	-46.79 (8.3)
Years Open	7.38 (5.81)	11.57 (8.93)	-4.19 (26.4)	5.86 (5.19)	10.08 (6.98)	-4.22 (13.0)	6.96 (5.91)	9.69 (6.36)	-2.73 (4.8)
Chain	0.07 (0.25)	0.40 (0.49)	-0.33 (41.2)	0.00 (0.00)	0.33 (0.47)	-0.33 (27.6)	0.00 (0.00)	0.17 (0.38)	-0.17 (11.1)
Observations	3,373	5,240		365	1,549		139	608	

Notes: Observations are program-years. The sample in Panel A includes all associate's degree and non-degree (diploma/certificate) programs. Panel B restricts the sample to programs in schools with at least one program longer than 900 hours, those that are full-time, non-degree, and are classified in a 6-digit CIP code that has at least one T4 and one NT4 program. The sample in Panel C includes all of the restrictions in Panel B, but includes only cosmetology programs. Length is measured as a proportion of full-time enrollment, based on clock or credit hours. Years open are the number of years since first licensure. Chains are defined to be institutions operating in more than one state or with more than five campus branches in a single state.

Source: State regulatory agencies. See Data Appendix.

Table 5. Mean Differences, Title IV and Non-Title IV Programs, Michigan and Wisconsin

	<i>A. All Non-Degree Programs, MI</i>			<i>B. All Sub-Baccalaureate Programs, WI</i>		
	Non-Title IV (sd)	Title IV (sd)	Diff (t-stat)	Non-Title IV (sd)	Title IV (sd)	Diff (t-stat)
Tuition	\$2,820 (\$3,553)	\$14,439 (\$4,712)	-\$11,618 (27.8)	\$4,552 (\$4,327)	\$25,203 (\$10,653)	-\$20,651 (41.7)
Length	0.5 (0.6)	1.4 (0.5)	-0.9 (17.2)	0.5 (0.7)	1.8 (0.9)	-1.3 (25.5)
Enrollment	69.50 (185.07)	101.79 (125.96)	-32.29 (2.4)	99.83 (309.10)	97.71 (201.97)	2.12 (0.1)
Years Open	10.68 (10.20)	27.75 (22.02)	-17.07 (9.2)			
Chain	0.00 (0.00)	0.17 (0.38)	(0.17) (5.6)	0.00 (0.00)	0.49 (0.50)	-0.49 (23.5)
Observations	456	151		384	577	

Notes: Observations are program-years. Panel A includes all non-degree (diploma/certificate) programs in Michigan in 2010. Panel B includes all associate's degree and non-degree programs in Wisconsin 2008-2010. Length is measured as a proportion of full-time enrollment, based on clock or credit hours. Years open are the number of years since first licensure. Chains are defined to be institutions operating in more than one state or with more than five campus branches in a single state.

Source: State regulatory agencies. See Data Appendix.

**Table 6. Log Tuition Differences between Title IV and non-Title IV Institutions:
Florida, 2005-2009**

	<i>All Sub-Baccalaureate Institutions and Programs</i>			
	(1)	(2)	(3)	(4)
Title IV	0.387*** [0.0645]	0.383*** [0.0648]	0.358*** [0.0665]	0.312*** [0.0657]
Ln (program length)	0.824*** [0.0281]	0.823*** [0.0280]	0.822*** [0.0285]	0.813*** [0.0273]
Ln (enrollment)		0.00480 [0.0117]	-0.000459 [0.0126]	-0.00814 [0.0125]
Years open			0.00617** [0.00277]	0.00394 [0.00294]
Chain				0.314*** [0.0692]
Six-digit CIP code FE	Yes	Yes	Yes	Yes
Year FE	Yes	Yes	Yes	Yes
County FE	Yes	Yes	Yes	Yes
No. observations	8,613	8,613	8,613	8,613
R-squared	0.872	0.872	0.873	0.878

Notes: Standard errors in brackets, clustered by institution. *** p<0.01, ** p<0.05, * p<0.1

Sample includes all associate's degree and non-degree (diploma or certificate) programs in Florida for-profit institutions. Dependent variable is the natural log of tuition. Length is measured as a proportion of full-time enrollment, based on clock or credit hours. Years Open are as the number of years since the institution was first licensed. Chains are defined to be institutions operating in more than one state or with more than five campus branches in a single state. Programs with zero enrollment, tuition, or length are dropped.

