TG

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Balancing Passion and Practicality: The Role of Debt and Major on Students' Financial Outcomes

August 2012

Prepared by TG Research and Analytical Services

About TG

TG promotes educational access and success so that students can realize their college and career dreams. As a public, nonprofit corporation, TG offers resources to help students and families plan and prepare for college, learn the basics of money management, and repay their federal student loans.

TG Research Reports

This report, *Balancing Passion and Practicality: The Role of Debt and Major on Students' Financial Outcomes*, is a publication of TG's Research and Analytical Services department. It is designed to provide Texas legislators and other readers with information and insight about the demand for student aid in Texas. Other recent TG research publications, which are available on either TG's publications webpage **www.TG.org/publications** or TG's research webpage **www.TG.org/research**, include:

- *How to Graduate High-Risk Students: Lessons from Successful For-Profit Colleges and Schools in Texas*, June 2010;
- *State of Student Aid and Higher Education in Texas (SOSA)*, February 2010;
- *The Toughest Test: The Student Loan Liquidity Crisis of 2007-08 in Texas*, November 2008;
- *Ready, Willing, and Unable: How Financial Barriers Obstruct Bachelor-degree Attainment in Texas*, December 2006;
- *Legislative Fact Sheets*, 2011;
- *School Fact Sheets*, 2011;
- *Risk Factors for Dropping Out: Comparing the Southwest to the Nation*, 2006;
- *Risk Factors for Dropping Out: Comparing Texas to the Nation*, 2006;
- *Risk Factors for Dropping Out: Examining State and Regional Difficulties*, 2006;
- *Opening the Doors to Higher Education: Perspectives on the Higher Education Act 40 Years Later,* November 2005;
- *The Role of Work and Loans in Paying for an Undergraduate Education: Observations from the 2003-2004 National Postsecondary Student Aid Study (NPSAS)*, November 2005

Comments and requests for additional information regarding this report or any of TG's other research publications are welcomed. Please direct questions to:

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The authors, of course, take full responsibility for any errors contained in this publication.

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FOREWORD

In fulfillment of TG's statutory requirement[1] to report biannually to the Texas Legislature on the demand for student aid in Texas, TG has chosen to highlight an aspect of student borrowing with growing importance for Texas students — the relationship of debt to income and how students' choice of major affects this ratio. To better understand how colleges counsel students, TG conducted interviews with several offices on the campuses of six schools representing four-year public universities, four-year private colleges, and community colleges. To gain a broad perspective, three schools were located in Texas and three were from outside of Texas. TG interviewed student loan counselors, academic advisors, and career guidance counselors to learn more about how they approach the issues surrounding student borrowing in a climate of rising college costs and diminished earnings expectations.

This report, *Balancing Passion and Practicality*: *The Role of Debt and Major on Students' Financial Outcomes*, can be considered a companion piece to TG's report to the 82nd Legislature — *Digging Deeper*: *An Analysis of Student Loan Debt in Texas* — which documented the financial struggles and difficult dilemmas confronting college students, especially those from moderate- to low-income families. The combination of quantitative analysis with qualitative interviews provided TG with a perspective that informed a series of recommendations for how schools can better counsel students who borrow or consider borrowing to pay college. These recommendations are found at the end of the report.

Balancing Passion and Practicality is TG's fourth statutorily required report to the Texas Legislature. With this series, TG tries to address emerging issues facing state policymakers responsible for keeping college affordable. Earlier reports include:

Ready, Willing, and Unable: How Financial Barriers Obstruct Bachelor-degree Attainment in Texas (December 2006)

The Toughest Test: The Student Loan Liquidity Crisis of 2007-08 in Texas (November 2008)

Digging Deeper: An Analysis of Student Loan Debt in Texas (November 2010)

The Council for Student Financial Success in Higher Education

TG received advice and support on the development and direction of this report from the Council for Student Financial Success in Higher Education (the Council). For more than a decade, the Council has led initiatives that focus on helping students successfully repay their student loans. The Council was established in 1997 and, since then, has served in an advisory capacity to TG. With a membership of 18 professionals elected by their peers, representing various postsecondary institutional sectors, with backgrounds in student financial aid, admissions, financial literacy, and higher education instruction, the Council has collaborated with TG to improve the understanding and management of personal and education finance by students and families.

1 Acts 2005, 79th Leg., Ch. 221, Sec. 9, eff. September 1, 2005

Most importantly, the Council and TG share the commitment of helping students and families achieve their educational goals and make informed decisions regarding educational finance.

With this study, TG and the Council expect to add to the literature about responsible student loan borrowing and promote efforts that encourage students to examine more closely their degree selection. Choice of major and level of debt are decisions that can seriously affect a student's return on investment and definitively shape a student's perception of the value of a higher education. Ultimately, TG and the Council expect that this report will serve as a resource to facilitate better informed decisions by policymakers, students and families, and both secondary and postsecondary education practitioners — including not only college financial aid administrators but also others affecting students' academic and borrowing decisions.

EXECUTIVE SUMMARY

As the cost and importance of education continue to rise, more college students across the U.S. begin their postsecondary education by signing a contract to repay an ever-increasing amount of student loan debt. Conventional wisdom maintains that borrowing for college is an investment in the future that should be deemed "good debt." Data confirm that income typically increases as level of education increases. One million dollars is the oft-cited figure representing the difference in lifetime earnings between an individual with a bachelor's degree and one with a high school diploma. However, incomes also vary widely within the same level of education. How many students who are currently relying on student loans to finance their education will earn the income required to repay their debt successfully?

Although the annual median full-time income for Texas bachelor's-level workers is $52,000, 25 percent of employees in this group earn more than $84,000 while 25 percent earn less than $36,800 (U.S. Census Bureau, 2010). Additionally, due to the wide range of incomes, some associate degree holders earn more than their bachelor's-level counterparts. It is clear that level of education is not the sole predictor of income. Academic major is a more precise predictor of future income, though each major can produce a broad range of potential occupations with varying income levels.

Professional occupations often require specialized knowledge and skills that workers obtain through higher education. This report provides examples of occupations pursued by graduates with the same level of education and reveals the extent to which the variation in income is related to undergraduate academic major. The problem is that students with different income prospects resulting from their major may borrow the same amount to finish college. Consequently, their corresponding *debt-to-income ratios*, which determine the ease with which they will be able to repay their student loans, will differ. Higher debt-to-income ratios are associated with greater repayment challenges.

Based on data from the U.S. Census Bureau, the National Center for Education Statistics' (NCES) Baccalaureate and Beyond Longitudinal Study (B&B), the NCES' Integrated Postsecondary Education Data System (IPEDS), and the NCES' National Postsecondary Student Aid Study (NPSAS), academic majors and their closely linked occupations do shape graduates' debt-to-income ratios. Majors for which labor market demand is high and worker supply is relatively low, such as many of the science, technology, engineering, and mathematics (STEM) fields, typically yield higher incomes in the workforce. For this reason, these borrowers' debt-to-income ratios remain lower than those of their social science, arts, and humanities counterparts.

This report also analyzes results from six case studies — three Texas institutions and three non-Texas institutions. Although staff and administrators at these institutions rarely mentioned programs or policies that specifically addressed their students' debt-to-income ratios, they did engage in activities that promote responsible borrowing and career planning. Suggested strategies for encouraging manageable debt-to-income ratios are highlighted throughout the report.

Based on the report's analysis of secondary data and site visits to campuses with better than average graduation rates and cohort default rates (CDR), the following findings rose to the surface.

Key Findings

1. **The more you learn, the more you typically earn.** Lifetime earnings and rates of employment tend to increase with higher levels of educational attainment, making most investments in postsecondary education financially rewarding. However, the level of variance in income by education level indicates that not all investments may be rewarded with higher income.

2. **Differences in earnings may discourage risk-averse students.** With higher levels of education come greater disparities in income. This variance makes return on investment calculations more challenging, as students are unsure of where in the wide spectrum they may fall. The resulting uncertainty becomes a disincentive for those who are risk-averse — often low-income students and those whose parents did not attend college (Cunningham & Santiago, 2008). For the risk-averse, higher education access and attainment may hinge on the type of student aid offered (i.e., grant vs. loan).

3. **Earnings vary by choice of major and occupation, enabling more realistic planning.** While more advanced degrees bring a wider range of incomes, knowing one's choice of major and expected occupation can narrow the likely span, thus reducing a student's uncertainty concerning future income. This also allows the student to plan for his or her future more realistically and to borrow accordingly.

4. **The more you learn, the more you typically have to borrow.** Level of federal student loan borrowing varies primarily due to the number of years in college. Students who graduate typically borrow more than those who drop out. Pursuing credentials beyond a bachelor's degree will also add time and money. Among students who complete their programs of study, cumulative federal student loan indebtedness tends to be quite similar due, in part, to federally mandated annual and aggregate loan limits.

5. **Differences in student debt-to-income ratios are driven primarily by amount earned.** Student debt-to-income ratios vary primarily due to differences in income. This is especially true at the start of a graduate's career, which also marks the beginning of his or her repayment obligations. Thrifty living decisions may be called for early in a borrower's career, when disposable income is minimal and loan repayment burden is the most onerous. Borrowers struggling with especially high debt relative to their monthly incomes may be eligible for repayment relief in the form of deferment, forbearance, and/or income-based repayment options.

6. **Access to labor market information and expected borrowing levels is critical when deciding whether to pursue an advanced degree.** The claim that a postsecondary degree will result in higher income is generally true, but entering students may be unclear about

the variation in probable income around the average. Armed with this information, many postsecondary students may consider furthering their education by seeking more advanced degrees. Another factor in considering an advanced degree is expected debt. Weighing realistic earnings expectations against any additional debt an advanced degree may require will help students make informed decisions on their lifetime investment. Having access to quality information is key. Because income varies by choice of major and occupation, students need access to both easy-to-use local labor market information and data on the amount of money they will likely need to borrow to finance their advanced degree.

7. **Individualized loan counseling is essential.** In an economy still rebounding from recession and with college costs outpacing inflation, the stakes in borrowing have risen. Yet increased enrollments and budget cutting pressures have tempted many colleges to increase the use of online counseling in lieu of face-to-face loan counseling. Administrators and staff at the case study institutions featured in this report valued customized loan counseling. Personalized counseling is especially important for low-income and first-generation students who are more risk-averse and whose families may lack positive experiences with the lending community (Cunningham & Santiago, 2008).

8. **Loan counseling increasingly includes financial literacy.** Schools report that many students who are on their own for the first time need help with budgeting. Differentiating wants and needs, setting financial goals, and grasping key concepts such as compound interest, credit scores, and forbearances are fundamental to making wise student loan decisions.

9. **On-time graduation can lower college costs and make debt burdens more bearable.** The schools interviewed stress on-time graduation to their students and make efforts to keep students on track to timely completion. Careful planning of coursework, help in choosing a major, and encouragement to maintain academic discipline can help students avoid the extra costs — which may result in additional debt — of extended enrollment.

10. **Academic and career guidance leverages automated tools and career awareness.** College is often a time for self-exploration. This time of reflection may be distorted by a concern about how to pay for college and anxiety about earning enough after graduation to make loan payments. Students may discard options for fulfilling career possibilities if they do not have ways to evaluate the potential financial and personal payoffs. The schools interviewed make automated tools available to students to allow them to examine more closely their strengths and interests and to give them insight into emerging careers. Many of these schools also offer specialized classes to encourage early career planning and create internship opportunities to introduce students to professions.

Additional recommendations, based on results of secondary data analysis and case study reviews, are available in the Conclusion section at the end of this report.

INTRODUCTION

As the importance of a college degree climbs and federal and state grant funding remains inadequate, millions of students in the U.S. continue to take out student loans each year to help pay for their rising education costs. In October 2011, the total amount of outstanding student loan debt in the U.S. exceeded $1 trillion (Chopra, 2012). This translates to 37 million U.S. student loan borrowers and counting. An investment in higher education typically provides financial rewards that outweigh the costs, but for students pursuing certain degrees or preparing for particular occupations, the advantages are less certain. In these cases, the increased income associated with the degree may be outweighed by the potential debt resulting from student loans.

At the same time, the national unemployment rate has been greater than 8 percent for more than three years. For this reason, there has been greater competition for jobs, and not all graduates will find stable or full-time employment immediately after leaving school. A recent analysis of 2011 Current Population Survey data indicated that 1.5 million, or 53.6 percent, of Americans under the age of 25 with bachelor's degrees were jobless or underemployed. As a result, some of those graduates who borrowed student loans may have difficulty managing their repayment. They may need to utilize deferment, forbearance, or reduced payments through income-based repayment options to help them while they are unemployed or underemployed. Exercising these options will extend the repayment term, which may add interest and increase their overall debt.

Recent studies, such as the Iowa Student Loan Internal Research project (2011), have examined monthly debt-to-income ratios to understand the potential impact of borrowers' income on their ability to repay postsecondary education loans. At the same time, reports that review the post-graduation incomes associated with academic majors, such as Georgetown University's *What's It Worth: The Economic Value of College Majors* (2011), highlight the importance of academic major on post-graduation income — not all bachelor's-level majors will yield the same income (Carnevale, Strohl, & Melton, 2011).

Existing data and research provide a framework to examine the relationship among undergraduate major, student loan debt, and post-graduation income. The link between academic and financial decisions made in college and the economic consequences later in life is of interest to policymakers, educational institutions, and students and their families. This study also uses the results of six case studies to investigate how student advisors on campuses handle these economic and academic considerations. The cases included a variety of institutional types both within and outside of Texas. Finally, this report makes recommendations for some promising practices to promote more informed borrowing as it relates to major and career choices.

LITERATURE REVIEW

I. Debt-to-Income Ratios

Institutions and students are accustomed to assessing student loan indebtedness in terms of the cumulative amount borrowed per student. For example, according to The Project on Student Debt, students who graduated in 2010 from U.S. public or private four-year universities owed an average of $25,250 in student loan debt;[2] within Texas, the average was slightly lower, at $20,919, placing it 39th in the nation (The Project on Student Debt, 2011). At the same time, institutions often use federal data sources, such as the U.S. Census Bureau, to show students the potential economic value of earning postsecondary degrees. The media also promotes these data, often showing charts that highlight the increased income that typically accompanies increased education. As student debt levels continue to outpace income, there has been a growing interest in creating metrics that evaluate the potential burden of student loan repayment.

