

# The Characteristics Associated with Student Loan Default at Texas A&M University

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# **The Characteristics Associated with Student Loan Default at Texas A&M University**

## **Executive Summary**

In an effort to better understand student loan default behavior at Texas A&M University (TAMU), the research staff at Texas Guaranteed (TG), at the request of TAMU, conducted a study of the relationship between loan default, on the one hand, and many student and borrower characteristics, on the other hand. The study examines the default behavior of 12,776 undergraduate borrowers who attended Texas A&M in College Station and who entered repayment on TG-guaranteed Federal Family Education Loan Program loans during federal fiscal years 1997, 1998 & 1999. The study regards a borrower as being in default if the borrower defaulted within the fiscal year the borrower entered repayment or within the following fiscal year. Texas A&M staff supplied information describing high school coursework, SAT scores, college GPA, length of attendance at TAMU, graduation status, amounts of financial aid received, financial need assessment, gender, marital status and many other aspects of students' backgrounds and college experiences. The study organizes these student and borrower characteristics into the following categories: Preparedness, Attendance Pattern, College Success, Financial Aid, Loan Briefing (Counseling), Demographics and Loan-Related factors.

The study assesses each characteristic's separate relationship to default by determining whether different groups of borrowers, as defined by the values of the variables, have default rates that are significantly different from each other. In cases in which significant relationships are detected, other statistical measures assess the strength of the associations.

In large part, the results of the study corroborate conventional wisdom. For instance, the study confirms that borrowers who are successful in college are also successful in the repayment of their loans. In other words, borrowers are more likely to repay, and less likely to default, if they have high grade point averages and complete their programs of study. Conversely, borrowers with low GPAs and borrowers who do not graduate from college have higher default rates than other borrowers. While the analytical tools do not prove a cause and effect relationship between college success and default, the findings suggest that anything that can improve college persistence and completion would probably decrease student loan defaults.

The findings do more than confirm our intuitions, though; the results provide new information about the relative importance of different categories of variables. Much prior research in this area has compared the importance of borrower versus institutional characteristics and has concluded that borrower attributes are paramount in their connections to default, while institutional characteristics have little or no association to loan repayment behavior (Knapp & Seaks, 1990; Volkwein & Szelest, 1995; Volkwein et. al., 1995; Wilms, Moore & Bolus, 1987). However, the results of the present study would suggest emphasizing another distinction among borrower characteristics – a distinction between performance (or behavior) characteristics and background characteristics. Performance variables are factors that the borrower has some control over, like whether or not the borrower graduates and what grade point average the borrower obtains. Performance characteristics measure the actions and achievements of students in college. In this study, performance characteristics are found primarily among the College Success and Attendance Pattern groups of variables. Most remaining variables that describe students are

background characteristics. Background characteristics can be demographic descriptors (like ethnicity, gender, and family income), factors that describe events or experiences prior to attending college (like SAT score), or variables that otherwise do not reflect student performance in college (like the amount of financial need a borrower has and the adjusted gross income of the borrower's parents). In most cases, borrowers can do little to change background variables.

Prior research has emphasized the importance of both performance and background characteristics. Graduation status (or earned degree), a performance variable, has frequently been one of the most important variables in the outcomes of past default studies (Dynarski, 1994; Knapp & Seaks, 1990; Meyer, 1998; Volkwein & Szelest, 1995; Volkwein et. al., 1995; Wilms, Moore & Bolus, 1987; Podgursky et. al., 2000; Woo, 2002). However, these same studies have also found ethnicity, a background characteristic, to have a relationship to default that is almost as strong or as strong as the association between graduation and default. In addition, the studies have determined that other background variables are also important predictors of default.

The current study, while different in design from the others, nevertheless finds the background variables to be much less important to default behavior at Texas A&M University than the performance variables. This study finds that background variables in the College Preparedness section, which describes borrowers' experiences in high school, the Demographic section and the Financial Aid section have weak relationships to default. In contrast, the performance variables in the College Success section and Attendance Pattern section represent most of the borrower characteristics that have strong associations to default. **In particular, grade point average has the strongest association to default of any variable in the study**, and ethnicity has a very weak relationship to default.

The structure of the present study might partially account for its conclusions being at odds with the findings of many previous studies, even though both sets of conclusions are valid. Unlike the studies cited above, this study analyzes only one institution – Texas A&M University. Other studies looked at many postsecondary institutions simultaneously. Examining multiple institutions might increase the chances of detecting large differences in default behavior between groups of borrowers with different backgrounds. If, for example, a group of borrowers with a particular ethnic background has a higher propensity to default on average and also tends to enroll at particular postsecondary institutions, while borrowers of other ethnic backgrounds tend to study at other schools, then only an analysis that incorporates a cross-section of these institutions can more fully account for the differences in default behavior that are associated with ethnicity. For similar reasons, other background variables might also have less explanatory or predictive power in a single-institution study than in a multiple-institution study.

At any rate, this outcome of the study – that background variables are less important than performance variables at TAMU – is somewhat heartening. Borrowers are succeeding in the student loan programs largely without respect to their ethnicity, their parents' educations or their family income. Moreover, the study suggests that default behavior hinges more strongly on factors that are at least partially under the borrower's control: whether the borrower graduates, how long the borrower spends in college and how well the borrower does in his or her college coursework. Additionally, the importance of the college success variables is consistent with one of the core principles of the student loan programs: student loans are worthwhile investments that borrowers will be able to repay, particularly when borrowers succeed in their programs of study.

At this point, one can only speculate about the precise relationship between college success and default. Graduating and achieving a high GPA do not directly cause a borrower to repay. Those factors might make borrowers better able to repay, by garnering them better jobs in the labor

market, but they will not necessarily make borrowers willing to repay loans. More likely, there are personal characteristics -- like persistence, motivation, intelligence, conscientiousness and discipline -- that contribute both to the borrower's success in college and to the borrower's propensity to repay his or her loans after college. Interestingly, we can be fairly sure that these personal factors do not derive from the borrower's background characteristics; since if they did, the background variables would likely have as strong a relationship to default as the performance variables. That they have weak relationships suggests that characteristics like persistence, if they are the real casual factors here, largely transcend ethnicity and socio-economic status, at least as those background characteristics are captured within the context of this single-institution study.

To the extent that success in college is an outgrowth of the personal qualities of the student, directly promoting college success might largely be beyond the reach of administrative strategies. In many cases, it might be too late for administrators and educators to inculcate discipline and motivation in students who did not have those traits when they arrived on campus. Perhaps the most administrators will be able to do is to create a supportive environment that encourages the expression of the students' best qualities when those qualities are already present. Certainly, retention and persistence strategies should seek to bind the student to campus life, create effective support services and remove barriers -- financial and otherwise -- that discourage students from completing their educational journeys.

Aside from the study's support of retention and persistence strategies, the most tangible benefits of the study might be the identification of some early indicators of future default trouble, around which administrators can build intervention strategies. For example, the default rate of borrowers with grade point averages of 2.0 or less is around 18 percent, while the default rate of all other borrowers is 2.6 percent. Therefore, financial aid administrators could direct supplemental loan counseling to borrowers as soon as their GPAs fall below a certain level. Such counseling could emphasize the importance of satisfactory academic progress in maintaining eligibility for federal financial aid.

(Incidentally, the study shows that in-person exit counseling is strongly related to default behavior. Borrowers who receive exit counseling through in-person contact with counselors have a 1.3 percent default rate, while borrowers who do not receive in-person counseling have an 11.1 percent default rate. However, in-person exit counseling might owe much of its association with default to the fact that it is so strongly correlated with graduation status. Nearly everyone who graduates receives in-person exit counseling, but few borrowers who fail to graduate receive it.)

Borrowers who fail courses might also be another target for aid personnel. The study shows that a borrower who never fails a course has a default rate of 1.4 percent. But borrowers who fail more than one credit-hour have a default rate of 8.6 percent. Therefore, university administrators could use course failure as a trigger for intervention with regard to a borrower's student loans.

This research further suggests that borrowers who do not graduate are at a much greater risk of default than borrowers who graduate. Graduating borrowers have a default rate of only 1.8 percent, compared to a rate of 13.7 percent for borrowers who do not graduate. Therefore, withdrawing or terminated student borrowers are a possible target group for expedited exit counseling and other outreach programs.

Particular academic majors and university colleges also have higher than average default rates. Administrators might be able to leverage this information to focus counseling efforts when student borrowers chose a major or attend a college for the first time. Or financial aid personnel

could craft exit counseling to the particular needs of a given college or major when borrowers are leaving the university.

While it might be desirable to target first-time freshmen borrowers based upon information from their admissions applications, the variables from the College Preparedness section, which describes the borrower's coursework and success in high school, will not serve as very strong predictors of future default trouble. This fact is somewhat surprising, considering that variables describing success in college are so important in the study. For example, college GPA has the strongest relationship to the occurrence of default of any variable in the study, but the borrower's high school class rank has only a moderate relationship to default at best. It appears that as borrowers become more removed in time from past performance, the performance has less influence on college outcomes and student loan default risk.

Using the study results to target defaulters will incur a certain amount of misclassification. If, for example, the university administration provides supplemental loan counseling to borrowers whose GPAs fall below 2.0, it will be addressing the default risk of over half of the borrowers who would otherwise default after leaving TAMU. If the counseling is effective, then at least some of these borrowers will avoid default and TAMU's default rate will be lower than it otherwise would have been. This appears to be an effective strategy. But because the default rate of borrowers with GPAs less than 2.0 is around 20 percent, 80 percent of the borrowers who receive the supplemental counseling would not default even if they did not receive it. Essentially, supplemental counseling will have been provided unnecessarily to 80 percent of the targeted group.

Nevertheless, the inefficiency of a targeted intervention strategy might be acceptable for two main reasons. First, the benefits of preventing some defaults might simply outweigh the costs associated with "errantly" targeting other borrowers. Second, a given targeting strategy might incur less error than the next best alternative approach. For example, if a commitment already exists to provide supplemental loan counseling to everyone who begins their sophomore year, then targeting borrowers based upon GPA might very well incur less error than, and have many of the benefits of, the more sweeping strategy.

Additional research could help increase the efficiency of default aversion strategies and decrease the costs. For example, research might reveal that a combination of borrower characteristics identifies most of the defaulters at TAMU but is associated with very few non-defaulters. Targeting that is based upon such research would be very efficient and could justify more costly and more intensive intervention strategies, depending upon their perceived benefits. A multivariate analytical approach would be a possible way to build upon the research presented in the present study.

# **The Characteristics Associated with Student Loan Default at Texas A&M University**

## **Highlights**

- 1) Texas A&M University borrowers who are successful in college – as measured by a number of variables -- have a much lower likelihood of defaulting on student loans.
- 2) Background variables, like demographic characteristics and financial aid variables, have little connection to default within the context of this study. This finding differs from the conclusions of some previous studies, which found background variables, in particular ethnicity, to be among the most important predictors of default.
- 3) College grade point average has the strongest association to default of any variable in the study. Borrowers with college GPAs of 2.0 or less default at nearly an 18 percent rate. In contrast, borrowers whose GPAs exceed 2.5 have default rates of 2.0 percent or less.
- 4) Borrowers who graduate have less than a 2 percent chance of defaulting, while non-graduates have a 13.7 percent default rate.
- 5) In some cases, different majors have dramatically different default rates. For example Finance majors have a 1.8 percent default rate, but General Studies majors have a 14.7 percent default rate.
- 6) Other important College Success variables are Number of Hours Failed and Number of Hours Passed. Number of Hours Failed could serve as a good early indicator of trouble that might eventually lead to default.
- 7) Of the top eight variables in strength of relationship to default, only one is not a College Success variable: whether or not a borrower received in-person exit counseling. Only a little over 1 percent of borrowers who receive in-person exit counseling default within the two year cohort period, while 11 percent of borrowers who do not receive the counseling default. However, the exit counseling variable is highly correlated with whether borrowers graduate from college; further analysis will be required to determine the independent effect of in-person exit counseling.
- 8) The variables in the Attendance Pattern section generally have the second strongest set of relationships to default, after the College Success variables. Most of the leading variables in the Attendance Pattern section indicate that the longer the borrower is in college, the less likely the borrower is to default. Like the College Success variables, the Attendance Pattern variables measure the performance or the behavior of borrowers during college.
- 9) Regardless of whether borrowers graduate, the more course hours they successfully complete, the lower their likelihood of default. Thus, efforts to increase student persistence would probably reduce default rates.



- 10) Financial aid-related variables, including measures that reflect the income of the borrower and the borrower's parents, have weak relationships to default.
- 11) Loan-related variables, such as the number and amount of loans taken by the borrower, have extremely weak associations to default.

# **The Characteristics Associated with Student Loan Default at Texas A&M University**

## **Introduction**

### **Context**

Loan defaults are an integral part of the federally-subsidized student loan programs. At their core, the programs are intended to assist students, and prospective students, who would otherwise be unable to secure financing from private lenders because of the risk that they would default on their loans. In the Federal Family Education Loan Program (FFELP), the federal guarantee makes it possible for private lenders to provide the needed financing, but the guarantee can not eliminate the underlying risk of default. A certain number of defaults are, in fact, inevitable.

While one purpose of the loan programs is to absorb the inevitable costs of defaults, over time, the loan programs have accepted as another purpose the reduction and minimization of defaults. This fact is evident in the numerous prevention and mitigation efforts that have been implemented since the default crisis of the late 1980s and early 1990s. From the enforcement of default rate sanctions against schools to the establishment of default prevention officers in some college financial aid offices to the increasingly effective application of default aversion initiatives by guarantee agencies and others, industry actors had successfully reduced default rates to very low levels by the end of the 1990s. Over this period of increased focus on default prevention, the national cohort default rate declined from a high of 22.4 percent in fiscal year 1990 to 5.6 percent in 1999.

After more than a decade of focusing on the reduction of default rates, loan program participants have refused to become complacent. As a service to their students and their alumni, some schools remain committed to reducing default rates to their lowest possible levels. Student aid conferences continue to place sessions concerning default prevention on their agendas. Guarantee agencies, schools, lenders and servicers compete, in part, on the basis of their ability to prevent defaults and reduce default rates. Industry alliances have formed to gather best practices and to generate innovations in default aversion. And researchers continue to ponder and test the factors that are associated with student loan defaults, so that they can arm default prevention practitioners with insights that might lead to further innovations.

It is within this context that the present study is offered. Texas A&M University (TAMU) seeks to better understand the causes of default behavior and desires additional means for preventing future defaults. In turn, Texas Guaranteed (TG) wants both to better fulfill its mission as an agent of default aversion and to build upon the body of knowledge concerning the factors related to default behavior.

### **Study Objective**

The purpose of this study is to identify the relationships between borrower characteristics and student loan default behavior. The study will consider only the characteristics and behavior of borrowers who obtained loans through the Federal Family Education Loan Program and attended

Texas A&M University as undergraduate students. It will identify important relationships by testing whether the default rates of different groups of borrowers are significantly different from each other. The authors of the study hope that awareness of these important relationships will inform the decisions at Texas A&M University that direct counseling efforts and other resources at borrowers before they enter repayment.

Another possible objective of this study is to lay the groundwork for a predictive statistical model. The model would estimate the likelihoods of borrowers defaulting after they enter repayment. Such predictions would be related to the characteristics of the borrowers and their loans. The characteristics chosen for the model would depend, in part, upon the insights that result from the present study.

## **Prior Research on the Factors Relating to Student Loan Default**

Previous research has provided many, though perhaps not always consistent, insights into the factors related to student loan defaults. The genesis of early studies was the need to comment on the policy of holding schools responsible for borrower defaults. Therefore, many prior studies have concerned themselves with evaluating the relative importance of borrower and institutional characteristics. Several have found that institutional characteristics have little or no association to loan repayment behavior and that borrower variables are much more important predictors of default (Knapp & Seaks, 1990; Volkwein & Szelest, 1995; Volkwein et. al., 1995; Wilms, Moore & Bolus, 1987). Nevertheless, a number of the studies have found either the type of school or the school of attendance to be significantly related to repayment, even after factoring in the influence of borrower characteristics (Dynarski, 1994; Monteverde, 1999; Meyer, 1998; Podgursky et. al., 2000; Volkwein et. al., 1995; Woo, 2002). However, among this group of studies, only Dynarski and Monteverde claimed more than a moderate effect for institutional characteristics. At the same time, Monteverde suggested researchers might have been posing the wrong question by comparing institutional and borrower characteristics.

In their endeavor to find the factors related to default, researchers have evaluated many borrower characteristics that are relevant to the present study. These factors include demographic descriptors (such as ethnicity or race, gender, age and income), financial aid-related variables (like financial need and expected family contribution) and some high school-related variables (like ACT scores and whether the borrower has a high school diploma). Though not germane to this study, a couple of the prior analyses have also included variables that describe the borrower's experience after leaving college (Dynarski, 1994; Volkwein & Szelest, 1995; Volkwein et. al., 1995; Woo, 2002).

The most consistent finding of past studies is that borrowers who graduate (or who earn a degree or who do not withdraw) have a much lower probability of defaulting on their loans, as compared to borrowers who do not graduate (Dynarski, 1994; Knapp & Seaks, 1990; Meyer, 1998; Podgursky et. al., 2000; Volkwein & Szelest, 1995; Volkwein et. al., 1995; Wilms, Moore & Bolus, 1987; Woo, 2002). The studies found the relationship to be both statistically significant and strongly related to default behavior. In addition, for many of these studies, graduation status was the single most important variable.

Prior studies have attempted to operationalize few other variables that measure the borrower's performance in college. Volkwein et. al. (1995) found that the borrower's GPA in college and whether the borrower was a science or technology major produced significant but relatively small

decreases in the probability of default. They also determined that a variable signifying that the borrower was a transfer student did not have a significant relationship to default. A related study by Volkwein and Szelest (1995) uncovered similar results with respect to college GPA, majoring in science or technology, and transfer status. Woo (2002) found that attainment of a graduate or professional degree greatly reduces the chances of default. She further established that borrowers who attended more than one school were also less likely to default. (Woo noted that this variable partially reflects the fact that borrowers who go to graduate school have attended more than one school.) Whether or not a borrower studied a business or computer curriculum did not have a significant association to default in Woo's study. Meyer found that as the academic level attained by a borrower increases, the probability of default decreases.

Researchers have devoted much more attention to demographic variables than to performance factors. In fact, the second most prominent finding of default studies has been that ethnicity/race is strongly related to default (Dynarksi, 1994; Knapp & Seaks, 1990; Podgursky et. al., 2000; Volkwein & Szelest, 1995; Volkwein et. al., 1995; Wilms, Moore & Bolus, 1987; Woo, 2002). In particular, being Black greatly increases the probability of default. In three of the studies (Volkwein & Szelest, 1995; Volkwein et. al., 1995 and Woo, 2002), being Black had the largest effect of all variables, and in the remainder of the cited studies, being Black was the second most influential factor (as measured by the size of coefficients, odds ratios or T ratios).

Previous research has also determined that other demographic characteristics have significant, though mostly smaller, associations to default. After ethnicity, parental income appears to be the most commonly-tested demographic variable, and studies have found higher income levels to be associated with decreases in the probability of default (Dynarksi, 1994; Knapp & Seaks; Volkwein et. al., 1995; Wilms, Moore & Bolus, 1987; Woo, 2002). Gender is also routinely analyzed, and researchers usually conclude that being female is related to a substantial reduction in the likelihood of defaulting (Podgursky et. al., 2000; Volkwein et. al., 1995; Woo, 2002). Podgursky et. al., Woo and Meyer examined the age of the borrower and determined it to have a significant but small effect on default behavior, with increases in age related to higher probabilities of defaulting. In contrast, Knapp & Seaks could not detect a statistically significant relationship for either the gender or age of the borrower. Volkwein and Szelest (1995) also failed to uncover an association between gender and default behavior. Among the other demographic variables that researchers have found to have significant relationships to default are the marital status of parents, (Knapp & Seaks, 1990), U.S. citizenship (Wilms, Moore & Bolus, 1987), the parents' educational level (Volkwein et. al., 1995), being Hispanic (Dynarksi, 1994; Woo, 2002), having dependents (Dynarksi, 1994; Volkwein & Szelest, 1995; Volkwein et. al., 1995; Woo, 2002), the marital status of the borrower (Dynarksi, 1994; Volkwein & Szelest, 1995; Volkwein et. al., 1995), the borrower's income (Dynarksi, 1994; Volkwein & Szelest, 1995; Volkwein et. al., 1995; Woo, 2002) and several others.