Source: State regulatory agencies. See Data Appendix

Table 7. Log Tuition Differences between T4 and NT4 Institutions, Restricted Samples: Florida, 2005-2009

	School has a 900+ hour program	Full-time programs in 900+hr school	Full-time non-degree programs in 900+hr schools	Full-time cosmetology non- degree programs in 900+hr schools
	(1)	(2)	(3)	(4)
Title IV	0.388*** [0.0957]	0.639*** [0.0818]	0.656*** [0.0642]	0.553*** [0.101]
Ln (program length)	0.860*** [0.0566]	0.990*** [0.0729]	0.955*** [0.0468]	1.016*** [0.0716]
Ln (enrollment)	0.00862 [0.0132]	0.0241* [0.0123]	0.0388*** [0.0112]	0.0303* [0.0163]
Years open	0.00316 [0.00415]	0.00522 [0.00429]	0.00186 [0.00222]	0.000282 [0.00399]
Chain	0.216** [0.0977]	0.0767 [0.0628]	0.00228 [0.0469]	0.126* [0.0689]
Six-digit CIP code FE	Yes	Yes	Yes	Yes
Year FE	Yes	Yes	Yes	Yes
County FE	Yes	Yes	Yes	Yes
No. observations	5,195	3,577	2,664	747
R-squared	0.856	0.702	0.772	0.781

Notes: Standard errors in brackets, clustered by institution. *** p<0.01, ** p<0.05, * p<0.1

In column (1), the sample is restricted to any programs (part- or full-time) in schools with at least one program longer than 900 hours. In (2), the sample further restricted to only full-time programs (in addition to the school-level 900+ hour restriction). The sample in (3) is further restricted to non-degree programs. In column (4) the sample includes only non-degree cosmetology programs that are full-time and are in schools with at least one 900+ hour program. Dependent variable is the natural log of tuition. Length is measured as a proportion of full-time enrollment, based on clock or credit hours. Years Open are the number of years since the institution was first licensed. Chains are defined to be institutions operating in more than one state or with more than five campus branches in a single state. Programs with zero enrollment, tuition, or length are dropped.

Source: State regulatory agencies. See Data Appendix.

**Table 8. Log Tuition Differences between Title IV and non-Title IV Institutions:
Michigan, 2010**

	All non-degree institutions and programs	Non-degree programs in schools with 900+ hour program	Full-time non-degree programs in 900+hr schools	Full-time non-degree health programs in 900+hr schools
	(1)	(2)	(3)	(4)
Title IV	0.532*** [0.0961]	0.604*** [0.188]	0.518** [0.214]	0.443*** [0.114]
Ln (program length)	0.804*** [0.0367]	0.808*** [0.0627]	-0.221 [0.544]	0.190 [0.290]
Ln (enrollment)	-0.0181 [0.0332]	-0.0230 [0.0428]	0.0202 [0.0266]	-0.00207 [0.0235]
Years open	0.00105 [0.00289]	-0.00151 [0.00388]	-0.00138 [0.00319]	-0.000889 [0.00256]
Chain	-0.0934 [0.0964]	0.0310 [0.0844]	-0.0299 [0.0639]	0.000363 [0.0381]
Six-digit CIP code FE	Yes	Yes	Yes	Yes
County FE	Yes	Yes	Yes	Yes
No. observations	607	198	123	67
R-squared	0.904	0.946	0.922	0.961

Notes: Standard errors in brackets, clustered by institution. *** p<0.01, ** p<0.05, * p<0.1

The sample in column (1) includes all non-degree sub-baccalaureate institutions and programs (the Michigan data do not include degree programs). (2) includes only programs in schools with at least one program 900+ hours. (2) restricts further to full-time programs. (3) restricts only to health/medical professions that are full-time and in schools with 900+hours (2-digit cip code = 51). Length is measured as a proportion of full-time enrollment, based on clock or credit hours. Years open are the number of years since an institution was first licensed. Chains are defined to be institutions operating in more than one state or with more than five campus branches in a single state. Programs with zero enrollment, tuition, or length are dropped.

