

October 2010

FOR-PROFIT SCHOOLS

Large Schools and
Schools that
Specialize in
Healthcare Are More
Likely to Rely Heavily
on Federal Student
Aid



GAO

Accountability * Integrity * Reliability

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Abbreviations

FTE	full-time equivalent
IPEDS	Integrated Postsecondary Education Data System
OIG	Office of Inspector General
OPEID	Office of Postsecondary Education Identification Number
PEPS	Postsecondary Education Participants System

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United States Government Accountability Office
Washington, DC 20548

October 4, 2010

The Honorable Tom Harkin
Chairman
The Honorable Michael B. Enzi
Ranking Member
Committee on Health, Education,
Labor, and Pensions
United States Senate

The Honorable George Miller
Chairman
The Honorable John P. Kline
Ranking Member
Committee on Education and Labor
House of Representatives

In the 2008-2009 school year, about 2,000 for-profit schools received almost \$24 billion in grants and loans provided to students under federal student aid programs.¹ In the early 1990s, Congress was concerned that some for-profit schools receiving federal student aid were recruiting students who were not ready for higher education. Many of these students left school with no new job skills and few employment prospects in their fields of study and many defaulted on their federal student loans.

In response, Congress enacted the 85/15 rule in 1992, which required for-profit schools to obtain at least 15 percent of their revenues from sources other than federal student aid.² Proponents of the rule believed that for-profit schools offering a quality education should be able to earn a minimum percentage of their revenue from sources other than federal student aid. In 1998, Congress amended this law to create the 90/10 rule, which reduced to 10 percent the proportion of revenues schools must obtain from sources other than federal student aid.³ These revenues can include cash payments

¹These programs are authorized under Title IV of the Higher Education Act of 1965, as amended.

²See Pub. L. No. 102-325. For the purposes of this report, by federal student aid revenues, we mean revenues from financial aid programs authorized under Title IV of the Higher Education Act of 1965, as amended.

³See Pub. L. No. 105-244. The 90/10 rule is found at 20 U.S.C. § 1094(a)(24).

from students, private student loans, state educational grants, and federal education assistance payments for veterans. For-profit schools are required to report in their annual financial statements the percentage of their total revenues obtained from federal student aid funds.⁴ This calculation is called a school's "90/10 rate" and it is verified each year by an independent auditor. Schools that do not comply with the 90/10 rule risk losing their eligibility to participate in federal student aid programs.

As required by the Higher Education Opportunity Act, we are providing information on for-profit schools' compliance with the 90/10 rule.⁵ Specifically, this report addresses the following questions:

1. What percentage of for-profit schools is in compliance with the 90/10 rule and to what extent do schools derive their revenues from federal student aid funds?
2. What school characteristics are associated with higher average 90/10 rates?
3. What school characteristics are associated with an increased likelihood of having a very high 90/10 rate?

On August 12 and 20, 2010, we briefed cognizant congressional staff on the results of this study, and this report formally conveys the information provided during these briefings. (See app. I for the briefing slides.) In general, we found that:

- Between 2003 and 2008, almost 100 percent of for-profit schools reported complying with the 90/10 rule. During this period, the average percent of revenue received from federal student aid (the average 90/10 rate) for all for-profit schools increased slightly from 62 to 66 percent.
- In 2008, schools with the following characteristics had significantly higher average 90/10 rates than schools without these characteristics. Specifically, these schools:
 - Had high proportions of low-income students

⁴See 34 C.F.R. § 668.23(d)(4).

⁵See Pub. L. No. 110-315, § 1105.

-
- Granted degrees no higher than associate's
 - Specialized in healthcare
 - Offered distance education
 - Were large (with 2,000 students or more)
 - Had a publicly traded parent company
 - Were part of a corporate chain
- We found that in 2008, schools that (1) were large, (2) specialized in healthcare, or (3) did not grant academic degrees were more likely than others to have very high 90/10 rates (above 85 percent), when controlling for the effects of other characteristics. Large schools and schools that specialized in healthcare both had higher average 90/10 rates and were much more likely to have very high 90/10 rates than other schools.

We used the following methodology to develop our findings. To understand the 90/10 rule and factors that influence schools' 90/10 rates, we reviewed relevant federal laws, regulations, and program guidance. We also interviewed officials from the Department of Education (Education), Education's Office of Inspector General (OIG), six for-profit schools that represent both large and small schools with a mix of ownership types and academic programs, seven independent auditors with varying levels of experience in verifying 90/10 rates at for-profit schools, and associations focusing on higher education. To determine the percentage of schools in compliance with the 90/10 rule, we analyzed 90/10 rates from Education's eZ-Audit system for fiscal years 2003 through 2008 and augmented this information with data from Education and Education's OIG.⁶ Finally, to learn about what school characteristics are associated with higher average 90/10 rates and with an increased likelihood of having a 90/10 rate above 85 percent, we conducted descriptive statistical analyses and a multivariate regression analysis using 90/10 rates for fiscal year 2008 reported in eZ-Audit and school year 2008-2009 school characteristic data reported in Education's Integrated Postsecondary Education Data System (IPEDS). For the purposes of our analyses, we considered a for-profit school to be an entity with a unique identification number assigned by Education (known as an OPEID) because Education requires each for-profit school with an OPEID to submit an annual 90/10 rate, and monitors compliance with the 90/10 rule on an OPEID basis. However, depending on how schools are organized, an OPEID may correspond with one or multiple

⁶Through its eZ-Audit system, Education collects information from the annual audited financial statements of all schools receiving federal student aid funds.

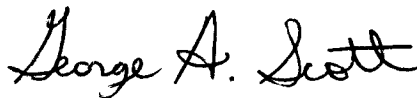
campuses. For instance, in one case, five campuses may be organized under one OPEID, and in another, five related campuses may all have their own OPEIDs. In the first scenario, the five campuses would be part of the same school and would collectively report one 90/10 rate, while in the second scenario, each campus would report its own 90/10 rate and count as a separate school in our analysis. We conducted statistical testing and found that this difference did not materially affect the results of our regression analysis. We assessed the reliability of each Education dataset we used by interviewing agency officials knowledgeable about the data, reviewing relevant documentation, and conducting additional analyses. We determined that the data from each dataset were sufficiently reliable for the purposes of this report. For additional information on our scope and methodology, see appendixes II, III, and IV.

We conducted our work from October 2009 to October 2010 in accordance with generally accepted government auditing standards. Those standards require that we plan and perform the audit to obtain sufficient, appropriate evidence to provide a reasonable basis for our findings based on our audit objectives. We believe that the evidence obtained provides a reasonable basis for our findings.

We provided a draft copy of this report to Education for review and comment. Education did not have any comments on the report.

We are sending copies of this report to relevant congressional committees, the Secretary of Education, and other interested parties. In addition, this report will be available at no charge on GAO's Web site at <http://www.gao.gov>.

If you or your staffs have any questions about this report, please contact me at (202) 512-7215 or scottg@gao.gov. Contact points for our Offices of Congressional Relations and Public Affairs may be found on the last page of this report. GAO staff who made key contributions to this report are listed in appendix V.



George A. Scott
Director, Education, Workforce,
and Income Security Issues

Appendix I: Briefing Slides



For-Profit Schools: Large Schools and Schools that Specialize in Healthcare Are More Likely to Rely Heavily on Federal Student Aid

Briefing to Congressional Committee Staff

**Education and Labor
House of Representatives**

**Health, Education, Labor, and Pensions
United States Senate**

August 2010



Overview

- Introduction
- Research Objectives
- Scope and Methodology
- Summary of Findings
- Background
- Findings



Introduction

For-Profit Schools Receive Billions of Dollars in Federal Student Aid, but Face a Limit on How Much They Can Receive

- During the 2008-09 school year, about 2,000 for-profit schools received almost \$24 billion in federal student aid.*
- In the early 1990s, Congress was concerned that some for-profit schools that received federal student aid funds were recruiting students who were not ready for higher education. Many of these students:
 - left school with no new job skills and few employment prospects in their fields of study, and
 - defaulted on their federal student loans.
- In 1992, Congress enacted the 85/15 rule, which required for-profit schools to obtain at least 15 percent of their revenues from sources other than federal student aid.**
 - Proponents of the rule believed that for-profit schools offering a quality education should be able to earn a minimum percentage of revenue from sources other than federal student aid.
- In 1998, Congress amended this law to create the 90/10 rule, which reduced to 10 percent the proportion of revenues schools must obtain from sources other than federal student aid. Schools may now receive up to 90 percent of revenues from federal student aid.***

*We define federal student aid as financial aid programs authorized by Title IV of the Higher Education Act of 1965, as amended.

**See Pub. L. No. 102-325.

***See Pub. L. No. 105-244. The 90/10 rule is found at 20 U.S.C. § 1094(a)(24).

Introduction



For-Profit Schools that Violate the 90/10 Rule Risk Losing Eligibility to Receive Federal Student Aid Funds

- For-profit schools are required to report in their annual financial statements the percentage of their total revenues obtained from federal student aid funds.
 - This calculation is called a school's "90/10 rate."
 - The 90/10 rate is verified each year by an independent auditor according to guidelines issued by Education's Office of Inspector General (OIG).
 - Schools report their 90/10 rate by their Education identification number (known as their OPEID). Schools with multiple locations may have one or many OPEIDs, depending on how they are organized.*
- If a for-profit school does not comply with the 90/10 rule for:
 - one fiscal year: the school's eligibility to participate in the federal student aid program becomes provisional for the next two years.**
 - two consecutive fiscal years: the school becomes ineligible to participate in the federal student aid program for at least two fiscal years.