To a very limited extent, researchers have evaluated characteristics reflecting the borrower's experience before college. Several studies have found that graduation from high school reduces the likelihood of default (Dynarksi, 1994; Volkwein et. al., 1995; Wilms, Moore & Bolus, 1987 and Woo, 2002). However, Volkwein and Szelest did not detect a significant relationship between having a high school diploma and default behavior. Podgursky et. al. also examined ACT scores and identified a small negative effect on default.

Studies have generally paid scant attention to financial aid-related variables. Nevertheless, it is important to test whether financial assistance mitigates the probability of default in ways that are independent of income. Among the studies reviewed here, only a couple reviewed variables other than family income and family assets. Volkwein et. al. tested several financial aid-related

variables – such as the receipt of scholarships/grants, whether the borrower participated in work study and whether the borrower had other employment – but found none of them to be significant. Meyer, however, determined that the probability of default declined with increases in the cost of attendance, controlling for type of institution. He further discovered that the likelihood of default increased substantially for borrowers who received more than \$1,000 from non-loan aid sources. He noted a small decrease in the chances of defaulting as the expected family contribution of borrowers increased.

Several of the studies have also included loan-related variables. Four of the analyses determined that there was not a statistically significant relationship between the amount of loans borrowed and default behavior (Knapp & Seaks, 1990; Volkwein & Szelest, 1995; Volkwein et. al., 1995; Woo, 2002). Meyer, however, found that larger amounts of total debt at 4-year schools increased the probability of default by one percentage point. And Dynarski determined that the probability of default rose with increases in the size of borrowers' monthly loan payments. Furthermore, Woo detected a small increase in the likelihood of default associated with an increase in the number of loans a borrower has. Meyer also examined the types of federal loans that borrowers received and showed that borrowers with only subsidized Stafford loans had the highest probability of default. In his study, he further demonstrated that borrowers who utilized deferments had a somewhat smaller chance of defaulting.

Compared to past studies, the present study will evaluate a far greater number and variety of variables. It will more thoroughly examine how variables that describe the performance of borrowers in college relate to the probability of default. It will look at a large number of performance characteristics, ranging from variables that measure success in college, like the number of course hours passed, to factors that describe the pattern of the borrower's attendance at TAMU, such as how many semesters the borrower attended and how many times the borrower withdrew from school. Furthermore, the study will expand the number and type of variables that depict the borrower's experience in high school, such as the number of course hours the student took in various subject areas. In addition, this analysis will consider a much larger number of variables that portray the financial aid process, including financial need, expected family contribution and aid amounts.

## **Sample**

The study sample includes 12,776 Texas A&M University undergraduate borrowers who went into repayment between October 1, 1996 and September 30, 1999 on a Stafford or SLS loan guaranteed by Texas Guaranteed (TG). The sample is made up of three cohorts or groups of borrowers, each representing a federal fiscal year. (The federal fiscal year spans from October 1 through September 30 of the following calendar year.) The first cohort includes student borrowers who entered repayment in Fiscal Year (FY) 1997 or, rather, between October 1, 1996 and September 30, 1997. The second cohort represents borrowers who entered repayment during FY 1998. And borrowers who entered repayment during FY 1999 comprise the third cohort.

Though the initial study design called for analyzing graduate and professional students as well, early work on the study indicated that this was not practical. The sample size for graduate students (2,802 borrowers, with 67 defaulters) would make it more difficult than with the undergraduate population to detect a large number of significant and strong relationships between the study factors and default behavior. Additionally, from a practical standpoint, the extremely

small number of defaulters also suggests that student loan defaults are generally a much less important issue for graduate borrowers than for undergraduate borrowers.

## **Variables**

The study examined the variables listed in the following subsections. The variables are grouped into seven categories: College Success, Attendance Pattern, Preparedness, Demographics, Financial Aid, Loan Briefing, and Loan-related. In a joint effort, representatives from Texas A&M and TG members defined these categories and selected variables that had potential value in illuminating the default behavior of Texas A&M borrowers. Some of the variables that were originally selected were not included in the study because of data problems or because they were not applicable to undergraduate borrowers. Other variables in the list were not selected by the study team but are derived from data in the original data base.

### **I. Default or Not**

Whether or not borrowers default is the focus of this study. The study regards a borrower as being in default if the borrower defaulted within the fiscal year the borrower entered repayment or within the following fiscal year. The study will determine whether default rates vary between different groups of borrowers or for different characteristics of borrowers. The rest of the variables, as described below, will define the characteristics of borrowers whose default rates are to be compared. As an example, the study will check whether default rates change as SAT equivalency scores increase. If they do and statistical tests show that the relationship is significant, then the findings might provide a valuable insight or, at least, a confirmation of conventional wisdom.

### **II. College Success**

The “College Success” variables measure the academic performance of borrowers at TAMU. Borrowers can differ in the quantity and market value of their educations and in whether they attain their degrees. Variables such as “Hours Passed” and “Number of Degrees” measure the quantity of education that borrowers experience. “College” and “Degree” might implicitly reflect the market value of the education students receive. In general, the authors expect that labor markets will place a higher value on greater quantities and certain programs of study and that they will prefer degree completers to non-completers. If so, borrowers who succeed in college should obtain higher-paying jobs with better careers tracks and they should, therefore, be better positioned to repay their student loans. Furthermore, the personal qualities, like persistence and discipline, that contribute to a borrower’s success in college might also make the borrower more likely to repay his or her loans.

**College of the Student’s Most Recent Major**

**Type of Degree**

**Graduation Indicator**

**Highest Degree Attained**

**Highest Level Attained**

**Indicator of Minor**

**Indicator of Secondary Major**

**Minor**

**Number of Changes in Major**

**Number of Degrees**

**Number of Hours Failed**

**Number of Hours Incomplete**

**Number of Hours Passed**

**Number of Hours Q Dropped:** a grade of 'Q' is assigned when a student drops a course without penalty on or before the 50<sup>th</sup> day of classes in a Fall or Spring semester, the 15<sup>th</sup> day of a 5 week summer term or the 35<sup>th</sup> day of a 10 week summer term.

**Primary Major**

**Secondary Major**

**Undergraduate GPA**

### **III. Attendance Pattern**

The "Attendance Pattern" variables describe the length and intensity of a borrower's attendance at Texas A&M. Some of the variables also indicate whether there were interruptions in the borrower's course of study and whether the borrower was a transfer student. As a group, the variables are intended to signify the borrower's commitment to the education he or she is pursuing. The study's authors anticipate that borrowers who finish their programs of study, finish sooner rather than later, and finish with few interruptions will default with less frequency than other groups of borrowers.

**Admission Code:** whether the student was admitted automatically on the basis of class rank and SAT score (i.e., "admitted by academics"), was admitted after additional review of the student's admissions application and high school transcript (i.e., "admitted by review"), was accepted on a provisional basis (i.e., "accepted on provisional"), in which full freshman admission in the fall is conditional upon making satisfactory progress in two summer semesters, or was accepted through some other means (i.e., "Other").

**Admission Major**

**College of Admittance:** college (within TAMU) to which the student was admitted

**Highest Number of Semester Hours**

**Number of Hours Transferred**

**Lowest Number of Semester Hours**

**Number of Semesters Enrolled Before Departure**

**Number of Semesters Enrolled Less than Full Time**

**Number of Semesters in a Dorm**

**Number of Summer Semesters Attended**

**Number of Withdrawals**

**Number of Years Between First Attendance and Most Recent Departure**

**Previous College:** college that the borrower attended prior to attending TAMU

**Total Hours – TAMU Hours plus Transfer Hours**

**Total Number of Hours Taken at TAMU**

**Type of Admission:** whether the student was admitted as a freshman, a transfer, an international student or a readmission

**Withdrawal Indicator:** indicates whether the borrower ever withdrew from TAMU

**Withdrawal Type:** the reason for the withdrawal

#### **IV. Preparedness**

In general, “Preparedness” variables reflect student performance before entering the university. They indicate the extent to which the student is ready for university programs of study. Since other research shows that college success/completion increases the likelihood that borrowers will repay student loans (see Prior Studies section) and since high school preparedness probably increases college success, we can expect that good performance before entering the university is related to lower default rates.

**Number of Advanced Placement Credits**

**Number of High School Advance Math Credits**

**Number of High School Algebra I Credits**

**Number of High School Algebra II Credits**

**Number of High School Biology Credits**

**Number of High School Chemistry Credits**

**High School Class Rank Percentile**

**Number of High School Computer Sciences Credits**

**Number of High School English Credits**

**Number of High School Foreign Credits**

**Number of High School Geometry Credits**

**Number of High School Other Science Credits**

**Number of High School Physics Credits**

**SAT Equivalency Score:** SAT score or the conversion of an ACT score to an equivalent SAT scale.

#### **V. Demographics**

The demographic characteristics of borrowers might be related to default behavior in various ways. Perhaps degree attainment by the borrower’s mother or father is related to success in repaying student loans; this might occur as a result of the borrower internalizing the parent’s educational success as a model for responsibility and hard work and bringing those values to bear in many aspects of his or her life. Marital status and family size might be proxies for the amount of financial resources that are available to repay loans; married students or dependent students from large families might have fewer resources available to them from family income and therefore might be more likely to default.

**Age of Borrower:** borrower’s age at the time of entering repayment

**Gender of Borrower**

**Ethnicity of Borrower**

**Marital Status of Borrower**

**Citizenship of Borrower**

**Residency Status**

**Country of Permanent Address**

**State of Permanent Address**

**Country of Local Address**

**State of Local Address**

**Highest Degree Father**

**Highest Degree Mother**

**Parental Marital Status**

**Parental Family Size**



## **VI. Financial Aid**

“Financial Aid” variables measure the monetary resources available to students from their own income, from parent’s income and from student financial aid programs. While it is likely that high need/low-income borrowers will have higher probabilities of defaulting, there are other possibilities. The receipt of financial assistance might decrease the risk of default in groups that would otherwise be at high risk of default. It is also possible that high income, low need borrowers lack the commitment to their loan obligations that comes with having a high need for them, and so they default at rates comparable to other borrowers.

**Adjusted Gross Income of Parents**

**Adjusted Gross Income of Student**

**Amount of Need**

**Dependency Status**

**Expected Family Contribution**

**Total Family Contribution:** The Expected Family Contribution (EFC) minus certain financial aid amounts that cover the borrower’s EFC.

**Total Loan Aid**

**Total Other Aid**

**Total Work Study Aid**

## **VII. Loan Briefing Variables**

If debt counseling and exit counseling are operating effectively, they should lower the rate at which borrowers default.

**Debt Counseling**

**Exit Counseling (In-person)**

## **VIII. Loan-related Variables**

The “Loan-related Variables” originate from TG’s data bases. They represent basic measures and indicators of the borrower’s student loan experience that might have a relationship to default behavior. In theory, the “Number of Loans” and the “Total Loan Amount” could indicate the repayment burden that a borrower faces: the higher the burden, the greater the likelihood of default. Alternatively, those variables could simply be a proxy for how long the borrower went to school: generally speaking, the higher the loan amount, the more education the borrower received and, therefore, the less likely the borrower is to default. Participation in the consolidation loan program could signify that the borrower has a knowledge and experience of the tools that will help keep a person out of default.

**Number of Lenders**

**Number of Loans**

**Consolidation Loan:** whether or not the borrower has a consolidation loan

**Total TG Loan Amount**

## Analysis

The following analysis examines many of the variables in the previous sections. In general, the analysis centers on the question of whether there are substantial and statistically significant differences in the default rates of borrowers who are grouped according to the categories defined by these variables. The default rate is defined as the percentage of borrowers who entered repayment within a given federal fiscal year and who defaulted either within that year or the following year.

This report provides the default rates for each category of borrower defined by the variables. Statistical measures will ascertain the strength of relationship between an explanatory variable and the default behavior variable and will determine whether the relationship is statistically significant. For some numeric variables, the analysis will additionally determine whether the means for those variables are different for defaulters and non-defaulters (See Appendix A). As an example, the analysis will pool defaulters and non-defaulters into separate groups and calculate an average SAT equivalency score for each group.

Each section is organized in the following manner. A short overview of the findings will lead off a section. Then, a summary table will describe the results of the applicable statistical tests for the variables in that section. Following the summary table, a subsection describes the results for each individual variable. The results are provided in both a narrative and tabular form.

The summary table for each section indicates whether statistically significant relationships exist and provides tests for strength of association. The summary tables are sorted in descending order of a statistic called the Uncertainty Coefficient, which indicates strength of association between each variable and default. Strength of association will be at its highest when a variable defines a category (or group of categories) that has a relatively high default rate and also contains most of the defaulters. The Uncertainty Coefficient ranges in value between 0 and 1. The higher the value of the Uncertainty Coefficient, the stronger the relationship between the variables is. The summary table also lists values for Cramer's V, Gamma and the Spearman Correlation Coefficient, the latter two of which measure strength of relationship for ordinal variables – variables whose values indicate some sort of natural ordering. Cramer's V, like the Uncertainty Coefficient, varies between 0 and 1, with higher values indicating greater strength of association. For the Gamma and Spearman measures, values can range from -1 to +1 and higher absolute values of a statistic indicate a greater strength of relationship. If a Gamma or Spearman measure is statistically significant, it will have a gray highlight in the table. This study will regard a variable as statistically significant when the probability is 5 percent or less that there is no association between the variable and default.

The default rate table within each variable's subsection is arranged for easy interpretation. Tables that display variables with a natural order to them – like Number of Semesters Enrolled Before Departure – will be sorted in order of increasing value of the variable. However, tables that describe variables with named categories – like Type of Admission – will be sorted in ascending order of the percentage of borrowers who default. The gray shaded areas in every table identify the categories that have default rates lower than the average default rate (4.7 percent, or 600 defaulters out of 12,776 total undergraduate borrowers). The white areas of a table indicate the groups who have default rates that are greater than the average.

**This study utilizes an average default rate (of 4.7 percent) that is higher than Texas A&M's official cohort default rate for fiscal year 2000, which is 2.3 percent. The rate is higher than**

**the official rate for a couple of reasons. First, the 4.7 percent default rate excludes graduate and professional students, who tend to have very low default rates. In contrast, the official cohort default rate includes these students. Second, the 4.7 percent rate is an average of several years when Texas A&M’s cohort default rates were typically higher than the FY 2000 cohort rate.**

## **College Success**

No other group of variables in this study has as strong a relationship with default behavior as the variables that describe the success of borrowers in their college studies. As measured by the Uncertainty Coefficient, the College Success section contains the top four variables and seven out of the top eight variables with the strongest relationships to default. **It is clear that the success of borrowers in college is related to their success in the repayment of student loans.**

Several different measures of college success are related to whether or not borrowers default after leaving Texas A&M. Not only is completion of a program of study important to whether or not borrowers default, but the quality of their educational attainments along the way, as measured by grade point average (GPA) and number of hours passed and failed, is equally important. For example, borrowers with GPAs that exceed 3.0 hardly default at all, even if they did not graduate from college. Conversely, borrowers with low GPAs have high default rates, whether or not they graduate (and they seldom graduate). There also appears to be an interaction between completion and quality of attainment, with borrowers who graduate and who achieve high GPAs (3.0 and higher) having among the lowest default rates of any group in the study (at 0.55 percent).

There are at least a couple of ways to depict the relationship between college success and default behavior. First, it is possible that the hard work and responsibility that result in college success – as measured by degree attainment, graduation, GPA and other variables – is a life habit that carries over to responsibilities in other areas of the borrower’s life, such as in loan repayment. Second, if college credentials mean anything, borrowers who achieve success in college will garner better positions in the job market and will demand higher salaries on average compared to those who are less successful in college. The higher salaries of the successful college student will translate into a lower burden of student loan debt and, therefore, a greater likelihood of repayment. Most likely, though, both these factors, and possibly others, combine to determine how student success really influences loan repayment.

### **Statistical Summary: College Success**

<b>Variable</b>	<b>Statistical Significance</b>	<b>Uncertainty Coefficient</b>	<b>Cramer’s V</b>	<b>Gamma</b>	<b>Spearman Correlation</b>
Undergraduate GPA	Significant	0.15	0.27	-0.70	-0.22
Highest Degree Attained	Significant	0.14	0.26	N/A	N/A
Number of Degrees	Significant	0.14	0.26	-0.80	-0.25
Graduation Indicator	Significant	0.13	0.24	0.79	0.24
Number of Hours Failed	Significant	0.11	0.23	0.64	0.21
Number of Hours Passed	Significant	0.08	0.20	-0.70	-0.20
Primary Major	Significant	0.08	0.20	N/A	N/A
College of the Student’s Most Recent Major	Significant	0.03	0.12	N/A	N/A
Number of Hours Q-dropped	Significant	0.02	0.10	0.25	0.08
Number of Changes in Major	Significant	0.01	0.07	-0.13	-0.04

Number of Hours Incomplete	Significant	0.01	0.07	0.62	0.07
Highest Level Attained	Significant	0.01	0.05	N/A	N/A
Degree	Significant	0.01	0.04	N/A	N/A
Indicator of Minor	Significant	0.00	0.04	0.23	0.04
Indicator of Secondary Major	Significant	0.00	0.02	1.00	0.02
Minor	Not significant	N/A	N/A	N/A	N/A

### Undergraduate Grade Point Average (GPA)

**Borrowers with higher grade point averages have lower student loan default rates.** It appears that the success of borrowers in their coursework, as measured by GPA, is as important to loan repayment as degree attainment and graduation. Borrowers with college GPAs of 2.0 or less default at nearly an 18 percent rate. In contrast, borrowers whose GPAs exceed 2.5 have default rates of 2 percent or less. In fact, borrowers with GPAs that exceed 3.0 hardly default at all (less than 1 percent of the time).

**Borrowers who have less than a 2.5 GPA account for 82.5 percent of all defaulters.**

As measured by the Uncertainty Coefficient, this variable has the strongest association to default of any variable in the study.

Undergraduate GPA	Default				Total
	No		Yes		
	N	% of row	N	% of row	
0.00	87	82.1	19	17.9	106
0.01-1.00	206	77.7	59	22.3	265
1.01-2.00	1,189	83.3	239	16.7	1,428
2.01-2.50	2,893	94.2	178	5.8	3,071
2.50-3.00	3,933	98.0	79	2.0	4,012
3.01-4.00	3,868	99.3	26	0.7	3,894
<b>All Undergraduates</b>	12,176	95.3	600	4.7	12,776

### Highest Degree Attained

The following table shows that degree attainment is related to whether or not borrowers default. **Borrowers with no degree have a default rate of 15.3 percent, whereas borrowers who have a degree have a rate between 1.3 percent and 1.9 percent.** The difference in default rates between borrowers who earn baccalaureate degrees and those who attain post- baccalaureate degrees is not statistically significant. The statistically significant relationship exists between those who do not get a degree and those who do. Since students obtain undergraduate degrees when they graduate from college, the relationship in the table below should reduce exactly to the relationship depicted by the graduation variable several subsections later. That this is not the case results from situations in which some borrowers have degrees listed but do not have graduation dates in the study data base.

Highest Degree Attained	Default				Total
	No		Yes		
	N	% of row	N	% of row	
Post-baccalaureate	1,230	98.7	16	1.3	1,246
Baccalaureate	8,626	98.1	166	1.9	8,792
No Degree	2,320	84.7	418	15.3	2,738
All Undergraduates	12,176	95.3	600	4.7	12,776

### Number of Degrees

The number of degrees that a borrower attains is strongly and significantly related to the borrower's likelihood of default. However, as in the case of Highest Undergraduate Degree Attained, Number of Degrees is highly correlated with whether or not borrowers graduate. In fact, there is no statistically significant difference in default rates between borrowers with one degree and borrowers with two degrees. The statistical significance of the table can be attributed almost entirely to the difference in default rates between those who do not receive any degree (15.0 percent) and those who get at least one degree (between 1.1 percent and 1.8 percent).