Within the economic and financial sectors, the comparison of indebtedness to income has been a common indicator of repayment risk for both individuals and organizations. Now, student loan borrowers' debt-to-income ratios are becoming an increasingly critical measure for understanding borrowers' ability to repay their loans. Borrowers' debt-to-income ratios generally will be higher when they first leave school, assuming that they are entering the workforce at entry level; over time, their debt-to-income ratio should improve, reflecting their higher salaries as they progress in their careers.[3] Calculating repayment burden is the critical measure in the recently introduced federal student aid gainful employment requirements. Variations of this measure are also being used by student aid policy researchers as an analytical tool and by postsecondary education practitioners, including financial aid, academic, and career advisors as a helpful guide to borrowers.

II. Gainful Employment

On June 13, 2011, the Department of Education released a final set of regulations[4] intended to measure the success of occupational training and other non-degree postsecondary programs in preparing students for "gainful employment." Although these rules were vacated due to a June 2012 court ruling, they were developed to ensure that students who enroll in such programs earn enough money to repay their federal and other student loans. Currently, most programs at proprietary institutions and many non-degree programs at public and private nonprofit institutions may participate in the Title IV (federal student aid) programs only if they prepare students for "gainful employment in a recognized occupation." Without Title IV aid, many programs would be unable to operate.

2 The Project on Student Debt, "State by State Data." http://projectonstudentdebt.org/state_by_state-data.php. Analyses from The Project on Student Debt are based on self-reported data from the Common Data Set (CDS). CDS data are self-reported and do not include all four-year institutions. In addition, the figures that schools report to CDS are sometimes smaller than those shown by the Department of Education, even though they should include private and federal loans. For this reason, the estimates may not reflect all student loans.

3 Debt-to-income ratios are pertinent measures only for borrowers who are in repayment (i.e., those who owe $1 or more on their student loans).

4 www.ifap.ed.gov/fregisters/attachments/FR061311GEDebtMeasures.pdf

While these regulations were not implemented in full, the discussions around the related issues have introduced new metrics to evaluate the financial outcomes of program graduates. In terms of debt-to-income thresholds, the final gainful employment rules had stipulated that the graduates of a program must have (1) an annual debt-to-income ratio of 12 percent or lower or (2) an annual debt-to-discretionary income ratio of 30 percent or lower. If a program did not pass the debt-to-income thresholds, it would have retained Title IV eligibility if at least 35 percent of the program's former students successfully repaid $1 or more of the principal balance on their student loans over the course of the previous year. On June 30, 2012, a U.S. District Judge ruled that the Department of Education had not provided sufficient evidence to justify the 35 percent rule, and the entire debt measure rule was overthrown (Lederman, 2012). [5] The Department of Education, whose authority to regulate gainful employment regulations was upheld, is currently reviewing its options, which include appealing the ruling or modifying the rule in question.

The gainful employment regulations, while currently vacated, appear to have made an impact nonetheless. With the recent focus on debt-to-income thresholds and minimum loan repayment rates, many institutions are more closely examining their students' debt loads and the ability of their borrowers to repay their loans in a timely manner. The ongoing dialogues — on school campuses, in federal courts, and in the public media — suggest that institutions will continue to be evaluated on the extent to which their borrowers earn incomes that allow them to repay their student loans, regardless of whether the Department of Education makes the assessment a formal requirement. However, it is clear that the Department of Education is striving to hold schools that offer career-preparation programs accountable in part for their graduates' financial outcomes. For example, an institution with gainful employment programs is still required to disclose on its website the occupations and placement rates of program graduates, the programs' completion rates, tuition and fees, and median student loan debt.

With other higher education policies in flux, institutions and political figures have incorporated the impending Higher Education Act reauthorization — which focuses on higher education affordability, student achievement, and financial aid — into their discussions regarding the importance of effective data and resources on students' academic and financial decisions. In July 2012, the Department of Education unveiled a personalized debt management tool, which is integrated within the National Student Loan Data System (NSLDS) and can be accessed by borrowers and authorized financial aid professionals. The increased demand for such data, along with the opinions of industry experts, suggest that the issue of gainful employment is unlikely to disappear and that regulations, in one form or another, are still likely to emerge in the future.

III. Previous Debt and Income Research

When students leave school and enter repayment, their level of student loan indebtedness in relation to their income can affect not only their standards of living, but this ratio may also help predict the likelihood of successful repayment. Researchers have been giving this metric more attention in recent years.

5 *Ass'n of Private Sector Colleges & Universities v. Duncan,* No. CV-11-314-RC, slip op. (D.C.C. June 30, 2012)

In 2010, Marc Hendel of Iowa Student Loan conducted an internal study to determine the impact of student loan debt-to-income ratios on borrowers' ability to repay their student loans successfully, on various lifestyle decisions, and on lifestyle satisfaction. Using a sample of Iowa Student Loan borrowers who had been in repayment for 12 months or more, researchers created classifications based on two debt-to-income ratio levels (high and low) and three delinquency statuses (not past due, 1-30 days past due, and more than 30 days past due). In this study, survey respondents with higher debt-to-income ratios (i.e., a higher level of debt relative to income) reported greater difficulties repaying their student loans than those with lower ratios, although this ratio was not a significant predictor of delinquency on its own. About half of all respondents felt burdened by their student loan payments, oftentimes delaying certain life events (Hendel, 2011). Other recent studies have confirmed this finding, showing that an additional student debt of $10,000 decreases the long-term probability of marriage by 7 percentage points and that high levels of student loans make students less likely to choose lower-paying occupations, such as teaching (Gicheva, 2011; Rothstein & Rouse, 2011).

Not all results from the Iowa Student Loan study were consistent with the assumption that borrowers with high debt burdens would face repayment problems. One-third of the survey respondents with high debt-to-income ratios had never had delinquent student loans. One factor that distinguished high debt burden borrowers who did not have delinquency problems from those who did was level of education. High debt burden borrowers who stayed in college longer were less likely to be delinquent than those with less education. Conversely, 12 percent of respondents with low debt-to-income ratios had loans that were over 30 days delinquent. These borrowers typically had less education and lower incomes, and were less likely to have savings accounts than other low debt-to-income borrowers (Hendel, 2011).

Previous studies — though not necessarily focusing on debt-to-income ratios as the primary metric — have shown that as student loan debt increases, so too does the likelihood of default, regardless of the type of institution that the borrower attends (Choy & Li, 2006; Lochner & Monge-Naranjo, 2004). Even if they do not default, students with higher debt burdens are more likely to report challenges in repaying their loans than those with lower balances (Schwartz & Finnie, 2002). However, borrowers who take out high levels of student loans for graduate school are less likely on average to default, perhaps due to higher incomes that counteract the effects of high monthly payments (Volkwein, Szelest, Cabrera, & Napierski-Prancl, 1998; Woo, 2002).

While previous studies have shown the effect of borrowers' debt burden on their ability to repay student loans, their success in the job market after leaving school is also critical. Research shows that most students who default do so because their personal income does not allow them to sustain their student loan payments (Flint, 1994; Woo, 2002). Furthermore, as earnings increase, the likelihood of default decreases, again reinforcing the relationship between debt and income (Boyd, 1997; Choy & Li, 2006; Lochner & Monge-Naranjo, 2004; Volkwein, Szelest, Cabrera, & Napierski-Prancl, 1998; Woo, 2002).

Not unexpectedly, unemployment increases the likelihood of student loan default (California Postsecondary Education Commission, 2006; Monteverde, 2000). Data from the U.S. Bureau of Labor Statistics show that the 2011 unemployment rate for recent bachelor's-level graduates age 20 to 24 was 7.7 percent. This was considerably higher than the 4.5 percent rate reported for bachelor's-level graduates in the 25-to-65 age bracket. Considering these facts, younger borrowers who graduate or depart school may experience more difficulty repaying their loans than their older counterparts.

Also related to employment, the Iowa Student Loan study showed that "as a borrower's debt-to-income ratio increases, the likelihood that their first job after college was related to their field of study decreases" (Hendel, 2011). Research suggests that getting a job that is related to college program is predictive of higher income. By definition, some majors, such as engineering and accounting, provide students with immediately applicable job skills. The relatively higher starting incomes for graduates in these fields generally reflect this. Survey responses confirmed that as his or her debt-to-income ratio increases, the likelihood of the respondent having a job with a lower-than-expected income also increases. In spite of this, few respondents reported having a second job to help offset expenses, even when they had high debt-to-income ratios or reported difficulties in repaying their student loans.

IV. Income by Major and Occupation

Over the past three decades, the lifetime financial benefits of a college degree relative to a high school diploma have nearly doubled (Goldin & Katz, 2008). The connection between educational attainment and career success is clear to most, but the extent to which incomes vary for graduates with the same level of degree is less widely reported. Much of the income variation within educational levels is likely driven by occupational choice, which is often a product of graduates' academic major.

A recent Georgetown University study based on U.S. Census Bureau data confirmed the general conclusion that workers with higher levels of education typically earn more than their less educated counterparts, regardless of occupation (Carnevale, Rose, & Cheah, 2011). The primary variation occurs within the STEM fields, wherein doctoral degree holders sometimes make more than those with professional degrees (e.g., Juris Doctorate degree). Conversely, within healthcare, workers with professional degrees usually earn more than do those with doctoral degrees.

In a different study, Georgetown University researchers determined that undergraduate major was related to students' post-graduation income. For example, compared to students with degrees in all other academic majors, students with bachelor's degrees in petroleum engineering made the most after graduation. The difference between the highest and lowest anticipated lifetime earnings for bachelor's-level workers was approximately $3.64 million. Over a 40-year career, petroleum engineer majors can expect to earn around $4.80 million, compared with just $1.16 million earned by counseling psychology majors, the latter occupation typically requiring a master's degree or higher in order to practice professionally. However, even the majors with the lowest estimated lifetime earnings show a financial premium of about $770,000 compared to the average lifetime earnings by workers with high school diplomas (Carnevale, Strohl, & Melton, 2011). These results suggest that post-graduation income potential is shaped not only by the level of education that a student completes, but also by the academic major and consequent occupation that he or she pursues.

V. Texas Context

Data from a sample of students enrolled in college during the 2007-2008 academic year (AY) indicate that there are statistically significant differences between Texas borrowers and other borrowers across the nation (U.S. Department of Education, NPSAS, 2008).[6] At the student level, postsecondary graduation rates in Texas remain lower than the U.S. average. National Center for Higher Education Management Systems (NCHEMS) data indicate that 55.5 percent of U.S. students seeking bachelor's degrees completed their program within six years. Within Texas, only 48.5 percent of students earn a bachelor's degree within the same period. Likewise, 29.2 percent of students in the U.S. earn an associate degree within three years, compared to only 25.4 percent in Texas (NCHEMS, 2012). In terms of debt-to-income ratios, students who borrow but fail to graduate will incur debt without obtaining the full income advantage that typically comes with higher education.

At the state level, many of Texas' economic indicators lag behind the rest of the nation. While the state's unemployment rate is close to the national average, a substantial number of residents are living below the federal poverty line and average income falls below the national average. In addition, Texans possess credit scores that are lower on average than nearly every other state.

Unemployment: The current economic climate in Texas may impede borrowers' abilities to meet their student loan repayment obligations after leaving school. In 2011, Texas' unemployment rate was ranked 23rd best (out of 51) in the U.S. This was a drop from its 2010 ranking (21st), 2009 ranking (17th) and 2008 ranking (22nd) (U.S. Bureau of Labor Statistics (BLS), 2011).

Average Earnings: While Texas has generated new jobs over the past decade, the statewide median earnings ranked 31st (out of 51), based on three-year (2009, 2010, and 2011) averages (U.S. BLS, 2011; U.S. Census Bureau, 2011). This indicates that while Texas may offer more job opportunities than many other states, the income attached to these positions tends to be lower than the national average. For example, in 2010, 9.5 percent of hourly-paid workers in Texas earned at or below the existing federal minimum wage; among all states and the District of Columbia, Texas and Mississippi showed the highest percentage of underpaid workers (U.S. BLS, 2011).

Financial Security: In 2012, the family financial security index — a measure based on the percentage of households with income levels below the federal poverty level — ranked Texas as 41st (out of 51) in the nation (Corporation for Enterprise Development, 2011).

Credit Scores: Finally, based on 2010 data, Texas residents' average consumer credit scores were the second worst in the nation (Experian, 2011).

Cost of Living: One factor that might make it easier for student borrowers in Texas to repay their loans is the relatively low cost of living. According to the 2010 ACCRA *Cost of Living Index* (*COLI*), the cost of living composite index for most metro areas in Texas is lower than the national average (The Council for Community and Economic Research, 2012).

6 Note: The reported analyses include students who borrowed a subsidized or unsubsidized Direct or Stafford loan. Results are significant at the level of p<.10.

VI. Research Questions

Building on the previous data and literature as framework, the research for this project was guided by the following questions:

1. Within Texas, to what extent does the choice of undergraduate major and level of education affect post-graduation income and employment outcomes?
    - What are the most frequent occupations for graduates with common undergraduate majors?
    - How do unemployment rates vary by major?
2. At the national level, how does student loan debt and potential income vary by school type, specifically by Carnegie classification and school type (public vs. private)?
3. Within Texas, how do incomes within occupations vary by education level?
4. When estimated student loan debt is considered, what are the lifetime financial returns on education investments at the occupational level?
5. How are colleges and universities using these data about income and debt to inform and advise student borrowers?
6. What successful strategies do colleges and universities employ to promote responsible borrowing and proactive career planning?

DATA AND METHODS

The following section describes the data sources and methodology used to analyze the relationships between undergraduate major, student debt level, and post-graduation income.

I. Data Sources

For this study, TG researchers pulled data from four sources: (1) the American Community Survey (ACS) from the U.S. Census Bureau, (2) the National Center for Education Statistics' (NCES) Baccalaureate and Beyond Longitudinal Study, (3) NCES' Integrated Postsecondary Education Data System (IPEDS), and (4) the National Postsecondary Student Aid Study (NPSAS).

American Community Survey (ACS): Fully implemented in 2005, the U.S. Census Bureau's ACS requests information from approximately 3 million Americans each year. This information is used to inform local, state, and federal programs about the needs of their communities. In 2008, the ACS began collecting information about respondents' undergraduate majors. Paired with respondents' occupation and level of education, this new data element allows for educational and financial analyses that are more extensive and precise than were possible in the past.

In addition to undergraduate major, this study also examines the following ACS data variables: annual income, employment status, level of education, occupation, and state of residence. Unless otherwise indicated, all income figures from the ACS are based on full-time workers. These income figures represent what all workers made in 2010, so the data represent a mix of entry-level, mid-career, and late-career workers.