*For the purposes of our analyses, a school corresponds with a unique OPEID. Therefore, we consider an OPEID with five campuses to be one school. Conversely, we consider five campuses with a common owner, but each with its own OPEID, to be five separate schools.

**Education officials said they can more quickly revoke these schools' eligibility if they do not meet program responsibilities. Prior to changes enacted in August 2008 (Pub. L. No. 110-315), a for-profit school lost federal student aid eligibility after one year of non-compliance.



Research Objectives

1. What percentage of for-profit schools is in compliance with the 90/10 rule and to what extent do schools derive their revenues from federal student aid funds?
2. What school characteristics are associated with higher average 90/10 rates?
3. What school characteristics are associated with an increased likelihood of having a very high 90/10 rate?



Scope and Methodology

- To address our objectives, we:
 - reviewed relevant federal laws, regulations, and program guidance;
 - analyzed the Department of Education's data for fiscal years 2003 through 2008 on for-profit schools' reliance on federal student aid;*
 - interviewed officials from Education, Education's Office of Inspector General, six for-profit schools representing both large and small schools with a mix of ownership types and academic programs, seven independent auditors with varying levels of experience in verifying 90/10 rates, and associations focusing on higher education; and
 - conducted additional analyses using:**
 - 90/10 rates for fiscal year 2008 reported in eZ-Audit, and
 - school year 2008-2009 school characteristic data reported in Education's Integrated Postsecondary Education Data System (IPEDS).
- We determined that these data were sufficiently reliable for our purposes.

*Through its eZ-Audit system, Education collects information from the annual audited financial statements of all schools receiving federal student aid funds. The data for this time period represent the most recent data available at the time of our study.

**Education's eZ-Audit data are based on a school's fiscal year. IPEDS data capture school characteristics at points during its school year and Education funding data are based on a school year.



Scope and Methodology (continued)

- **Using descriptive statistics**, we calculated average 90/10 rates of schools with different characteristics to assess, for example, whether large schools had a significantly different average 90/10 rate than very small schools.*
- **Multivariate regression analysis** enabled us to identify characteristics that indicated an increased likelihood of having a very high 90/10 rate (above 85 percent) while controlling for the effects of other characteristics. Through this analysis, we could determine whether large schools, for instance, were significantly more likely to have very high 90/10 rates than very small schools, when controlling for other factors.**
- We conducted our review between October 2009 and October 2010 in accordance with generally accepted government auditing standards.

*All differences described in this report are statistically significant at the 95 percent level, unless otherwise noted.

**A key limitation in our regression model is that it does not account for student income. Specifically, we could not include a school's proportion of students receiving Pell Grants (the only proxy for low-income students available to us) in our model because Pell Grants are included in schools' 90/10 rates.

Summary of Findings



Large Schools and Schools that Specialize in Healthcare Are More Likely to Rely Heavily on Federal Student Aid

- Between 2003 and 2008, almost 100 percent of for-profit schools reported being in compliance with the 90/10 rule. During this period, the average percent of revenue received from federal student aid (the average 90/10 rate) for all for-profit schools increased slightly from 62 to 66 percent.
- In 2008, schools with the following characteristics had significantly higher average 90/10 rates than schools without these characteristics. Specifically, these schools:
 - Had high proportions of low-income students
 - Were large (with 2,000 students or more)
 - Granted degrees no higher than associate's
 - Had a publicly-traded parent company
 - Specialized in healthcare*
 - Were part of a corporate chain**
 - Offered distance education
- We found that in 2008, schools that (1) were large, (2) specialized in healthcare, or (3) did not grant academic degrees were more likely than others to have very high 90/10 rates (above 85 percent), when controlling for the effects of other school characteristics.

*All schools were assigned a specialty according to which of their programs had either more enrolled students in the fall of 2008 or more graduates in the 2008-2009 school year (depending on the school's reporting method) than any of its other programs.

**If a school's parent company owned at least one other for-profit school, we considered the school to be part of a corporate chain.

Background: For-Profit Schools



Characteristics of For-Profit Schools Have Changed in Recent Years

- Traditionally, for-profit schools:
 - Were owned by local, sole proprietors; and
 - Offered certificate and associate's degree programs ranging from cosmetology to medical assistance and business administration.
- More recently, for-profit schools:
 - Range from small, privately-held schools to large, publicly-traded companies;*
 - Have expanded their offerings to also include bachelor's, master's, and doctoral level programs; and
 - Provide course offerings through distance education.**

*A publicly-traded company is authorized to offer its securities (e.g., stocks and bonds) for sale to the general public, typically through a stock exchange. The securities of a publicly-traded company are typically owned by many investors.

**Distance education is an option for earning course credit at off-campus locations via the Internet or other means.



Background: 90/10 Calculation

No More than 90 Percent of a For-Profit School's Total Revenues May Be Obtained from Federal Student Aid

- Only revenues received for a school's educational and institutional charges, such as tuition, fees, and certain required course materials, are included in its 90/10 calculation.*
 - Other revenues, such as those from vending machines and parking lots, are excluded from the calculation.**
- The 90/10 rate must be calculated using a cash basis of accounting.***

No more than 90 percent

Only revenues from federal student aid programs authorized by Title IV of the Higher Education Act are included, such as:

- Pell Grants,
- Stafford Loans, and
- Federal Work Study funds.

At least 10 percent

Revenues counted include:

- cash payments from students,
- private student loans (including payments for loans made by schools),
- state educational grants,
- federal education assistance payments for military personnel and veterans, and
- federal and state job training grants.

*Federal student aid revenues in excess of a school's educational and institutional charges must be excluded from a school's calculation.

**For more information, see 20 U.S.C. § 1094(d) and 34 C.F.R. § 668.28.

***On a cash basis of accounting, revenues are recorded when they are received regardless of when they are earned. Outside of the 90/10 calculation, schools generally track revenues on an accrual basis of accounting, where revenues are recorded when they are earned.

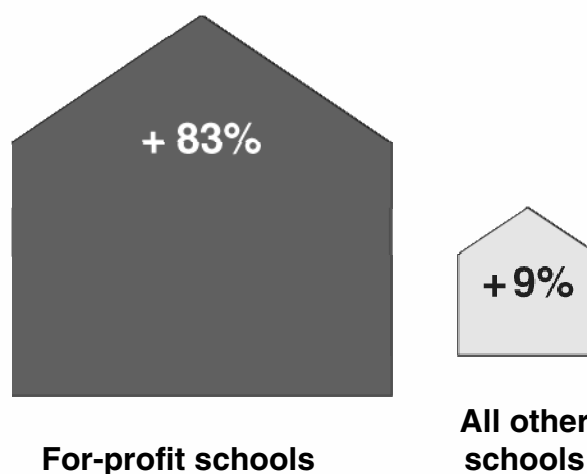
Background: Enrollment



Enrollment at For-Profit Schools Has Increased Substantially in Recent Years

- Between the fall of 2003 and 2008, student enrollment increased from about 1 million to about 1.8 million at for-profit schools and from about 16 million to about 18 million at all other schools.*

Percentage Growth in Enrollment from Fall 2003 to 2008



Source: GAO analysis of IPEDS data on fall enrollments.

*All other schools include public and non-profit schools.

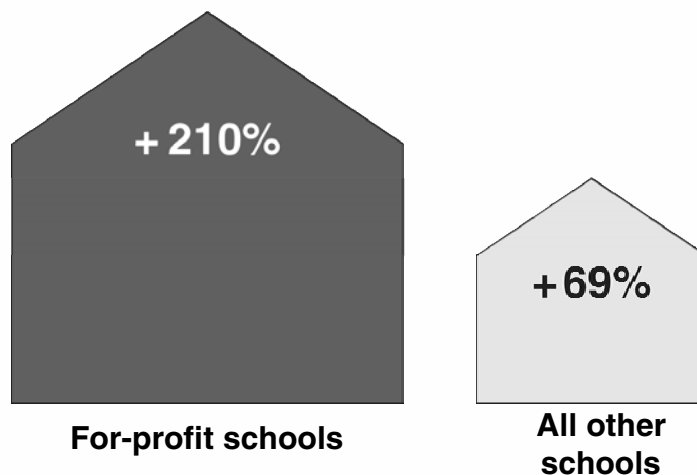
Background: Funding



Federal Student Aid Revenues at For-Profit Schools Have More Than Tripled in Recent Years

- Between the 2002-03 and 2008-09 school years, federal student aid revenues increased from about \$8 billion to about \$24 billion at for-profit schools and from about \$48 billion to about \$82 billion at all other schools.
- For-profit schools' share of fall 2008 total enrollment was about 9 percent, while their share of school year 2008-2009 total federal student aid revenue was about 23 percent.*

Percentage Growth in Federal Student Aid from School Year 2002-03 to 2008-09



Source: GAO analysis of Education's annual federal student aid funding report data.

*For-profit schools' share of revenues may be greater than their share of enrollment because they generally have higher tuition rates than public schools and enroll a larger percentage of low-income students, who are eligible for more federal aid than other students. For more information on the characteristics of students at for-profit schools, see GAO, *Proprietary Schools: Stronger Department of Education Oversight Needed to Help Ensure Only Eligible Students Receive Federal Aid*, GAO-09-600 (Washington, D.C., Aug. 17, 2009).