Like Highest Undergraduate Degree Attained, the relationship here reduces approximately to the relationship between graduation and default.

Number of Degrees	Default				Total
	No		Yes		
	N	% of row	N	% of row	
0	2,376	85.0	418	15.0	2,794
1	9,531	98.2	179	1.8	9,710
2	269	98.9	3	1.1	272
All Undergraduates	12,176	95.3	600	4.7	12,776

### Graduation Indicator

There is a strong and statistically significant between graduation status and default. **Borrowers who do not graduate have a nearly 14 percent default rate, while borrowers who do graduate have less than a 2 percent rate.** While this finding ratifies conventional wisdom among those who discuss student loan defaults, it fails to resolve the issue of cause and effect. Do borrowers repay their loans because they graduate or do they both graduate and repay their loans because of some third factor (or set of factors)? Perhaps some borrowers have qualities of character -- like commitment, diligence and self-discipline-- that promote success in many aspects of life, including student loan repayment. Or perhaps borrowers who graduate are much more likely to receive exit counseling? If exit counseling, or some other policy instrument, is the

true causal factor behind lower default rates, then the financial aid administrator has a chance at directly influencing the repayment behavior of borrowers who do not graduate. Otherwise, administrators may have a difficult time changing default rates, since they could be faced with having to increase graduation rates or imbuing students with better characters.

Graduation Indicator	Default				Total
	No		Yes		
	N	% of row	N	% of row	
<b>Yes</b>	9,478	98.2	172	1.8	9,650
<b>No</b>	2,698	86.3	428	13.7	3,126
<b>All Undergraduates</b>	12,176	95.3	600	4.7	12,776

**Number of Hours Failed**

**In general, the more hours that borrowers fail, the more likely they are to default later.** Borrowers who have zero hours of failed courses have a 1.4 percent default rate; whereas borrowers who have 10 or more failed hours have a 15.2 percent default rate. Interestingly, borrowers who fail between 1 and 3 hours default at a lower than average rate of 3.9 percent. This relationship is relatively strong and statistically significant.

The relationship between Number of Hours Failed and default, like GPA and default, reinforces the idea that quality of education attainment might be as influential as whether or not borrowers complete their degree programs. Furthermore, “hours failed” and GPA are somewhat correlated.

Number of Hours Failed	Default				Total
	No		Yes		
	N	% of row	N	% of row	
<b>0</b>	6,784	98.6	94	1.4	6,878
<b>1-3</b>	1,893	96.1	77	3.9	1,970
<b>4-6</b>	1,215	93.5	84	6.5	1,299
<b>7-9</b>	795	91.0	79	9.0	874
<b>10 or more</b>	1,489	84.8	266	15.2	1,755
<b>All Undergraduates</b>	12,176	95.3	600	4.7	12,776

**Number of Hours Passed**

**Borrowers who pass more than 100 hours of coursework have a very low default rate (2.8 percent).** However, like many other variables in this study, the relationship in the table below partially, if not largely, reflects the association between graduation (or degree attainment) and default. This relationship is statistically significant and moderate in strength.

Number of Hours Passed	Default				Total
	No		Yes		
	N	% of row	N	% of row	
0	29	74.4	10	25.6	39
1-100	1,832	86.1	295	13.9	2,127
101-400	10,315	97.2	295	2.8	10,610
All Undergraduates	12,176	95.3	600	4.7	12,776

**Primary Major**

**Borrowers with different majors have different default rates.** In some cases, majors have dramatically different default rates. For example, Finance majors have a 1.8 percent default rate, but General Studies majors have a 14.7 percent default rate. The top ten majors in frequency of occurrence are listed below in ascending order of default rate. Notice that the top nine “most popular” majors have default rates that are below the average for TAMU. For a complete list of the default rates of Primary Majors, refer to Appendix C. One should exercise caution in interpreting the differences in default rates of majors with small sample sizes (say, less than 100). Overall, the relationship between primary major and default is statistically significant and moderate in strength.

Primary Major	Default				Total
	No		Yes		
	N	% of row	N	% of row	
Marketing	380	98.4	6	1.6	386
Accounting	436	98.2	8	1.8	444
Finance	335	98.2	6	1.8	341
Interdisciplinary Studies	628	98.1	12	1.9	640
Management	333	97.9	7	2.1	340
Biomedical Science	690	97.7	16	2.3	706
Civil Engineering	324	97.6	8	2.4	332
Psychology	504	96.0	21	4.0	525
Animal Science	319	95.8	14	4.2	333
General Studies	366	85.3	63	14.7	429
All Undergraduates	12,176	95.3	600	4.7	12,776

**College of the Student's Most Recent Major**

The college attended by borrowers has a statistically significant but weak association to whether or not borrowers default. At the extremes, borrowers at the College of Veterinary Medicine and The College of Education have 2.3 percent and 2.4 percent default rates, respectively, while borrowers at the General Studies College have a 15.5 percent default rate. University administrators might be able to craft loan counseling sessions to acknowledge the different default risks associated with different colleges.

College of the Student's Most Recent Major	Default				Total
	No		Yes		
	N	% of row	N	% of row	
Other	24	100.0	0	0.0	24
Vet Medicine	692	97.7	16	2.3	708
Education	1,295	97.6	32	2.4	1,327
Business	2,131	96.5	78	3.5	2,209
Engineering	2,293	96.2	90	3.8	2,383
Architecture	570	96.1	23	3.9	593
Science	536	94.9	29	5.1	565
Agriculture	1,932	94.5	113	5.5	2,045
Liberal Arts	2,097	94.1	131	5.9	2,228
Geosciences	209	93.3	15	6.7	224
General Studies	397	84.5	73	15.5	470
All Undergraduates	12,176	95.3	600	4.7	12,776

**Number of Hours Q-dropped**

The number of hours that borrowers Q-drop has a statistically significant but weak association to whether or not borrowers default. (For a definition of Q-drop, please refer to the variable subsection of the Introduction.) Borrowers who Q-drop 13 or more hours have a default rate of 10.8 percent, compared to much lower rates for all other groups of borrowers. Interestingly, there is barely a difference in the default rates of borrowers who Q-drop less than 7 hours. In fact, borrowers who Q-drop between 1 and 6 hours have approximately the same default rate as borrowers who never Q-drop.



Number of Hours Q-dropped	Default				Total
	No		Yes		
	N	% of row	N	% of row	
0	2,652	96.6	94	3.4	2,746
1-3	2,555	96.7	88	3.3	2,643
4-6	2,549	96.5	92	3.5	2,641
7-9	2,187	94.6	124	5.4	2,311
10-12	1,333	93.5	93	6.5	1,426
13 or more	900	89.2	109	10.8	1,009
<b>All Undergraduates</b>	12,176	95.3	600	4.7	12,776

**Number of Changes in Major**

**Borrowers who change majors once or twice have the lowest default rates and those who change majors more than twice have higher rates.** Borrowers who have no major changes default the most often because this category of borrowers contains the students who attend for very short periods of time before departing, many times without graduating. In a sense, many borrowers in the “Zero” category simply do not attend long enough to change majors.

The table depicts a relationship that is statistically significant but weak.

Number of Changes in Major	Default				Total
	No		Yes		
	N	% of row	N	% of row	
0	2,660	92.6	214	7.4	2,874
1	4,644	96.6	164	3.4	4,808
2	3,045	96.0	127	4.0	3,172
3	1,233	95.3	61	4.7	1,294
4	427	94.5	25	5.5	452
5	167	94.9	9	5.1	176
<b>All Undergraduates</b>	12,176	95.3	600	4.7	12,776

**Number of Hours Incomplete**

**While there is a stark difference in the default rates of borrowers who have incomplete coursework and those who do not, statistically-speaking, the relationship is fairly weak.** The weakness of the association results from the fact that hardly anybody is reported as still having an incomplete status; almost everyone is reported as having zero incomplete hours. This is likely the case because the variable in this subsection represents the number of hours that were in an

incomplete status as of the moment the data was extracted, instead of the numbers of hours ever marked as incomplete. The difference between these two measurements arises because, over time, instructors replace incomplete statuses with grades as students finally complete their coursework. As a consequence, very few coursework hours remain in an incomplete status indefinitely.

Number of Hours Incomplete	Default				Total
	No		Yes		
	N	% of row	N	% of row	
0	12,033	95.5	571	4.5	12,604
1 or more	143	83.1	29	16.9	172
All Undergraduates	12,176	95.3	600	4.7	12,776

**Highest Level Attained**

**Borrowers who do not surpass the undergraduate level have a higher default rate than borrowers who reach the graduate or professional level.** Though this relationship is statistically significant, it is weak in strength.

Highest Level Attained	Default				Total
	No		Yes		
	N	% of row	N	% of row	
Professional	319	99.1	3	0.9	322
Graduate	1,282	97.9	28	2.1	1,310
Undergraduate	10,575	94.9	569	5.1	11,144
All Undergraduates	12,176	95.3	600	4.7	12,776

**Type of Degree**

**Borrowers who obtain degrees have low default rates, no matter what type of degree they get.** In contrast, borrowers who do not obtain degrees have very high default rates. This relationship is apparent in some of the previous tables, such as Graduation Status and Number of Degrees Attained. The association in the table below is statistically weak (but significant) because the degree categories have default rates that are close to each other; in other words, the table does not display the variability in default rates that would be consistent with a strong relationship to default.

Type of Degree	Default				Total
	No		Yes		
	N	% of row	N	% of row	
Associate of Arts	7	100.0	0	0.0	7
Bachelor of Landscape Architecture	31	100.0	0	0.0	31
Bachelor of Business Administration	1,826	98.5	27	1.5	1,853
Bachelor of Science	6,306	98.4	103	1.6	6,409
Bachelor of Environmental Design	267	97.1	8	2.9	275
Bachelor of Arts	1,362	96.9	44	3.1	1,406
No degree	2,377	85.0	418	15.0	2,795
All Undergraduates	12,176	95.3	600	4.7	12,776

**Minor Indicator**

**Borrowers who obtain minors have lower default rates than borrowers who do not obtain minors.** This finding further reinforces the suggestion that degree attainment is related to student loan repayment. However, this relationship is relatively weak, though statistically significant.

Indicator of Minor	Default				Total
	No		Yes		
	N	% of row	N	% of row	
Yes	2,847	96.7	97	3.3	2,944
No	9,329	94.9	503	5.1	9,832
All Undergraduates	12,176	95.3	600	4.7	12,776

**Indicator of Secondary Major**

**Borrowers who obtain second majors have lower default rates than borrowers who do not obtain second majors.** Again, the greater the level or extent of a borrower's attainment in college, the lower is the likelihood that the borrower will default. However, as with the Minor Indicator, this variable is weakly associated with default (though the relationship is significant). For a complete list of secondary majors and their default rates, refer to Appendix C.

Indicator of Secondary Major	Default				Total
	No		Yes		
	N	% of row	N	% of row	
Yes	100	100.0	0	0.0	100
No	12,076	95.3	600	4.7	12,676
All Undergraduates	12,176	95.3	600	4.7	12,776

### Minor

The minor degrees obtained by borrowers are not significantly related to the probability of default. For a full list of minors and their default rates, see Appendix C.

### Attendance Pattern

The variables that describe the manner in which borrowers are admitted to the university, the pattern of their attendance, the length of their tenure and the episodes of their withdrawal from college have a connection to the likelihood of their default. In fact, every Attendance Pattern variable has a statistically significant relationship to default. Moreover, some of the variables in this section have among the strongest relationships to default of any of the variables in this study. Some of these variables' strong relationship to default is, in turn, probably due to their connection with whether or not borrowers graduate. For example, borrowers who take a number of course hours that would coincide with program completion (around 130 hours) or who attend the university for a length of time that is consistent with a traditional completion time (three to four years) have the lowest default rates. Conversely, borrowers who attend for very short periods of time and take very few hours probably do not graduate and have relatively high default rates. Nevertheless, these conclusions represent oversimplifications of the more complex and interesting relationships that follow.

Missing values do not pose a significant problem for variables in the Attendance Pattern section. In some cases, such as with the Number of Semesters Enrolled Less Than Full Time variable, it is clear that most missing values are actually zeroes, indicating, in this example, that some borrowers did not attend any semesters on a less than full time basis. In situations such as those, missing values were recoded to zeroes, even at the possible expense of designating some true missing values as zeroes. In the cases of the admissions variables, such as Admission Type and College of Admission, the default rate of the missing category (5.1 percent) was just slightly higher than the average for Texas A&M over the study period. This result is probably due in part to the fact that the missing values belonged to borrowers from earlier repayment cohorts, when default rates were higher.

### Statistical Summary: Attendance Pattern

Variable	Statistical Significance	Uncertainty Coefficient	Cramer's V	Gamma	Spearman Correlation
Total Hours – Texas A&M Hours Plus Transfer Hours	Significant	0.07	0.18	-0.42	-0.13
Number of Years Between First	Significant	0.06	0.16	0.27	0.09

Attendance and Most Recent Departure					
Total Number of Hours Taken at TAMU	Significant	0.06	0.16	-0.32	-0.11
Admission Major	Significant	0.04	0.15	N/A	N/A
Number of Semesters Enrolled before Departure	Significant	0.04	0.14	-0.32	-0.09
Number of Hours Transferred	Significant	0.03	0.12	-0.22	-0.07
Highest Number of Semester Hours	Significant	0.03	0.12	-0.39	-0.10
Number of Summer Semesters Attended	Significant	0.03	0.10	-0.25	-0.07
Previous College	Significant	0.03	0.09	N/A	N/A
Withdrawal Type	Significant	0.02	0.09	N/A	N/A
Number of Withdrawals	Significant	0.01	0.08	0.37	0.08
Admission Code	Significant	0.01	0.08	N/A	N/A
Withdrawal Indicator	Significant	0.01	0.07	0.38	0.07
Type of Admission	Significant	0.01	0.06	N/A	N/A
Lowest Number of Hours per Semester	Significant	0.01	0.06	0.21	0.06
Number of Semesters in a Dorm	Significant	0.01	0.05	-0.14	-0.04
College of Admittance	Significant	0.01	0.05	N/A	N/A
Number of Semesters Enrolled Less than Full Time	Significant	0.00	0.04	-0.04	-0.01

**Total Hours – Texas A&M Hours Plus Transfer Hours**

By summing transfer hours and hours taken at Texas A&M, a clean and dramatic pattern reveals itself. **Borrowers with 110 hours of study or less have very high default rates and borrowers with at least 111 hours have markedly lower rates.** Probably, this demarcation reflects the impact of graduation on the ability to repay. Furthermore, the table suggests that the more hours a borrower studies the better. Borrowers in the 131-150 hour category have the lowest default rate. And although the rate rises a little when moving to the 151-170 hour group, the 3.2 percent rate is still very low. This variable has a statistically significant and relatively strong relationship to default.

Total Hours at A&M Plus Transfer Hours	Default				Total
	No		Yes		
	N	% of row	N	% of row	
<b>0-30</b>	519	84.7	94	15.3	613
<b>31-110</b>	1,382	87.7	193	12.3	1,575
<b>111-130</b>	1,295	95.8	57	4.2	1,352
<b>131-150</b>	4,620	97.6	114	2.4	4,734

Total Hours at A&M Plus Transfer Hours	Default				Total
	No		Yes		
	N	% of row	N	% of row	
151-170	4,360	96.8	142	3.2	4,502
All Undergraduates	12,176	95.3	600	4.7	12,776

**Number of Years Between First Attendance and Most Recent Departure**

**Like Number of Semesters Enrolled Before Departure, the number of years of attendance shows that borrowers who spend a very short time at TAMU have a very high default rate.** In contrast, borrowers who depart after two to five years have low default rates, with borrowers who leave after three years having the lowest rate. Perhaps not surprisingly, borrowers who attended for three or four years also have the highest rates of graduation (at over 90 percent). The table shows, however, that extending attendance beyond five years has a negative impact upon default: undergraduate borrowers who have six or more years between first attendance and most recent departure have relatively high default rates. Even when only looking at borrowers who graduate (the table is not shown here), those who take six or more years to do so have considerably higher default rates than borrowers who graduate in two to five years. The number of years that a borrower spends in college has a strong and statistically significant relationship to the likelihood of default.

Number of Years in College	Default				Total
	No		Yes		
	N	% of row	N	% of row	
0 to 1	307	86.0	50	14.0	357
2	819	96.5	30	3.5	849
3	1,759	98.1	34	1.9	1,793
4	3,496	97.5	88	2.5	3,584
5	2,730	96.8	89	3.2	2,819
6	1,164	92.1	100	7.9	1,264
7	583	87.5	83	12.5	666
8 to 10	812	89.7	93	10.3	905
11 or more	466	93.4	33	6.6	499
Missing	40	100.0	0	0.0	40
All Undergraduates	12,176	95.3	600	4.7	12,776

**Total Number of Hours Taken at TAMU**

Statistically significant, the **Total Number of Hours Taken** variable suggests that the further a borrower progresses in college, the less is the likelihood of default. Moving through the table from the “11 to 30 hours” group to the “111-130 hours” category, the default rate falls steadily from 14.2 percent to 1.9 percent.

Considering the extreme categories, however, the table reflects a more complex relationship. The two groups with the fewest total hours have default rates that are lower than the 11-30 hour group, thereby breaking the pattern of decreasing rates that holds for the majority of the table rows. As it turns out, these two groups have a much higher than average proportion of students who transfer to Texas A&M but who do not graduate from there.

On the other extreme, default rates begin to increase again after having declined through the 130 hour category. Further investigation shows that the two categories with the highest number of total hours have larger than average percentages of borrowers who attended the Liberal Arts College, which has a higher than average default rate. In fact, the default rate for Liberal Arts students who take a total of 151 hours or more is 12 percent -- 2-1/2 times the average rate in this study. A similar problem appears to exist for borrowers who take more than 150 total hours in the Architecture College. Interestingly, the Liberal Arts and Architecture students who took 150 hours or more and had high default rates also had higher than average graduation rates. It is unclear why these associations exist, so more research could be helpful.

Total Number of Hours Taken	Default				Total
	No		Yes		
	N	% of row	N	% of row	
0	50	92.6	4	7.4	54
1-10	153	92.2	13	7.8	166
11-30	867	85.8	143	14.2	1,010
31-60	837	89.8	95	10.2	932
61-80	1,358	95.4	65	4.6	1,423
81-110	2,584	96.5	94	3.5	2,678
111-130	3,002	98.1	58	1.9	3,060
131-150	2,194	96.7	74	3.3	2,268
151 or more	1,131	95.4	54	4.6	1,185
All Undergraduates	12,176	95.3	600	4.7	12,776

**Admission Major**

**Some majors clearly have higher default rates than other majors.** For example, borrowers who major in Electrical Engineering have a 6.2 percent default rate, whereas borrowers who major in Mechanical Engineering have a 3.8 percent default rate. This is just one of many possible comparisons. The top ten admission majors in frequency of occurrence are listed below

in ascending order of default rate. Please consult Appendix C for a complete list of default rates for various majors. One should exercise caution, however, in drawing strong conclusions when comparing a major that has very few borrowers (say, less than 100) to another major.

The relationship between admission major and default is statistically significant.

Admission Major	Default				Total
	No		Yes		
	N	% of row	N	% of row	
<b>Interdisciplinary Studies</b>	419	97.9	9	2.1	428
<b>Civil Engineering</b>	321	96.4	12	3.6	333
<b>Business Administration</b>	1,628	96.3	63	3.7	1,691
<b>Mechanical Engineering</b>	380	96.2	15	3.8	395
<b>Chemical Engineering</b>	318	96.1	13	3.9	331
<b>Biomedical Science</b>	531	95.3	26	4.7	557
<b>Biology</b>	417	95.2	21	4.8	438
<b>General Studies</b>	1,191	95.0	63	5.0	1,254
<b>Psychology (Lower)</b>	293	94.5	17	5.5	310
<b>Electrical Engineering</b>	362	93.8	24	6.2	386
<b>All Undergraduates</b>	12,176	95.3	600	4.7	12,776

***Number of Semesters Enrolled before Departure***

There is a relatively strong and statistically significant relationship between Number of Semesters Enrolled and default. As seen with Total Number of Hours Taken, **the default rates of borrowers decrease as their lengths of college tenure increase** and then, at a certain point, the default rates begin increasing with the increasing number of semesters. Like the Total Number of Hours Taken variable, very high default rates among Liberal Arts and Architecture students appear to be associated with the higher default rates of groups enrolled for 13 semesters or longer, despite the fact that these students also have higher than average graduation rates.