Baccalaureate and Beyond Longitudinal Study (B&B): NCES' B&B study examines students' education and work experiences after they complete a bachelor's degree. Following several cohorts of students over time, B&B looks at bachelor's degree recipients' workforce participation, income and debt repayment, and entry into and persistence through graduate school programs, among other indicators. This survey draws its initial cohort of graduating seniors from the National Postsecondary Student Aid Study (see below) and conducts follow-up surveys. The data presented in this study are for seniors who graduated in 2008 and for whom follow-up data were collected in 2009.

Integrated Postsecondary Education Data System (IPEDS): IPEDS also resides within NCES and serves as the primary postsecondary education data collection program. It consists of nine linked survey components, and the completion of all surveys is mandatory for all U.S. institutions that offer or have applied to offer Title IV funds to their students. The nine surveys focus on the following seven topics: institutional characteristics, institutional prices, enrollment, student financial aid, degrees and certificates conferred, student persistence and success, and institutional human and fiscal resources. The most current data available from this annual survey are for 2010.

National Postsecondary Student Aid Study (NPSAS): NPSAS examines the characteristics of students in postsecondary education, with a special focus on how they finance their education. This survey is conducted approximately every four years. The most current data available are for postsecondary students surveyed in AY 2007-2008.

II. Data Limitations

With the introduction of new data comes the introduction of new data issues. Although the U.S. Census now asks respondents for their *bachelor's-level* academic major, this question was posed only to those who have graduated with a bachelor's degree or higher. Therefore, this study cannot assess income by major for workers with a terminal associate degree or for majors beyond the bachelor's level. In addition, since the Census did not ask for the institution from which the respondent graduated, this study cannot differentiate income outcomes by the type of school that workers attended.

Where the data allow, analyses focus on data patterns within Texas. However, in these analyses, data are not available regarding the state of the school from which the respondent graduated. While many Texas workers likely graduated from Texas institutions, there is certainly a large population that did not. Thus, the figures represent current Texas *workers*, not *graduates* of Texas colleges and universities.

III. Case Study Methodology

In addition to the quantitative research discussed above, TG invited six U.S. higher education institutions to participate in the case study portion of this project. Three are in Texas, and three are outside of the state. Each set of selected schools included one of each of the following types of institutions: private four-year,[7] public four-year, and public two-year. TG researchers used

7 Throughout the report, "private" refers to private nonprofit institutions.

different sets of criteria to select the schools within Texas and those outside the state. These measures are described in greater detail in the following sections.

Selection Criteria for Texas Institutions

Based on their cohort default rates (CDRs), graduation rates, and estimated debt-to-income ratios, the three selected Texas institutions performed better than the average schools in their corresponding sectors. In addition to these standards, TG accounted for the percentage of undergraduate students who borrowed federal student loans at each institution during AY 2008-2009, and ensured that all of the selected institutions had suitable percentages of borrowers (i.e., sector average or higher).[8]

- **Cohort Default Rates:** Institutions' CDRs were based on fiscal year (FY) 2008 3-year trial rates, which were released by the Department of Education in February 2011.
- **Graduation Rates:** Institutions' graduation rates were extracted from IPEDS (2009).
- **Percentage of Undergraduate Borrowers:** The percentage of undergraduate borrowers at each institution was extracted from IPEDS (2009).
- **Debt-to-Income Ratio Estimates for Four-Year Institutions:** For Texas four-year institutions, debt-to-income ratio estimates were based on TG, ACS, IPEDS, and Carnegie Classification data. An average income per graduate was calculated for each institution, weighted by Carnegie classification,[9] and compared to TG's data on median federal student loan indebtedness for graduates at each institution in order to get the debt-to-income ratio by institution. For a more detailed explanation on this estimate, see Appendix A.
- **Debt-to-Income Ratio Estimates for Two-Year Institutions:** Since the 2010 ACS did not request educational major from respondents with less than a bachelor's degree, TG researchers used a crosswalk from Classification of Instructional Programs (CIP) to Standard Occupational Classification (SOC) to determine which occupations were associated with each CIP code. Once the average income per graduate was calculated, it was compared to TG's data on median federal student loan indebtedness for graduates at each institution and a debt-to-income ratio by institution was calculated. For a more detailed explanation of this estimate, see Appendix A.

Selection Criteria for Non-Texas Institutions

Due to TG's relatively small share of all non-Texas institutions, the debt-to-income analysis that was used to select Texas institutions was not appropriate. Instead, the researchers first chose a sample of non-Texas schools that were familiar with TG and then selected a subsample

8 Unless otherwise specified, all references to loans represent federal student loans. More than 90 percent of loans in academic year 2009-2010 in Texas and the U.S. were federal loans. [Sources: US: College Board, *Trends in Student Aid 2011*; Texas: U.S. Department of Education, Data Center (http://federalstudentaid.ed.gov/datacenter/), Texas Higher Education Coordinating Board Financial Aid Database (special request)]

9 The Carnegie Classification weight was based on an analysis of graduates' average income by their institutions' Carnegie Classifications.

that displayed graduation rates and CDRs that were better than their corresponding sectors' averages. In addition, these schools reported adequate numbers of borrowers in order to have a reasonable understanding of the student loan process.

Interviews

TG conducted one-hour interviews with administrators in each institution's financial aid, student services, student life, academic advising, and/or career services offices.[10] TG researchers drafted a list of interview questions to guide the interviews. Appendix B shows a sample of the types of questions that were posed to case study participants. After the completion of all six case studies, researchers identified common institutional challenges and, if present, the promising practices or policies that were used to address these issues.

RESULTS

In this section, the following issues will be examined, using the data sources listed above: (1) debt and income by major, (2) most common majors and occupations, and (3) potential boost in income by occupation and educational level.[11] As the basis of the debt-to-income ratio, student loan debt and post-graduation income are key in determining borrowers' ability to repay their loans successfully. Income is largely dependent not only on the academic major that students select, but also on the occupation that they pursue after they graduate or otherwise leave school. Finally, level of education is also a significant determinant of workers' incomes, with higher levels of education typically yielding higher incomes. However, as previous research has shown, even within the same level of education, academic major and occupation significantly influence workers' incomes.

Where data allow, the analyses focus on Texas borrowers and/or workers, while also providing national statistics to provide a broader context. Within each section of results, there are related sets of recommended strategies for higher education institutions based on the case studies at the three Texas schools and the three non-Texas schools.

I. Debt and Income by Major

Tuition and Fees

Higher education comes at a price. The price paid by the student includes tuition, fees, books and materials, and room and board. While some of this is offset by grants and scholarships, the rest must come from personal or family savings, work earnings, or student loans. Over the past 20 years, the average published amount of tuition and fees has increased across all educational sectors in the U.S., but especially for public and private four-year institutions (see Figure 1.1). Although some of these rising costs are absorbed by grants and scholarships,

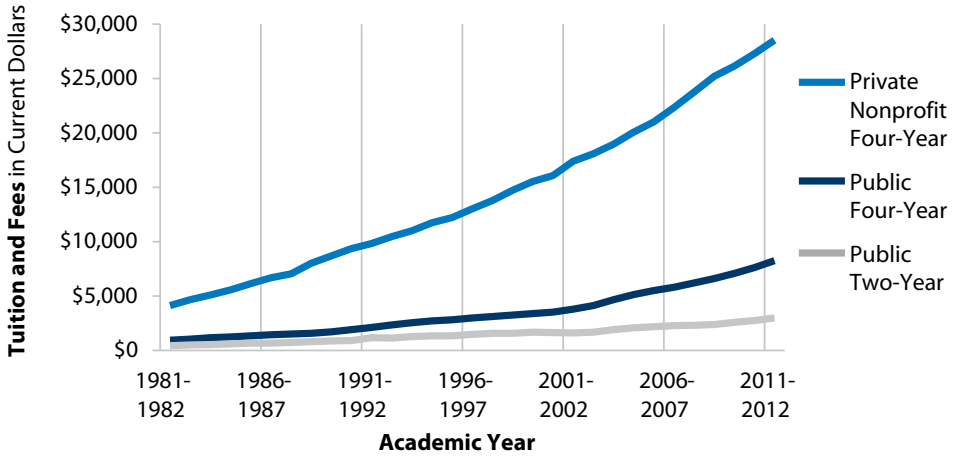
10 At some institutions, these offices had different titles or combined functions.

11 For the purposes of this study, the term *income* refers to employment earnings. At times, the term *earnings* is used to convey a more cumulative sense, but both *income* and *earnings* should be understood to represent the same measure in this study.

it is likely that students are paying more out of pocket than they did in the past (Bersudskaya & Wei, 2011).

The steepest dollar increase was within the private four-year sector, where annual tuition and fees increased from about $16,000 to over $28,000, a $12,000 raise, over the past 10 years. This represents a 75 percent increase. Although tuition increased by only $4,700, the proportionate costs for public four-year universities increased even more — 134 percent, from just over $3,500 to $8,200. The tuition at public two-year institutions has remained relatively low over the last decade, increasing from about $1,500 to almost $3,000. Nonetheless, this doubled rate may still represent a financial barrier to some community college enrollees, who tend to have lower family incomes.

Figure 1.1: Average Published Tuition and Fees in Current Dollars, 1981-1982 to 2011-2012



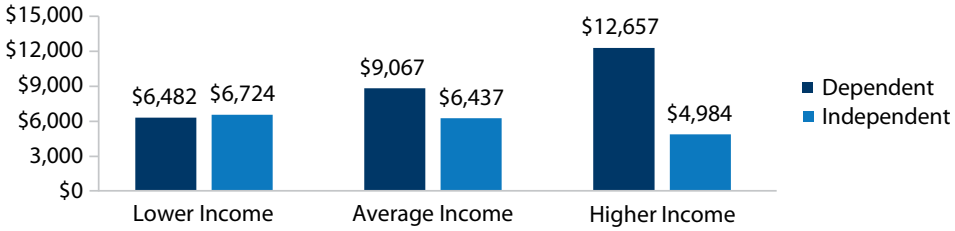
Sources: 1987-1988 and after: Annual Survey of Colleges, the College Board, weighted by full-time undergraduate enrollment; 1986-1987 and prior: Integrated Postsecondary Education Data System, U.S. Department of Education, National Center for Education Statistics, weighted by full-time equivalent enrollment.

Median Net Price by Income and Dependency Status

Within the U.S., 53 percent of undergraduate students are dependent on their parents for financial aid purposes; this status assumes that parents will be contributing to a student's educational costs. The figure is similar within Texas, with 54 percent of undergraduate students classified as dependent. A student may also be classified as independent. In such a case, financial aid eligibility is based on his or her own income and assets (and spouse's, if applicable), not on the parents' financial information. Independent students also have access to higher federal student loan limits than dependent students, which may lead to higher indebtedness.

In Award Year 2007-2008, the out-of-pocket costs that dependent students in the U.S. incurred rose with parental income, with lower-income students paying approximately $6,482 and higher-income students paying an estimated $12,657, nearly double the amount (see Figure 1.2).[12] This outcome may reflect the fact that students from higher-income families were more likely to attend higher-cost institutions, live away from home, or receive less grant aid than did students whose parents earn less. For independent undergraduates, however, net price was actually higher for lower-income students than for higher-income students. The gap between these groups was much smaller, at $1,740.

Figure 1.2: Annual Median Net Price by Income for Undergraduates, Texas (2008)



Source: U.S. Department of Education, National Center for Education Statistics, "National Postsecondary Student Aid Study (NPSAS)" 2008 (http://www.nces.ed.gov/das/).

A large number of undergraduates, regardless of school type, income, or dependency status, will typically incur some amount of out-of-pocket expense when earning a degree. If students take out loans for this purpose, then they may be repaying the principal amount — along with the accompanying interest — for ten or more years. Student loan payments can reduce take-home income for many years after students leave school. This reality requires a student to make a calculation as to whether the cost of earning a college degree is worth the potential long-term financial payoff. The estimated return on education, net of loan repayment, will vary by major. Borrowers need a realistic way to anticipate these potential incomes.

Income by Level of Education

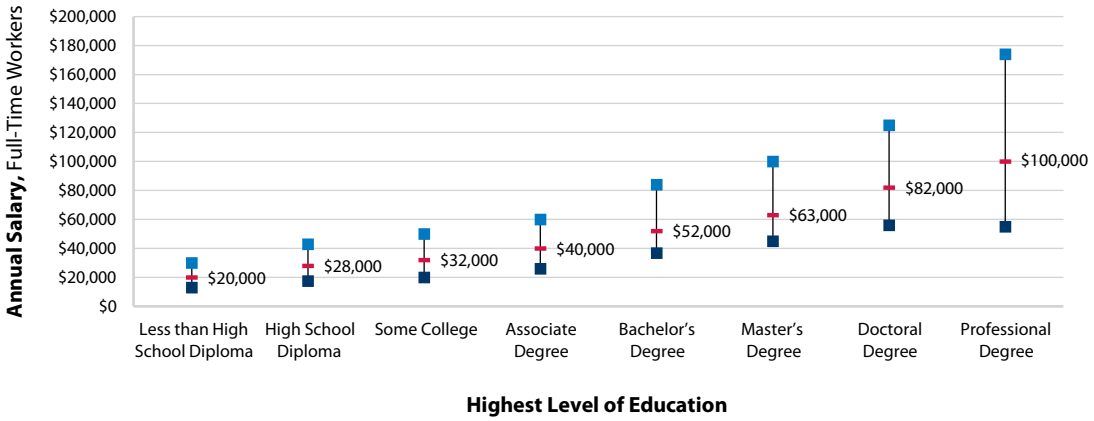
Annual incomes in Texas vary widely *within* the same level of education (see Figure 1.3). For example, 50 percent of bachelor's-level full-time workers in Texas make between $36,800 to $84,000 a year, indicating that 25 percent make less than $36,800 and 25 percent make more than $84,000. Consequently, some workers with associate degrees are making more than those with bachelor's degrees, while other bachelor's-level graduates are making more than some master's degree holders. Clearly, educational level is not the sole predictor of one's income.[13]

12 In this table, the following income ranges are applied: Lower-Income Dependent (<$40,000), Lower-Income Independent (<$20,000), Average-Income Dependent ($40,000 - $79,999), Average-Income Independent ($20,000 - $49,999), Higher-Income Dependent (>$80,000), and Higher-Income Independent (>$50,000).

13 Analyses of income based on highest level of education may be misleading in some cases. Some individuals who have earned bachelor's degrees may have chosen to return to their local community colleges in order to acquire skills that were more marketable. In the analyses presented in this report, their higher incomes might be attributed to their bachelor's degrees, although it was the knowledge and skills connected to their associate degree that actually helped them get their job or promotion.