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Finding 1: 90/10 Compliance--Overview



Almost All For-Profit Schools Report Being in Compliance with the 90/10 Rule

- Between 2003 and 2008, almost 100 percent of for-profit schools reported being in compliance with the 90/10 rule.*
- The average percent of revenue for-profit schools received from federal student aid (their average 90/10 rate) increased slightly between 2003 and 2008, from 62 to 66 percent.

*Data on 90/10 rates are based on a school's fiscal year. As noted earlier, schools' 90/10 rates are verified by independent auditors.

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Finding 1: 90/10 Compliance



Very Few For-Profit Schools Report Not Complying with the 90/10 Rule

- Between 2003 and 2008, an average of 99.8 percent of for-profit schools reported being in compliance with the 90/10 rule.*
- During this period, seven schools lost eligibility for federal student aid due to non-compliance with the 90/10 rule.**

Percent and Number of For-Profit Schools Reporting Non-Compliance with the 90/10 Rule, 2003-2008

	2003	2004	2005	2006	2007	2008	2003-2008
Percent out of compliance	0.1	0.1	0.3	0.2	0	0.4	0.2
Number out of compliance	2	1	6	3	0	7	18***

Source: GAO analysis of Education's eZ-Audit data.

Table Note: We excluded from our 2005 list one school that did not have an auditor-verified 2005 90/10 rate and was non-compliant in 2006, because Education did not calculate its actual 2005 rate. We included one school with a rate below 90 percent in our non-compliant list because it received more than 90 percent of its revenue from federal student aid during the only part of the year in which it was eligible for that aid.

*For each year between 2003 and 2008, the number of schools subject to the 90/10 rule was 1,554; 1,873; 1,917; 1,941; 1,950; and 1,962; respectively. In 2008 (the most recent year for which we had data), 1,955 schools were in compliance with the 90/10 rule.

**In some other cases, schools that did not comply either closed or lost eligibility for other reasons.

***This number represents unique schools and does not equal the sum of all cases because one school was non-compliant in two years.

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Finding 1: 90/10 Compliance

For-Profit Schools' Average 90/10 Rates Increased Slightly Between 2003 and 2008

- Between 2003 and 2008, the average 90/10 rate of for-profit schools increased from 62 to 66 percent.*
- The proportion of schools with 90/10 rates above 85 percent rose from about 10 percent in 2007 to about 15 percent in 2008.**
 - During the same period, the proportion of students at for-profit schools with 90/10 rates above 85 percent rose from about 8 percent to about 19 percent.
- For-profit school representatives stated that increases in 90/10 rates may be in part due to increased maximum federal student aid award amounts, as well as the effects of the recent recession that are making private student loans and state student aid grants less available.

*Schools' average 90/10 rates for each intervening year were 64, 64, 63, and 64 percent, respectively.

**The number of schools that received at least 85 percent of their revenues from federal student aid in 2008 was 292. After removing the 7 schools that had 90/10 rates above 90 percent and were therefore out of compliance with the 90/10 rule, 285 had rates of 85 percent or higher.



Finding 2: Average Rates—Overview

For-Profit Schools with Certain Characteristics Had Higher Average 90/10 Rates than Others

For-profit schools with the following characteristics had higher average 90/10 rates than schools without these characteristics. Specifically, these schools:*

Student Population:

Had high proportions of low-income students

Educational Focus:

Granted degrees no higher than the associate's level

Specialized in healthcare

Offered distance education

School Size, Control, and Management:

Were large (with 2,000 students or more)**

Had a publicly-traded parent company

Were part of a corporate chain

*We used a descriptive statistical test, which did not control for the effects of additional school characteristics, to analyze whether certain schools' average 90/10 rates were significantly different than those of other schools.

**Large schools had higher average 90/10 rates than very small schools (with under 100 students). Schools with 500 to under 2,000 students also had higher average 90/10 rates than very small schools.

Finding 2: Average Rates—Student Population



For-Profit Schools with High Proportions of Low-Income Students Tended to Have Higher Average 90/10 Rates

- Officials from for-profit school groups have indicated that having a low-income student population makes it more challenging to comply with the 90/10 rule, because such students utilize more federal student aid than others.
- For-profit schools with high proportions of students receiving Pell Grants (which are targeted at low-income students) had higher 90/10 rates than other schools.*
 - Schools with at least 75 percent of students receiving Pell Grants had an average 90/10 rate of 77 percent vs. 64 percent for all other schools.

*This result was expected because Pell Grants are included in schools' 90/10 rates. It is logical to assume that a school's proportion of students receiving Pell Grants would be correlated with its 90/10 rate. A school's proportion of students receiving Pell Grants was the only proxy for student income available to us.

Finding 2: Average Rates—Educational Focus



For-Profit Schools Offering Associate's Degrees Had a Higher Average 90/10 Rate

- Schools offering degrees no higher than the associate's level (about 18 percent of all for-profit schools) had a significantly higher average 90/10 rate than other schools (75 vs. 65 percent).*
- An Education official suggested these schools may have higher 90/10 rates because their students are less likely to receive employer funding for continuing education than students working on a bachelor's degree or higher.

*Schools offering bachelor's degrees or higher had an average 90/10 rate of 67 percent and schools that did not offer academic degrees had an average 90/10 rate of 64 percent.

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Finding 2: Average Rates—Educational Focus



For-Profit Schools Specializing in Healthcare Had a Higher Average 90/10 Rate

- For-profit schools that specialized in healthcare had a significantly higher average 90/10 rate than other schools (75 vs. 63 percent).^{*} These schools represented nearly one-third of all for-profit schools.
- A higher education association official we spoke with suggested that some for-profit schools specializing in healthcare tend to attract lower-income students that rely more heavily on federal student aid, leading these schools to have higher 90/10 rates.
 - We found that schools specializing in healthcare had higher proportions of students receiving Pell Grants (which are targeted at low-income students) than other schools, at 60 vs. 52 percent.

^{*}Additionally, schools specializing in construction, mechanics, or manufacturing had a significantly higher average 90/10 rate than their counterparts: 71 vs. 66 percent. However, only about 5 percent of schools were in this category.

Finding 2: Average Rates—Educational Focus



For-Profit Schools Specializing in Cosmetology Had a Lower Average 90/10 Rate

- For-profit schools that specialized in cosmetology had a significantly lower average 90/10 rate than other for-profit schools (62 percent vs. 71 percent).^{*}
 - While 45 percent of schools specialized in cosmetology, they only enrolled 9 percent of students and received 4 percent of federal student aid dollars earned by for-profit schools.^{**}
- According to Education officials, independent auditors, and school representatives we spoke with, cosmetology schools tend to rely less on federal student aid than other schools because they earn additional revenue from student-run clinics.

^{*}Schools that specialized in culinary arts, about 2 percent of all for-profit schools, also had a lower average 90/10 rate than other for-profit schools, at 55 vs. 67 percent. The 3 percent of for-profit schools that specialized in visual and performing arts also had a lower average 90/10 rate than other schools, at 55 vs. 67 percent.

^{**}Enrollment data are based on 2007-2008, while funding data are based on the 2008-2009 school year. See appendix II for more details.

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Finding 2: Average Rates—Educational Focus



For-Profit Schools that Offered Distance Education Had a Higher Average 90/10 Rate

- Schools that offered distance education had a significantly higher average 90/10 rate than other schools, at 72 percent vs. 66 percent.
- Schools offering distance education accounted for about 12 percent of all for-profit schools, but they enrolled 55 percent of students and received 70 percent of federal student aid dollars earned by for-profit schools.
- The majority of these schools were part of a corporate chain and many were owned by a publicly-traded company.*

*Some chain schools were owned by publicly-traded companies.

Finding 2: Average Rates—School Size and Control



Large Schools Had a Higher Average 90/10 Rate than Very Small Schools

- Large schools (with 2,000 students or more) had a significantly higher average 90/10 rate than very small schools (with fewer than 100 students), at 74 percent vs. 60 percent.
 - Only about 9 percent of all schools were large, but they enrolled 69 percent of students at for-profit schools.
 - While 30 percent of schools were very small, they only enrolled 2 percent of students at for-profit schools.*
- Schools with 500 students or more also had a significantly higher average 90/10 rate than schools with under 100 students.

*For the purposes of our analysis, a school is an entity with a unique OPEID that reports an annual 90/10 rate to Education. Schools may be organized in different ways, and an OPEID may correspond with one or many campuses. Thus, an OPEID with five campuses and 500 students at each campus (for a total of 2,500 students) would be considered large. However, five equally-sized campuses (of 500 students each) with a common owner, but each with its own OPEID, would not be considered large because no OPEID has 2,000 students.

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Finding 2: Average Rates—School Size and Control



Schools Owned by Publicly-Traded Companies and Chain Schools Had Higher Average 90/10 Rates than Other Schools

- Schools owned by publicly-traded companies had a significantly higher average 90/10 rate than other schools, at 72 vs. 66 percent.
 - These schools represented about 14 percent of all for-profit schools in 2008, enrolled 55 percent of students, and received about 65 percent of federal student aid dollars earned by for-profit schools.*
- Chain schools (about half of all for-profit schools) had a significantly higher average 90/10 rate than other schools, at 70 vs. 63 percent.