Number of Semesters Enrolled	Default				Total
	No		Yes		
	N	% of row	N	% of row	
<b>1-4</b>	1,525	88.0	208	12.0	1,733
<b>5-7</b>	1,922	95.0	101	5.0	2,023
<b>8-12</b>	6,778	97.1	201	2.9	6,979



Number of Semesters Enrolled	Default				Total
	No		Yes		
	N	% of row	N	% of row	
13	762	96.1	31	3.9	793
14	453	95.4	22	4.6	475
15 or more	723	95.1	37	4.9	760
Missing	13	100.0	0	0.0	13
All Undergraduates	12,176	95.3	600	4.7	12,776

***Number of Hours Transferred***

In general, borrowers who transfer hours to TAMU from another college have much lower default rates than borrowers who do not transfer hours. However, the relationship does not appear to be consistent and straightforward, with default rates sometimes increasing and sometimes decreasing with increases in the number of hours transferred. Nevertheless, the relationship is statistically significant and relatively strong.

Number of Hours Transferred	Default				Total
	No		Yes		
	N	% of row	N	% of row	
0	986	87.7	138	12.3	1,124
1-11	2,512	94.5	145	5.5	2,657
12-23	2,801	97.4	76	2.6	2,877
24-39	1,582	96.3	61	3.7	1,643
40-57	1,503	95.6	69	4.4	1,572
58-93	2,420	95.9	104	4.1	2,524
94 or more	372	98.2	7	1.8	379
All Undergraduates	12,176	95.3	600	4.7	12,776

***Highest Number of Semester Hours***

While the association between the Highest Number of Semester Hours and default is statistically significant, the relationship defies easy interpretation. In general, default rates decrease with increases in the highest number of hours taken. For borrowers who attended a maximum of 9 to 11 hours in a semester, the default rate is 13.9 percent; but for borrowers who took a maximum of 18 to 20 hours, the default rate is only 2.8 percent. A relatively high number of semester hours might tend to show that a borrower can shoulder an academic burden and perhaps a financial one as well. If the students are actually passing these hours, then this variable

might be related to greater academic achievement on the part of students who attended for more semester hours.

At the extremes, however, the general relationship breaks down. Borrowers who take more than 20 hours in a semester have a higher default rate than some groups who attend for fewer hours. For borrowers who take a high number of hours, there may be some threshold of hours beyond which borrowers tend to have academic or financial problems that lead to withdrawal and non-payment. But this is unlikely, since borrowers who take 20 or more hours actually have a much higher graduation rate than other borrowers. More research will be needed to uncover the factors behind this relationship.

On the low end, borrowers who take less than 9 hours in a semester have a lower default rate than those in the “9 to 11 hour” and “12 to 14 hour” categories. The two lowest hour categories are dominated by individuals who transferred from other colleges but who did not graduate from TAMU (at least yet). Again, perhaps more research will show what makes these borrowers successful in repaying students loans.

Highest Number of Semester Hours	Default				Total
	No		Yes		
	N	% of row	N	% of row	
1 to 8	118	95.2	6	4.8	124
9 to 11	272	86.1	44	13.9	316
12 to 14	2,986	92.1	256	7.9	3,242
15 to 17	7,411	96.8	248	3.2	7,659
18 to 20	1,268	97.2	37	2.8	1,305
21 or more	71	93.4	5	6.6	76
Missing	50	92.6	4	7.4	54
<b>All Undergraduates</b>	12,176	95.3	600	4.7	12,776

**Number of Summer Semesters Attended**

**Borrowers who did not attend college during any summer semester had a default rate of 8.9 percent. Borrowers who attended during two summer semesters had the lowest rate with 2.7 percent.** In part, the table below shows something similar to the table describing the number of semesters that borrowers attend TAMU before departing: a low number of semesters indicates that the borrowers left prematurely and borrowers who leave early tend to default at higher rates. However, the following table also likely indicates other relationships, as is hinted at by the fact that the default rates start increasing after the two (2) summer semester category. As it turns out, the groups with higher numbers of summer semesters (3, 4 & 5) have increasingly higher proportions of readmitted students, who tend to have higher default rates.

The relationship is relatively weak but statistically significant.

Number of Summer Semesters Attended	Default				Total
	No		Yes		
	N	% of row	N	% of row	
Missing (Zero)	2,210	91.1	216	8.9	2,426
1	2,991	95.3	147	4.7	3,138
2	3,579	97.3	99	2.7	3,678
3	2,223	96.4	84	3.6	2,307
4	849	95.9	36	4.1	885
5 or more	324	94.7	18	5.3	342
All Undergraduates	12,176	95.3	600	4.7	12,776

**Previous College**

The previous educational institution attended by a borrower is significantly related to whether or not the borrower will default on loans received at Texas A&M University. For example, borrowers who previously attended Texas Tech University have a default rate of 0.8 percent, whereas borrowers who previously attended Cedar Valley College have a default rate of 5.2 percent. Of note is the fact that borrowers who previously went to Blinn College, numbering over 3,900 individuals, have a default rate of 3.7 percent. The top ten previously-attended colleges in terms of frequency of occurrence (and the missing category) are listed below in ascending order of default rate. For a list of the default rates of all previously-attended colleges, refer to Appendix C. Please exercise caution in interpreting results for schools that are based upon small sample sizes (say, less than 100).

Previous College	Default				Total
	No		Yes		
	N	% of row	N	% of row	
Texas Tech University	754	99.2	6	0.8	760
San Antonio College	279	97.9	6	2.1	285
Sam Houston State University	189	97.4	5	2.6	194
Austin Community College	212	96.8	7	3.2	219
Tarrant County Junior College District - South	192	96.5	7	3.5	199
Blinn College	3,789	96.3	146	3.7	3,935
Houston Community College System	386	95.5	18	4.5	404
North Harris Montgomery CC District	338	95.5	16	4.5	354
Other Colleges	1,781	95.4	85	4.6	1,866

Previous College	Default				Total
	No		Yes		
	N	% of row	N	% of row	
Cedar Valley College	257	94.8	14	5.2	271
Missing	1,796	90.1	197	9.9	1,993
All Undergraduates	12,176	95.3	600	4.7	12,776

***Withdrawal Type***

Withdrawal Type has a highly significant association with the likelihood of default. In part, the strength of the relationship relies on the difference between the category of borrowers who had no withdrawals and the remaining groups, made up of those who have withdrawn at least once. In other words, the following table expresses much the same information as the table under the “Withdrawal Indicator” subsection (three subsections later). At the same time, **the table below also shows that different types of withdrawals can have dramatically different default rates.** Whereas borrowers who withdrew for work-related reasons had a 1 percent default rate, 11 percent of borrowers who withdrew for academic reasons defaulted. This pattern makes some sense, considering that borrowers who are working might have the means to repay their loans, while those who leave because of academic problems will tend to be unprepared for the jobs that would enable them to repay. Members of the latter group might also feel that their investment in a college degree failed and so are less inclined to repay their loans.

Type of Withdrawal	Default				Total
	No		Yes		
	N	% of row	N	% of row	
Missing	2	100.0	0	0.0	2
Work-related	93	98.9	1	1.1	94
Other	150	96.8	5	3.2	155
No Withdrawal	10,441	96.0	439	4.0	10,880
Personal	342	92.7	27	7.3	369
Death/Illness	206	92.4	17	7.6	223
Financial	76	90.5	8	9.5	84
Withdrawn Administrative	779	89.4	92	10.6	871
Academic	87	88.8	11	11.2	98
All Undergraduates	12,176	95.3	600	4.7	12,776

### Number of Withdrawals

**In reality, this variable conveys little more information than the Withdrawal Indicator variable.** For both variables, the borrowers who did not withdraw from the university – the missing category -- have a 4.0 percent default rate; the borrowers who withdraw have much higher default rates. While the table below shows that some categories of borrowers have extremely high default rates, the pattern is not consistent. In some cases, a higher number of withdrawals is associated with a higher default rate; but in other cases, it is related to a lower default rate. This lack of a consistent pattern tends to undermine this variable as a predictor of default risk. Nevertheless, the number of withdrawals that a borrower experiences has a fairly weak but statistically significant relationship to default.

Number of Withdrawals	Default				Total
	No		Yes		
	N	% of row	N	% of row	
0	10,441	96.0	439	4.0	10,880
1	1,390	91.8	124	8.2	1,514
2	232	92.4	19	7.6	251
3	73	89.0	9	11.0	82
4	21	75.0	7	25.0	28
5 or more	19	90.5	2	9.5	21
All Undergraduates	12,176	95.3	600	4.7	12,776

### Admission Code

**With a default rate of 3.4 percent, only borrowers who were “Accepted by Academics”, based upon having high class ranks and high SAT scores, have a rate that is below the average for Texas A&M.** In contrast, borrowers who were only accepted after a closer review of their college applications and high school transcripts have a considerably higher default rate of 5.4 percent. Borrowers accepted on a provisional basis, because they did not meet the coursework requirements and the academic credentials for admission “by Academics” or “by Review”, have a much higher 8.8 percent default rate. The relationship between Admission Code and default is statistically significant. This finding reinforces the idea that the academic preparedness of students influences whether they default on student loans.

Borrowers who have missing admission codes belong disproportionately to the earlier cohorts, which have higher default rates than later cohorts. This might explain why the missing category in the table has a higher than average default rate.

Admission Code	Default				Total
	No		Yes		
	N	% of row	N	% of row	
Accepted by Academics	6,104	96.6	214	3.4	6,318
Missing	923	94.9	50	5.1	973
Accepted by Review	4,031	94.6	231	5.4	4,262
Other	89	93.7	6	6.3	95
Accepted on Provisional	1,029	91.2	99	8.8	1,128
All Undergraduates	12,176	95.3	600	4.7	12,776

### Withdrawal Indicator

As hypothesized, **borrowers with interruptions to the progress of their academic studies have higher default rates than other borrowers.** As the table below indicates, student borrowers with withdrawal dates on their records had more than double the default rate of borrowers who did not have withdrawal dates. The relationship between Withdrawal Indicator and default is highly significant.

Withdrawal Indicator	Default				Total
	No		Yes		
	N	% of row	N	% of row	
No	10,441	96.0	439	4.0	10,880
Yes	1,735	91.5	161	8.5	1,896
All Undergraduates	12,176	95.3	600	4.7	12,776

### Type of Admission

**Borrowers who are readmitted to the university have a much higher default rate than other borrowers– in fact, their default rate is twice as high as transfer students.** Even among borrowers who successfully graduated from TAMU, readmitted borrowers still have a much higher default rate than other borrowers. It will take further research to understand why this result occurs.

Borrowers who transferred from other colleges have a lower default rate than borrowers who were admitted as freshmen, but the difference does not turn out to be statistically significant.

Borrowers who have missing admission types belong disproportionately to the earlier cohorts, which have higher default rates than later cohorts. This might explain why the missing category in the table has a higher than average default rate

Type of Admission	Default				Total
	No		Yes		
	N	% of row	N	% of row	
Post-Baccalaureate	153	99.4	1	0.6	154
Transfer	3,550	96.3	137	3.7	3,687
Freshman	5,620	95.6	258	4.4	5,878
Missing	923	94.9	50	5.1	973
International	15	93.8	1	6.3	16
Readmit	1,915	92.6	153	7.4	2,068
All Undergraduates	12,176	95.3	600	4.7	12,776

**Lowest Number of Hours per Semester**

**The lower the lowest number of hours taken in a semester by borrowers, the smaller is the default rate for that group.** Thus, borrowers who took as few as one (1) hour in a semester had a default rate of 1.9 percent. In contrast, borrowers who never took fewer than 10 hours in a semester had a default rate of 6.8 percent. Though the relationship between the Lowest Number of Semester Hours and default is statistically significant, it is not strong compared to other variables in the study.

This variable is strongly related to whether borrowers graduate. As undergraduate students approach the end of their degree programs, they frequently have only one or two classes or a lab or a paper to finish before graduating. On the other hand, students who withdraw early in their college career frequently do so without ever taking less than a full-time load of classes. As it turns out, the graduation rate of borrowers who took as few as one (1) hour during a semester is almost 90 percent, while the graduation rate for borrowers whose minimum semester hours was 10 or more is 55 percent. The relationship between Lowest Number of Semester Hours and default is really largely a relationship between graduation and default.

Lowest Number of Semester Hours	Default				Total
	No		Yes		
	N	% of row	N	% of row	
1	704	98.1	14	1.9	718
2-6	6,640	95.9	283	4.1	6,923
7-9	2,577	94.9	138	5.1	2,715

Lowest Number of Semester Hours	Default				Total
	No		Yes		
	N	% of row	N	% of row	
10 or more	2,205	93.2	161	6.8	2,366
Missing	50	92.6	4	7.4	54
All Undergraduates	12,176	95.3	600	4.7	12,776

**Number of Semesters in a Dorm**

The lowest default rates are found among borrowers who spend the greatest number of semesters in a dorm. Borrowers who spend little time in dorms have above average default rates. Borrowers who do not live in the dorms at all -- the borrowers who make up most of the missing category -- have one of the highest default rates in the table below. The relationship depicted in the table is statistically significant and moderate in strength.

Number of Semesters in a Dorm	Default				Total
	No		Yes		
	N	% of row	N	% of row	
Missing (Zero semesters)	5,443	94.7	307	5.3	5,750
1	708	93.8	47	6.2	755
2	1,695	95.2	86	4.8	1,781
3	563	95.1	29	4.9	592
4	1,423	96.9	46	3.1	1,469
5	391	94.7	22	5.3	413
6	578	97.0	18	3.0	596
7	273	95.5	13	4.5	286
8	622	97.5	16	2.5	638
9	227	97.8	5	2.2	232
10-18	253	95.8	11	4.2	264
All Undergraduates	12,176	95.3	600	4.7	12,776

**College of Admittance**

Borrowers admitted to different colleges have different student loan default rates. Borrowers admitted to the Geosciences College have the highest default rate (7.0 percent), followed by the Liberal Arts College (6.2 percent) and the General Studies College (5.9 percent). The Education, Business and Architecture Colleges have the lowest default rates. There is a statistically



significant but fairly weak relationship between the college a borrower is admitted to and the likelihood of default.

Borrowers who have missing values for College of Admission belong disproportionately to the earlier cohorts, which have higher default rates than later cohorts. This might explain why the missing category in the table has a higher than average default rate

College of Admittance	Default				Total
	No		Yes		
	N	% of row	N	% of row	
Education	757	96.9	24	3.1	781
Business	1,633	96.3	63	3.7	1,696
Architecture	377	96.2	15	3.8	392
Engineering	2,641	95.8	117	4.2	2,758
Science	1,108	95.8	49	4.2	1,157
Vet Medicince	534	95.2	27	4.8	561
Agriculture	1,349	95.1	69	4.9	1,418
Other	57	95.0	3	5.0	60
Missing	923	94.9	50	5.1	973
General Studies	1,238	94.1	78	5.9	1,316
Liberal Arts	1,361	93.8	90	6.2	1,451
Geosciences	198	93.0	15	7.0	213
All Undergraduates	12,176	95.3	600	4.7	12,776

***Number of Semesters Enrolled Less than Full Time***

The number of semesters that borrowers enroll at less than full-time status is significantly related to whether or not borrowers default. However, the pattern of default rates is complex and defies easy interpretation. In fact, the important and statistically significant distinction appears to occur between the group that enrolled for two semesters at less than full-time (4.8 percent default rate) and the group that went for three semesters (3.6 percent rate). Nevertheless, it is difficult to come up with a reason to explain this apparent difference.

# of Semesters Enrolled Less Than Full-Time	Default				Total
	No		Yes		
	N	% of row	N	% of row	
Missing (Zero)	3,054	94.8	168	5.2	3,222
1	3,357	95.4	162	4.6	3,519
2	2,440	95.2	122	4.8	2,562

# of Semesters Enrolled Less Than Full-Time	Default				Total
	No		Yes		
	N	% of row	N	% of row	
3	1,565	96.4	58	3.6	1,623
4	842	95.7	38	4.3	880
5	437	95.2	22	4.8	459
6	207	93.2	15	6.8	222
7-9	221	96.5	8	3.5	229
10 or more	53	88.3	7	11.7	60
<b>All Undergraduates</b>	12,176	95.3	600	4.7	12,776

## Preparedness

The high school courses that students take, their class rankings and the scores they receive on college entrance exams appear to be related to whether they default on student loans later. Of the 15 variables in this section, ten have a statistically significant relationship to default behavior. The significant variables are High School Class Rank, Number of Other Science Credits, Number of Foreign Language Credits, Number of Biology Credits, Number of Chemistry Credits, Number of Physics Credits, Number of Algebra II Credits, Number of Advanced Math Credits, Number of Geometry Credits and SAT Equivalency Score. With a few exceptions, which will be discussed below, the more credits taken in a subject area, the lower the default rate for a group of borrowers. Not surprisingly, borrowers with higher class ranks and higher SAT equivalency scores also have lower default rates. (This study will regard a high school credit as a year of coursework in a subject.) Five variables – English Credits, Algebra I Credits, Computer Science Credits, Advanced Placement Credits, and Recommended High School Curriculum -- did not have a significant relationship to default. **While many of the variables in this section have significant relationships to default, the strengths of the relationships are weak.**

In reviewing the tables, the reader will notice that the missing category for the variables describing the number of course credits in various subject areas always has the same number of borrowers and has a relatively high default rate of 7.0 percent. Analysis shows that these borrowers belong disproportionately to the earlier repayment cohorts (1997 & 1998 vs. 1999). Because the earlier cohorts had higher default rates, all other things being equal, we would expect the group of borrowers with missing values to tend to have higher default rates. Of course, there may be additional factors that cause the default rates of the missing categories to be higher than average.

### Statistical Summary: Preparedness

Variable	Statistical Significance	Uncertainty Coefficient	Cramer's V	Gamma	Spearman Correlation
High School Class Rank Percentile	Significant	0.01	0.07	-0.22	-0.06
Number of High School Other Science Credits	Significant	0.01	0.07	-0.23	-0.06
Number of High School Physics	Significant	0.01	0.06	0.36	0.06

Credits					
Number of High School Biology Credits	Significant	0.01	0.06	0.28	0.06
Number of High School Chemistry Credits	Significant	0.01	0.06	0.30	0.06
Number of High School Foreign Language Credits	Significant	0.00	0.04	0.02	0.00
SAT Equivalency Score	Significant	0.00	0.03	-0.26	-0.03
Number of High School Advanced Math Credits	Significant	0.00	0.03	-0.14	-0.03
Number of High School Algebra II Credits	Significant	0.00	0.02	-0.23	-0.02
Number of Advanced Placement Credits	Significant	0.00	0.02	-0.17	-0.02
Number of High School Geometry Credits	Significant	0.00	0.02	-0.23	-0.02
Number of High School English Credits	Not significant	N/A	N/A	N/A	N/A
Number of High School Computer Science Credits	Not significant	N/A	N/A	N/A	N/A
Number of High School Algebra I Credits	Not significant	N/A	N/A	N/A	N/A
Recommended High School Program	Not significant	N/A	N/A	N/A	N/A

### **High School Class Rank Percentile**

**In general, the higher the class rank of a borrower, the less likely the borrower is to default.** Borrowers with class ranks below the 25<sup>th</sup> percentile have a 12.8 percent default rate, compared to a 3.2 percent default rate for borrowers at or above the 90<sup>th</sup> percentile. With one exception, each group of successively higher class ranks has a lower default rate than the preceding group. Borrowers with class ranks between the 25<sup>th</sup> and 89<sup>th</sup> percentile have default rates ranging from 4.2 percent to 7.0 percent. However, there is not a statistically significant difference between the rates for the “25% - 49.9%” group and the “50% - 59.9%” group. Nor are there significant differences between the groups that occupy the 60<sup>th</sup> to the 89<sup>th</sup> percentiles. While Class Rank has the strongest association to default of any variable in the Preparedness section, the relationship is still relatively weak compared to other variables in the study.