Source: State regulatory agencies. See Data Appendix.

**Table 9. Log Tuition Differences between Title IV and non-Title IV Institutions:
Wisconsin, 2008-2010**

	All sub- baccalaureate institutions and programs	Full-time programs	Full-time non- degree programs	Full-time non- degree health programs
	(1)	(2)	(3)	(4)
Title IV	1.346*** [0.312]	0.844*** [0.124]	0.618*** [0.151]	0.716*** [0.177]
Ln (program length)	0.457*** [0.130]	0.697*** [0.116]	0.596*** [0.155]	0.659** [0.318]
Ln (enrollment)	0.0572 [0.0390]	0.0407 [0.0249]	0.0124 [0.0498]	0.0191 [0.0800]
Chain	0.0815 [0.145]	0.0374 [0.0644]	-0.0516 [0.196]	-0.0995 [0.321]
Two-digit CIP code FE	Yes	Yes	Yes	Yes
City FE	Yes	Yes	Yes	Yes
No. observations	961	575	232	126
R-squared	0.784	0.662	0.742	0.600

Notes: Standard errors in brackets, clustered by institution. *** p<0.01, ** p<0.05, * p<0.1

The sample in column (1) includes all sub-baccalaureate institutions and programs (associate's degree and non-degree). (2) restricts further to full-time programs. (3) restrict further to non-degree programs. (4) restricts only to health/medical professions that are full-time and non-degree (2-digit cip code = 51). Length is measured as a proportion of full-time enrollment, based on clock hours, credit hours, or "lessons," which are assumed to be 15 clock hours per lesson. Chains are defined to be institutions operating in more than one state or with more than five campus branches in a single state. Programs with zero enrollment, tuition, or length are dropped.

Source: State regulatory agencies. See Data Appendix.

Appendix Table A1. Share of For-Profit Enrollments and Completions in Non-Title IV Institutions, by Program and State

A. Share of For-Profit Enrollments in Non-Title IV Institutions, by Program and State

Program (CIP codes)	FL	MI	TN	WI
Agriculture (01)	0.66	1.00	1.00	1.00
Business (52)	0.02	0.88	0.18	0.36
Communications (09, 10)	0.05	0.05	0.03	0.03
Computer Science (11)	0.12	0.79	0.17	0.07
Construction (46, 48)	0.08	0.84	0.03	0.78
Engineering (14, 15)	0.08	0.97	0.00	0.00
Health (51)	0.13	0.47	0.25	0.43
Security & Law Enforcement (43)	0.01	0.96	0.02	0.00
Mechanics (47)	0.05	0.53	0.04	0.88
Personal & Culinary (12)	0.31	0.54	0.89	0.48
Religion (39)	0.00	1.00	0.84	0.00
Transportation (49)	0.80	1.00	0.90	0.00
Arts (50)	0.04	0.30	0.02	0.65
Other	0.04	0.30	0.75	0.08

B. Share of For-Profit Completions in Non-Title IV Institutions, by Program and State

Program (CIP codes)	FL	MI	TN	WI
Agriculture (01)	0.67	1.00	1.00	1.00
Business (52)	0.11	0.98	0.34	0.76
Communications (09, 10)	0.08	0.14	0.04	0.13
Computer Science (11)	0.45	0.96	0.46	0.21
Construction (46, 48)	0.20	0.98	0.14	0.98
Engineering (14, 15)	0.32	1.00	0.00	0.00
Health (51)	0.37	0.65	0.37	0.75
Security & Law Enforcement (43)	0.11	1.00	0.13	0.00
Mechanics (47)	0.11	0.88	0.03	0.85
Personal & Culinary (12)	0.50	0.69	0.98	0.37
Religion (39)	0.00	1.00	0.92	0.00
Transportation (49)	0.83	1.00	0.91	0.00
Arts (50)	0.11	0.77	0.06	0.34
Other	0.18	0.59	0.58	0.37