*A total of 23 publicly-traded companies owned 278 for-profit schools.



Finding 3: Very High Rates—Overview

A Few School Characteristics Were Associated with an Increased Likelihood of Very High 90/10 Rates

- In 2008, schools that
 - (1) were large (with 2,000 students or more),*
 - (2) specialized in healthcare, or
 - (3) did not grant academic degreeswere more likely than others to have very high 90/10 rates (above 85 percent—close to the 90 percent limit).
- Unlike with our average 90/10 rate analysis, schools with these characteristics had increased likelihoods of very high rates *after* controlling for the effects of other factors.**

*These schools were more likely to have very high 90/10 rates compared to very small schools (under 100 students).

**We could not include a measure of student income in our model. Some characteristics that are correlated with student income, specifically, a school's proportion of minority students and students over the age of 25, appear significant in our model. Due to concerns that these characteristics may partially reflect the effect of student income on school 90/10 rates, we do not focus on them in this report.



Finding 3: Very High Rates

Large For-Profit Schools Were Much More Likely to Have Very High 90/10 Rates (Above 85 Percent) than Very Small Schools

- Large for-profit schools (with 2,000 students or more) were much more likely than very small schools (with less than 100 students) to have very high 90/10 rates when controlling for other characteristics.*
 - Large schools had more than three times greater odds of very high 90/10 rates than very small schools.
 - Schools with 500 students or more had at least two times higher odds of very high 90/10 rates than schools with less than 100 students.

*In conducting this analysis, we used statistical techniques to mitigate the effect of large outliers on our model. We determined a school's total number of students on a full-time-equivalent basis.

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Finding 3: Very High Rates

For-Profit Schools Specializing in Healthcare and Schools Not Offering Degrees Were More Likely to Have Very High 90/10 Rates (Above 85 Percent)

- Schools specializing in healthcare were much more likely to have very high 90/10 rates than other schools when controlling for other characteristics.
- For-profit schools that did not offer academic degrees were significantly more likely to have very high 90/10 rates than schools offering at least bachelor's degrees when controlling for other characteristics.*

*In a few of our models, this finding was significant only at the 90 percent confidence level.



Finding 3: Very High Rates

Schools Owned by Publicly-Traded Companies Were Less Likely to Have Very High 90/10 Rates (Above 85 Percent)

- Schools owned by publicly-traded companies were significantly less likely to have very high 90/10 rates than other schools when controlling for the effects of other characteristics.*
 - However, they actually had higher average 90/10 rates than other schools without controlling for other characteristics.
- Publicly-traded schools may have a lower likelihood of very high 90/10 rates, but a higher average rate than other schools, because they manage their rates more carefully to avoid risking non-compliance. School officials we spoke with described strategies to manage their 90/10 rates, such as:
 - expanding programs that attract students with funding from sources other than federal student aid, and
 - encouraging students to contribute cash payments when possible.

*Schools that had experienced a change in ownership in the three years prior to 2008 had a significantly higher average 90/10 rate than other schools (69 vs. 66 percent) only at the 90 percent confidence level. In some models, they appeared to be less likely to have very high 90/10 rates, but this result was not consistent across all models.

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Finding 3: Very High Rates

A School's Tuition Rate Was Not Associated with Its Likelihood of Having Very High 90/10 Rates

- School officials and auditors told us that schools with low tuition rates tend to have more trouble complying with the 90/10 rule.
 - Federal student aid is more likely to cover the cost of tuition and fees at these schools than at schools with high tuition rates.
- However, we did not find any relationship between a school's tuition rate and its likelihood of having a very high 90/10 rate.*
 - Additionally, we found no correlation between a school's tuition rate and its average 90/10 rate.
 - In one exception, schools with tuition rates that did not exceed 2008-2009 Pell Grant and Stafford Loan award limits did have slightly higher average 90/10 rates than other schools, at 68 vs. 66 percent.**

*We tested multiple measures of tuition to account for differences in how schools report their tuition rates and found no relationship in any measure. We did not attempt to assess whether rising federal student aid limits had any impact on schools' tuition rates or 90/10 rates.

**These award amounts were for first-year dependent undergraduates.

Appendix II: Scope and Methodology

To address our objectives, we used 90/10 compliance data from the Department of Education's (Education) eZ-Audit system to describe schools' reliance on federal student aid and analyze trends over time. We also reviewed relevant federal laws, regulations, and program guidance. Lastly, we interviewed officials from Education, Education's Office of Inspector General (OIG), and other stakeholder groups. These groups included six for-profit schools that represent both large and small schools with a mix of ownership types and academic programs, seven independent auditors with varying levels of experience in verifying 90/10 rates at for-profit schools, and associations focusing on higher education. Additionally, we reviewed Education and OIG examinations of schools' compliance with the 90/10 rule. Finally, we conducted descriptive and multivariate statistical analyses using 90/10 rates recorded in eZ-Audit and school characteristic data reported by schools through Education's Integrated Postsecondary Education Data System (IPEDS) to examine what school characteristics are associated with higher average 90/10 rates and a greater likelihood of having a very high 90/10 rate. We conducted our review between October 2009 and October 2010 in accordance with generally accepted government auditing standards. Those standards require that we plan and perform the audit to obtain sufficient, appropriate evidence to provide a reasonable basis for our findings and conclusions based on our audit objectives. We believe that the evidence obtained provides a reasonable basis for our findings based on our audit objectives.

Data Sources

eZ-Audit

Since June of 2003, Education has required for-profit schools to submit financial audit data, including their reported 90/10 rates, to the eZ-Audit data system. Because a complete set of 90/10 rates for fiscal year 2009 was not available at the time of our study, we limited the scope of our analysis to fiscal years 2003 to 2008. These study years included data on 1,554 schools in 2003 and up to 1,962 schools in 2008. We assessed the reliability of the eZ-Audit data elements we used in our study and determined them to be reliable for the purpose of describing 90/10 rates and doing statistical analyses on these rates. (See below for a detailed account of our assessment of 90/10 rate reliability.)

IPEDS

The Integrated Postsecondary Education Data System (IPEDS) is a system of interrelated surveys conducted annually, and gathers information from every college, university, and technical and vocational institution that

participates in federal student financial aid programs. The Higher Education Act of 1965, as amended, requires that institutions participating in federal student aid programs report data on enrollments, program completions, graduation rates, institutional prices, and student financial aid. Through electronic testing, discussions of variables with IPEDS officials, and reviewing past GAO uses of IPEDS data, we assessed the reliability of IPEDS data elements used in our study and concluded that IPEDS data were sufficiently reliable for reporting on and analyzing characteristics of schools and their possible associations with 90/10 rates.

Other Data Sources

We used a variety of other Education data sources to supplement our data analysis. We used data from the Postsecondary Education Participants System (PEPS) to obtain data on schools' changes in ownership. PEPS is Education's primary system for tracking the eligibility status of schools to receive federal student aid funds. Based on discussions with Education officials and our verification of date information for a random sample of schools that experienced a change in ownership, we concluded that these data were reliable for identifying changes of ownership that occurred during the period in question. We also used data provided by Education on federal student aid funding and schools owned by publicly traded companies. After discussions with Education officials about how these data are compiled and used, we determined that they were sufficiently reliable for reporting aggregate federal student aid amounts for different categories of schools and for identifying schools owned by publicly traded companies.

Assessing Reliability of 90/10 Rates Reported in eZ-Audit

We undertook extensive efforts to assess the reliability of for-profit schools' reported 90/10 rates, which are verified by independent auditors and then self-reported to Education. In particular, we reviewed OIG evaluations of independent audits of for-profit schools and spoke with seven independent auditors of varying experience levels about the steps they take to verify their clients' 90/10 rates. We also interviewed Education officials about their procedures for assessing the accuracy of 90/10 rates reported to be above a certain 90/10 rate threshold and reviewed all OIG audits and Education examinations of schools' compliance with the 90/10 rule to determine how frequently they found errors in schools' reported 90/10 rates and how large these errors tended to be.

Because of the importance of independent auditors' role in verifying schools' 90/10 rates, we reviewed OIG evaluations of their work to determine how commonly the OIG had identified weaknesses in their

verification practices. Despite the fact that the OIG selects independent auditors for review using risk-based selection criteria, the OIG found errors in the 90/10 rates verified by selected auditors only in a small minority of cases. The OIG found the audit documentation did not provide sufficient evidence that the auditor appropriately verified a school's calculation in a few additional cases.

We also interviewed independent auditors at seven accounting firms with different levels of for-profit school experience. We spoke with auditors from three experienced firms, one moderately experienced firm, and three less experienced firms.¹ All of the auditors at the firms with extensive for-profit school experience described thorough 90/10 verification practices, while auditors with moderate and limited experience had more varied practices. It is possible that weaknesses in the practices of less experienced auditors could result in inadequate 90/10 rate verification and ultimately in reporting errors. We chose to group schools into 90/10 rate categories for the purposes of our statistical analyses, instead of using schools' actual reported 90/10 rates as a continuous measure, to minimize the effect of these errors on our data analysis.²

We reviewed a combined total of 42 OIG audits and Education program reviews and final audit determinations of for-profit schools with 90/10 related findings. The OIG and Education selected schools for review based on a variety of risk factors. In about a quarter of cases, OIG and Education found that a school reporting a compliant 90/10 rate was actually out of compliance. In about half of cases, no calculation errors were found, and in two cases, reviewers had insufficient information to recalculate the school's 90/10 rate. In other cases, errors were identified that either did not change a school's compliance status or resulted in an out-of-compliance school being reclassified as in compliance. For all reviews in which the OIG or Education did recalculate a school's 90/10 rate, the median difference between the school's reported and recalculated rates was 3.3 percentage points. This level of error would be relatively unlikely to result in our miscategorizing a school within our 90/10 rate categories.