Interestingly, though college GPA has the strongest relationship to default of any variable in the study, Class Rank, based upon borrowers’ GPAs in high school, is not strongly related to default. This situation could not exist if there was an extremely strong correlation between high school and college performance. But some students who had poor or average performances in high school achieve high GPAs in college and other students who ranked near the top of their classes in high school end up doing poorly in college. While it is perhaps disappointing that high school achievement is not a good predictor of success in college (or success in student loan repayment), it is heartening that some students can overcome their pasts and succeed in college (and in loan repayment). Furthermore, it appeals to common sense that outcomes such as graduation or loan repayment would depend more heavily upon the student performance that occurred shortly before the outcomes. In fact, as it turns out, High School Class Rank is of limited usefulness when the college GPA of a borrower is known. For the borrowers within any given category of college GPA (see the default table in the GPA subsection), knowing their high school class ranks adds no

additional information about their probabilities of default. Even so, High School Class Rank might still be useful when college GPA is unknown, such as when first-time freshmen are enrolling.

The usefulness of this variable for targeting loan counseling or default prevention efforts is compromised by the fact that so few borrowers fall into the high default rate categories. Most borrowers at TAMU have class ranks that are at the 80<sup>th</sup> percentile or above, and they therefore have a fairly low probability of default.

High School Class Rank Percentile	Default				Total
	No		Yes		
	N	% of row	N	% of row	
0% - 24.9%	129	87.2	19	12.8	148
25% - 49.9%	487	93.5	34	6.5	521
50% - 59.9%	517	93.0	39	7.0	556
60% - 69.9%	775	94.7	43	5.3	818
70% - 79.9%	1,434	94.8	79	5.2	1,513
80% - 89.9%	2,473	95.8	109	4.2	2,582
90% - 100%	4,143	96.8	137	3.2	4,280
Missing	2,218	94.1	140	5.9	2,358
<b>All Undergraduates</b>	<b>12,176</b>	<b>95.3</b>	<b>600</b>	<b>4.7</b>	<b>12,776</b>

***Number of High School Biology, Chemistry, Physics and Other Science Credits***

Four variables describe the number of high school science credits that a student completed. For many students, Other Science Credits measures the total number of science credits taken during high school; for some students, that variable measures the number of credits that cannot be categorized as biology, chemistry or physics. For some TAMU students, the High School Biology, Chemistry, and Physics Credits variables provide counts of science credits in more specific categories. Usually students who have counts under the generic Other Science variable do not have counts for the more specific science variables – and vice versa. This fact suggests that different students might be asked to report science credits differently during the admissions process.

Students with higher numbers of Biology Credits, Chemistry Credits or Physics Credits have higher rates of student loan default. In contrast, borrowers with a greater number of Other Science Credits are less likely than other borrowers to default. Most students report credits under the Other Science Credits variable and report no credits under the Biology, Chemistry and Physics variables. This probably means that the Other Science Credits variable is the more dependable indicator of the true relationship between science credits and default behavior: **the greater number of science credits taken during high school, the lower the probability of default after college.** The counterintuitive relationship of the Biology, Chemistry and Physics variables to student loan default might indicate that students who are regarded as higher risks during the admissions process are asked for a greater level of detail in describing their science backgrounds.

High School Other Science Credits	Default				Total
	No		Yes		
	N	% of row	N	% of row	
Less than 2	3,061	93.4	218	6.6	3,279
2 to <3	4,257	96.3	163	3.7	4,420
3 or more	3,665	96.6	129	3.4	3,794
Missing	1,193	93.0	90	7.0	1,283
All Undergraduates	12,176	95.3	600	4.7	12,776

High School Physics Credits	Default				Total
	No		Yes		
	N	% of row	N	% of row	
Zero	9,720	96.0	400	4.0	10,120
More than zero	1,263	92.0	110	8.0	1,373
Missing	1,193	93.0	90	7.0	1,283
All Undergraduates	12,176	95.3	600	4.7	12,776

High School Biology Credits	Default				Total
	No		Yes		
	N	% of row	N	% of row	
Less than 1	8,170	96.3	313	3.7	8,483
1 to <2	2,286	93.8	152	6.2	2,438
2 or more	527	92.1	45	7.9	572
Missing	1,193	93.0	90	7.0	1,283
All Undergraduates	12,176	95.3	600	4.7	12,776

High School Chemistry Credits	Default				Total
	No		Yes		
	N	% of row	N	% of row	
Zero	8,509	96.3	330	3.7	8,839
More than zero	2,474	93.2	180	6.8	2,654
Missing	1,193	93.0	90	7.0	1,283

High School Chemistry Credits	Default				Total
	No		Yes		
	N	% of row	N	% of row	
All Undergraduates	12,176	95.3	600	4.7	12,776

**Number of High School Foreign Language Credits**

The number of Foreign Language Credits has a moderate and statistically significant relationship to default. While student borrowers who take fewer than two credits of foreign languages have a 6.0 percent default rate, borrowers who take at least two credits but less than three credits have only a 4.2 percent default rate. But more is not always better: borrowers who complete three or more credits of a foreign language have a 6.9 percent default rate. The initial evidence suggests that taking three or more credits of a foreign language comes at the expense of studying in other subject areas, such as science, that are more strongly associated with lower risks of default. For example, borrowers who take three or more credits of a foreign language are highly unlikely to have any credits tallied in the Other Science Credits variable.

High School Foreign Language Credits	Default				Total
	No		Yes		
	N	% of row	N	% of row	
0 - 1.5	724	93.9	47	6.1	771
2 - 2.5	9,675	95.8	420	4.2	10,095
3 or more	584	93.1	43	6.9	627
Missing	1,193	93.0	90	7.0	1,283
All Undergraduates	12,176	95.3	600	4.7	12,776

**SAT Equivalency Score**

The SAT Equivalency Score, which represents a conversion of non-SAT scores to the SAT scale for student's who took the ACT, has a statistically significant relationship to default. As hypothesized, **borrowers with higher equivalency scores have lower default rates.** For borrowers with scores of 900 or below, the default rate is 6.9 percent -- compared to a default rate of 4.4 percent for borrowers who have scores between 901 and 1400. While this is an interesting finding, it may be of little practical use, since the vast majority of borrowers have scores in the 901 to 1400 range.

Equivalency Score	Default				Total
	No		Yes		
	N	% of row	N	% of row	
500-900	497	93.1	37	6.9	534
901-1400	8,941	95.6	408	4.4	9,349
1401 or higher	246	97.6	6	2.4	252
Missing	2,492	94.4	149	5.6	2,641
All Undergraduates	12,176	95.3	600	4.7	12,776

**Number of High School Algebra I, Algebra II, Geometry and Advanced Math Credits**

The number of math credits that borrowers complete in high school is inversely related to default. With the exception of one of the four variables, **students who take at least one credit of math (either Algebra II, Geometry or Advanced Math) in high school have lower default rates than borrowers who do not take any credits** in the math subject areas. The exception is the number of Algebra I Credits, which does not have a statistically significant relationship to default.

High School Algebra I Credits	Default				Total
	No		Yes		
	N	% of row	N	% of row	
Less than 1	215	94.7	12	5.3	227
1 or more	10,768	95.6	498	4.4	11,266
Missing	1,193	93.0	90	7.0	1,283
All Undergraduates	12,176	95.3	600	4.7	12,776

High School Algebra II Credits	Default				Total
	No		Yes		
	N	% of row	N	% of row	
Less than 1	428	93.2	31	6.8	459
1 or more	10,555	95.7	479	4.3	11,034
Missing	1,193	93.0	90	7.0	1,283
All Undergraduates	12,176	95.3	600	4.7	12,776

High School Geometry Credits	Default				Total
	No		Yes		
	N	% of row	N	% of row	
Less than 1	314	93.2	23	6.8	337
1 or more	10,669	95.6	487	4.4	11,156
Missing	1,193	93.0	90	7.0	1,283
All Undergraduates	12,176	95.3	600	4.7	12,776

High School Advanced Math Credits	Default				Total
	No		Yes		
	N	% of row	N	% of row	
Less than 1	2,528	94.6	144	5.4	2,672
1 or more	8,455	95.9	366	4.1	8,821
Missing	1,193	93.0	90	7.0	1,283
All Undergraduates	12,176	95.3	600	4.7	12,776

**Number of Advanced Placement Credits**

There is a statistically significant relationship between the number of Advanced Placement Credits that borrowers take and whether or not borrowers default on their loans. However, this relationship does not appear unless borrowers take at least 5 credits of advanced placement. Though not shown here, borrowers who take zero, one, two, three or four credits of advanced placement coursework have approximately the same default rates.

Advanced Placement Credits	Default				Total
	No		Yes		
	N	% of row	N	% of row	
Less Than 5	9,818	95.4	473	4.6	10,291
5 or more	1,306	96.7	45	3.3	1,351
Missing	1,052	92.8	82	7.2	1,134
All Undergraduates	12,176	95.3	600	4.7	12,776

**Number of High School Computer Science Credits**

There is very little difference in the default rates of borrowers who have less than one credit of computer science and those who have one or more credits. In fact, this variable fails the Chi-



square significance test, indicating that **there is no proven relationship between this variable and default.**

High School Computer Science Credits	Default				Total
	No		Yes		
	N	% of row	N	% of row	
Less than 1	2,356	95.2	120	4.8	2,476
1 or more	8,627	95.7	390	4.3	9,017
Missing	1,193	93.0	90	7.0	1,283
All Undergraduates	12,176	95.3	600	4.7	12,776

**Number of High School English Credits**

**There is no statistically significant relationship between the number of English credits borrowers take and whether or not they default.** While the difference between the default rate for borrowers who complete 4 or more credits of English (4.4 percent) and the rate for borrowers who take fewer credits (5.9 percent) appears to be quite large, the statistical test shows that this difference could occur by chance 15 percent of the time – by a higher percentage than researchers usually tolerate in accepting a result as significant.

High School English Credits	Default				Total
	No		Yes		
	N	% of row	N	% of row	
Less than 4	260	93.9	17	6.1	277
4 or more	10,723	95.6	493	4.4	11,216
Missing	1,193	93.0	90	7.0	1,283
All Undergraduates	12,176	95.3	600	4.7	12,776

**Recommended High School Program**

The variables describing high school course credits can be used to construct a composite variable that indicates whether or not a borrower has met a minimum requirement for coursework in multiple subject areas. The variables in this study make it possible to approximate some of the main components of the Texas Recommended High School Program -- as outlined in Rule 74.12 of the Texas Administrative Code, Title 19, Part 2, Chapter 74, Subchapter B. Those main components include four credits of English, three credits of mathematics, three credits of science and two credits of a foreign language. The study data base does not contain information on another main component of the requirements – coursework in social studies-- or on other subject areas with requirements of one credit hour or less. A borrower will have “Yes” for the composite variable if he or she has met the minimum requirements for English, mathematics, science and foreign language; otherwise the borrower will have a value of “No”. Incidentally, this composite

variable closely reflects TAMU’s coursework requirements for admission to the University; the main difference is that TAMU requires 3.5 credits of mathematics, instead of three credits.

**There is virtually no difference in the default rates of borrowers who met the minimum high school coursework requirements and those who did not meet the standards.** In fact, there is not a statistically significant relationship between the composite coursework variable and default.

Of interest is the fact that the ‘Missing’ category has a 7.0 percent default rate. A closer look indicates that this group of borrowers is dominated by transfer students and students who continue on to graduate school – ironically, two categories that this study shows have lower than average default rates. Further research will be needed for evaluating whether there are subgroups within otherwise low risk categories of borrowers that have risk profiles that are strikingly different from their cohorts.

Recommended High School Program	Default				Total
	No		Yes		
	N	% of row	N	% of row	
No	6,131	95.6	282	4.4	6,413
Yes	4,852	95.5	228	4.5	5,080
Missing	1,193	93.0	90	7.0	1,283
All Undergraduates	12,176	95.3	600	4.7	12,776

## Demographic Variables

**In general, the variables in the demographic section have weak relationships to default.** In fact, six of the variables do not have a statistically significant association to default. Based upon the Uncertainty Coefficient and Cramer’s V, Age of Borrower is the only variable in this section that has more than a trivial strength of association to default.

### Statistical Summary: Demographic Variables

Variable	Statistical Significance	Uncertainty Coefficient	Cramer’s V	Gamma	Spearman Correlation
Age of Borrower	Significant	0.04	0.14	-0.16	-0.04
Ethnicity of Borrower	Significant	0.02	0.09	N/A	N/A
Highest Level Attained by Father	Significant	0.01	0.07	-0.09	-0.02
Parental Marital Status	Significant	0.01	0.06	N/A	N/A
Gender of Borrower	Significant	0.01	0.06	N/A	N/A
Highest Level Attained by Mother	Significant	0.01	0.06	-0.12	-0.03
Family Size	Significant	0.01	0.05	0.01	0.00
Citizenship of Borrower	Significant	0.00	0.03	N/A	N/A
Country of Local Address	Not significant	N/A	N/A	N/A	N/A
State of Local Address	Not significant	N/A	N/A	N/A	N/A

Marital Status of Borrower	Not significant	N/A	N/A	N/A	N/A
Country of Permanent Address	Not significant	N/A	N/A	N/A	N/A
State of Permanent Address	Not significant	N/A	N/A	N/A	N/A
Residency Status	Not significant	N/A	N/A	N/A	N/A

### Age of Borrower

Age of Borrower represents the borrower's age at the time that he or she entered repayment on student loans.

**Borrowers between the ages of 23 and 26 have the lowest default rate (3.2 percent), with both younger borrowers and older borrowers representing increased levels of default risk.**

Looking below the surface, it becomes apparent that the age variable is correlated with graduation status. Borrowers who enter repayment at 23 to 26 years of age, which is soon after the traditional graduating age, are in fact more likely than other borrowers to have graduated from Texas A&M. And since graduation status is related to a lower likelihood of default, borrowers in this age range also have a lower probability of defaulting. In contrast, borrowers who entered repayment before the traditional graduating age are less likely to have completed their program of study at Texas A&M and have much higher than average default rates. Borrowers whose ages at repayment reflect periods of non-traditional college attendance have average or above average default rates. Nevertheless, this variable has a relatively weak relationship to default.

Age	Default				Total
	No		Yes		
	N	% of row	N	% of row	
17-20	398	87.1	59	12.9	457
21-22	795	87.9	109	12.1	904
23-26	8,422	96.8	281	3.2	8,703
27-30	1,772	95.3	88	4.7	1,860
30-34	445	94.5	26	5.5	471
34+	344	90.3	37	9.7	381
<b>All Undergraduates</b>	12,176	95.3	600	4.7	12,776

### Ethnicity of Borrower

**Only White borrowers have default rates below the average default rate for Texas A&M.**

All other ethnic groups have rates that are higher or much higher than the average default rate. At almost 12 percent, Black borrowers have the highest default rate. In comparison, Hispanic borrowers have an almost 7 percent default rate. Nevertheless, the relationship between ethnicity and default, though statistically significant, is a relatively weak one. Strength of association will be at its highest when a variable defines a category (or group of categories) that has a high default rate and also contains most of the defaulters. In the case of ethnicity, the relationship is weak because knowing someone is Black will identify only 12 percent of all defaulters. (In contrast,

knowing that borrowers have GPAs of less than 2.5 will account for 82.5 percent of all defaulters). Furthermore, most defaulters are White, since a large majority of all borrowers are White. But knowing that a borrower is White is not helpful in identifying defaulters because such a small percentage of White borrowers are defaulters.

Ethnicity of Student	Default				Total
	No		Yes		
	N	% of row	N	% of row	
White	9,295	96.3	362	3.7	9,657
Asian/Pacific Islander	520	94.4	31	5.6	551
Native Indian/Alaskan	44	93.6	3	6.4	47
Hispanic	1,751	93.1	129	6.9	1,880
Other	22	91.7	2	8.3	24
Black	544	88.2	73	11.8	617
All Undergraduates	12,176	95.3	600	4.7	12,776

**Highest Level Attained by Father**

**In general, the higher the level of education attained by a borrower’s father, the lower the borrower’s probability of default is.** Borrowers whose fathers went to college have a lower default rate than other borrowers. (Incidentally, as the table shows, the majority of borrowers at Texas A&M have fathers who went to college.) Borrowers whose fathers attended high school, but reached no higher level, have a default rate that is slightly above the average for Texas A&M. For the relatively few borrowers whose fathers did not get as far as high school, the default rate is much higher. The association between this variable and default might suggest that higher attainment by the borrower’s father motivates the borrower to succeed in educational attainment and perhaps to succeed in loan repayment as well. (There is a statistically significant but weak relationship between the Highest Level Attained by Father and the graduation status of the borrower.) Alternatively, the relationship might merely reflect that the fact that more highly educated fathers have higher incomes and can better help their offspring with student loan repayment.

Highest Level of Father	Default				Total
	No		Yes		
	N	% of row	N	% of row	
College or Beyond	6,830	96.1	279	3.9	7,109
High School	3,809	95.1	197	4.9	4,006
Missing	833	94.6	48	5.4	881
Middle School/Junior High	395	90.6	41	9.4	436

Highest Level of Father	Default				Total
	No		Yes		
	N	% of row	N	% of row	
Unknown	309	89.8	35	10.2	344
All Undergraduates	12,176	95.3	600	4.7	12,776

### Parental Marital Status

**Borrowers whose parents have intact marriages have a lower default rate (3.9 percent) than borrowers whose parents are separated, divorced, widowed or never married.** There might be a link between marital status and socioeconomic status, at least in so far as the financial aid indicators of income are concerned. Married parents tend to have higher adjusted gross incomes and higher expected family contributions, both of which conditions are related to lower default rates. Borrowers with married parents also tend to have a lower need for financial assistance, another attribute that is associated with lower default rates. Nevertheless, the relationship between parental marital status and default is a weak one.

Parental Marital Status	Default				Total
	No		Yes		
	N	% of row	N	% of row	
Married/Remarried	6,648	96.1	269	3.9	6,917
Missing	3,276	94.9	175	5.1	3,451
Widowed	284	94.4	17	5.6	301
Divorced	1,523	94.1	96	5.9	1,619
Unmarried	194	92.8	15	7.2	209
Separated	251	90.0	28	10.0	279
All Undergraduates	12,176	95.3	600	4.7	12,776

### Gender of Borrower

**Male borrowers default on student loans at a higher rate than female borrowers.** Perhaps, this result is not so surprising: female borrowers at Texas A&M have higher GPAs and are more likely to graduate from college. Again, however, the relationship between gender and default is a weak one.

Gender of Borrower	Default				Total
	No		Yes		
	N	% of row	N	% of row	
Female	5,621	96.6	195	3.4	5,816
Male	6,555	94.2	405	5.8	6,960
All Undergraduates	12,176	95.3	600	4.7	12,776

**Highest Level Attained by Mother**

**Borrowers whose mothers did not reach high school have a very high default rate (10.3 percent).** On the other hand, borrowers whose mothers attended high school or above have default rates that are close to the average for Texas A&M. Borrowers whose mothers attained to the college level have a slightly lower default rate (4.1 percent) than borrowers whose mothers only reached the high school level (4.7 percent), but there is not a statistically significant difference between those two categories of borrowers. As a consequence, the strength of association for the table as a whole is very low.