The income *range* also expands as the level of education increases. This suggests that workers with lower levels of education are more likely to be limited to occupations that offer less opportunity for financial growth, while workers with higher levels of education have a larger income window within which they can move. For example, incomes for first-year lawyers can range from $41,000 for public defenders to $160,000 for first-year associates in large, prestigious law firms in major cities (National Association for Law Placement, 2010). Therefore, not only do higher levels of education typically offer increased incomes, but they also allow for more variance in income.

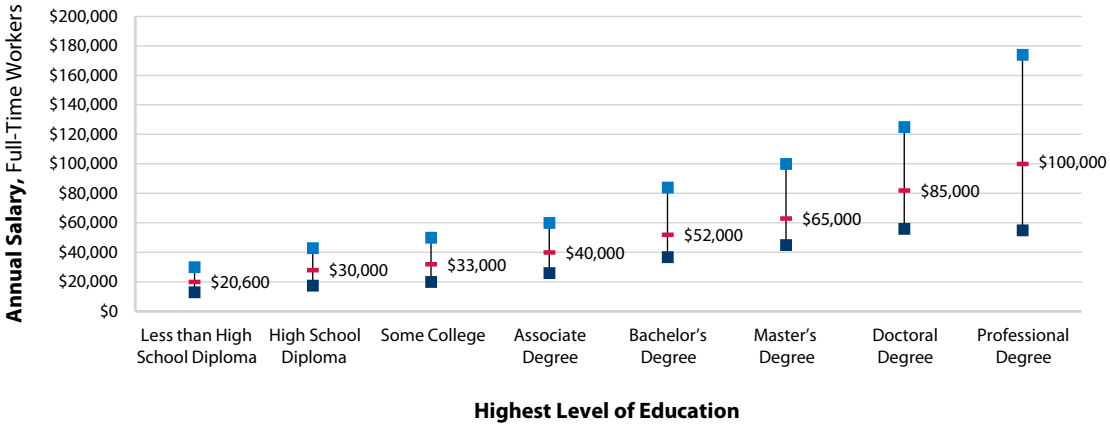
Figure 1.3: Annual Earnings, Full-Time Texas Workers: 25th, 50th, and 75th Percentiles (2010)



Source: U.S. Census Bureau, American Community Survey (2010)

The range of incomes within the U.S. across levels of education parallels that of Texas (see Figure 1.4). While median income for full-time workers with associate, bachelor's, and professional degrees are the same as those in Texas, income for other educational levels are a bit higher in the U.S. than in Texas.

Figure 1.4: Annual Earnings, Full-Time U.S. Workers: 25th, 50th, and 75th Percentiles (2010)



Source: U.S. Census Bureau, American Community Survey (2010)

Within both Texas and the U.S. as a whole, much of the variation within educational categories is likely due to graduates' choice of academic major and their ensuing occupation. Due to societal and economic needs, graduates from some academic majors are in greater demand and may therefore attract higher compensation than others. Likewise, some of the variation in incomes is a product of supply; some of the more challenging programs of study may have fewer graduates, leading to higher value in the labor force. Finally, some academic majors, particularly those that are more applied or technical, may allow some graduates to enter the workforce immediately with high-value skills, while others may require graduate school, internships, or lower-level employment in order to gain the appropriate experience and/or skills to progress. Considering that post-graduation incomes and total student loan amounts vary widely, student loan repayment will challenge some borrowers more than others.

Monthly Income and Debt by Major

NCES data, which reflect median debt and income figures for bachelor's-level graduates just entering the labor market,[14] suggest that the benefits of an undergraduate degree are largely dependent on the majors that students choose. As Table 1.1 demonstrates, beginning bachelor's-level workers with engineering degrees make 2.5 times more per month than their humanities counterparts — $3,250 compared to $1,300. STEM fields outperform the humanities, social science, and education fields in terms of earning potential.

Conversely, median monthly federal student loan payments appear to be nearly uniform across undergraduate major categories, ranging from $227 to $265.[15] In terms of debt-to-income ratios, net monthly incomes seem to be driving the results, with lower-income graduates more likely to encounter repayment hardships than those with higher incomes.

Mark Kantrowitz (2012) and other financial aid experts recommend that student loan payments comprise no more than 10 to 15 percent of borrowers' overall monthly income. NCES data indicate that recent graduates from most major categories slant toward the dangerous end of this spectrum. Only engineering and computer science graduates have debt-to-income ratios under 10 percent. With a debt-to-income ratio of 18 percent, humanities majors' median monthly payments exceed the recommended ratio.

14 The NCES debt figures reflect the median amounts borrowed by graduates. Students who do not complete their programs of study, particularly if they prolong their attendance or are low-income, may have larger debt burdens.

15 Throughout the analyses, all mentions of *student loan repayment* refer to federal student loans and do not include other private student and parent loans that may have been incurred.

Table 1.1: Median Monthly Income and Student Loan Payment by Major for Bachelor's-Level Workers, U.S. (2009)

Undergraduate Major Category	Monthly Income after Taxes	Monthly Federal Student Loan Payment	Debt-to-Income Ratio
Engineering	$3,250	$229	7%
Computer Science	$2,969	$265	9%
Healthcare Fields	$2,600	$253	10%
Business	$2,364	$250	11%
Math and Science	$1,682	$227	13%
General Studies	$1,815	$238	13%
Education	$1,990	$249	13%
Social Sciences	$1,625	$229	14%
Humanities	$1,300	$237	18%

Source: U.S. Department of Education, National Center for Education Statistics, B&B: 09 Baccalaureate and Beyond Longitudinal Study.

Monthly Income and Debt by Institutions' Carnegie Classifications

When looking at the effect of academic major, wide income differences are the primary drivers of graduates' varying debt-to-income ratios immediately following graduation — but to what extent does the *type* of school from which students graduate also affect their ability to successfully repay their federal student loans? As indicated earlier in this section, the average tuition and fees for private four-year institutions typically exceeds that of their public four-year and two-year counterparts, although these schools also generally offer more institutional aid. In Table 1.2, the median monthly net income and estimated federal student loan payments are displayed, along with the corresponding debt-to-income ratio, for graduates of public and private four-year institutions by Carnegie Classification.

Unlike income and debt by major, median monthly income does not vary widely for graduates from colleges and universities with different Carnegie Classifications. Graduates from different types of institutions have student loan payments that vary a great deal. These variations likely reflect the differences in average costs across institution type, with students at private universities taking out larger loans in order to bridge the gap between education costs and grant and scholarship awards. In addition, incomes may show little variation across school type since NCES B&B data are based only on those just entering their careers; as shown in Table 1.1, starting incomes vary widely, but they typically average out when examined across fields of study. Nonetheless, in this case, all of the debt-to-income ratios fall within the recommended "safe zone," but monthly student loan payments have a larger impact on the ratio.

Table 1.2: Monthly Income and Student Loan Payment by Carnegie Classification: U.S., Four-Year Institutions (2008)

Four-Year Institution: Carnegie Classification	Monthly Income after Taxes	Monthly Federal Student Loan Payment	Debt-to-Income Ratio
Public (doctoral/research)	$1,950	$210	11%
Public (all other)	$1,999	$227	11%
Private Nonprofit (doctoral/research)	$2,031	$241	12%
Private Nonprofit (all other)	$1,987	$288	14%

Source: U.S. Department of Education, National Center for Education Statistics, National Postsecondary Student Aid Study (NPSAS) 2008

Suggested Strategies

How can schools help their students stay within the "safe zone" of student loan debt-to-income ratios? In the six site visits, school administrators rarely mentioned any policies or programs specifically intended to address this *combined* metric, although they did frequently focus separately on managing student loan debt and pursuing post-graduation careers. Nonetheless, higher education staff did note some advising practices that are helping students make better choices, including better awareness of loans, encouraging sensible borrowing, and encouraging quicker completion of the degree.

In some places, the dichotomy caused by the higher education access policies and the necessity to recruit and enroll as many students as needed to fill a class was seen as counter to the early introduction of issues related to how much borrowing would be "safe" based on future career choices. Often students have no alternative but to borrow to cover indirect expenses (e.g., room and board, transportation, dependent care, etc.), regardless of the relative cost of the institution, especially for those schools with high percentages of low-income students.

While some debt counseling is available, as required by federal regulation, during a student's enrollment, most of the advising on repayment options comes from financial aid offices and loan servicers when a student leaves school. While most of the selected institutions are becoming more aware of and pursuing or expanding existing financial literacy programs, resources are frequently limited in this area.

What are schools doing currently that may serve as promising practices for others? Curbing students' debt is a difficult task for schools, because they do not know what their students and their graduates will actually earn after leaving the institution.

On most campuses, post-graduation or "leaver" survey data were unreliable, incomplete, or non-existent; it is difficult to track students after they have exited the college or university. Nevertheless, there are common sense actions that these schools and others can employ to help students take on less debt while in school.

Balanced Borrowing: Advise students to consider both the advantages and disadvantages of borrowing, in the long term.

- Financial aid administrators at the Texas private nonprofit university report "poking and prodding" students who take out extremely large loans, particularly if they borrow excessively on a repeated basis. For example, if students take summer courses, financial aid administrators remind them that they need to reserve enough of their annual limit for future semesters in the academic year. This type of counseling is more successful in face-to-face settings. In the current economy, they see more students reach their aggregate loan limit before graduation, so financial aid administrators try to work with them to identify alternative ways to fund their education.

  Conversely, for those students who consider taking time off or enrolling part time, financial aid administrators often highlight the potential long-term benefits of borrowing to encourage a students to stay enrolled full time and complete their degree. For instance, a financial aid administrator might highlight the value of a college degree compared to that of a car: "You'll take out $20,000 for a car that will last you eight years, but a college degree will get you $1.2 million more over your lifetime than a high school diploma."

- At the Texas community college, students are encouraged to explore all avenues available to fund their education, with loans seen as viable only if all other options have been exhausted. Instead, the school promotes grant funds, for which their students are often eligible, to cover school costs. To underscore the long-term impact of student loans, financial aid administrators show students what they will owe by the time they leave the institution, if they choose to borrow the maximum amounts. For a low-cost community college, this cumulative amount is quite high, particularly if the student plans to transfer to a four-year institution after graduation. After seeing this figure, some students visit the counseling department to get additional input before making their decision. The consistent and repeated messages about responsible borrowing benefit the student.

  At the same time, if students are pursuing careers in particular fields, such as health care, financial aid administrators inform them of local companies that repay students' loans if they stay employed there for a set length of time. In these cases, taking out loans to earn a degree or certificate would be beneficial and potentially minimize long-term financial obligation.

- The financial aid office at the Texas public university cautions students when they get close to their aggregate loan limit, particularly if they are sophomores or juniors who have multiple semesters to complete before graduation. The university has witnessed some students who

come back to school to get a second bachelor's degree, run out of loan eligibility, and then drop out without completing their degree due to lack of funds. To address that problem, the financial aid office limits aid on a case-by-case basis to ensure responsible borrowing and to protect a student's ability to finance his or her education through graduation.

Like the Texas community college and the Texas private nonprofit university, the Texas public university realizes that, for some students, student loans are necessary. For example, those enrolled in the social work program are required to complete an internship, which prohibits or minimizes outside employment. For these students, loans may allow them to continue their education without lowering their credit hours.

NATIONAL PERSPECTIVE

At the non-Texas community college, loans are not automatically packaged for students. The school initially offers only grants, scholarships, and work-study funds. If a student determines that he or she needs a student loan, that student must request it formally.

While student loans may be the first option that students consider to supplement these other more favorable types of aid, both the non-Texas community college and the non-Texas public university encourage students to take advantage of another option to pay for tuition: an institutional installment plan. Such a plan allows students and families who cannot afford to pay the full tuition bill to make smaller payments throughout the period of enrollment. While the student is charged a nominal fee, an installment plan carries an overall lower cost than alternative financing options, such as federal loans, or higher interest rate alternative loans or credit cards. Administrators at both campuses realize that a short-term installment plan may not be suitable or affordable for every student; however, it is an option that has its advantages.

Loan Awareness: Make sure students are aware that they are taking out loans, which must be repaid in the future.

- The Texas public university requires that new and continuing borrowers accept their student loan award each semester in order to acknowledge that they are taking on the responsibility of a debt that will have to be paid back. During this process, the student can accept or reject the loan, or reduce the loan amount. Many part-time students do not accept the full amount for which they are eligible. Given the current economy, financial aid administrators report that borrowers are more deliberate in the number and amount of loans they borrow. In addition, the institution is expanding its financial literacy program, with a special focus on freshmen. In terms of helping students understand student loans and make responsible financial decisions, the school feels that "earlier is better." They also indicate that students think, "I want to know about *my* loans, not about the [person's] sitting next to me." For this reason, the institution tries to provide one-on-one counseling during orientation, during which time they discuss the benefits and drawbacks of student loans.

- At the Texas private nonprofit university, financial aid administrators require in-person exit counseling, which typically takes one hour. During this time, they emphasize the benefits of using the National Student Loan Data System (NSLDS). NSLDS is maintained by the U.S. Department of Education, and it allows financial aid recipients to view all Title IV grants and loans in a centralized location. In particular, the school prints out the student's loan information and highlights each loan provider for the student's reference. About 80 percent of outgoing students attend these sessions. These meetings are an opportunity to ensure that students understand not only their obligations to repay their loans, but also who they owe and when their repayment period will begin.
- The Texas community college also prefers in-person loan counseling. When students apply for loans, financial aid counselors will discuss the possibilities of wage garnishments and the potential for loss of professional certificates if loans are not repaid (i.e., default) in the future. Since many of their students participate in healthcare-related programs, a sizeable proportion of the institution's population may be subject to the latter.

NATIONAL PERSPECTIVE

At the non-Texas public university, the career, internship, and student employment services office in conjunction with the financial aid office sends a letter to each student that includes his or her cumulative student loan debt; this letter also includes career and salary websites that the student can use to determine expected income following graduation. This correspondence not only serves as a reminder of how much the student currently owes and will have to repay, but also intends to provide a better picture of how the student's debt burden will affect him or her in the future, with an expressed outcome of reducing student's time to degree.

Like the Texas public university, the non-Texas public university also requires new and continuing borrowers to officially accept or decline their student loan package. The school is also expanding its financial literacy program, focusing on freshmen and students' parents. In addition, one-on-one counseling is offered to students by the loan servicer. A full-time employee of the loan servicer works on campus and serves as a resource for students who complete an online exit counseling session and have additional questions about loan repayment. The on-site loan servicer liaison provides students with in-depth information about topics such as loan consolidation options, loan forgiveness opportunities, and various repayment plans.