¹The experienced firms each conducted over 50 audits and collectively conducted 22 percent of all fiscal year 2008 audits of for-profit schools for which Education had a record of the audit firm's name. The moderately experienced firm conducted 10 audits in 2008, and the least experienced firms conducted less than 5 audits each.

²We did, however, use for-profit schools' reported 90/10 rates to calculate each year's average 90/10 rate.

Lastly, we reviewed the outcomes of Education examinations of all schools that reported 90/10 rates above a certain threshold. Officials we spoke with described a thorough review process, including using auditor workpapers to assist them in their verification efforts. Education found errors in the reported 90/10 rates of less than one quarter of the cases we reviewed. In less than half of these cases, Education found that the school's rate was higher than reported, while in the rest, it found that the school's rate was lower than reported.

Revising the eZ-Audit Data

After receiving the original eZ-Audit data file from Education, we conducted manual and electronic data testing to identify records that were duplicated, were missing from the data set, or contained a likely inaccurate 90/10 rate based on our analysis of OIG audits and Education's reviews. We then worked with Education to resolve these issues. To ensure that the data set was sufficiently reliable for the purposes of our analyses, we performed the following tasks.

Because Education officials do not consistently update the eZ-Audit data set when they determine that a school reported an incorrect 90/10 rate, we manually updated all 90/10 rates for which we had evidence of an error that had been identified and corrected elsewhere by Education. We reviewed all OIG audits and Education reviews that examined for-profit schools' compliance with the 90/10 rule and updated the 90/10 rates in our eZ-Audit data file for the schools where the OIG or Education found a 90/10 rate error and calculated a new rate. Through electronic data testing, we also found a large number of schools in the data set reporting 90/10 rates of zero. In discussions with Education, we determined that many of these records with 90/10 rates of zero were for schools that were not eligible for or certified to receive federal student aid for the record year. After consulting with Education, we created a set of rules to identify and remove records of schools that were likely to fall into these groups.

Through electronic data testing, we also identified a relatively small percentage of records that were duplicated due to a data entry error on the part of Education. After receiving clarification from Education on all records, we removed the duplicated records. We also identified cases in which schools had more than one eZ-Audit record in a single calendar year. According to Education, schools changing their fiscal year end date are required to submit a financial audit for both their old and new fiscal years, which results in two eZ-Audit submissions for the calendar year in which the change took place. To limit our data to one record per school

per year, we retained only the record with the fiscal year end date that matched the date in the subsequent year.³

Unit of Analysis

Each for-profit school that disburses federal student aid must report a 90/10 rate to Education annually.⁴ For the purposes of the 90/10 requirement and our analysis, a school is an entity that corresponds to a unique six-digit Office of Post-Secondary Education Identification (OPEID) number. Because schools with multiple locations may have one or many OPEIDs, depending on how they are organized, a 90/10 rate may correspond to a single campus or many campuses. Due to this variation, five campuses with only one OPEID will count as one school in our study, whereas five related campuses, each with its own OPEID, will count as five schools.

Creating Our Data Set for 2008 Statistical Analyses

To prepare the data for our statistical analyses, we merged an eZ-Audit data set containing schools' fiscal year 2008 90/10 rates with various school year 2008-2009 IPEDS survey files, using the OPEID as our merger variable.⁵ In eZ-Audit, each school with a six-digit OPEID number reports one 90/10 rate per fiscal year. However, in IPEDS, a school with a six-digit OPEID number may choose to report more than one set of data by using multiple eight-digit subreporter OPEIDs. For instance, a school with five campuses could establish five separate eight-digit subreporter OPEIDs and break out information on a campus-by-campus basis, reporting data on elements such as total enrollment, degrees offered, and average tuition rates separately for each campus.

To merge IPEDS data with eZ-Audit data along the OPEID and create variables needed for our statistical analyses, we collapsed data from IPEDS records with multiple eight-digit subreporters into a single record corresponding to each six-digit OPEID. We made decision rules to create

³In the few cases where one reported 90/10 rate was zero and another rate was greater than zero, we retained the non-zero rate regardless of its fiscal year end date.

⁴Schools that disburse less than \$200,000 a year in federal student aid funds may request a waiver of this requirement. However, once the waiver period is over, schools must report, and the auditor must verify, their 90/10 rates for the years in which the waiver was in effect. See 34 C.F.R. § 668.27.

⁵In the few cases in which 2008-2009 school year data were unavailable, such as for our total enrollment variable, we used IPEDS data from the 2007-2008 school year.

collapsed variables for schools with multiple subreporters. For instance, to measure a school's total enrollment, we simply summed enrollment across all subreporters. To identify the highest level of education offered by a school, we used the highest level reported by any subreporter. We coded a school as offering distance education if at least one of its subreporters offered distance education. To create school-wide averages (such as average tuition rates), we took into account the number of students corresponding to each subreporter.

While many variables were straightforward to create, we took extra steps when creating a few variables. First, we assigned each school a specialty based on which of its programs enrolled or graduated the highest number of students, depending on the school's reporting method. We defined specialties using the Classification of Instructional Program codes, which schools use to report their programs' educational focuses to Education. Second, due to variation in how schools report their tuition rates, we tested three different methods for measuring schools' average tuition rates.⁶ As noted in appendix IV, each method we tested produced similar results when included in our regression models. Therefore, in our final regression model, we chose to use an academic-year equivalent tuition measure for all schools. Lastly, we created school size categories to reflect the non-linear relationship between school enrollment and 90/10 rates. We defined large schools as those with 2,000 students or more, mid-sized schools as those with 500 to under 2,000 students, small schools as those with 100 to under 500 students, and very small schools as those with less than 100 students.

For 31 schools in the eZ-Audit data set, we could not find corresponding IPEDS data. Therefore, these 31 schools are excluded from the descriptive and multivariate analyses of school characteristics.

Dividing Schools into Categories Based on 90/10 Rates

For the purposes of our study, we divided schools into categories based on their relative rates of reliance on federal student aid. Grouping schools into categories of reliance on federal student aid rather than reporting specific 90/10 rates allowed us to mitigate the impact of relatively small errors in schools' 90/10 rate calculations on our results. In particular,

⁶Some schools report their tuition rates on an academic-year basis, while others report their tuition rates on a credit-hour basis or contact-hour basis, based on the length of their largest program.

auditors suggested that schools with relatively low reported 90/10 rates might be more error-prone. Due to limited risk of unidentified non-compliance resulting from errors in low reported 90/10 rates, auditors may not undertake extensive efforts to resolve small calculation errors in these rates. By grouping schools into categories of reliance, if a school's actual 90/10 rate should have been 50 percent, but the school mistakenly calculated its rate to be 45 percent, the school would still correctly fall into our low 90/10 rate category laid out below.

For the purposes of analysis, we categorized schools into the groups listed in table 1.

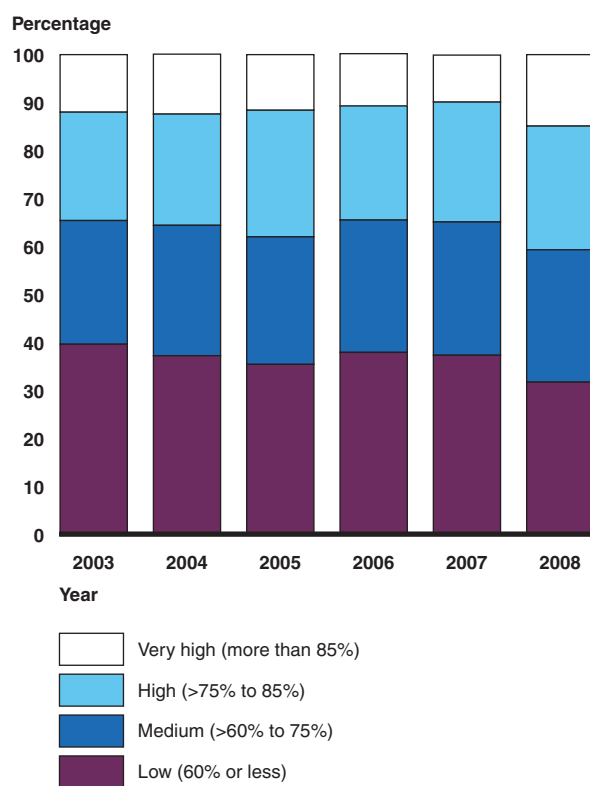
Table 1: 90/10-Rate Categories

Category	Percent of revenues from federal student aid
Low 90/10 rate	60% or less
Medium 90/10 rate	>60% to 75%
High 90/10 rate	>75% to 85%
Very high 90/10 rate	>85%

Source: GAO.

The percentages of for-profit schools with 90/10 rates from 2003 to 2008 in each of these categories are presented in figure 1.