Highest Level of Mother	Default				Total
	No		Yes		
	N	% of row	N	% of row	
College or Beyond	5,687	95.9	241	4.1	5,928
High School	5,164	95.3	256	4.7	5,420
Missing	779	94.7	44	5.3	823
Unknown	154	91.7	14	8.3	168
Middle School/Junior High	392	89.7	45	10.3	437
All Undergraduates	12,176	95.3	600	4.7	12,776

**Parental Family Size**

**Though statistically significant, there is no consistent pattern in the relationship between family size and default.** Notice in particular that borrowers who have seven (7) people in their families have a much lower default rate than borrowers whose family size is either six (6) or eight (8). Though this finding seems to defy reason, the differences between the “family size of 7” category and the groups adjacent to it are, in fact, statistically significant at the 5 percent level. Nevertheless, there is still about a 1 percent chance that the default rate for the “7” group is not significantly different from that of the two other categories.

Parental Family Size	Default				Total
	No		Yes		
	N	% of row	N	% of row	
0	3,331	94.9	180	5.1	3,511
1	41	97.6	1	2.4	42
2	1,004	95.5	47	4.5	1,051
3	2,576	95.6	119	4.4	2,695
4	3,012	96.4	112	3.6	3,124
5	1,486	94.3	89	5.7	1,575
6	511	92.4	42	7.6	553
7	144	98.6	2	1.4	146
8	43	91.5	4	8.5	47
9	13	81.3	3	18.8	16
10	15	93.8	1	6.3	16
<b>All Undergraduates</b>	12,176	95.3	600	4.7	12,776

**Citizenship of Borrower**

While differences in borrower citizenship equate to differences in default rates, the statistical relationship between the variables is very weak. Moreover, the relationship has little practical significance, since nearly every borrower at Texas A&M is a U.S. citizen.

Citizenship of Student	Default				Total
	No		Yes		
	N	% of row	N	% of row	
Non-U.S.	326	91.3	31	8.7	357
United States	11,850	95.4	569	4.6	12,419
<b>All Undergraduates</b>	12,176	95.3	600	4.7	12,776

**Address, Residency and Marital Status Variables**

None of the following demographic variables, or the variables that describe the state of residence of the borrower (see Appendix C), are statistically significant. For each of the following four variables, one category contains nearly all the borrowers, including all of the defaulters and repayers. Because these variables seldom vary in the values they possess, they cannot explain differences in repayment behavior and, therefore, do not have statistically significant relationships to default.

In some cases, these variables might have missing values because of problems in data entry or data extraction. If a problem occurred because of the way in which data was extracted, correction of the problem might reveal a new relationship to default.

Country of Local Address	Default				Total
	No		Yes		
	N	% of row	N	% of row	
Non-U.S.	2	100.0	0	0.0	2
United States	8,964	96.0	369	4.0	9,333
Missing	3,210	93.3	231	6.7	3,441
All Undergraduates	12,176	95.3	600	4.7	12,776

Marital Status of Borrower	Default				Total
	No		Yes		
	N	% of row	N	% of row	
Missing	12,146	95.3	596	4.7	12,742
Single	19	95.0	1	5.0	20
Married	11	78.6	3	21.4	14
All Undergraduates	12,176	95.3	600	4.7	12,776

Country of Permanent Address	Default				Total
	No		Yes		
	N	% of row	N	% of row	
Non-U.S.	2	100.0	0	0.0	2
United States	11,386	95.6	527	4.4	11,913
Missing	788	91.5	73	8.5	861
All Undergraduates	12,176	95.3	600	4.7	12,776

Residency Status	Default				Total
	No		Yes		
	N	% of row	N	% of row	
Non-resident not State Funded	3	100.0	0	0.0	3



Residency Status	Default				Total
	No		Yes		
	N	% of row	N	% of row	
<b>Resident not State Funded</b>	25	96.2	1	3.8	26
<b>Resident</b>	11,688	95.4	568	4.6	12,256
<b>Non-resident</b>	460	93.7	31	6.3	491
<b>All Undergraduates</b>	12,176	95.3	600	4.7	12,776

## Financial Aid

A borrower's financial circumstances and the financial assistance a borrower receives appear to be related to the probability that the borrower will default. However, while the variables in this section have statistically significant relationships to default, none of the associations are particularly strong, especially compared to other variables in the study. In short, though financial aid factors might ultimately influence default behavior, it is likely, given this study's findings, that other variables are much more important.

Several of the financial aid variables have missing categories with default rates that are less than the average for Texas A&M. In large part, the lower than average default rates belong to borrowers who attended Texas A&M as undergraduate students but did not obtain financial assistance until they were graduate students (and so have missing values for undergraduate financial aid variables). Since graduate-level borrowers have low default rates, these missing categories also tend to have low default rates.

### Statistical Summary: Financial Aid

Variable	Statistical Significance	Uncertainty Coefficient	Cramer's V	Gamma	Spearman Correlation
Expected Family Contribution (EFC)	Significant	0.02	0.09	-0.26	-0.08
Total Family Contribution (TFC)	Significant	0.02	0.08	-0.25	-0.08
Total Loan Aid	Significant	0.02	0.08	-0.18	-0.06
Adjusted Gross Income Student	Significant	0.02	0.08	-0.21	-0.07
Adjusted Gross Income Parents	Significant	0.01	0.07	-0.13	-0.04
Amount of Need	Significant	0.01	0.06	0.19	0.05
Total Other Aid	Significant	0.00	0.04	0.07	0.02
Dependency Status	Not significant	N/A	N/A	N/A	N/A
Total Work Study Aid	Not significant	N/A	N/A	N/A	N/A

### Expected Family Contribution (EFC)

**In general, as borrowers' Expected Family Contributions increase, their default rates decrease.** The borrowers with zero EFC default at the highest rate (8.0 percent). In contrast, borrowers who are expected to contribute more than \$12,000 have the lowest default rate (2.4 percent). To the extent that EFC is a surrogate for family income, this result suggests that

borrowers from the poorest families default at the highest rates, while borrowers from the highest income families have the lowest default rates. This is a pattern that will be seen in several of the other variables of this section. This variable has the strongest association to default of any variable in the financial aid section.

Expected Family Contribution	Default				Total
	No		Yes		
	N	% of row	N	% of row	
Zero	1,920	92.0	168	8.0	2,088
1-500	851	93.5	59	6.5	910
501-1,000	712	96.0	30	4.0	742
1,001-2,000	1,348	94.3	82	5.7	1,430
2,001-3,000	1,103	95.5	52	4.5	1,155
3,001-5,000	1,515	96.1	62	3.9	1,577
5,001-7,000	1,092	96.6	39	3.4	1,131
7,001-10,000	1,155	97.2	33	2.8	1,188
10,001 and higher	1,189	97.6	29	2.4	1,218
Missing	1,291	96.6	46	3.4	1,337
All Undergraduates	12,176	95.3	600	4.7	12,776

***Total Family Contribution (TFC)***

As with EFC, borrowers who have higher values of Total Family Contribution tend to have lower default rates. And again like the EFC variable, borrowers with zero TFC have the highest default rates (7.2 percent), suggesting that low income borrowers struggle with repayment more often than borrowers from higher income families. Though the relationship in the table below largely reflects the association between EFC and default, it is nevertheless a weaker relationship.

Total Family Contribution	Default				Total
	No		Yes		
	N	% of row	N	% of row	
Less than zero	21	100.0	0	0.0	21
Zero	2,796	92.8	217	7.2	3,013
1-500	918	93.7	62	6.3	980
501-1,000	801	96.2	32	3.8	833
1,001-2,000	1,382	95.2	70	4.8	1,452
2,001-3,000	1,113	95.6	51	4.4	1,164

Total Family Contribution	Default				Total
	No		Yes		
	N	% of row	N	% of row	
3,001-5,000	1,730	96.5	63	3.5	1,793
5,001-7,000	975	97.1	29	2.9	1,004
7,001-10,000	732	97.6	18	2.4	750
10,001 and higher	1,068	97.5	27	2.5	1,095
Missing	640	95.4	31	4.6	671
<b>All Undergraduates</b>	<b>12,176</b>	<b>95.3</b>	<b>600</b>	<b>4.7</b>	<b>12,776</b>

**Total Loan Aid**

**Borrowers who take out \$5,000 or less in loans default at a considerably higher rate than all other borrowers.** Not surprisingly, borrowers who take out relatively small loan amounts are more apt to stay at the university a short time and have much lower graduation rates than other borrowers. In other words, the loan amount is a partial proxy for education attainment. The fact that borrowers with high indebtedness (\$12,001 or more) have the lowest default rates suggests that debt levels are not too high for most borrowers. Interestingly, there is little difference in the default rates of borrowers in categories that range from \$5,001 to \$12,000; except on the extremes, indebtedness appears to be largely irrelevant. This variable has about the same strength of association as EFC and TFC.

Total Undergraduate Loan Aid	Default				Total
	No		Yes		
	N	% of row	N	% of row	
\$0	872	95.7	39	4.3	911
Up to \$3,000	1,080	90.8	110	9.2	1,190
\$3,001 to \$5,000	909	92.8	70	7.2	979
\$5,001 to \$7,000	1,376	95.6	64	4.4	1,440
\$7,001 to \$9,000	1,066	95.9	45	4.1	1,111
\$9,001 to \$10,000	501	95.6	23	4.4	524
\$10,001 to \$11,000	809	95.4	39	4.6	848
\$11,001 to \$12,000	404	95.3	20	4.7	424
\$12,001 or more	5,159	96.4	190	3.6	5,349
<b>All Undergraduates</b>	<b>12,176</b>	<b>95.3</b>	<b>600</b>	<b>4.7</b>	<b>12,776</b>

**Adjusted Gross Income (AGI) of Student**

Only borrowers with very small and very large incomes have default rates that differ significantly from the average for Texas A&M. Borrowers with gross incomes of zero have a default rate of 8.1 percent and borrowers with AGIs that exceed \$12,000 have a default rate of 2.8 percent. But the default rates for the other categories range only between 4.0 percent and 4.8 percent, with no statistically significant difference between them. Nevertheless, this variable intimates yet again that income is related to the probability of default, if only to a small degree.

Adjusted Gross Income - Student	Default				Total
	No		Yes		
	N	% of row	N	% of row	
Less than zero	23	85.2	4	14.8	27
Zero	1,827	91.9	161	8.1	1,988
1-2,000	1,662	95.2	84	4.8	1,746
2001-4,000	2,444	95.8	106	4.2	2,550
4001-6,000	1,708	95.7	76	4.3	1,784
6,001-12,000	2,103	96.0	87	4.0	2,190
12,001 and higher	1,752	97.2	50	2.8	1,802
Missing	657	95.4	32	4.6	689
All Undergraduates	12,176	95.3	600	4.7	12,776

**Adjusted Gross Income (AGI) of Parents**

Excluding the “zero” and “less than zero” categories, the parent’s AGI has the relationship to default that one would expect. **In general, default rates decrease as income increases.** As the table shows, this relationship holds for reported income categories that are greater than zero. The real problem here is that most of the zero AGIs are probably missing or unreported AGIs. When the missing AGIs are excluded from the analysis, the strength of association between AGI and default is greatly enhanced. In fact, the AGI of the parents becomes the variable with the strongest relationship to default in the Financial Aid section.

Adjusted Gross Income - Parents	Default				Total
	No		Yes		
	N	% of row	N	% of row	
Less than zero	57	96.6	2	3.4	59
Zero	4,534	95.1	236	4.9	4,770
1-20,000	997	91.7	90	8.3	1,087
20,001-30,000	843	94.1	53	5.9	896
30,001-40,000	968	95.7	43	4.3	1,011

Adjusted Gross Income - Parents	Default				Total
	No		Yes		
	N	% of row	N	% of row	
40,001-60,000	1,818	95.9	77	4.1	1,895
60,001-80,000	1,256	96.4	47	3.6	1,303
80,001 and higher	1,046	98.1	20	1.9	1,066
Missing	657	95.4	32	4.6	689
All Undergraduates	12,176	95.3	600	4.7	12,776

### Amount of Need

Amount of Need is the difference between the Cost of Attendance for a borrower and the Expected Family Contribution.

**Borrowers with no financial need have very low default rates (2.2 percent) and those with high need have default rates that are above average (between 5.4 percent and 6.2 percent).** However, because it is impossible to use this variable to isolate a group of borrowers with a very high default rate, the strength of association for this variable is weak.

There are two ways that borrowers can fall into the highest need categories. One way is to have a zero or near-zero EFC. The other way is to face high costs of attendance, either because program costs are higher or because the borrower is taking a high number of course hours. Since the high need categories are a mixture of these two types of borrowers, Financial Need does not merely mirror the relationship that we see between the income variables (EFC, TFC and AGI) and default behavior. If it did, the table below would show a greater range of default rates than it does.

Amount of Financial Need	Default				Total
	No		Yes		
	N	% of row	N	% of row	
Less Than Zero	1,306	97.8	29	2.2	1,335
1-2,500	1,228	96.8	40	3.2	1,268
2,501-7,500	3,451	95.7	155	4.3	3,606
7,501-10,000	3,152	93.8	208	6.2	3,360
10,001 and higher	2,399	94.6	137	5.4	2,536
Missing	640	95.4	31	4.6	671
All Undergraduates	12,176	95.3	600	4.7	12,776

### Total Other Aid

Total Other Aid represents all non-loan and non-work study assistance. This variable includes grant and scholarship assistance.

**Borrowers who receive \$1,000 or less in Total Other Aid have about a 3.9 percent default rate; all other borrowing groups have rates that are somewhat above average.** Borrowers who receive low amounts of Total Other Aid tend to have the high EFCs that are associated with lower rates of default. Nevertheless, this relationship is very weak, though statistically significant.

Total Other Aid	Default				Total
	No		Yes		
	N	% of row	N	% of row	
\$0	3,181	96.2	124	3.8	3,305
\$1 to \$1,000	1,522	96.1	62	3.9	1,584
\$1,001 to \$3,000	2,333	94.0	148	6.0	2,481
\$3,001 to \$4,000	959	94.9	52	5.1	1,011
\$4,001 to \$6,000	1,411	95.3	70	4.7	1,481
\$6,001 to \$9,000	1,309	94.9	71	5.1	1,380
\$9,001 or more	1,461	95.2	73	4.8	1,534
All Undergraduates	12,176	95.3	600	4.7	12,776

### Dependent Status

Dependency status has no statistically significant relationship to default. However, it appears that values are missing for this variable more frequently than should be the case. Until valid data are available, we will not know the true relationship between dependency and default.

Dependency Status	Default				Total
	No		Yes		
	N	% of row	N	% of row	
Dependent	143	93.5	10	6.5	153
Independent	403	95.5	19	4.5	422
Missing	11,630	95.3	571	4.7	12,201
All Undergraduates	12,176	95.3	600	4.7	12,776

### Total Work Study Aid

The total amount of work study aid does not have a statistically significant relationship to default. The study data base shows that only about 5 percent of borrowers receive work study aid.

Total Work Study Aid	Default				Total
	No		Yes		
	N	% of row	N	% of row	
\$0	11,535	95.3	570	4.7	12,105
More than \$0	641	95.5	30	4.5	671
All Undergraduates	12,176	95.3	600	4.7	12,776

### **Loan Briefing Variables**

Loan briefing variables represent a couple of important financial aid office interactions with borrowers regarding the borrowers' loans. Both of the variables in the summary table below have significant relationships to default and suggest that that the interactions with borrowers have some positive impact on loan repayment. The Exit Counseling variable, in particular, has a relatively high strength of association to default. Perhaps not surprisingly, the Debt Counseling variable has a weak relationship to default. This weakness derives from the fact that nearly all defaulters and repayers go through the counseling; therefore, in predicting whether or not a person will default, knowing that a person received debt counseling is hardly more helpful than knowing that he or she borrowed in the first place.

#### **Statistical Summary: Loan Briefing Variables**

Variable	Statistical Significance	Uncertainty Coefficient	Cramer's V	Gamma	Spearman Correlation
Exit Counseling (In-person)	Significant	0.13	0.22	0.81	0.22
Debt Counseling	Significant	0.00	0.05	-0.62	-0.05

### Exit Counseling (In-person)

Whereas **borrowers who receive in-person exit counseling have a very low default rate (1.3 percent)**, those who do not receive in-person exit counseling default at a high rate (11.1 percent). In terms of strength of association with default, the exit counseling variable is the only one of the top eight variables that is not from the College Success section. However, the exit counseling variable largely reflects the relationship between graduation and default. In fact, virtually everyone who received in-person exit counseling had graduated. This makes it difficult to sort out the separate effects of counseling and graduation. Nevertheless, it does appear that in-person exit counseling has an association with default that is independent of graduation status: among graduated borrowers, the default rate is almost four times as high for borrowers who did not receive in-person exit counseling (4.4 percent) as it is for graduated borrowers who did receive the counseling (1.2 percent).

**Borrowers who do not receive in-person exit counseling account for 82 percent of defaults.**

Exit Counseling (In-person)	Default				Total
	No		Yes		
	N	% of row	N	% of row	
Yes	8,238	98.7	106	1.3	8,344
No	3,938	88.9	494	11.1	4,432
<b>All Undergraduates</b>	12,176	95.3	600	4.7	12,776

### Debt Counseling

Debt counseling has a statistically significant, but weak, relationship to default. **Borrowers who did not receive debt counseling have a 17 percent default rate**, while borrowers who received counseling default at a rate near the average for all borrowers. Note that almost all borrowers fall into the “Yes” category.

Debt Counseling?	Default				Total
	No		Yes		
	N	% of row	N	% of row	
No	63	82.9	13	17.1	76
Yes	12,113	95.4	587	4.6	12,700
<b>All Undergraduates</b>	12,176	95.3	600	4.7	12,776

### Loan-related Variables

Loan-related variables have among the weakest relationships to default of any variables in the study. In general, the number and amount of loans a borrower obtains, whether or not a borrower gets a consolidation loan and the number of lenders a borrower uses have little to do with whether a borrower defaults after entering repayment.

#### Statistical Summary: Loan-related Variables

Variable	Statistical Significance	Uncertainty Coefficient	Cramer's V	Gamma	Spearman Correlation
Total TG Loan Guarantee Amount	Significant	0.01	0.08	-0.15	-0.05
Has Consolidation Loan?	Significant	0.00	0.05	0.29	0.05
Number of Loans	Significant	0.00	0.04	-0.09	-0.03
Number of Lenders	Not significant	N/A	N/A	N/A	N/A



**Total TG Loan Guarantee Amount**

**Borrowers with small total amounts of TG loan guarantees (\$3,000 or less) have a higher default rate (9.2 percent) than other borrowers.** The small amounts of total guarantee dollars are probably related to short periods of attendance at Texas A&M that did not result in graduation. As the College Success variables indicated, short attendance periods and failure to graduate are associated with higher default rates. For ascending categories through \$12,000 of total guarantee dollars, default rates steadily decline to 3.4 percent. After that point, however, the relationship between guarantee amount and default begins to break down. Though it appears that default rates increase for each rise in guarantee amount between \$12,001 and \$30,000, the differences in default rates for these categories are not statistically significant. The reason that default rates are so low for borrowers who received more than \$30,000 in guaranteed loans is unclear at this point.

Total TG Loan Guarantee Amount	Default				Total
	No		Yes		
	N	% of row	N	% of row	
<b>\$1 to \$3,000</b>	1,120	90.8	114	9.2	1,234
<b>\$3,001 to \$6,000</b>	1,638	94.6	94	5.4	1,732
<b>\$6,001 to \$9,000</b>	1,184	95.6	55	4.4	1,239
<b>\$9,001 to \$12,000</b>	1,353	96.6	47	3.4	1,400
<b>\$12,001 to \$16,000</b>	1,679	96.4	63	3.6	1,742
<b>\$16,001 to \$20,000</b>	1,595	95.5	76	4.5	1,671
<b>\$20,001 to \$30,000</b>	1,720	95.3	84	4.7	1,804
<b>30,001 or more</b>	1,881	96.6	66	3.4	1,947
<b>Missing</b>	6	85.7	1	14.3	7
<b>All Undergraduates</b>	12,176	95.3	600	4.7	12,776

**Consolidation**

**Borrowers who consolidate their loans have a higher default rate than borrowers who do not consolidate.** Perhaps not surprisingly, these borrowers tend to have very high total indebtedness. In fact, loan consolidators account for about half of the borrowers who had a total TG loan indebtedness of \$30,001 or more. But for borrowers who consolidate, indebtedness by itself is not the main factor; it appears that whether a not a consolidation borrower graduates is the determining factor. **Consolidation borrowers who graduate have a 2.4 percent default rate. In contrast, consolidation borrowers who do not graduate have a 28.6 percent default rate** and account for about 75 percent of all defaults among loan consolidators.