The institution also promotes wise borrowing by ensuring that students understand the advantages of exhausting federal loans prior to seeking alternative loans. Financial aid administrators explain to students that the terms and conditions of a federal unsubsidized loan, even though interest accrues while students are in school, are often more favorable than those offered by an alternative loan. For those students who choose an alternative loan over a federal unsubsidized loan, the financial aid office requires that the student sign a statement indicating that he or she prefers the less favorable option. While the student ultimately makes the decision and may not always choose the more financially sensible loan, the financial aid office makes sure that the student makes an informed decision and leaves with a clear understanding of the differences in loan types.

On-Time Graduation: Provide advising for students to stay on track academically, to reduce their time to achieve a degree and avoid borrowing additional funds.

- The Texas public university focuses on increasing students' likelihood of reaching graduation, and this often depends on them making satisfactory academic progress (SAP). If students are not progressing as expected, their financial aid packages may be affected. For example, if a student has taken out $20,000 in federal and private student loans and earned only nine credits, the financial aid office may decide — on a case-by-case basis — to originate a federal loan for an amount that is less than the student is eligible to receive. If this occurs, the school informs the student of the reason for the action in writing, and retains documentation that supports the action in the student's file. In addition, the advising center tries to educate freshmen about the financial advantages of graduating on time; in order to achieve this goal, students must carefully plan their coursework, a practice that many of the offices on campus promote.
- The Texas private nonprofit university supports timely graduation in a variety of ways and across multiple departments. First, the institution tries to be reasonable in allowing transfer and replacement courses, as it reduces future debt and pushes students closer to graduation. Second, advisors work with students to coordinate their schedules to assure that they take all prerequisites as early as possible. Students are encouraged to select a major early in their academic career, but faculty and administrators are aware that if students later change their majors, it may extend their time in school, which could necessitate additional loans. For this reason, the institution has been working to streamline the degree programs, and does not require students to have an academic minor. Finally, faculty and administrators at the Texas private nonprofit university also encourage students to take courses at local community colleges or four-year public universities during the summer. As a private university, they understand that their cost per course is higher than their neighboring public institutions, and in order for students to graduate on time with the lowest amount of debt possible, this option may prove beneficial.
- At the Texas community college, faculty and administrators are aware that not all students plan to graduate with an associate degree; some plan to take "the basics" and then transfer to a four-year institution. However, students' intentions do not always translate into action, so the school operates a "reverse transfer" program, wherein students earning or working toward a bachelor's degree and who have earned enough credits are granted an associate degree. This assures that students who fail to complete a bachelor's degree will still have a postsecondary degree that may yield a higher income than a high school diploma. This is important for maintaining sensible debt-to-income ratios.

NATIONAL PERSPECTIVE

At the non-Texas private nonprofit university, students with various majors can use a simulation program to find out how to graduate on time. If they need a more personalized approach, advisors are available to answer students' questions about their degree plan and how a change can affect their ability to graduate on time.

A review of time to degree is a major new effort at the non-Texas public university. The school has initiated a review of graduation requirements and course offerings to meet those requirements — major by major and school by school. This helps to ensure that students are well served and can minimize the length of time it takes to graduate, which will reduce debt burden.

Another strategy that the institution has adopted to encourage student success is the implementation of a campus rewards system. Students receive credit for participating in campus-wide events and informational presentations. When students earn enough points, they are rewarded with such opportunities as free tuition for a semester. The institution has found that students are motivated to stay enrolled and involved in on-campus activities while earning points that can provide them with financial rewards.

The non-Texas community college also promotes time to degree through its financial aid office. When students receive their award letter, it typically includes only grants, scholarships, and/or work-study. Loans are not included in the initial financial aid package, though students are informed that loans are available, if requested. The school awards students on a full-time basis, and informs students that it will reduce the amount of aid if they attend part time. This not only provides students with an incentive to attend full time, but it also financially rewards those who actually do so. This policy reduces the time it takes to graduate while also providing information about the grant funds that may reduce the need to borrow.

In addition, after joining Achieving the Dream, a national Lumina Foundation-funded community college effort to encourage schools to use evidence to improve outcomes, the institution employed a developmental student advisor. He operates as a case manager to help students who need to get college-ready do so in the least possible time, thus reducing educational costs. They also have comprehensive articulation agreements with public four-year institutions in their state, improving time to degree for the 25% of their students that transfer.

II. Most Popular Majors and Occupations

Having a bachelor's degree opens up better occupational opportunities than having a high school diploma (see Table 2.1; see Appendix C for the U.S.). The most common occupations for Texans with a high school diploma were generally low-paying jobs such as truck drivers, cashiers, and cooks, with annual incomes ranging from $14,000 to $35,000.

All the tables in the remainder of this report contain 2010 U.S. Census Bureau data and represent all full-time workers in the specified occupation or major. For example, secretaries and administrative assistants represent about 3 percent of high school graduates in Texas and earn a median full-time annual income of $27,850. This median income covers the broad spectrum of a career, so starting incomes would likely be less.

Table 2.1: Top Occupations for High School-Level Workers in Texas (2010)

Occupation	Percentage of High School Workers	Median Annual Income
Drivers/Sales Workers and Truck Drivers	4%	$35,000
Cashiers	4%	$14,000
Secretaries and Administrative Assistants	3%	$27,850
Retail Salespersons	3%	$20,000
Cooks	3%	$14,400
Janitors and Building Cleaners	2%	$19,000
Nursing, Psychiatric, and Home Health Aides	2%	$18,000
Laborers and Material Movers	2%	$22,800
First-line Supervisors of Retail Sales Workers	2%	$30,000
Customer Service Representatives	2%	$25,000

Source: U.S. Census Bureau, American Community Survey, 2010

Obtaining an associate degree over a high school diploma improved incomes. The most popular occupation in this group, registered nurses, provides a relatively high income. Even within the same job, a higher education seems to increase income (see Table 2.2; see Appendix D for the U.S.). Secretaries and administrative assistants with a high school diploma earned a median income of nearly $28,000 annually, while those with an associate degree had a median income of $32,000. Retail salespersons and first-line supervisors of retail sales workers also saw an increase of several thousand dollars per year for having an associate degree over a high school education.

Table 2.2: Top Occupations for Associate-Level Workers in Texas (2010)

Occupation	Percentage of Associate Degree Workers	Median Annual Income
Registered Nurses	10%	$59,000
Secretaries and Administrative Assistants	4%	$32,000
Miscellaneous Managers	2%	$65,000
Retail Salespersons	2%	$24,000
First-line Supervisors of Retail Sales Workers	2%	$35,000
Customer Service Representatives	2%	$27,200
Diagnostic Related Technologists and Technicians	1%	$56,000
Accountants and Auditors	1%	$40,000
Cashiers	1%	$15,000
First-line Supervisors of Office and Administrative Support Workers	1%	$40,550

Source: U.S. Census Bureau, American Community Survey, 2010

Choosing a Major

As shown in Table 2.3, the most popular bachelor's-level major in Texas was business management and administration, representing nearly 9 percent of Texans with a bachelor's degree. Related majors, general business and accounting, came in second and third with about 5 percent of students each.

Table 2.3: Most Popular Bachelor's-Level Majors in Texas (2010)

Occupation	Percentage of Bachelor's Degree Workers	Median Annual Income
Business Management and Administration	9%	$57,000
General Business	5%	$60,000
Accounting	5%	$68,000
Elementary Education	5%	$44,000
Nursing	4%	$60,000
General Education	4%	$45,000
Marketing and Marketing Research	4%	$60,000
Psychology	3%	$42,000
Finance	3%	$65,000
Computer Science	2%	$80,500

Source: U.S. Census Bureau, American Community Survey, 2010

While the top three majors account for nearly 20 percent of baccalaureate graduates in Texas, the vast majority of the more than 170 other majors listed in the ACS comprise less than 2 percent of graduates each. Nationwide, business management and administration was also the most popular baccalaureate major at almost 9 percent, and the other majors rounding out the top ten looked very similar to Texas (see Table 2.4). With such a large number of majors, this report will only focus on popular or key majors, as appropriate, in order to demonstrate salient points.

Table 2.4: Most Popular Bachelor's-Level Majors in the U.S. (2010)

Occupation	Percentage of Bachelor's Degree Workers	Median Annual Income
Business Management and Administration	9%	$55,000
Accounting	5%	$61,000
General Business	5%	$60,000
Nursing	5%	$60,000
Elementary Education	4%	$39,000
Psychology	4%	$40,000
Marketing and Marketing Research	3%	$55,000
General Education	3%	$40,000
Communications	3%	$48,000
English Language and Literature	3%	$45,000

Source: U.S. Census Bureau, American Community Survey, 2010

Choosing a Career

As important as the choice of major is, the choice of career is of even greater importance. It can determine whether one is successful after college, and for borrowers, it can determine whether or not they will be successful in repayment. Certainly, the chosen major paves the way to certain careers, but this path is more certain for some majors than for others. In the case of majors such as elementary education, accounting, and nursing, the career path seems explicit (see Table 2.5; see Appendix E for the U.S.).

Table 2.5: Most Popular Occupations for Popular Majors in Texas (2010)

Major	Occupation	Percentage of Bachelor's Degree Workers with Given Major
Elementary Education		
	Elementary and Middle School Teachers	57%
	Education Administrators	4%
	Secondary School Teachers	3%
Accounting		
	Accountants and Auditors	43%
	Financial Managers	5%
	Miscellaneous Managers	4%
Nursing		
	Registered Nurses	63%
	Medical and Health Services Managers	4%
	Nurse Practitioners and Nurse Midwives	4%

Source: U.S. Census Bureau, American Community Survey, 2010

However, other majors have more tenuous relationships to occupations. For example, Texans who graduated with the most popular major, business management and administration, ended up working in a wide variety of occupations (see Table 2.6; see Appendix F for the U.S.). The highest percentage for any occupation among these business majors is 6 percent, for accountants and auditors. Business majors' incomes vary widely, too. Annual median incomes range from only $35,000 to nearly $100,000. Yet their average student loan debt was assumed the same, regardless of their occupation. For the typical bachelor's-level business degree recipient graduating with student loan debt, the median amount owed on this debt during the repayment period totals about $3,000 per year. Annual debt-to-income ratios vary from 3 to 9 percent.

Table 2.6: Most Popular Bachelor's Degree Occupations for Business Management and Administration Majors in Texas (2009)

Occupation	Percentage of Bachelor's Degree Workers	Median Annual Income	Median Annual Student Loan Payment	Debt-to-Income Ratio
Accountants and Auditors	6%	$60,000	$3,000	5%
Miscellaneous Managers	6%	$80,000	$3,000	4%
Elementary and Middle School Teachers	5%	$44,000	$3,000	7%
Sales Representatives	4%	$80,000	$3,000	4%
Financial Managers	3%	$70,500	$3,000	4%
First-line Supervisors of Retail Sales Workers	3%	$56,000	$3,000	5%
Marketing and Sales Managers	3%	$93,500	$3,000	3%
General and Operations Managers	3%	$75,000	$3,000	4%
Administrative Assistants	3%	$40,000	$3,000	8%
Retail Salespersons	2%	$35,000	$3,000	9%

Source: U.S. Census Bureau, American Community Survey, 2010; U.S. Department of Education, National Center for Education Statistics, B&B: 09 Baccalaureate and Beyond Longitudinal Study

Unemployment

Due to the recent economic recession, college graduates have had a more difficult time finding employment (U.S. Bureau of Labor Statistics, 2011). However, obtaining a higher education generally ensures better employment options. In general, the unemployment rate decreases as the level of education increases (see Table 2.7). Those with a college degree will have an easier time finding employment than those without, and the higher the degree, the better the chances of being employed. In 2010, the unemployment rates in Texas were slightly lower than for the U.S. as a whole, but both show the same pattern.

Table 2.7: Unemployment Rate by Education Level (2010)

Education Level	Texas	U.S.
High School Diploma	6.1%	7.0%
Associate Degree	3.6%	4.1%
Bachelor's Degree	3.0%	3.4%
Master's Degree	2.3%	2.4%
Doctoral Degree	0.9%	1.6%
Professional Degree	1.1%	1.8%

Source: U.S. Census Bureau, American Community Survey, 2010

As shown in Table 2.8, among Texans with bachelor's degrees, there was some variation depending on the type of major. Agriculture and natural resources majors experienced the highest unemployment rate at 4.2 percent in Texas and 4.9 percent nationwide. The health field had the lowest unemployment rate, at just 1.5 percent in Texas and nationwide.

Table 2.8: Unemployment Rate by Major Category for Bachelor's Degree Graduates (2010)

Major Category	Texas	U.S.
Agriculture and Natural Resources	4.2%	4.9%
Communications and Journalism	3.9%	4.4%
Humanities and Liberal Arts	3.7%	4.3%
Social Science	3.5%	4.2%
Engineering	3.3%	4.1%
Psychology and Social Work	3.2%	3.5%
Computers and Mathematics	3.1%	3.4%
Law and Public Policy	3.1%	3.5%
Arts	3.0%	3.4%
Business	3.0%	3.3%
Physical Sciences	2.8%	3.2%
Biology and Life Science	2.8%	3.2%
Education	2.1%	3.1%
Industrial Arts and Consumer Services	2.1%	2.5%
Health	1.5%	1.5%

Source: U.S. Census Bureau, American Community Survey, 2010

The data in Table 2.9 show that the top ten majors least likely to be employed in Texas have unemployment rates of 10 to 15 percent, well over the average unemployment rate for a bachelor's degree holder (3 percent). Students who graduated with an *other foreign languages* major had the highest unemployment rate and a lower than average median income. The median income for someone who holds a bachelor's degree was $52,000 (see Appendix G for the U.S.).

Table 2.9: Majors with Highest Unemployment Rates in Texas (2010)

Major	Bachelor's Degree Unemployment Rate	Median Annual Income
Other Foreign Languages	15%	$39,100
Humanities	15%	$50,000
Public Administration	13%	$61,000
Visual and Performing Arts	13%	$43,500
International Relations	12%	$71,500
Mechanical Engineering Related Technologies	11%	$83,500
Business Economics	11%	$100,000
Physics	10%	$90,000
Miscellaneous Engineering	10%	$54,500
Communications Technologies	10%	$48,000

Source: U.S. Census Bureau, American Community Survey, 2010

Business economics majors, on the other hand, had an 11 percent unemployment rate, but those fortunate enough to be employed had a median income of $100,000. A few majors on this list made well over the median income of $52,000, so there is some monetary incentive to select them. For those majors with a high unemployment rate and below median incomes, such as visual and performing arts or communications technology, the monetary incentive is diminished.