Figure 1: Distribution of For-Profit Schools by 90/10 Rate Category, 2003-2008



Source: GAO analysis of 2003 to 2008 eZ-Audit data.

Descriptive Statistics

We conducted various descriptive statistical analyses to determine whether specific kinds of schools had higher 90/10 rates than others. First, to assess the statistical significance of the relationship between school characteristics and the 90/10 rate category associated with schools possessing these characteristics, we conducted chi-squared tests of association. For example, the chi-squared test assessed the distributions of 90/10 rate categories among schools that did and did not offer distance education, and how these distributions differed from what would be expected if no relationship existed. For dichotomous variables, such as whether a school was owned by a publicly traded company, we also conducted t-tests to assess the statistical significance of differences in mean 90/10 rates. For continuous variables, such as the proportion of students that were adult learners over the age of 25, we examined the

correlation between each variable and the 90/10 rate.⁷ All differences reported in the second findings section of this report are significant at the 95 percent level unless otherwise noted. This indicates that there is less than a 5 percent probability that we would have gotten such a result by chance if there were really no difference in average rates or in association between variables. Note that a correlation between two variables does not indicate that one “causes” the other; rather, it shows that the two appear to be associated with each other, without controlling for the effects of other variables.

Multiple Regression Analysis

Multiple regression analysis is a method for exploring how a dependent variable is related to a number of independent variables, while controlling for other factors that could have an impact on the value of the dependent variable. Because the distribution of 90/10 rates was not normal, with more than half of schools reporting 90/10 rates above 70 percent but an extremely low percentage of schools reporting 90/10 rates above 90 percent, it was not appropriate to use ordinary least squares regression modeling to assess the average change in 90/10 rates associated with specific variables. Instead, we used logistic regression analysis, a regression method for assessing dichotomous outcomes, to estimate the influence of various predictor variables on whether or not a school had a very high 90/10 rate of above 85 percent.⁸ We tested multiple model specifications and definitions of “very high 90/10 rates” to ensure that our estimates were stable across different models, and used robust standard errors to control for the potential effect of clustering of schools within the same corporate entity on our variance estimates. See appendix IV for a detailed discussion of our modeling procedures and results.

⁷The correlation coefficient measures the direction of and strength of association between two variables, where the strength of association refers to how the scores on one variable are distributed with respect to the scores on other variables. The statistic ranges between -1 and 1; with the strength of association between two variables increasing the further the statistic is from zero.

⁸In a 1997 study, GAO conducted several regression analyses to determine the impact of a school’s level of reliance on federal student aid on its completion rate, placement rate, and default rate, while holding a variety of other school characteristics constant. That study found that schools that relied more on federal student aid tended to have worse student outcomes. Our regression analyses, on the other hand, measured whether certain school characteristics predicted an increased likelihood of having a very high rate of reliance on federal student aid (a 90/10 rate of above 85 percent). See GAO, *Proprietary Schools: Poorer Student Outcomes at Schools that Rely More on Federal Student Aid*, [GAO/HEH-97-103](#) (Washington, D.C.: June 13, 1997).

Limitations of the Analysis

One limitation of our study relates to inconsistency in our unit of analysis, which is due to the variation in how schools are organized and report their 90/10 rates. As described earlier, in one case, five campuses may be organized under one OPEID, and in another case, five related campuses may each have their own OPEIDs. In the first scenario, the five campuses would count as one unit of analysis (or school) in our study, while in the second case, the five campuses would count as five separate units of analysis with five 90/10 rates. We explored whether we could resolve this inconsistency by combining the 90/10 rates of related OPEIDs, such as the five campuses each with its own OPEID, into one unit of analysis with an aggregate 90/10 rate. However, we determined that doing so was impossible because eZ-Audit does not contain sufficient information to allow us to weight accurately each 90/10 rate when creating an aggregate rate. We also explored whether we could increase the impact of schools with multiple campuses, but only one OPEID in our model; it was not possible, however, because such schools do not report data that would allow us to identify the 90/10 rates for each of their campuses. This limitation reduced the influence of these schools in our model. However, to determine whether inconsistencies in our unit of analysis substantively affected our results, we ran separate models for related OPEIDs and stand-alone OPEIDs and compared their results with those of our other models. Our results were consistent across each type of model, which showed that the limitations of our unit of analysis did not materially affect our results. Consequently, we are confident in our treatment of the unit of analysis and in our study's results.

While we are confident that we have adequately handled the limitations in our unit of analysis, care should be taken in interpreting some of our results. Particularly, differences in how schools are organized and report 90/10 rates may affect their size categories. For example, a school (or OPEID) with five campuses and 500 students at each campus (for a total of 2,500 students) would be considered large because it had at least 2,000 students in total. However, five equally sized campuses (of 500 students each) with a common owner, but each with its own OPEID, would not be considered large, because no one campus had 2,000 students or more. Additionally, because there are a large number of very small for-profit schools in our universe and a relatively small number of large schools, it may be difficult to determine the prominence of each type of school in the for-profit industry. For example, while schools owned by publicly traded companies only accounted for 14 percent of all schools in our universe, they enrolled 55 percent of students and received 65 percent of federal student aid that went to for-profit schools. Appendix III includes a table that lists school characteristics we examined, and compares the percent of

schools with each characteristic to the percent of students those schools enrolled and the percent of federal student aid they received. This table also lists the average 90/10 rate of schools with each characteristic. Appendix III also includes a table listing the characteristics we examined and showing the percent of schools owned by a publicly traded company and the percent of schools not owned by a publicly traded company with each characteristic.

In addition, we could not fully assess the relationship between certain school and student characteristics and a school's likelihood of having a very high 90/10 rate in our multivariate regression analysis because of data limitations. Specifically, we could not include student income in our model because the only proxy variable available to us through IPEDS—the percent of students receiving Pell Grants—was very closely related to our dependent variable, reliance on federal student aid.⁹ Therefore, we decided to leave this measure of student income out of our model. However, because our model did include other variables that were correlated with a school's percent of students receiving Pell Grants, the relationships found between these variables and a school's likelihood of having a very high 90/10 rate may be overstated. In particular, a school's percent of students receiving Pell Grants and percent of minority students were correlated (0.39). Thus, our model may have overstated the effect of a school's percent of minority students on its likelihood of having a very high 90/10 rate. However, variables uncorrelated with student income (as indicated by a school's percent of students receiving Pell Grants) should not be affected by our inability to directly or indirectly control for student income in our model.

⁹Our dependent variable was generated using schools' 90/10 rates, which are calculated using the dollar value of a school's federal student aid disbursements, including Pell Grants. We tested the relationship between a school's percent of students receiving Pell Grants and its 90/10 rate, and found about a 0.5 correlation.

Appendix III: Tables Comparing Schools with Different Characteristics

The tables below provide various comparisons of characteristics examined in our study. Table 2 shows the average 2008 90/10 rate of schools with each characteristic. It also lists the percent of for-profit schools with each characteristic, and compares that number to the percent of students attending, and federal student aid funds received by for-profit schools with that characteristic. Table 3 lists selected characteristics and compares the percent of schools owned by a publicly traded company with that characteristic to the percent of schools that were not owned by a publicly traded company and had the same characteristic.

Table 2: Percent of Schools, Students Attending, and Federal Student Aid Dollars Earned by For-Profit Schools with Specific Characteristics

Characteristic	Average 90/10 rate (%)	95 Percent confidence interval (%)		Percent of schools (%)	Percent of students attending (%)	Percent of federal student aid dollars (%)
		Lower bound	Upper bound			
Student population						
Schools with a high proportion of students receiving Pell Grants (75 percent or more)	77	75.2	77.9	22	13	10
Schools with less than 75 percent of students receiving Pell Grants	64	62.9	64.8	78	87	90
Educational focus						
Schools that did not grant academic degrees	65	63.8	65.7	70	24	15
Schools that granted degrees up to the associate's level	75	73.5	76.3	18	23	16
Schools that granted bachelor's degrees or higher	67	64.9	69.2	12	53	69
Schools that offered distance education	72	69.6	73.8	12	55	70
Schools that did not offer distance education	66	65.0	66.9	88	45	30
Schools that specialized in cosmetology	62	60.6	63.1	45	9	4
Schools that specialized in construction, mechanics, and manufacturing	71	67.8	74.2	5	6	5
Schools that specialized in business	64	59.3	69.2	4	32	41
Schools that specialized in healthcare	75	73.4	75.9	30	32	27
Schools that specialized in computer technology	68	65.5	72.9	2	3	3

**Appendix III: Tables Comparing Schools with
Different Characteristics**

Characteristic	Average 90/10 rate (%)	95 Percent confidence interval (%)		Percent of schools (%)	Percent of students attending (%)	Percent of federal student aid dollars (%)
		Lower bound	Upper bound			
Schools that specialized in culinary arts	55	49.1	60.2	2	3	3
Schools that specialized in visual and performing arts	55	49.6	59.5	3	5	3
School size, control, and management						
Schools that were large (2,000 FTE students or more) ^a	74	71.1	76.0	9	69	71
Schools that were mid-sized (500 to 1999 FTE students)	75	73.3	76.3	20	20	20
Schools that were small (100 to 499 FTE students)	66	64.5	67.1	42	10	7
Schools that were very small (less than 100 FTE students)	60	58.8	62.0	30	2	1
Schools owned by a publicly traded company	72	70.0	73.1	14	55	65
Schools not owned by a publicly traded company	66	64.8	66.7	86	45	35
Schools that were part of a corporate chain	70	68.9	71.2	48	79	87
Schools that were not part of a corporate chain	63	62.2	64.6	52	21	13
Schools purchased by another school in the 3 years prior to 2008	69	66.4	71.1	9	11	13
Schools not purchased by another school in the 3 years prior to 2008	66	65.5	67.3	91	89	87
Schools with low tuition rates (at or below \$10,231) ^b	68	66.3	70.2	23	13	9
Schools with tuition rates above \$10,231	66	65.2	67.0	77	87	91
Schools with a failing composite score ^c	66	64.0	68.8	13	13	14

Source: GAO analysis of 2008 eZ-Audit data and 2008-2009 IPEDS data.