Has Consolidation Loan?	Default				Total
	No		Yes		
	N	% of row	N	% of row	
No	11,004	95.6	502	4.4	11,506
Yes	1,166	92.3	97	7.7	1,263
Missing	6	85.7	1	14.3	7
All Undergraduates	12,176	95.3	600	4.7	12,776

**Number of Loans**

**Borrowers who take only one or two loans have a slightly higher probability of defaulting, as compared to borrowers who take more than two loans.** Borrowers who take very few loans are less likely to have graduated from Texas A&M and are more likely than other borrowers to have attended for a short period of time, conditions that are associated with higher default rates. However, the relationship in the table is very weak and most categories of borrowers in the table have approximately the same default rate.

Number of Loans	Default				Total
	No		Yes		
	N	% of row	N	% of row	
Missing	6	85.7	1	14.3	7
1	1,829	94.0	117	6.0	1,946
2	1,589	94.3	96	5.7	1,685
3	1,471	95.9	63	4.1	1,534
4	1,413	95.9	61	4.1	1,474
5	1,290	95.8	57	4.2	1,347
6	1,091	94.9	59	5.1	1,150
7 to 9	2,148	95.8	95	4.2	2,243
10 or more	1,339	96.3	51	3.7	1,390
All Undergraduates	12,176	95.3	600	4.7	12,776

**Number of Lenders**

Borrowers who have only one lender have a slightly lower default rate than other borrowers. For borrowers who have more than one lender, there is hardly any increase in default rate as the number of lenders increases. **The relationship in the table is not significant.**

Number of Lenders	Default				Total
	No		Yes		
	N	% of row	N	% of row	
Missing	6	85.7	1	14.3	7
1	7,472	95.7	337	4.3	7,809
2	3,142	94.7	176	5.3	3,318
3	1,061	94.9	57	5.1	1,118
4	378	94.5	22	5.5	400
5 or more	117	94.4	7	5.6	124
All Undergraduates	12,176	95.3	600	4.7	12,776

## **Appendix A**

### **Basic Statistics for Numeric Variables**

Numeric variables can be subjected to analysis that cannot be applied to character variables. Most notably, it is possible to compare the mean value of numeric variables for defaulters and non-defaulters. If there is a relationship between a numeric variable and default, then one would expect to see significant differences in the mean values of the variable for defaulters and non-defaulters. For example, the following two tables show that borrowers who did not default took an average of 104 hours while attending Texas A&M, whereas borrowers who defaulted attended for an average of 79 hours. Comparing means for defaulters and non-defaulters is merely another way of viewing the results presented in the main body of this report. In addition to the mean, the following tables will present the number of observations that have non-missing values for a variable, the number of records that have missing values for a variable, the standard deviation, the minimum value for a variable and the maximum value.

## Basic Statistics for Borrowers who did not Default Numeric Variables Only

Variable	# Non-missing	# Missing	Mean	Standard Deviation	Min	Max
Equivalency Score	9,684	2,492	1,123.24	139.36	500	1,600
High School English Credits	11,124	1,052	3.88	0.68	0	7
High School Foreign Language Credits	11,124	1,052	1.95	0.57	0	7
High School Computer	11,124	1,052	0.80	0.44	0	6
High School Algebra I Credits	11,124	1,052	0.97	0.19	0	4
High School Algebra II Credits	11,124	1,052	0.95	0.22	0	4
High School Geometry Credits	11,124	1,052	0.96	0.21	0	4
High School Advanced Math Credits	11,124	1,052	1.08	0.71	0	6
High School Biology Credits	11,124	1,052	0.30	0.56	0	5
High School Chemistry Credits	11,124	1,052	0.24	0.48	0	4
High School Physics Credits	11,124	1,052	0.12	0.35	0	4
High School Other Science Credits	11,124	1,052	1.92	1.34	0	9
Advanced Placement Credits	11,124	1,052	1.71	4.06	0	60
Highest Number of Semester Hours	12,126	50	15.17	2.09	1	29
Lowest Number of Semester Hours	12,126	50	6.30	3.32	1	16
Total Number of Hours Taken	12,176	0	103.63	42.02	0	269
Total Hours at A&M Plus Transfer Hours	12,176	0	136.44	41.39	0	399
Number of Semesters Enrolled	12,163	13	9.19	3.72	1	29
Number of Years in College	12,176	0	4.86	2.72	-15	45
# of Semesters Enrolled Less Than Full-Time	12,176	0	1.81	1.80	0	23
Number of Semesters in a Dorm	12,176	0	2.35	2.88	0	18
Number of Summer Semesters Attended	12,176	0	1.80	1.31	0	9
Number of Hours Transferred	12,176	0	32.81	29.38	0	213
Number of Hours Passed	12,176	0	133.03	41.18	0	344
Number of Hours Failed	12,176	0	3.54	6.26	0	76
Number of Hours Incomplete	12,176	0	0.04	0.41	0	10
Number of Hours Q-dropped	12,176	0	5.72	5.65	0	81
Undergraduate GPA	12,176	0	2.67	0.67	0	4
Amount of Financial Need	11,536	640	5,885.12	6,895.82	-90,996	37,943
Expected Family Contribution	10,885	1,291	4,441.57	6,043.39	0	99,998
Total Family Contribution	11,536	640	3,760.64	5,826.96	-5,227	99,998
Adjusted Gross Income - Student	11,519	657	6,523.97	8,755.16	-24,778	144,166
Adjusted Gross Income - Parent	11,519	657	30,428.80	38,535.23	-749,296	902,687
Total Undergraduate Loan Aid	12,176	0	11,814.70	9,071.04	0	92,660
Total Work Study Aid	12,176	0	104.68	747.95	0	40,620
Total Other Aid	12,176	0	3,804.20	5,075.23	0	74,592
Age	12,176	0	24.80	3.66	17	60
Number of Loans	12,170	6	5.05	3.55	1	30
Number of Lenders	12,170	6	1.57	0.86	1	8
Total TG Loan Guarantee Amount	12,170	6	18,676.19	18,952.91	253	198,843

## Basic Statistics for Borrowers who did not Default Numeric Variables Only

Variable	# Non-missing	# Missing	Mean	Standard Deviation	Min	Max
Equivalency Score	451	149	1,102.89	142.97	690	1,530
High School English Credits	518	82	3.86	0.73	0	5
High School Foreign Language Credits	518	82	1.96	0.71	0	6
High School Computer	518	82	0.78	0.46	0	3
High School Algebra I Credits	518	82	0.96	0.19	0	1
High School Algebra II Credits	518	82	0.93	0.25	0	1
High School Geometry Credits	518	82	0.94	0.23	0	1
High School Advanced Math Credits	518	82	1.04	0.76	0	4
High School Biology Credits	518	82	0.47	0.66	0	3
High School Chemistry Credits	518	82	0.39	0.59	0	3
High School Physics Credits	518	82	0.23	0.46	0	2
High School Other Science Credits	518	82	1.55	1.41	0	6
Advanced Placement Credits	518	82	1.35	3.46	0	40
Highest Number of Semester Hours	596	4	14.27	2.38	3	22
Lowest Number of Semester Hours	596	4	7.13	3.41	1	18
Total Number of Hours Taken	600	0	79.11	50.80	0	266
Total Credits at A&M Plus Transfer Hours	600	0	105.04	55.72	0	269
Number of Semesters Enrolled	600	0	7.53	5.00	1	46
Number of Years in College	600	0	5.79	3.47	0	39
# of Semesters Enrolled Less Than Full-Time	600	0	1.84	2.35	0	29
Number of Semesters in a Dorm	600	0	1.82	2.57	0	13
Number of Summer Semesters Attended	600	0	1.41	1.52	0	14
Number of Hours Transferred	600	0	25.93	28.01	0	121
Number of Hours Passed	600	0	93.44	53.48	0	227
Number of Hours Failed	600	0	10.55	9.65	0	53
Number of Hours Incomplete	600	0	0.17	0.84	0	8
Number of Hours Q-dropped	600	0	8.65	9.14	0	76
Undergraduate GPA	600	0	1.88	0.73	0	4
Amount of Financial Need	569	31	7,203.99	5,935.45	-64,154	22,843
Expected Family Contribution	554	46	2,831.03	5,327.73	0	73,384
Total Family Contribution	569	31	2,361.17	5,166.42	0	73,384
Adjusted Gross Income - Student	568	32	4,446.87	6,088.22	-2,000	48,428
Adjusted Gross Income - Parent	568	32	22,900.85	28,435.27	-53,883	171,785
Total Undergraduate Loan Aid	600	0	9,910.80	8,622.62	0	46,807
Total Work Study Aid	600	0	62.82	359.35	0	5,067
Total Other Aid	600	0	4,086.67	5,171.65	0	39,851
Age	600	0	24.74	5.03	19	55
Number of Loans	599	1	4.58	3.36	1	19
Number of Lenders	599	1	1.64	0.90	1	6
Total TG Loan Guarantee Amount	599	1	14,480.70	12,943.99	500	88,036

## Appendix B

### Missing Values

Many variables in the study have missing values for some observations. The missing values arise for a number of reasons, including that data were not collected either by mistake or by design. Design decisions that create missing values include policy determinations to forego the collection of certain data items at particular points in time. Additionally, the university sometimes does not collect certain data items on borrowers for whom it does not make sense to do so. For example, students who withdraw from the university permanently will not have data values for degree attained or graduation date.

When defaulters and non-defaulters have different rates of missing values, examination of the differences can be instructive. In some situations, differences in the percentages of missing values might identify a risk factor associated with default. For example, Previous College Attended is missing for 33 percent of defaulters but for only 15 percent of non-defaulters. It might be that borrowers who do not attend another college before TAMU (and so have missing values for this variable) are not as well prepared for attending TAMU and, therefore, tend to default at a higher rate. Other times, missing values portray a more indirect relationship with default. When administrative decisions mean that data is collected at some points in time but not at other points, the default rate for the missing group can tend to mirror the overall default rate for a particular repayment year or set of years. In other words, if the default rate for the missing group is higher/lower than other groups, it might simply be because the university did not uniformly collect that data item at a time when default rates were generally higher/lower.

The following table shows the rate of missing values for non-defaulters and defaulters. The table does not indicate whether the differences in rates are statistically significant. Some apparent differences might, therefore, be due to random variation. The tables are provided for suggestive purposes only. More research is needed to determine the precise relationships between missing data and default behavior.

## Percentage of Records that have Missing Values By Whether or Not Borrower is a Defaulter

Variable	% Missing	
	Non-defaulter	Defaulter
Adjusted Gross Income - Parent	5.4%	5.3%
Adjusted Gross Income - Student	5.4%	5.3%
Admission Code	7.6%	8.3%
Admission Major	7.6%	8.3%
Advanced Placement Credits	8.6%	13.7%
Age	0.0%	0.0%
Amount of Financial Need	5.3%	5.2%
Citizenship of Borrower	0.0%	0.0%
College	0.0%	0.0%
College of Admittance	7.6%	8.3%
Country of Local Address	26.4%	38.5%
Country of Permanent Address	6.5%	12.2%
Debt Counseling	0.0%	0.0%
Degree	19.5%	69.7%
Dependency Status	95.5%	95.2%
Equivalency Score	20.5%	24.8%
Ethnicity of Borrower	0.0%	0.0%
Exit Counseling	0.0%	0.0%
Expected Family Contribution	10.6%	7.7%
Gender of Borrower	0.0%	0.0%
Graduation Indicator	0.0%	0.0%
Has Consolidation Loan?	0.0%	0.2%
Indicator of Minor	0.0%	0.0%
Has Non-Loan Aid?	0.0%	0.0%
Indicator of Secondary Major	0.0%	0.0%
High School Advanced Math Credits	8.6%	13.7%
High School Algebra I Credits	8.6%	13.7%
High School Algebra II Credits	8.6%	13.7%
High School Biology Credits	8.6%	13.7%
High School Chemistry Credits	8.6%	13.7%
High School Computer	8.6%	13.7%
High School English Credits	8.6%	13.7%
High School Foreign Language Credits	8.6%	13.7%
High School Geometry Credits	8.6%	13.7%
High School Other Science Credits	8.6%	13.7%
High School Physics Credits	8.6%	13.7%
Highest Degree Attained	0.0%	0.0%
Highest Level Attained	0.0%	0.0%
Highest Level of Father	6.8%	8.0%



Highest Level of Mother	6.4%	7.3%
Highest Number of Semester Hours	0.4%	0.7%
Is Missing Financial Aid Data?	0.0%	0.0%
Is Missing Loan Data?	0.0%	0.0%
Lowest Number of Semester Hours	0.4%	0.7%
Marital Status of Borrower	99.8%	99.3%
Minor	76.6%	83.8%
Number of Changes in Major	0.0%	0.0%
Number of Degrees	0.0%	0.0%
Number of Hours Failed	0.0%	0.0%
Number of Hours Incomplete	0.0%	0.0%
Number of Hours Passed	0.0%	0.0%
Number of Hours Q-dropped	0.0%	0.0%
Number of Hours Transferred	0.0%	0.0%
Number of Lenders	0.0%	0.2%
Number of Loans	0.0%	0.2%
Number of Semesters Enrolled	0.1%	0.0%
# of Semesters Enrolled Less Than Full-Time	0.0%	0.0%
Number of Semesters in a Dorm	0.0%	0.0%
Number of Summer Semesters Attended	0.0%	0.0%
Number of Withdrawals	0.0%	0.0%
Number of Years in College	0.0%	0.0%
Parental Family Size	0.0%	0.0%
Parental Marital Status	26.9%	29.2%
Previous College	14.8%	32.8%
Primary Major	0.0%	0.0%
Region of Local Address	26.3%	36.8%
Region of Permanent Address	5.3%	11.5%
Residency Status of Borrower	0.0%	0.0%
Secondary Major	99.2%	100.0%
State of Local Address	26.3%	36.8%
State of Permanent Address	5.3%	11.5%
Total Family Contribution	5.3%	5.2%
Total Hours at A&M Plus Transfer Hours	0.0%	0.0%
Total Number of Hours Taken	0.0%	0.0%
Total Other Aid	0.0%	0.0%
Total TG Loan Guarantee Amount	0.0%	0.2%
Total Undergraduate Loan Aid	0.0%	0.0%
Total Work Study Aid	0.0%	0.0%
Type of Admission	7.6%	8.3%
Type of Withdrawal	0.0%	0.0%
Undergraduate GPA	0.0%	0.0%
Withdrawal Indicator	0.0%	0.0%

## Appendix C

### Additional Default Tables

The tables for some variables are very lengthy because the variables can take on many different values. In order to avoid disrupting the flow of information in the main body of the report, the default tables for those variables have been placed in Appendix C. Those variables are **Admission Major, Previous College Attended, Primary Major, Secondary Major, Minor, State of Local Address and State of Permanent Address**. An additional justification for moving these variables to the Appendix is that none of them have an extremely important relationship to default.

**Admission Major**

Admission Major	Default				Total
	No		Yes		
	N	% of row	N	% of row	
Missing	923	94.9	50	5.1	973
Aerospace Engineering	259	97.4	7	2.6	266
Agribusiness	92	96.8	3	3.2	95
Agricultural Development	112	97.4	3	2.6	115
Agricultural Economics	81	92.0	7	8.0	88
Agricultural Education	4	80.0	1	20.0	5
Agricultural Engineering	56	93.3	4	6.7	60
Agricultural Journalism	21	91.3	2	8.7	23
Agricultural Science	21	95.5	1	4.5	22
Agricultural Systems Management	26	96.3	1	3.7	27
Agriculture and Life Sciences	62	89.9	7	10.1	69
Agronomy	22	95.7	1	4.3	23
Animal Science	238	97.9	5	2.1	243
Anthropology	13	100.0	0	0.0	13
Anthropology (Lower)	28	93.3	2	6.7	30
Applied Mathematical Sciences	16	100.0	0	0.0	16
Biochemistry	102	96.2	4	3.8	106
Bioengineering	2	100.0	0	0.0	2
Bioengineering (Lower)	145	98.0	3	2.0	148
Bioenvironmental Sciences	51	91.1	5	8.9	56
Biology	417	95.2	21	4.8	438
Biomedical Engineering	3	100.0	0	0.0	3
Biomedical Science	531	95.3	26	4.7	557
Biomedical Science/Lower	3	75.0	1	25.0	4
Botany	2	66.7	1	33.3	3
Building Construction	9	100.0	0	0.0	9
Building Construction (Lower)	16	94.1	1	5.9	17
Business Administration	1,628	96.3	63	3.7	1,691
Chemical Engineering	318	96.1	13	3.9	331

Admission Major	Default				Total
	No		Yes		
	N	% of row	N	% of row	
Chemistry	94	94.0	6	6.0	100
Civil Engineering	321	96.4	12	3.6	333
Computer Engineering	101	91.0	10	9.0	111
Computer Engineering (L)	77	96.3	3	3.8	80
Computer Science	187	95.9	8	4.1	195
Computer Science & Engineering (L)	36	94.7	2	5.3	38
Construction Science	100	96.2	4	3.8	104
Curriculum & Instruction	7	100.0	0	0.0	7
Dairy Science	5	100.0	0	0.0	5
Earth Sciences	7	100.0	0	0.0	7
Economics	13	76.5	4	23.5	17
Economics (Lower)	31	93.9	2	6.1	33
Electrical Engineering	362	93.8	24	6.2	386
Engineering Technology	108	93.9	7	6.1	115
English	36	100.0	0	0.0	36
English (Lower)	111	95.7	5	4.3	116
English Language Institute	2	100.0	0	0.0	2
Entomology	6	85.7	1	14.3	7
Environmental Design	216	96.4	8	3.6	224
Floriculture	3	75.0	1	25.0	4
Food Science and Technology	17	100.0	0	0.0	17
Forestry	20	95.2	1	4.8	21
General Academics	33	91.7	3	8.3	36
General Studies	1,191	95.0	63	5.0	1,254
General Studies - Pre-Engineering	46	75.4	15	24.6	61
Genetics	87	92.6	7	7.4	94
Geography	45	93.8	3	6.3	48
Geology	17	81.0	4	19.0	21
Geophysics	7	100.0	0	0.0	7
Health	1	100.0	0	0.0	1

Admission Major	Default				Total
	No		Yes		
	N	% of row	N	% of row	
Health (Health Education)	70	98.6	1	1.4	71
History	31	93.9	2	6.1	33
History (Lower)	92	92.9	7	7.1	99
Horticulture	20	100.0	0	0.0	20
Industrial Distribution	70	94.6	4	5.4	74
Industrial Engineering	77	95.1	4	4.9	81
Interdisciplinary Studies	419	97.9	9	2.1	428
Interdisciplinary Technology	2	66.7	1	33.3	3
International Studies	3	100.0	0	0.0	3
International Studies (Lower)	43	97.7	1	2.3	44
Journalism	35	94.6	2	5.4	37
Journalism (Lower)	109	94.0	7	6.0	116
Kinesiology	5	83.3	1	16.7	6
Kinesiology (Physical Activity)	208	94.5	12	5.5	220
Landscape Architecture	36	94.7	2	5.3	38
Marine Biology	44	93.6	3	6.4	47
Marine Biology/Lower	4	100.0	0	0.0	4
Marine Engineering	2	100.0	0	0.0	2
Marine Engineering Technology	1	100.0	0	0.0	1
Marine Fisheries	1	100.0	0	0.0	1
Marine Sciences	17	100.0	0	0.0	17
Marine Transportation	2	100.0	0	0.0	2
Maritime Administration	5	83.3	1	16.7	6
Maritime Systems Engineering	9	81.8	2	18.2	11
Mathematics	90	100.0	0	0.0	90
Mechanical Engineering	380	96.2	15	3.8	395
Meteorology	59	96.7	2	3.3	61
Microbiology	39	97.5	1	2.5	40
Modern Languages	7	100.0	0	0.0	7
Modern Languages (Lower)	21	100.0	0	0.0	21