Students will continue to major in programs that generally lead to low-paying, high unemployment occupations if they are passionate about them, but it is especially important for students in these majors to be aware of the economic reality and have backup career plans. Borrowers should be aware of their rights and responsibilities regarding their loans, including the availability of options such as deferment, alternate repayment plans, and occupation-specific loan forgiveness plans.

Market fluctuations affect employment rates of people with specific skill sets, so these data are not static. Table 2.9 is a timely snapshot of income and unemployment data that gives a sense of the current economic reality. Students must take many different factors into account when choosing their major and career. It would be useful for students to have integrated academic and career counseling to help them understand these complexities.

Suggested Strategies

In many cases, financial aid administrators are working alone on issues related to student debt and are not working in concert with campus academic or career advisors, who are having the all-important future career conversations with students. During case study site visits, TG researchers discovered that student debt concerns were often seen as purely a financial aid issue, and complex rules and regulations made staff outside of the financial aid office reluctant to offer advice in that realm. Though some schools considered students' majors when packaging aid, in order to pair them with relevant scholarships and inform them of useful options such as federal teacher loan forgiveness, financial packages were not adjusted in any way based on major except on a case-by-case basis.

When students are considering their major and career, they are not currently receiving relevant debt load advice, so they may not make the connection between how their major and career may affect their ability to repay their loans. The choice of major, and subsequently, career, is an important one that will profoundly shape the lives of all students, not just borrowers. Students should use college as a time to find out what they are passionate about and skilled in; equally importantly, they should be aware of what they may need to borrow to achieve their degree and what they can expect to earn once they graduate. Academic advisors and career counselors at the schools TG researchers visited in both Texas and the U.S. described their focus on helping students find their passion, while the financial aid offices were more likely to emphasize responsible borrowing.

How does knowledge about prospects for employment and income find its way to the students who need it? The selected schools provide a variety of tools, classes, internships, and advising to help students find the major and career that are the best fit and the most likely to ensure employment and enjoyment.

Choose the right major: Provide students with tools to help them choose the right major. Though some students come into college knowing what field they would like to study, many students need to explore their options to find out where their interests and abilities intersect. Providing tools and classes designed for this purpose can help students focus on the task.

- All three Texas case study schools use personality and interest inventory tools, such as Myers-Briggs Type Indicator or Strong Interest Inventory, to help students find a good career fit. These schools also stressed the conversations they have with students after they complete the tools, designed to find out what area of study the student is truly interested in and able to work in. The advisors ask the students questions to find out what they enjoy and do not enjoy doing. If the student has already declared a major, the advisors ask them if the classes are what they expected them to be, and if they think they are doing well enough to get into their desired program or career.

- The four-year schools offer optional credit classes designed to help students choose a major. At the Texas public university, the class includes a personality assessment, presentations from on- and off-campus guests, and an introduction to online tools and other resources to help students decide on a major. At the Texas private nonprofit university, the Freshmen Seminar class helps students determine their interests and skills in order to choose a major, and further discuss expected incomes for different careers.

NATIONAL PERSPECTIVE

Choosing the right major can be a daunting task for freshmen, but that choice affects future career options, so it is an important one. Like the universities in Texas, the universities outside of Texas offer classes to aid in this decision.

The non-Texas private nonprofit university works hard to emphasize career fit, and offers a two-credit class on choosing a major. The class helps students determine their own skills, talents, and interests. Additionally, the class delves into career exploration, since that can affect the major a student should consider. Students leave the class armed with knowledge, tools, and a plan for their future. In addition, when a student reaches the time to declare a major, the college president sends a letter to the student's parents to encourage them to have thoughtful discussions with their son or daughter about potential future careers.

The non-Texas public university is piloting a one-credit class in the health professions that helps students understand the reality of the major and possible career choices. Students who declare an interest in health professions get individual and personalized advising. After taking this introductory class, some students learn that they may not have the interests or ability to complete a degree in that major, and can declare a different one without having spent much time and money in an unsuitable program.

Early career planning: Encourage students to get involved in career planning as early as possible, preferably in their freshman year. Career planning is more than just having a certain degree. Employers look for students with skills learned in and outside of class, such as in campus leadership positions or internships.

- All three Texas case study schools encourage internships and even require them for certain degrees. Staff at all three schools talked about the benefits of internships for the student — they give the student a preview of the job, and they often lead to the first job out of college.
- The four-year universities talked about the importance of students beginning their career planning early. The staff at the Texas public university encourages students to take on leadership roles around campus and then list that experience on their resumes. The Texas private nonprofit university's Career Services Center described the different steps students can take each year of college to move toward their career, and even has a colorful card summarizing the steps and services available.
- The Texas community college holds a career month in the spring where the school educates students on a wide variety of topics such as resume writing, interview preparation, and dressing appropriately for interviews.

Back-up plans: Help students develop a back-up plan for their future. Life and economic realities can alter the career plans of even the most dedicated student. The best-prepared students will have other viable occupations in mind in case of need.

- All three Texas case study schools encourage students to have a plan B, in case their chosen major or career path does not work out.
- The Texas community college emphasizes this message to its large population of athletes. Some of these students may not end up playing sports at a university, much less in a professional league, so the staff encourages them to have a career plan that does not involve being an athlete.
- The Texas private nonprofit university encourages students to have a good major *and* a good minor, so they have an option to fall back on if there is a need. The institution encourages students to engage in job shadowing in order to get a feel for their chosen career. The institution also suggests that students have several career options in mind that they would enjoy.

NATIONAL PERSPECTIVE

On the website for the non-Texas community college, a link to the Job Board, an interactive service connecting students to local employers, is featured prominently. Through this link, students access the Career Development Services webpage, which provides them with information on topics such as career and self-assessments, resume writing, job search strategies, interviewing skills, and occupational information. Additionally, when meeting with students, the career center staff discusses a wide range of topics to help students determine the career they want to pursue, including the typical demands of the career, income expectations, and whether the student wants to stay in the geographic area. These tools, discussions, and other information help students find the best career fit and market themselves effectively.

III. Income Boosts by Education Level

The previous set of analyses showed median incomes across different academic majors at the bachelor's level, but to what extent do incomes also vary by levels of education? Typically, incomes vary depending on both occupation and education level. In general, someone with a higher level of education will earn a higher income doing the same job as someone with a lower level of education, perhaps due to greater responsibility even if the same position.[16] The additional income typically achieved through more advanced education is the income "boost" that will be presented in this section.

The cost-benefit analysis of earning a degree is more complex than simply the potential for increased income. On the plus side, each additional level of education brings lower unemployment rates, more flexibility and choice of occupation, and the chance to make a much higher income in certain professions. One must consider the opportunity costs of pursuing higher education, which include potentially lost income while in school, student loan debt, and the out-of-pocket expenses of attending school. Students must also consider that they may not graduate and may never obtain the financial benefits associated with a degree. Finally, students must balance the expected outcome that a degree brings with the possibility of unemployment or underemployment.

Throughout this section, data are presented for occupations rather than majors. As discussed previously, the ACS only asks respondents to state their undergraduate major. Therefore, income cannot be compared across various education levels by major. However, as presented in the previous section, one can make the connection between major and occupation by understanding the most likely occupational outcomes for each major.

High School to Bachelor's Boost

Ten common occupations for bachelor's degree holders in Texas and the U.S. provide a wide range of incomes for both high school graduates and bachelor's degree holders (see Table 3.1). Analysis of the differences between these two levels of education shows that obtaining a bachelor's degree can yield an income boost of up to 297 percent in Texas and 188 percent in the U.S. The majority of common bachelor's-level occupations in Texas and the U.S. show income boosts from high school diploma to bachelor's degree ranging from zero to 50 percent.

Within Texas, bachelor's degree holders have higher incomes than high school graduates in all but eight percent of occupations and six percent of workers. In the U.S., 94 percent of occupations and 96 percent of workers show higher median incomes with a bachelor's degree compared to a high school diploma. The occupations that have a higher median income with a high school diploma tend to be lower-paying jobs such as truck drivers, maids, tellers, and clerks. A possibility for the high school graduates' higher incomes in this case may be that they persist in these occupations longer and receive raises over time, while bachelor's degree graduates may be in such an occupation only transitionally.

16 One exception is a small percentage of people who may obtain a bachelor's degree in one field, get an associate degree in another field, and then get a higher-paying job because of the associate degree. These people are counted as bachelor's degree holders, not associate degree holders.

Table 3.1: Median Annual Income Boosts from High School Diploma to Bachelor's Degree (2010)

Ten Common Occupations for Bachelor's-Level Workers	Texas			U.S.		
	Median Annual Income, High School Diploma	Income Boost	Median Annual Income, Bachelor's Degree	Median Annual Income, High School Diploma	Income Boost	Median Annual Income, Bachelor's Degree
Secretaries and Administrative Assistants	$27,850	16%	$33,000	$29,500	12%	$33,700
Miscellaneous Managers, Including Funeral Service Managers and Postmasters and Mail Superintendents	$50,000	41%	$85,000	$50,000	38%	$80,000
First-Line Supervisors of Retail Sales Workers	$30,000	40%	$50,000	$32,000	29%	$45,000
Retail Salespersons	$20,000	50%	$40,000	$20,000	43%	$35,000
Diagnostic Related Technologists and Technicians	$52,000	0%	$52,000	$40,000	27%	$55,000
Accountants and Auditors	$37,000	38%	$60,000	$36,000	40%	$60,000
Customer Service Representatives	$25,000	31%	$36,000	$25,950	27%	$35,600
First-Line Supervisors of Office and Administrative Support Workers	$38,000	24%	$50,000	$38,000	27%	$52,000
Police Officers	$45,000	25%	$60,000	$45,000	30%	$64,000
Office Clerks, General	$26,000	10%	$29,000	$27,500	11%	$31,000

Source: U.S. Census Bureau, American Community Survey, 2010

An analysis of common occupations for associate degree holders provides a more nuanced story of the financial benefit of a degree. Some occupations such as retail salespersons and accountants will enjoy a large increase in income by obtaining a bachelor's degree over an associate degree. Other occupations including secretaries and diagnostic technicians do not obtain much of a boost in income, if any. High school students who are considering such occupations may want to consider the costs of pursuing their education beyond the associate level. A workforce development program at a local community college could train someone to become a diagnostic related technologist or technician most likely for less than it would cost to pursue a four-year degree. In this case, a bachelor's degree could be unnecessary and postpone entry into the workforce.

Any student who chooses to pursue an occupation that does show a large financial benefit from a bachelor's degree should understand the pros and cons of a four-year versus a two-year degree. An associate degree holder in the majority of the more common occupations will gain a comfortable boost in income by obtaining a bachelor's degree. Those who work in these occupations can realize an income boost of up to 40 percent and $40,000 (see Table 3.2). A retail salesperson with an associate degree will earn a median boost of $16,000 or 40 percent by obtaining a bachelor's degree. The median bachelor's degree borrower in Texas will pay $2,200 per year on his or her student loans and the median associate degree borrower will pay $1,000. Therefore, a retail salesperson will have a net gain of nearly $15,000 per year by obtaining a bachelor's degree even if he or she borrows student loans.

Table 3.2: Median Annual Income Boosts from High School Diploma to Associate Degree to Bachelor's Degree in Texas (2010)

Ten Common Occupations for Associate-Level Workers	Median Annual Income, High School Diploma	Income Boost	Median Annual Income, Associate Degree	Income Boost	Median Annual Income, Bachelor's Degree
Secretaries and Administrative Assistants	$27,850	13%	$32,000	3%	$33,000
Miscellaneous Managers, Including Funeral Service Managers and Postmasters and Mail Superintendents	$50,000	23%	$65,000	24%	$85,000
First-Line Supervisors of Retail Sales Workers	$30,000	14%	$35,000	30%	$50,000
Retail Salespersons	$20,000	17%	$24,000	40%	$40,000
Diagnostic Related Technologists and Technicians	$52,000	7%	$56,000	-8%	$52,000
Accountants and Auditors	$37,000	8%	$40,000	33%	$60,000
Customer Service Representatives	$25,000	8%	$27,200	24%	$36,000
First-Line Supervisors of Office and Administrative Support Workers	$38,000	6%	$40,550	19%	$50,000
Police Officers	$45,000	2%	$46,000	23%	$60,000
Office Clerks, General	$26,000	1%	$26,150	10%	$29,000

Source: U.S. Census Bureau, American Community Survey, 2010

Table 3.3: Median Annual Income Boosts from High School Diploma to Associate Degree to Bachelor's Degree in the U.S. (2010)

Ten Common Occupations for Associate-Level Workers	Median Annual Income, High School Diploma	Income Boost	Median Annual Income, Associate Degree	Income Boost	Median Annual Income, Bachelor's Degree
Secretaries and Administrative Assistants	$29,500	5%	$31,000	8%	$33,700
Miscellaneous Managers, Including Funeral Service Managers and Postmasters and Mail Superintendents	$50,000	14%	$58,000	28%	$80,000
First-Line Supervisors of Retail Sales Workers	$32,000	12%	$36,500	19%	$45,000
Retail Salespersons	$20,000	13%	$23,000	34%	$35,000
Diagnostic Related Technologists and Technicians	$40,000	20%	$50,000	9%	$55,000
Accountants and Auditors	$36,000	8%	$39,000	35%	$60,000
Customer Service Representatives	$25,950	14%	$30,000	16%	$35,600
First-Line Supervisors of Office and Administrative Support Workers	$38,000	7%	$41,000	21%	$52,000
Police Officers	$45,000	22%	$58,000	9%	$64,000
Office Clerks, General	$27,500	8%	$30,000	3%	$31,000

Source: U.S. Census Bureau, American Community Survey, 2010

What does this mean for the lifetime earnings of student loan borrowers? When estimating lifetime earnings for these occupations, there is a clear benefit to obtaining a bachelor's degree for most occupations. Table 3.4 shows some of these occupations, such as funeral service managers and postmasters, in which bachelor's degree workers can make "$1 million more over a lifetime" compared to their counterparts with high school diplomas. However, there are also occupations where bachelor's-level workers earn less — sometimes *far* less — than $1 million more than those with high school diplomas. These lifetime net earnings estimates are specific to federal student loan borrowers and account for both average federal income tax and average yearly student loan payments. When those two factors are included, the lifetime earnings boost calculation is much lower than estimates that rely on gross income and principal balance only for student loans.