^aA school's full-time equivalent (FTE) enrollment was determined using both undergraduate and graduate enrollment totals for the 2007-2008 school year.

^b\$10,231 is the 2008-2009 Pell Grant and Stafford Loan award limit for dependent first-year undergraduates.

^cComposite scores are calculated by Education using various financial ratios and estimate a school's level of financial responsibility.

Table 3: Percent of For-Profit Schools with Specific Characteristics by Ownership Status

Characteristic	All schools (%)	Percent of non-publicly traded schools with characteristic (%)	Percent of publicly traded schools with characteristic (%)
Student population			
Schools with a high proportion of students receiving Pell Grants (75 percent or more)	22	24	9
Schools with less than 75 percent of students receiving Pell Grants	78	76	91
Educational focus			
Schools that did not grant academic degrees	70	75	40
Schools that granted degrees up to the associate's level	18	17	27
Schools that granted bachelor's degrees or higher	12	9	33
Schools that offered distance education	12	9	33
Schools that did not offer distance education	88	91	67
Schools that specialized in cosmetology	45	49	20
Schools that specialized in construction, mechanics, and manufacturing	5	5	7
Schools that specialized in business	4	4	6
Schools that specialized in healthcare	30	29	37
Schools that specialized in computer technology	2	2	7
Schools that specialized in culinary arts	2	1	6
Schools that specialized in visual and performing arts	3	3	5
School size, control, and management			
Schools that were large (2,000 FTE students or more)	9	4	36
Schools that were mid-sized (500 to 1999 FTE students)	20	17	36

Appendix III: Tables Comparing Schools with Different Characteristics

Characteristic	All schools (%)	Percent of non-publicly traded schools with characteristic (%)	Percent of publicly traded schools with characteristic (%)
Schools that were small (100 to 499 FTE students)	42	45	23
Schools that were very small (less than 100 FTE students)	30	34	5
Schools that were part of a corporate chain	48	40	98
Schools that were not part of a corporate chain	52	60	2
Schools purchased by another school in the 3 years prior to 2008	9	7	19
Schools not purchased by another school in the 3 years prior to 2008	91	93	81
Schools with low tuition rates (at or below \$10,231)	23	24	15
Schools with tuition rates above \$10,231	77	76	85
Schools with a failing composite score	13	13	15

Source: GAO analysis of 2008 eZ-Audit data and 2008-2009 IPEDS data.

Note: The percent of schools in each column represents the percent of schools with that ownership status that had the characteristic being measured. Values across columns do not add up to 100 percent.

Appendix IV: Technical Appendix on Results from Regression Model

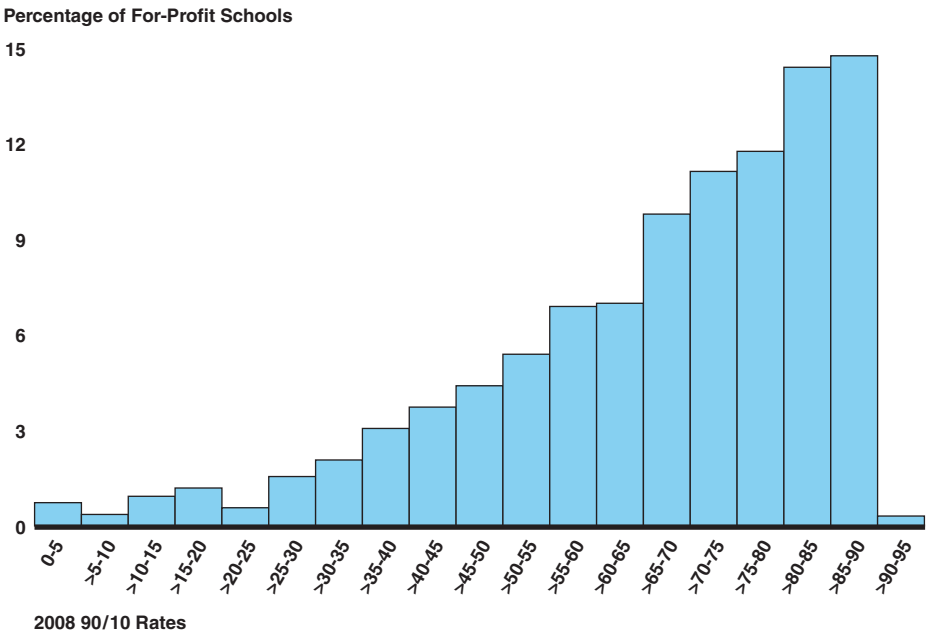
To explore how 90/10 rates varied among schools with different characteristics, we conducted descriptive analysis. Additionally, we conducted a series of multiple regression analyses to address the question of which school characteristics are associated with an increased likelihood of having a very high 90/10 rate, controlling for other factors.

Model Selection

Multiple regression analysis is a method for exploring how a dependent or “outcome” variable (such as a 90/10 rate) is related to a number of independent or “explanatory” variables, controlling for other factors that may have an impact on the value of the dependent variable. The primary dependent variable of interest in this report is a school’s 90/10 rate, which summarizes a for-profit school’s reliance on federal student aid as a proportion of its total revenue. The independent variables we tested were related to school characteristics, such as size, academic focus, ownership structure, and other factors discussed below.

The distribution of 90/10 rates is not uniform across the range of theoretical values from zero to 100. Among for-profit schools with corresponding IPEDS data in 2008, fewer than 20 percent of schools had 90/10 rates in 2008 of 50 points or below, while more than 50 percent of schools had rates above 70 up to 94 points, the maximum value observed in 2008 (see fig. 2).

Figure 2: Distribution of 2008 90/10 Rates



Source: GAO analysis of Education's eZ-Audit data.

Note: Figure excludes schools without corresponding data in IPEDS.

This non-normal distribution renders a common multiple regression technique, ordinary least squares analysis, inappropriate as the primary methodology for regression analysis.¹ Instead, we chose to use logistic regression analysis with a dichotomous dependent variable that categorizes schools as having a very high 90/10 rate or not having a very high rate. We defined schools with “very high” 90/10 rates as those 15 percent of schools with 90/10 rates that exceeded 85 percent. Because this definition was not based on a natural break in the distribution of 90/10 rates, we tested alternative definitions to confirm that the results described in our report are robust to alternative definitions of “very high” rates; see below for further discussion.

Logistic regression analysis is a technique used in evaluating dichotomous, or binary, outcomes. Unlike ordinary least squares regression analysis,

¹Ordinary least squares regression analysis can illustrate the specific change in a dependent variable associated with a unit change in an independent variable; for example, the predicted increase in 90/10 rates associated with a percentage point increase in the proportion of adult learners ages 25 and over.

which provides an estimate of the absolute change in the dependent variable associated with each unit change in an independent variable, logistic regression estimates the changes in the likelihood of having a specific outcome such as a very high 90/10 rate. Because the specific probability of having an outcome depends on the full set of characteristics associated with a school, we often use a transformation of logistic regression estimates, or odds ratios, as a means of interpreting the results. Odds ratios compare the odds that a school with one particular characteristic has the specific outcome (here, a very high 90/10 rate), compared to a school that lacks that specific characteristic.

Table 4 illustrates how to construct odds ratios from raw data for one specific characteristic, school size. In our data, 167 of the for-profit schools in our data set were large, with 2,000 full-time equivalent (FTE) or more students, and 579 were very small with fewer than 100 FTE students. Of the large schools, 42 schools had very high 90/10 rates exceeding 85 points, and 125 did not have very high 90/10 rates. The odds that a large school had a very high 90/10 rate, or the “odds on” a very high 90/10 rate, were thus 42 to 125, or .336. In contrast, among very small schools, 46 schools had very high 90/10 rates, and 533 did not. The odds on very high rates for these schools were 46 to 533, or .086. The odds ratio compares the odds on very high 90/10 rates among schools in the two size categories. The odds ratio for large schools having very high 90/10 rates compared to very small schools is .336 to .086, or approximately 3.9. The odds ratio shows us that the odds of having a very high 90/10 rate were nearly 4 times higher for large schools than for very small schools.

Table 4: Odds and Odds Ratios for Very High 90/10 Rates by School Enrollment

Characteristic	Very high 90/10 rate	Not very high 90/10 rate	Odds on very high	Odds on very high 90/10 rate and derived odds ratio
Large schools (2,000 or more FTE students)	42	125	42:125	.336
Very small schools (less than 100 FTE students)	46	533	46:533	.086
Odds ratio, large to very small schools	-	-	-	.336/.086, or 3.91

Source: GAO example using 2008 eZ-Audit data and 2008-2009 IPEDS data.