C. Share of For-Profit FTE Enrollments in Non-Title IV Institutions, by Program and State

Program (CIP codes)	FL	MI	WI
Agriculture (01)	0.59	1.00	1.00
Business (52)	0.01	0.88	0.05
Communications (09, 10)	0.05	0.04	0.01
Computer Science (11)	0.03	0.93	0.07
Construction (46, 48)	0.02	0.74	0.63
Engineering (14, 15)	0.00	0.96	0.00
Health (51)	0.05	0.23	0.19
Security & Law Enforcement (43)	0.00	0.11	0.00
Mechanics (47)	0.01	0.70	0.86
Personal & Culinary (12)	0.16	0.34	0.69
Religion (39)	0.00	1.00	0.00
Transportation (49)	0.55	1.00	0.00
Arts (50)	0.02	0.48	0.82
Other	0.01	0.20	0.01

D. Share of For-Profit FTE Completions in Non-Title IV Institutions, by Program and State

Program (CIP codes)	FL	MI	WI
Agriculture (01)	0.58	1.00	1.00
Business (52)	0.02	0.92	0.21
Communications (09, 10)	0.07	0.05	0.06
Computer Science (11)	0.13	0.97	0.22
Construction (46, 48)	0.05	0.95	0.95
Engineering (14, 15)	0.02	1.00	0.00
Health (51)	0.17	0.33	0.31
Security & Law Enforcement (43)	0.03	1.00	0.00
Mechanics (47)	0.03	0.84	0.87
Personal & Culinary (12)	0.29	0.46	0.63
Religion (39)	0.00	1.00	0.00
Transportation (49)	0.59	1.00	0.00
Arts (50)	0.05	0.64	0.67
Other	0.03	0.28	0.06

Notes: Years vary slightly for each state. See Table 1 for the precise years. Title IV institutions include only non-degree (diploma/certificate) programs.

Source: State regulatory agencies. See Data Appendix.

Appendix Table A2. Distribution of Non-Title IV and Title IV Enrollment Across Programs, by State

Program's Share of Enrollment among Title IV and Non-Title IV Institutions, by State (columns sum to 1)

Program (CIP codes)	FL		MI		TN		WI	
	NT4	T4	NT4	T4	NT4	T4	NT4	T4
Agriculture (01)	0.007	0.001	0.002	0.000	0.001	0.000	0.014	0.018
Business (52)	0.030	0.002	0.255	0.019	0.124	0.062	0.227	0.012
Communications (09, 10)	0.010	0.000	0.002	0.030	0.002	0.025	0.001	0.001
Computer Science (11)	0.089	0.047	0.230	0.028	0.056	0.118	0.020	0.013
Construction (46, 48)	0.006	0.021	0.001	0.012	0.010	0.016	0.037	0.039
Engineering (14, 15)	0.011	0.004	0.080	0.006	0.000	0.003	0.000	0.000
Health (51)	0.389	0.532	0.169	0.513	0.244	0.363	0.301	0.590
Security & Law Enforcement (43)	0.008	0.001	0.032	0.004	0.003	0.056	0.000	0.001
Mechanics (47)	0.015	0.114	0.027	0.021	0.007	0.105	0.042	0.049
Personal & Culinary (12)	0.295	0.243	0.117	0.340	0.205	0.159	0.138	0.160
Religion (39)	0.000	0.000	0.038	0.000	0.086	0.008	0.000	0.000
Transportation (49)	0.119	0.012	0.005	0.000	0.214	0.011	0.000	0.045
Arts (50)	0.009	0.003	0.011	0.012	0.002	0.040	0.053	0.045
Other	0.023	0.019	0.002	0.012	0.141	0.035	0.009	0.027

Notes: Years vary slightly for each state. See Table 1 for the precise years.

Source: State regulatory agencies. See Data Appendix.