Both administrative assistants and software developers in Texas make less than $200,000 more over a lifetime with a bachelor's degree than they would with a high school diploma. Administrative assistants make relatively low incomes with or without bachelor's degrees, and software developers earn relatively high incomes with or without bachelor's degrees.

Table 3.4: Median Lifetime Earnings Boosts from High School Diploma to Bachelor's Degree (2010)

Ten Common Occupations for Bachelor's-Level Workers	Lifetime Earnings Boost, Texas	Lifetime Earnings Boost, U.S.
Secretaries and Administrative Assistants	$132,000	$102,000
Miscellaneous Managers, Including Funeral Service Managers and Postmasters and Mail Superintendents	$1,028,000	$876,000
First-Line Supervisors of Retail Sales Workers	$578,000	$366,000
Retail Salespersons	$578,000	$426,000
Diagnostic Related Technologists and Technicians	-$22,000	$426,000
Accountants and Auditors	$668,000	$696,000
Customer Service Representatives	$308,000	$265,000
First-Line Supervisors of Office and Administrative Support Workers	$338,000	$396,000
Police Officers	$428,000	$546,000
Office Clerks, General	$68,000	$81,000

Source: U.S. Census Bureau, American Community Survey, 2010

Occupations with the largest high school diploma to bachelor's degree lifetime earnings boosts in Texas range from computer and information systems managers, with an earnings boost of $1,703,000, to sales representatives, with an earnings boost of $983,000 (see Table 3.5). In the U.S., those same majors will gain $651,000 and $936,000, respectively. Many of the occupations with large earnings boosts in Texas also show large earnings boosts in the U.S. One notable exception is the category other production workers, including semiconductor processors and cooling, for which bachelor's-level workers in Texas earn a median income of $70,000 annually while those in the U.S. earn only $38,000.

Table 3.5: Occupations with Large Median Lifetime Earnings Boosts from High School Diploma to Bachelor's Degree (2010)

Ten Occupations with a Large Boost	Lifetime Earnings Boost, Texas	Lifetime Earnings Boost, U.S.
Computer and Information Systems Managers	$1,703,000	$651,000
Chief Executives and Legislators	$1,568,000	$1,596,000
Sales and Related Workers, All Other	$1,403,000	$1,107,000
Medical and Health Services Managers	$1,178,000	$876,000
Human Resources Managers	$1,178,000	$1,026,000
Other Production Workers, Including Semiconductor Processors and Cooling and Freezing Equipment Operators	$1,118,000	$186,000
Sales Representatives, Services, All Other	$1,028,000	$756,000
Miscellaneous Managers, Including Funeral Service Managers and Postmasters and Mail Superintendents	$1,028,000	$876,000
Financial Managers	$986,000	$984,000
Sales Representatives, Wholesale and Manufacturing	$983,000	$936,000

Source: U.S. Census Bureau, American Community Survey, 2010

Bachelor's to Master's Boost

When examining the occupations for which master's degrees are most common, the gap in incomes between workers with bachelor's degrees and those with master's degrees varies greatly (see Table 3.6). Some occupations yield a modest income at the bachelor's level, but earning a master's degree will allow workers the opportunity to earn higher incomes. In Texas, occupations such as management analysts, registered nurses, and education administrators will each obtain an income boost of over 20 percent with a master's degree.

Although these occupations are not shown in Table 3.6, bachelor's-level workers in some professions earn more than those with master's degrees. In Texas, 25 percent of occupations — or 10 percent of workers — show higher incomes at the bachelor's level than at the master's level. In the U.S., those percentages are even lower with just 16 percent of occupations and 4 percent of workers making more money with a bachelor's degree than with a master's degree. In some of these cases, the workers with bachelor's degrees may have been in the profession longer and consequently show higher earnings.

In general, both bachelor's to master's income boosts and overall incomes in the U.S. and Texas are comparable, but there are some exceptions. For example, elementary and middle school teachers who obtain master's degrees and work in Texas will likely earn less than the national average for their occupation and level of education. For this reason, it is important for students or individuals considering a return to school to understand the local economy and to seek out data that show the potential costs and benefits of pursuing additional higher education.

Table 3.6: Median Annual Income Boosts from Bachelor's Degree to Master's Degree (2010)

Ten Common Occupations for Master's-Level Workers	Texas			U.S.		
	Median Annual Income, Bachelor's Degree	Income Boost	Median Annual Income, Master's Degree	Median Annual Income, Bachelor's Degree	Income Boost	Median Annual Income, Master's Degree
Elementary and Middle School Teachers	$45,000	9%	$49,350	$42,000	19%	$52,000
Registered Nurses	$60,000	22%	$77,000	$60,000	17%	$72,000
Miscellaneous Managers, Including Funeral Service Managers and Postmasters and Mail Superintendents	$85,000	15%	$100,000	$80,000	20%	$100,000
Education Administrators	$52,000	21%	$66,000	$49,000	32%	$72,000
Secondary School Teachers	$46,700	7%	$50,000	$43,800	20%	$55,000
Accountants and Auditors	$60,000	19%	$74,000	$60,000	18%	$73,000
Management Analysts	$75,000	25%	$100,000	$75,000	25%	$100,000
Social Workers	$36,000	18%	$44,150	$37,000	26%	$50,000
Software Developers, Applications and Systems Software	$85,000	6%	$90,000	$86,000	9%	$95,000
Chief Executives and Legislators	$125,000	4%	$130,000	$116,000	14%	$135,000

Source: U.S. Census Bureau, American Community Survey, 2010

Table 3.7 provides a longer-term cost-benefit analysis of a master's degree compared to a bachelor's degree; instead of examining boosts in terms of annual income, this table provides the estimated lifetime financial benefits of a master's degree compared to a bachelor's degree.[17] With an additional median federal student loan debt of $25,000[18] to obtain a master's degree,[19] debt-to-income ratios are higher for Texas workers with a master's degree than their bachelor's-level counterparts in the same occupation. For instance, elementary and middle school teachers in Texas have a debt-to-income ratio of seven percent at the bachelor's degree level and 16 percent at the master's degree level. However, although these workers show higher debt-to-income ratios during their repayment periods, the data indicate that, compared

17 Debt-to-income ratios are calculated using median annual income after taxes and median annual student loan payments.

18 Eighty-five percent of master's degree borrowers who graduated had student loan debt over $10,000 and 62 percent borrowed over $20,000 (U.S. Department of Education, National Center for Education Statistics, 2008).

19 Median debt reflects the estimated cost of earning a master's degree in the U.S. as a whole. Data are not currently available for Texas only (U.S. Department of Education, National Center for Education Statistics, 2008).

to those with bachelor's degrees, the master's degree graduates will still earn more money during the repayment period. While the elementary school teacher's debt-to-income ratio more than doubles, he will still earn $8,500 more during the 10 years he is in repayment and $135,000 more over his lifetime.

In the U.S., the estimated lifetime earnings boost for workers with a master's degree over a bachelor's degree is generally higher than in Texas. Lifetime earnings boosts in the U.S. range from over $300,000 to nearly $1,000,000 (see Table 3.8), whereas in Texas, the same occupations show boosts ranging from less than $100,000 to nearly $1,000,000 (see Table 3.7). Although management analysts will benefit from a master's degree just as much in Texas as they do outside of Texas, seven out of the 10 occupations on this list will have a larger income boost with a master's degree outside of Texas. These data suggest that the financial benefits of a master's degree — at least for many of the occupations in which master's degree graduates are commonly employed — may be greater in some states other than Texas. In general, median incomes in Texas are lower than the national average (U.S. Bureau of Labor Statistics, 2011), and this fact is likely the reason behind the relatively lower bachelor's- to master's-level income boosts in the state.

Table 3.7: Median Lifetime Earnings Boosts from Bachelor's Degree to Master's Degree in Texas (2009)

	Texas			
Ten Common Occupations for a Master's Degree	Bachelor's Debt-to-Income Ratio	Master's Debt-to-Income Ratio	Master's Degree Boost (During Repayment)	Master's Degree Boost (Lifetime)
Elementary and Middle School Teachers	7%	16%	$8,500	$139,000
Registered Nurses	5%	10%	$135,000	$645,000
Miscellaneous Managers, Including Funeral Service Managers and Postmasters and Mail Superintendents	4%	8%	$115,000	$565,000
Education Administrators	6%	12%	$105,000	$525,000
Secondary School Teachers	7%	16%	-$2,000	$97,000
Accountants and Auditors	5%	11%	$105,000	$525,000
Management Analysts	4%	8%	$215,000	$965,000
Social Workers	9%	18%	$46,500	$291,000
Software Developers, Applications and Systems Software	4%	9%	$15,000	$165,000
Chief Executives and Legislators	3%	6%	$15,000	$165,000

Source: U.S. Census Bureau, American Community Survey, 2010

Table 3.8: Median Lifetime Earnings Boosts from Bachelor's Degree to Master's Degree in the U.S. (2009)

	U.S.			
Ten Common Occupations for a Master's Degree	Bachelor's Debt-to-Income Ratio	Master's Debt-to-Income Ratio	Master's Degree Boost (During Repayment)	Master's Degree Boost (Lifetime)
Elementary and Middle School Teachers	8%	17%	$65,000	$365,000
Registered Nurses	5%	12%	$85,000	$445,000
Miscellaneous Managers, Including Funeral Service Managers and Postmasters and Mail Superintendents	4%	9%	$165,000	$765,000
Education Administrators	7%	12%	$195,000	$885,000
Secondary School Teachers	7%	16%	$77,000	$413,000
Accountants and Auditors	5%	12%	$95,000	$485,000
Management Analysts	4%	9%	$215,000	$965,000
Social Workers	9%	18%	$95,000	$485,000
Software Developers, Applications and Systems Software	4%	9%	$55,000	$325,000
Chief Executives and Legislators	3%	7%	$155,000	$725,000

Source: U.S. Census Bureau, American Community Survey, 2010; U.S. Department of Education, National Center for Education Statistics, B&B: 09 Baccalaureate and Beyond Longitudinal Study

Suggested Strategies

Income statistics, debt-to-income ratios, and cost-benefit analyses are only part of the complex equation that students must consider when selecting a major and deciding how to finance their education. At the same time, students must balance this data-driven knowledge with their personal interests and aptitude. Students should not disregard a career that they are passionate about, but at the same time, they should not amass more debt than they can afford to pay back with their chosen career.

Each of the six higher education institutions that TG researchers visited contributed to the financial success of their students through programs that indirectly improve students' debt-to-income ratios. TG researchers found strong retention programs that proactively reach out to students at the first sign of academic trouble. TG researchers also found strong career centers with robust internship programs and solid ties to local businesses. In general, each of these programs is housed within different departments, and each department has its own mission. Despite this segregation, there was a collaborative spirit among staff and good interdepartmental working relationships.

The data on income boosts clearly show the value of each additional level of education. In order to realize such a boost that comes from additional education, one must complete — not just *pursue* — those higher levels of education. Strong retention programs and higher graduation rates result in better debt-to-income ratios for the school's student body as a whole. For example, a student who graduates with internship experience — acquired through assistance from such a retention program — will be more likely to get a job that provides the income to repay his or her student loan debt (Knouse, 1999).

Internships: Understand your local economy and build strong internship programs.

An article in the *Journal of Employment Counseling* titled "The Relation of College Internships, College Performance, and Subsequent Job Opportunity" confirms that students with internships are more likely to be employed upon graduation than those without an internship experience (Knouse, 1999). Schools can help improve their debt-to-income ratios by increasing their students' chances of finding a professional career after college through a highly utilized, robust internship program.

- The Texas public university pursues internship and career opportunities for their students using a team housed in the career center that is tasked specifically with building strong relationships with local employers. These relationships give their students many internship opportunities, 70 to 80 percent of which can become permanent after graduation.
- The Texas community college has strong ties to local industry through its certificate programs such as nursing and welding. Thanks to these ties, the institution became aware of the need for a fast-track welding program and was able to activate that program quickly. Programs such as these help local businesses get the skilled workers they need, and help students get internships, which often turn into job offers.

NATIONAL PERSPECTIVE

The higher education institutions that were interviewed outside of Texas also strongly encourage internships as a way to expose students to careers, and employers to students. The non-Texas private nonprofit university has a very strong internship culture. Students are encouraged to complete at least one internship before graduation. Many of the academic programs at the institution require students to complete an internship, which often turn into job offers. Though the programs are small, engineering and computer science students have employers competing to hire the school's students after graduation, but most will already have a job lined up with the company at which they have completed an internship.

The non-Texas public university leverages the reputation of its highly-regarded engineering program to attract large companies to its career fair. The institution welcomes many top performing companies, including a world leading aerospace company, to provide internship opportunities and jobs after graduation for students majoring in engineering. Based on institutional data, the institution capitalizes on the fact that the top factor in securing a job for its graduates is work experience related to a student's major acquired through an internship or cooperative education.

Increase graduation rates: Create strong retention programs to increase graduation rates and lower students' debt-to-income ratios.

As discussed earlier, in order to obtain a "boost" in income, one must actually earn the degree. Without completing a degree, borrowers are responsible for the student loan debt they incurred without gaining the financial benefit that higher education can bring.

- The Texas private nonprofit university created a program to improve student retention called Grades First. This early intervention program combines tutoring and counseling to help students who are academically at risk. Every two weeks, faculty members report on all freshmen, athletes, students on probation, and any other students for whom grades or other performance measures are requested. Ninety-five percent of faculty members participate in the Grades First program. Grades and attendance are then monitored by the institution's academic center. If the center observes any red flags, the office follows up with the student.
- The Texas public university developed a series of student success workshops targeted to at-risk populations. First-generation students, transfer students, and sophomores have an opportunity to join a program designed specifically to help them transition to college and academic life and complete their education. These workshops are conducted by the University College, created by the university to be a centralized home to academic success programs and advising for freshmen and undeclared students.

NATIONAL PERSPECTIVE

The national case study schools use systems similar to Texas to catch struggling students early on, using mid-term grade reports and faculty referral systems. The non-Texas public university has an early alert system to identify students who are not engaged in their first term. The faculty members refer about 1,200 students each term. Those students meet with a success advisor (part-time support staff) and talk about barriers to persistence. These systems trigger staff and faculty to contact the students and provide assistance.

At the non-Texas private nonprofit university, there is a three-pronged approach to promoting retention and graduation: the student and academic counselor work with a faculty advisor, and as a team, they stay in contact throughout a student's academic career to enable academic success. During this process, faculty members discuss the student's long-term plans and encourage service learning through community involvement. This practice has been in place and successful since 1994.