Odds ratios of one indicate that the sets of schools within comparison categories had similar odds of having the outcome variable. Logistic

regression analysis enables us to construct odds ratios for individual characteristics that “control for,” or hold constant, the effect of other independent variables on the outcome.

Model Specification and Estimation

Model specification refers to the choice of independent variables to include in a model, as well as methodological decisions such as the mathematical form of these variables and type of method used to calculate standard errors. Based on research, interviews and previous GAO reports, we identified a set of school characteristics to use as independent variables in our model predicting the likelihood that a school would have a very high 90/10 rate exceeding 85 percent. These included:

- Whether a school offered distance education.
- A school’s total FTE enrollment.
- Whether a school was bought by another school in the three years prior to 2008.
- Whether a school was owned by a publicly traded company.
- Whether a school was part of a corporate chain.
- The school’s specialty, as designated by the Classification of Industrial Programs code associated with the school’s largest program.
- A school’s highest level of educational offering. (We divided schools into three categories: those that did not grant academic degrees, schools that offered degrees up to the associate’s level, and those that offered bachelor’s degrees or above.)
- A school’s number of eight-digit IPEDS subreporters. (This variable measured whether the reported 90/10 rate applied to one or more locations or campuses.)
- A school’s proportion of students under/over the age of 25.
- The proportion of students that were minorities, and the proportion of “unknowns,” or students that did not self-identify as white or minority.
- The proportion of students that were female.

- A school's average tuition.²
- A school's composite score, a numerical score calculated by Education using various financial ratios that estimates a school's level of financial responsibility.

Because of the possibility that schools owned by the same corporate entity may have systematic similarities in administration, mission, and other factors, we accounted for potential non-independence in observations by using robust standard errors that allowed for clustering within corporate entities.

We tested a variety of model specifications before selecting a model to use for additional sensitivity testing (see below). For example, after initial testing revealed high colinearity between a school's highest offering and whether a school was categorized as being a degree granting institution, we selected the more detailed variable listing the specific highest degree for use in the model. However, because relatively few schools reported offering masters' degrees, we combined those schools into one category with schools that offered bachelor's degrees.

For continuous variables, such as average tuition, total enrollment, or the proportion of female students, we tested both continuous and categorical versions. In some models we tested distributionally-based categories, such as by quartile, in order to identify relative outliers (such as in the top quartile only). In others, we used a combination of distributional information and substantively based categories. For example, we tested our indicator of school size, total enrollment, directly as a logged variable to mitigate the effect of large outliers on our estimates. After finding that the logged enrollment variable had strong predictive power, we generated unequal size categories that adequately captured the relationship between the log of enrollment and likelihood of having a very high 90/10 rate, which also enabled us to illustrate the effect of size in terms of size category rather than a log transformation.

In addition to ensuring that our results were robust across different specifications and definitions of the independent variables, we examined a likelihood fit statistic, the Quasi-likelihood Information Criteria, to check whether inclusion/exclusion of variables or inclusion of different versions

²We tested three separate measures of tuition; these measures are described in app. II.

of the same variables results in an increase or decrease in model fit. For sensitivity testing, we selected a final model that performed well in terms of model fit relative to other models.

Results

Our logistic regression analyses revealed several statistically significant predictors of whether a school had a very high 90/10 rate, controlling for other characteristics. As discussed below, these results were robust to different definitions of the dependent variable, different specifications of the model and of independent effects, and different subpopulations. Point estimates for odds ratios presented here are illustrative of typical results across a variety of models and are significant at the 95 percent confidence level unless otherwise indicated.

- Compared to schools that did not specialize in healthcare, schools that specialized in healthcare were more likely to have very high 90/10 rates (estimated odds ratio approximately 2.2 to 2.9). Aside from healthcare, schools that specialized in other areas such as cosmetology; business; construction, mechanics, and building trades; culinary arts; engineering; law enforcement; communications; visual and performing arts; or computers and information technology were not significant predictors of having a high 90/10 rate when compared to schools without these specific specialties.
- Compared to schools that offered bachelor's degrees or higher, schools that did not grant academic degrees were more likely to have a very high 90/10 rate, with estimated odds of having a high 90/10 rate approximately twice as high as schools that did not offer degrees. This result was consistently significant at the 90 percent level and frequently significant at the 95 percent level.
- The odds of having a very high 90/10 rate increased with school size as indicated by total enrollment. In categorical terms, large schools with 2,000 students and above had much higher odds of having a very high 90/10 rate than very small schools with less than 100 students, with estimated odds more than 3 times higher. Similarly, mid-sized schools with between 500 and 1,999 students had estimated odds of having a very high 90/10 rate more than two times higher than very small schools.
- Publicly traded schools had significantly lower odds of having a very high 90/10 rate than non-publicly traded schools. The odds that a publicly traded school had a very high 90/10 rate were approximately 40 percent

lower than those for a non-publicly traded school (estimated odds ratios of approximately 0.5 to 0.6).

- Several variables appeared to have a statistically significant relationship with a school's 90/10 rate in some models, but were not consistently significant or were only significant in some models at the 90 percent level. Notably, schools that offered associate's degrees as their highest level of educational offering appeared to have a somewhat higher 90/10 rate than schools offering bachelor's degrees or higher in some models, but this result was not consistently significant. Similarly, schools that had been purchased by another school appeared to have significantly lower odds of having a very high 90/10 rate than schools not having been purchased by another school in some models, but not consistently across most or all models. In some specifications, small schools of 100 to less than 500 students had somewhat higher odds of having a very high 90/10 rate than very small schools (estimated odds ratio approximately 1.5) at the 90 percent confidence level.
- Several student demographic factors were associated with the likelihood of having a very high 90/10 rate. For example, the odds of having a very high 90/10 rate also increased with the proportion of adult learners over the age of 25 (estimated odds ratio approximately 1.01).³ The odds of having a very high 90/10 rate increased with the proportion of minority students (odds ratio of approximately 1.03). The odds of having a very high 90/10 rate also increased with the proportion of students failing to self-identify for race (estimated odds ratio of 1.02). However, as discussed below, our inability to control for a key demographic factor, student income, may have an impact on the magnitude of our estimates for factors correlated with student income, including student demographic factors.
- There was no apparent relationship between a school's 90/10 rate and the following variables across most or all models tested in our regression analyses: having a very high proportion of female students, offering distance education, being part of a corporate chain, a school's number of OPEID subreporters, or being designated as not financially responsible under Education's composite score. Additionally, there was no apparent relationship between average tuition measured in quartiles and the odds of

³The odds ratio for a continuous variable reflects the change in odds associated with a one-unit increase in the independent variable, such as a percentage point increase in the proportion of adult learners ages 25 and over.

having a very high 90/10 rate across any of three different tuition measures, including a school's tuition as reported, an annualized measure of tuition, and a credit-hour measure of tuition. Further, when we tested the model with an intercept for having annualized low tuition below the 2008-2009 Pell Grant and Stafford Loan maximum award amount of \$10,231 for dependent first-year undergraduates, we found that for-profit schools with low tuition rates did not have significantly higher or lower odds of having a very high 90/10 rate than schools with higher tuition rates, controlling for other factors.⁴

Sensitivity Testing

After selecting a final model, we conducted a series of sensitivity tests to ensure the stability and robustness of our results. For example, based on concerns that chain schools may vary systematically from independent schools, we tested a model among separate populations of chain schools versus all other schools. Similarly, we also tested our model separately among schools reporting multiple subreporters under one OPEID. The results of our models were substantively similar across these different population categories.

To ensure the results of the model were not sensitive to the specific cut-point for "very high" 90/10 rates, we conducted sensitivity tests with a dependent variable consisting of whether a school's 90/10 rate was 75 percent or higher, 82 percent or higher, and 88 percent or higher. Again, these models produced results that were consistent with models that used a cut-off point of above 85 points as our definition of "very high."

Limitations

Despite tests to ensure the stability and robustness of our results across different model specifications, alternative definitions of the dependent variable, and different subpopulations, the results of our model are subject to several limitations. Most critically, we were unable to include a control for the proportion of a school's students with low incomes because our proxy of student income, the proportion of students receiving Pell Grants,

⁴Schools with tuition rates that did not exceed 2008-2009 Pell Grant and Stafford Loan award limits did have slightly higher average 90/10 rates than other schools, at 68 *vs.* 66 percent.

factors into the calculation of the dependent variable.⁵ As such, odds ratio estimates for other variables correlated with student income, such as the proportion of adult learners ages 25 and over or the proportion of students that self-identified as minorities, may partly reflect the effect of student income on a school's 90/10 rates.⁶ Additionally, these models were not designed to explore outcome variables associated with the quality of a school's educational offerings, such as job placement rates or student loan defaults, and therefore do not provide information about the relationship between very high 90/10 rates and these factors.

⁵The 90/10 rate is calculated as the proportion of school revenue received from federal student aid sources, including Pell Grants. The proportion of students receiving Pell Grants, the only proxy for student income available to us, was significantly correlated with the 90/10 rate at $r=0.48$.

⁶The correlations between the proportion of students receiving Pell Grants and the proportion of adult learners over the age of 25, and with the proportion of minority students, were modest but statistically significant at $r=.11$ and $.39$ respectively.

Appendix V: GAO Contact and Staff Acknowledgments

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Staff Acknowledgments

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