CONCLUSIONS

Previous research has focused on the varying lifetime benefits of an undergraduate degree based on major (e.g., Carnevale, Strohl, & Melton, 2011). Building on those studies, this report aspired additionally to compare the cost of earning a degree to its financial payoff, with particular focuses on borrowers' academic majors and post-graduation occupations, in order to find the debt-to-income ratio by major. Based on the results of secondary data analysis and case study reviews, it is clear that borrowers need to consider not only the academic major that they pursue, but also the level of debt required to earn their degree.

Lifetime earnings and rates of employment generally increase with higher levels of educational attainment, but they vary widely by academic major, highest degree attained, and occupation. Knowing the level of debt needed to attain a higher education and the income ranges of possible careers, borrowers can make more informed decisions about their future. This debt-to-income ratio, though only a short-term measure, can greatly affect borrowers' lives during that repayment period if debt is unmanageable. Beyond the short-term measure, all students should be aware of their possible lifetime earnings that help make higher education worthwhile. Looking at the debt-to-income ratio and lifetime earnings is an informative and worthwhile exercise for both undergraduate and graduate students.

At an institutional level, counseling a student about his or her estimated debt-to-income ratio entails an integration of three areas — typically housed in separate departments, each with their own set of organizational goals, values, and resource constraints: financial aid, academic advising, and career placement. There can be many barriers to integrating these three areas at institutions. Strained budgets can limit training and personnel resources. Based on the complex and constantly changing nature of financial aid regulations, and the repercussions for misinterpretation, only those in the financial aid office may feel comfortable giving students information about student loans. In turn, financial aid administrators may be reluctant to advise students about academic matters or career choices, areas beyond their core competency. However, students may benefit from integration of these areas because it may lead to a greater understanding of their debt-to-income ratios, which could influence their quality of life for years to come. Along those same lines, students would benefit from a better understanding of financial literacy and loan repayment obligations and options. The following recommendations for institutions address these issues.

Recommendations

1. **Employ campus-wide efforts to promote successful student loan repayment.** New federal gainful employment regulations have reinforced the importance of student success in loan repayment. While currently limited to programs that lead to gainful employment, as prescribed in the Higher Education Act, the final regulations, which are currently under review following a June 2012 court ruling, have spurred new thinking (and perhaps consternation) among traditional nonprofit institutions that offer degree programs. These schools feel some of the same societal pressures to protect students who borrow substantial amounts to pay for their

education. Proactive schools should view successful student loan repayment as a campus-wide responsibility involving not only the financial aid office, but also the business office, faculty, academic advising department, and career placement department.

2. **Integrate student loan counseling, academic advising, and career guidance.** New U.S. Census Bureau data show that incomes vary by choice of undergraduate major and occupation. Promoting successful student loan repayment requires counseling students to manage both the numerator and denominator of the debt-to-income ratio. Having practical expectations of future income based on choice of major will allow students to make wise decisions concerning the amount of debt they accumulate and the size of their post-college personal budgets. Schools should work with their financial aid office, academic advisors, and career placement centers to coordinate their message to students and to emphasize the interactions among the key decisions facing students – choice of major, amount borrowed, and career pursuits.

3. **Personalize counseling.** Lifetime investments require careful planning. Schools should provide the right atmosphere and information appropriate in scale to the monumental decisions students must make. While institutional budget pressures are ubiquitous and personalized counseling is often costly, schools know that such counseling is effective. Because students face wide disparities in earnings and student debt hazards, personalized counseling can guide students through complex matters, and help them make better decisions that carry lasting consequences. Schools should consider that successful student loan repayment will reflect favorably on them, particularly their cohort default rate performance and any gainful employment standards that the Department of Education may later impose.

4. **Practice "intrusive counseling" based on assessments of risk.** Using analytics that examine prospective debt-to-income ratios, schools can target students who may face challenges repaying their loans. For these at-risk students, schools should adopt a more proactive, even intrusive, approach to counseling that urges students to receive financial literacy training, undergo refresher training on loan repayment options and responsibilities, and participate in career counseling sessions or classes.

5. **Use query tools to highlight the importance of debt-to-income ratios.** A school needs a tremendous amount of data to provide counseling that reflects outcomes based on major and occupation, as well as debt levels. This report uses examples of the more popular occupations to illustrate various counseling scenarios. To make customized debt-to-income counseling feasible, schools need an interactive query tool. TG is constructing such a tool for Texas, but others may build systems for other states or institutions.

6. **Promote financial literacy training.** This report emphasizes the importance of students conducting return on investment calculations based on debt-to-income by major and occupation. This is a form of financial literacy in action, a beneficial discipline in assessing an important financial decision. Training in financial literacy can help students prepare personal budgets, comprehend key financial terms and analyses, and develop skill sets to better evaluate financial opportunities and hazards.

In *Digging Deeper: An Analysis of Student Loan Debt in Texas* (2010), TG alerted policymakers that a growing reliance on student loans to pay for college may have negative consequences on educational access and attainment. In *Balancing Passion and Practicality: The Role of Debt and Major on Students' Financial Outcomes*, TG again focuses on student loans, but with an emphasis on debt management as measured by debt-to-income ratios; it also features an overview of the practices and challenges facing schools as they counsel their students about loans, choice of major, and career preparation.

Building upon previous reports that examine student loan debt and post-graduation income separately, this report intends to spark discussion about how the combined debt-to-income metric can be used to counsel students about finances and career planning more effectively. In particular, this measure can help counselors and advisors to inspire students to think more carefully about the long-term consequences of the type of college they select, their academic choices, the level of intensity they apply to their studies, how they pay for college, and the degree of frugality and caution they apply to their finances. Entering freshmen, especially if they are the first in their families to attend college, are at an information disadvantage when they are asked to sign a promissory note for a student loan. This report lays the groundwork for thinking about ways to correct this disadvantage so students can make wiser decisions.

In order to enable counselors and advisors to provide their students with extensive customized counseling, additional research is still necessary to determine the extent to which other demographic factors, such as borrower's age, correspond to debt-to-income ratios. Armed with the appropriate knowledge, students can make financial and academic decisions that allow them to pursue their passions without sacrificing their practical needs.

Appendices

APPENDIX A

Debt-to-Income Ratio Estimates for Four-Year Institutions: For Texas four-year institutions, debt-to-income ratio estimates were based on TG, ACS, IPEDS, and Carnegie Classification data.

To select the private four-year and public four-year institutions, TG researchers first determined the median annual income per major category for bachelor's-level graduates, based on self-reported Census data.[20]

Second, TG used IPEDS data to identify the number of graduates within each major category at each institution. TG used Carnevale, Strohl, and Melton's (2011) classification system to match specific majors from IPEDS with major categories from the Census.

Third, for each institution, the median income per major category (e.g., *Communications & Journalism*) was multiplied by the number of graduates in that set of majors. The summed income for all graduates was then divided by the number of graduates.

Fourth, TG researchers applied a Carnegie classification weight, which was generated based on average income by institutions' Carnegie classifications,[21] to each institution's average income per graduate. The final variable will be referred to as "average income per graduate," although it is more accurately defined as "average median income per graduate."

Finally, the average income per graduate was compared to TG's data on median federal loan indebtedness for graduates at each institution in order to get the debt-to-income ratio by institution. TG data is sufficient for Texas universities because TG held the majority of the student loans at most Texas institutions in 2009. Only institutions for which TG held 90 percent or more of the borrower portfolio were considered for inclusion in this study.

Debt-to-Income Ratio Estimates for Two-Year Institutions: Since the 2010 ACS did not request educational major from respondents with less than a bachelor's degree, an additional step was required to select the Texas two-year institution to visit for the case study. TG researchers used a crosswalk from Classification of Instructional Programs (CIP) to Standard Occupational Classification (SOC) to determine which occupations were associated with each CIP code. For many CIP codes, there were multiple associated SOC classifications.

Once the CIP and SOC codes were matched, the median annual income for each occupation (SOC code) was calculated for each program (CIP code) using ACS data for associate-level workers. Since there can be many occupations associated with a certain program, the median incomes for each occupation matched with a program were summed and then divided by the total number of matched occupations in order to produce one median income per program.

20 The major categories include the following, based on Carnevale, Strohl, & Melton's (2011) classification system: Agriculture & Natural Resources, Arts, Biology & Life Science, Business, Communications & Journalism, Computers & Mathematics, Education, Engineering, Health, Humanities & Liberal Arts, Industrial Arts & Consumer Services, Law & Public Policy, Physical Sciences, Psychology & Social Work, and Social Science.

21 U.S. Department of Education, National Center for Education Statistics, B&B: 09 Baccalaureate and Beyond Longitudinal Study

Next, the summed income for each graduate, by CIP code, was divided by the number of graduates. The final variable will be referred to as "average income per graduate," although it is more accurately defined as "average median income per graduate" since the data are group-level rather than individual-level.

Finally, the average income per graduate was compared to TG's data on median federal loan indebtedness for graduates at each institution in order to get the debt-to-income ratio by institution. TG data is sufficient for Texas community colleges because TG held the majority of the student loans at most Texas institutions in 2009. Only institutions for which TG held 90 percent or more of the borrower portfolio were considered for inclusion in this study.

APPENDIX B

Below is a document of sample questions provided to each institution prior to its site visit:

Potential topics of conversation

Here is an example of the types of topics we would like to discuss during our site visit. This list is not complete or comprehensive, but it should give you a good idea of the direction and tone of the discussions.

1. Is there any interaction between financial aid, academic advising, and career counseling?
2. Has the economic climate changed the ways students choose their majors?
3. To what extent do academic advisors integrate academic, career, and loan debt advising?
4. What do your advisors typically discuss with students? How much time is spent discussing a student's life plans after college?
5. What discussions do you have about career possibilities? How realistic are students' expectations?
6. Do you track job outcomes of alumni? What percentage is working in their field?
7. What is the general attitude among faculty and staff to the idea of integrating academic, career, and loan debt advising?
8. How important is student initiative to getting career advice at your school?
9. What do you think are the key aspects of academic advising that help lead students to positive financial outcomes after graduation?
10. Are there any red flags during major or career discussions that would motivate an advisor to caution a student about student loan debt?
11. Do you provide tools or other specific resources to help students choose majors?

12. For students who come in with predetermined majors, are certain majors more popular than others are? Why do you think that's the case?
13. From what you can tell, do these students typically continue to pursue that major or do they change majors in the future?
14. When students come in to discuss careers, do they typically have an idea about their likelihood of entering that profession? How realistic are their expectations?
    - If so, where do they typically obtain that information?
15. When students come in to discuss careers, do they typically have an idea about their likely salaries after graduation? How realistic are their expectations?
    - If so, where do they typically obtain that information?
16. Do you think that students ever select particular careers due to their level of student loan debt?
17. About what percentage of your students pursues internships? Do you think that this makes them more likely to get a job after graduation?

APPENDIX C

Top Occupations for High School Diploma Holders in the U.S. (2010)

Occupation	Percentage of High School Diploma Workers	Median Annual Income
Drivers/Sales Workers and Truck Drivers	4%	$37,000
Cashiers	3%	$14,000
Secretaries and Administrative Assistants	3%	$29,500
Janitors and Building Cleaners	3%	$23,000
Retail Salespersons	3%	$20,000
Laborers and Material Movers	3%	$26,000
Cooks	2%	$15,000
First-line Supervisors of Retail Sales Workers	2%	$32,000
Nursing, Psychiatric, and Home Health Aides	2%	$21,000
Customer Service Representatives	2%	$25,950

Source: U.S. Census Bureau, American Community Survey, 2010

APPENDIX D

Top Occupations for Associate Degree Holders in the U.S. (2010)

Occupation	Percentage of Associate Degree Workers	Median Annual Income
Registered Nurses	9%	$53,000
Secretaries and Administrative Assistants	4%	$31,000
Retail Salespersons	2%	$23,000
First-line Supervisors of Retail Sales Workers	2%	$36,500
Miscellaneous Managers	2%	$58,000
Customer Service Representatives	2%	$30,000
Accountants and Auditors	2%	$39,000
Cashiers	1%	$15,000
Nursing, Psychiatric, and Home Health Aides	1%	$24,000
First-line Supervisors of Office and Administrative Support Workers	1%	$41,000

Source: U.S. Census Bureau, American Community Survey, 2010

APPENDIX E

Most Popular Bachelor's Degree Occupations for Popular Majors in the U.S. (2010)

Major	Occupation	Percentage of Bachelor's Degree Workers
Elementary Education		
	Elementary and Middle School Teachers	50%
	Preschool and Kindergarten Teachers	4%
	Secretaries and Administrative Assistants	3%
Accounting		
	Accountants and Auditors	45%
	Financial Managers	6%
	Chief Executives and Legislators	3%
Nursing		
	Registered Nurses	79%
	Medical and Health Services Managers	3%
	Nursing, Psychiatric, and Home Health Aides	2%

Source: U.S. Census Bureau, American Community Survey, 2010

APPENDIX F

Most Popular Bachelor's Degree Occupations for Business Management and Administration Majors in the U.S. (2009)

Occupation	Percentage of Bachelor's Degree Workers	Median Annual Income	Median Annual Student Loan Payment	Debt-to-Income Ratio
Accountants and auditors	6%	$55,000	$3,000	6%
Miscellaneous managers	6%	$80,000	$3,000	4%
First-line supervisors of retail sales workers	4%	$50,000	$3,000	6%
Financial managers	4%	$72,000	$3,000	4%
Sales representatives	3%	$74,000	$3,000	4%
Secretaries and administrative assistants	3%	$35,400	$3,000	9%
Chief executives and legislators	3%	$111,500	$3,000	3%
First-line supervisors of non-retail sales workers	2%	$74,000	$3,000	4%
Marketing and sales managers	2%	$81,000	$3,000	4%
General and operations managers	2%	$80,000	$3,000	4%

Source: U.S. Census Bureau, American Community Survey, 2010

APPENDIX G

Majors with Highest Unemployment Rates in the U.S. (2010)

Major	Bachelor's Degree Unemployment Rate	Median Annual Income
Clinical Psychology	9%	$40,500
Studio Arts	7%	$35,000
Miscellaneous Fine Arts	7%	$40,000
Humanities	7%	$42,000
Architectural Engineering	7%	$70,000
Neuroscience	7%	$39,000
Architecture	6%	$60,000
United States History	6%	$62,000
Communication Technologies	6%	$48,000
Electrical, Mechanical, and Precision Technologies and Production	6%	$45,000

Source: U.S. Census Bureau, American Community Survey, 2010

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