Admission Major	Default				Total
	No		Yes		
	N	% of row	N	% of row	
Molecular and Cell Biology	16	100.0	0	0.0	16
Nuclear Engineering	56	96.6	2	3.4	58
Nutritional Sciences	38	92.7	3	7.3	41
Ocean Engineering	24	96.0	1	4.0	25
Petroleum Engineering	106	99.1	1	0.9	107
Philosophy	4	80.0	1	20.0	5
Philosophy (Lower)	14	93.3	1	6.7	15
Physical Education	2	100.0	0	0.0	2
Physics	51	91.1	5	8.9	56
Plant and Environmental Soil Science	2	100.0	0	0.0	2
Political Science	64	90.1	7	9.9	71
Political Science (Lower)	145	89.5	17	10.5	162
Poultry Science	39	100.0	0	0.0	39
Pre-Dentistry	18	94.7	1	5.3	19
Pre-Engineering	2	66.7	1	33.3	3
Pre-Medicine	288	96.6	10	3.4	298
Psychology	86	98.9	1	1.1	87
Psychology (Lower)	293	94.5	17	5.5	310
Radiological Health Engineering	8	100.0	0	0.0	8
Range Science	4	100.0	0	0.0	4
Rangeland Ecology and Management	36	92.3	3	7.7	39
Recreation & Parks	1	100.0	0	0.0	1
Recreation, Park and Tourism Sciences	36	87.8	5	12.2	41
Renewable Natural Resources	1	50.0	1	50.0	2
Scientific Nutrition	8	100.0	0	0.0	8
Sociology	16	100.0	0	0.0	16
Sociology (Lower)	64	95.5	3	4.5	67
Speech Communication	26	86.7	4	13.3	30
Speech Communication (Lower)	62	93.9	4	6.1	66
Teacher Certification	43	100.0	0	0.0	43

Admission Major	Default				Total
	No		Yes		
	N	% of row	N	% of row	
Theater Arts	5	71.4	2	28.6	7
Theater Arts (Lower)	9	90.0	1	10.0	10
Wildlife and Fisheries Sciences	143	97.9	3	2.1	146
Zoology	77	95.1	4	4.9	81
All Undergraduates	12,176	95.3	600	4.7	12,776

Previous College

Previous College	Default				Total
	No		Yes		
	N	% of row	N	% of row	
Missing	1,796	90.1	197	9.9	1,993
Alvin Community College	31	96.9	1	3.1	32
Amarillo College	23	100.0	0	0.0	23
Angelina College	20	90.9	2	9.1	22
Angelo State University	31	93.9	2	6.1	33
Austin Community College	212	96.8	7	3.2	219
Blinn College	3,789	96.3	146	3.7	3,935
Cedar Valley College	257	94.8	14	5.2	271
Central Texas College District	51	94.4	3	5.6	54
Coastal Bend College	28	96.6	1	3.4	29
College of the Mainland	28	87.5	4	12.5	32
Collin County Community College District	144	96.6	5	3.4	149
Del Mar College	78	95.1	4	4.9	82
Eastfield College	39	88.6	5	11.4	44
Houston Community College System	386	95.5	18	4.5	404
Kilgore College	54	96.4	2	3.6	56
Lamar University-Beaumont	57	91.9	5	8.1	62
Laredo Community College	40	93.0	3	7.0	43

Previous College	Default				Total
	No		Yes		
	N	% of row	N	% of row	
Lee College	31	93.9	2	6.1	33
McLennan Community College	95	97.9	2	2.1	97
Midland College	35	97.2	1	2.8	36
Mountain View College	29	100.0	0	0.0	29
Navarro College	44	91.7	4	8.3	48
North Harris Montgomery CC District	338	95.5	16	4.5	354
Odessa College	24	96.0	1	4.0	25
Other Colleges	1,781	95.4	85	4.6	1,866
Palo Alto College	44	97.8	1	2.2	45
Richland College	127	97.7	3	2.3	130
Sam Houston State University	189	97.4	5	2.6	194
San Antonio College	279	97.9	6	2.1	285
Southwest Texas Junior College	26	96.3	1	3.7	27
Southwest Texas State University	93	97.9	2	2.1	95
Stephen F. Austin State University	42	93.3	3	6.7	45
Tarleton State University	39	97.5	1	2.5	40
Tarrant County Junior College District - South	192	96.5	7	3.5	199
Temple College	55	96.5	2	3.5	57
Texarkana College	27	100.0	0	0.0	27
Texas A&M University-Commerce	55	98.2	1	1.8	56
Texas A&M University-Corpus Christi	32	94.1	2	5.9	34
Texas A&M University-Kingsville	29	96.7	1	3.3	30
Texas Tech University	754	99.2	6	0.8	760
Trinity Valley Community College	34	97.1	1	2.9	35
Tyler Junior College	74	94.9	4	5.1	78
University of Houston	101	100.0	0	0.0	101
University of North Texas	78	97.5	2	2.5	80
University of Texas at Arlington	75	97.4	2	2.6	77
University of Texas at Austin	103	97.2	3	2.8	106



Previous College	Default				Total
	No		Yes		
	N	% of row	N	% of row	
University of Texas at Brownsville	22	91.7	2	8.3	24
University of Texas at Dallas	35	100.0	0	0.0	35
University of Texas at San Antonio	66	97.1	2	2.9	68
University of Texas-Pan American	57	89.1	7	10.9	64
Victoria College, The	46	100.0	0	0.0	46
Wharton County Junior College	61	91.0	6	9.0	67
All Undergraduates	12,176	95.3	600	4.7	12,776

**Primary Major**

Primary Major	Default				Total
	No		Yes		
	N	% of row	N	% of row	
Accounting	436	98.2	8	1.8	444
Aerospace Engineering	97	98.0	2	2.0	99
Agribusiness	77	96.3	3	3.8	80
Agricultural Development	231	95.9	10	4.1	241
Agricultural Economics	170	93.4	12	6.6	182
Agricultural Education	3	100.0	0	0.0	3
Agricultural Engineering	58	98.3	1	1.7	59
Agricultural Journalism	17	89.5	2	10.5	19
Agricultural Science	42	97.7	1	2.3	43
Agricultural Systems Management	58	92.1	5	7.9	63
Agriculture and Life Sciences	48	70.6	20	29.4	68
Agronomy	42	97.7	1	2.3	43
Animal Science	319	95.8	14	4.2	333
Anthropology	63	94.0	4	6.0	67
Applied Mathematical Sciences	35	100.0	0	0.0	35
Biochemistry	71	94.7	4	5.3	75

Primary Major	Default				Total
	No		Yes		
	N	% of row	N	% of row	
Bioengineering	40	97.6	1	2.4	41
Bioengineering (Lower)	11	84.6	2	15.4	13
Bioenvironmental Sciences	61	91.0	6	9.0	67
Biological Systems Engineering	1	100.0	0	0.0	1
Biology	204	93.6	14	6.4	218
Biomedical Engineering	15	100.0	0	0.0	15
Biomedical Science	690	97.7	16	2.3	706
Botany	1	50.0	1	50.0	2
Building Construction	4	80.0	1	20.0	5
Business Administration	229	86.4	36	13.6	265
Business Analysis	310	96.6	11	3.4	321
Chemical Engineering	195	97.5	5	2.5	200
Chemistry	68	91.9	6	8.1	74
Civil Engineering	324	97.6	8	2.4	332
Computer Engineering	47	85.5	8	14.5	55
Computer Engineering (L)	1	100.0	0	0.0	1
Computer Engineering-Cpsc	72	98.6	1	1.4	73
Computer Engineering-Elen	26	92.9	2	7.1	28
Computer Science	186	96.4	7	3.6	193
Computer Science & Engineering (L)	1	100.0	0	0.0	1
Construction Science	228	95.8	10	4.2	238
Curriculum & Instruction	15	100.0	0	0.0	15
Dairy Science	3	100.0	0	0.0	3
Earth Sciences	12	100.0	0	0.0	12
Economics	75	93.8	5	6.3	80
Economics (Lower)	1	100.0	0	0.0	1
Electrical Engineering	238	96.7	8	3.3	246
Engineering Technology	231	93.9	15	6.1	246
English	252	93.7	17	6.3	269
English (Lower)	3	100.0	0	0.0	3

Primary Major	Default				Total
	No		Yes		
	N	% of row	N	% of row	
English Language Institute	2	100.0	0	0.0	2
Entomology	24	96.0	1	4.0	25
Environmental Design	297	96.1	12	3.9	309
Finance	335	98.2	6	1.8	341
Floriculture	2	66.7	1	33.3	3
Food Science and Technology	32	100.0	0	0.0	32
Forestry	32	97.0	1	3.0	33
French	7	100.0	0	0.0	7
General Academics	5	83.3	1	16.7	6
General Studies	366	85.3	63	14.7	429
General Studies - Pre-Engineering	31	75.6	10	24.4	41
Genetics	92	92.9	7	7.1	99
Geography	96	94.1	6	5.9	102
Geology	25	83.3	5	16.7	30
Geophysics	4	100.0	0	0.0	4
German	2	100.0	0	0.0	2
German (Lower)	1	100.0	0	0.0	1
Health	140	97.9	3	2.1	143
Health (Health Education)	19	90.5	2	9.5	21
Health Education	1	100.0	0	0.0	1
History	198	92.5	16	7.5	214
History (Lower)	2	100.0	0	0.0	2
Horticulture	45	97.8	1	2.2	46
INFO	103	96.3	4	3.7	107
Industrial Distribution	245	96.5	9	3.5	254
Industrial Education	1	100.0	0	0.0	1
Industrial Engineering	121	96.0	5	4.0	126
Interdisciplinary Studies	628	98.1	12	1.9	640
Interdisciplinary Technology	1	100.0	0	0.0	1
International Studies	101	96.2	4	3.8	105

Primary Major	Default				Total
	No		Yes		
	N	% of row	N	% of row	
Journalism	191	95.0	10	5.0	201
Journalism (Lower)	10	83.3	2	16.7	12
Kinesiology	264	98.1	5	1.9	269
Kinesiology (Physical Activity)	52	83.9	10	16.1	62
Landscape Architecture	41	100.0	0	0.0	41
Languages	1	100.0	0	0.0	1
Management	333	97.9	7	2.1	340
Marine Biology	17	94.4	1	5.6	18
Marine Biology/Lower	1	100.0	0	0.0	1
Marine Fisheries	5	100.0	0	0.0	5
Marine Sciences	10	100.0	0	0.0	10
Marine Studies	1	100.0	0	0.0	1
Marine Transportation	5	100.0	0	0.0	5
Maritime Administration	6	100.0	0	0.0	6
Maritime Systems Engineering	3	75.0	1	25.0	4
Marketing	380	98.4	6	1.6	386
Mathematics	31	100.0	0	0.0	31
Mechanical Engineering	271	96.4	10	3.6	281
Meteorology	39	97.5	1	2.5	40
Microbiology	63	98.4	1	1.6	64
Modern Languages	4	100.0	0	0.0	4
Molecular and Cell Biology	18	100.0	0	0.0	18
Non-Degree Seeking	2	100.0	0	0.0	2
Nuclear Engineering	33	91.7	3	8.3	36
Nutritional Sciences	90	94.7	5	5.3	95
Ocean Engineering	35	97.2	1	2.8	36
Petroleum Engineering	87	96.7	3	3.3	90
Philosophy	30	90.9	3	9.1	33
Philosophy (Lower)	1	100.0	0	0.0	1
Physical Education	4	100.0	0	0.0	4

Primary Major	Default				Total
	No		Yes		
	N	% of row	N	% of row	
Physics	29	85.3	5	14.7	34
Plant and Environmental Soil Science	5	100.0	0	0.0	5
Political Science	234	91.8	21	8.2	255
Political Science (Lower)	10	90.9	1	9.1	11
Poultry Science	61	96.8	2	3.2	63
Pre-Dentistry	1	100.0	0	0.0	1
Pre-Medicine	10	100.0	0	0.0	10
Psychology	504	96.0	21	4.0	525
Psychology (Lower)	14	100.0	0	0.0	14
Radiological Health Engineering	17	100.0	0	0.0	17
Range Science	2	100.0	0	0.0	2
Rangeland Ecology and Management	50	92.6	4	7.4	54
Recreation, Park and Tourism Sciences	115	95.8	5	4.2	120
Renewable Natural Resources	3	75.0	1	25.0	4
Russian	2	100.0	0	0.0	2
Sociology	156	95.1	8	4.9	164
Sociology (Lower)	.	.	1	100.0	1
Spanish	30	88.2	4	11.8	34
Speech Communication	178	94.7	10	5.3	188
Speech Communication (Lower)	2	100.0	0	0.0	2
Teacher Certification	170	100.0	0	0.0	170
Theater Arts	24	85.7	4	14.3	28
Theater Arts (Lower)	1	100.0	0	0.0	1
Veterinary Science	2	100.0	0	0.0	2
Wildlife and Fisheries Sciences	183	96.8	6	3.2	189
Zoology	76	97.4	2	2.6	78
All Undergraduates	12,176	95.3	600	4.7	12,776

**Secondary Major**

Secondary Major	Default				Total
	No		Yes		
	N	% of row	N	% of row	
Accounting	8	100.0	0	0.0	8
Agricultural Engineering	1	100.0	0	0.0	1
Animal Science	2	100.0	0	0.0	2
Anthropology	2	100.0	0	0.0	2
Biochemistry	1	100.0	0	0.0	1
Bioenvironmental Sciences	1	100.0	0	0.0	1
Business Analysis	3	100.0	0	0.0	3
Economics	2	100.0	0	0.0	2
English	8	100.0	0	0.0	8
Entomology	1	100.0	0	0.0	1
Finance	14	100.0	0	0.0	14
French	2	100.0	0	0.0	2
Genetics	3	100.0	0	0.0	3
History	7	100.0	0	0.0	7
International Studies	2	100.0	0	0.0	2
Journalism	2	100.0	0	0.0	2
Management	14	100.0	0	0.0	14
Marketing	10	100.0	0	0.0	10
Missing	12,076	95.3	600	4.7	12,676
Philosophy	2	100.0	0	0.0	2
Political Science	6	100.0	0	0.0	6
Psychology	1	100.0	0	0.0	1
Sociology	2	100.0	0	0.0	2
Spanish	3	100.0	0	0.0	3
Speech Communication	2	100.0	0	0.0	2
Wildlife and Fisheries Sciences	1	100.0	0	0.0	1
All Undergraduates	12,176	95.3	600	4.7	12,776

**Minor**

Minor	Default				Total
	No		Yes		
	N	% of row	N	% of row	
Missing	9,329	94.9	503	5.1	9,832
Accounting	233	97.1	7	2.9	240
Agricultural Development	2	100.0	0	0.0	2
Aerospace Engineering	3	100.0	0	0.0	3
Agribusiness	4	100.0	0	0.0	4
Agronomy	2	100.0	0	0.0	2
Animal Science	3	100.0	0	0.0	3
Anthropology	32	97.0	1	3.0	33
Architecture	1	100.0	0	0.0	1
Art (Minor/Teaching Field)	3	100.0	0	0.0	3
Business Analysis	225	97.4	6	2.6	231
Bioenvironmental Sciences	2	100.0	0	0.0	2
Biochemistry	1	100.0	0	0.0	1
Biomedical Science	1	100.0	0	0.0	1
Biology	31	96.9	1	3.1	32
Business Administration	153	94.4	9	5.6	162
Chemistry	127	96.2	5	3.8	132
Chemical Engineering	2	100.0	0	0.0	2
Classics	8	100.0	0	0.0	8
Construction Science	1	100.0	0	0.0	1
Computer Science	3	100.0	0	0.0	3
Civil Engineering	1	100.0	0	0.0	1
Economics	18	100.0	0	0.0	18
Curriculum & Instruction	4	100.0	0	0.0	4
Electrical Engineering	21	100.0	0	0.0	21
Environmental Design	9	90.0	1	10.0	10
English	201	97.6	5	2.4	206
Engineering	92	95.8	4	4.2	96
Engineering Technology	3	100.0	0	0.0	3

Minor	Default				Total
	No		Yes		
	N	% of row	N	% of row	
Educational Psychology	2	100.0	0	0.0	2
Earth Sciences	2	100.0	0	0.0	2
Finance	113	97.4	3	2.6	116
French	14	100.0	0	0.0	14
Genetics	3	100.0	0	0.0	3
Geography	18	85.7	3	14.3	21
Geology	3	75.0	1	25.0	4
German	8	100.0	0	0.0	8
General Studies	8	100.0	0	0.0	8
Health Education	1	100.0	0	0.0	1
History	111	92.5	9	7.5	120
Health	5	83.3	1	16.7	6
Horticulture	1	100.0	0	0.0	1
Industrial Engineering	4	80.0	1	20.0	5
INFO	8	100.0	0	0.0	8
Interdisciplinary Studies	1	100.0	0	0.0	1
Japanese	2	100.0	0	0.0	2
Journalism	70	95.9	3	4.1	73
Kinesiology	2	100.0	0	0.0	2
Landscape Architecture	1	100.0	0	0.0	1
Life-Earth Science (Teaching Field)	46	95.8	2	4.2	48
Linguistics	5	100.0	0	0.0	5
Mathematics	169	97.1	5	2.9	174
Microbiology	1	100.0	0	0.0	1
Meteorology	1	100.0	0	0.0	1
Management	227	97.0	7	3.0	234
Marketing	189	98.4	3	1.6	192
Music	6	100.0	0	0.0	6
Nutrition	3	100.0	0	0.0	3
Oceanography	1	100.0	0	0.0	1



Minor	Default				Total
	No		Yes		
	N	% of row	N	% of row	
Outdoor Education	2	100.0	0	0.0	2
Philosophy	23	85.2	4	14.8	27
Physics	4	100.0	0	0.0	4
Political Science	75	94.9	4	5.1	79
PREL	2	100.0	0	0.0	2
Psychology	71	98.6	1	1.4	72
Reading (Minor/Teaching Field)	206	98.6	3	1.4	209
Religious Studies (Minor)	8	100.0	0	0.0	8
Recreation, Park and Tourism Sciences	1	100.0	0	0.0	1
Russian	6	100.0	0	0.0	6
Science Composite (Teaching Field)	1	100.0	0	0.0	1
Speech Communication	41	97.6	1	2.4	42
Sociology	80	94.1	5	5.9	85
Spanish	25	96.2	1	3.8	26
Special Education	7	100.0	0	0.0	7
Social Science (Teaching Field)	41	100.0	0	0.0	41
Social Studies Composite (Teaching)	1	100.0	0	0.0	1
Teacher Certification	6	100.0	0	0.0	6
Technical Education	11	100.0	0	0.0	11
Theater Arts	12	100.0	0	0.0	12
TORM	1	100.0	0	0.0	1
Wildlife and Fisheries Sciences	2	100.0	0	0.0	2
Women'S Studies	8	88.9	1	11.1	9
Zoology	2	100.0	0	0.0	2
All Undergraduates	12,176	95.3	600	4.7	12,776

State of Local Address

State of Local Address	Default				Total
	No		Yes		
	N	% of row	N	% of row	
Missing	3,202	93.5	221	6.5	3,423
AE	1	100.0	0	0.0	1
AK	3	100.0	0	0.0	3
AP	1	100.0	0	0.0	1
AR	5	100.0	0	0.0	5
AZ	9	100.0	0	0.0	9
CA	41	93.2	3	6.8	44
CO	21	100.0	0	0.0	21
DC	3	100.0	0	0.0	3
DE	2	100.0	0	0.0	2
FL	13	100.0	0	0.0	13
GA	13	100.0	0	0.0	13
IA	3	100.0	0	0.0	3
ID	1	100.0	0	0.0	1
IL	8	100.0	0	0.0	8
IN	6	100.0	0	0.0	6
KS	6	100.0	0	0.0	6
KY	1	100.0	0	0.0	1
LA	14	100.0	0	0.0	14
MA	3	75.0	1	25.0	4
MD	5	100.0	0	0.0	5
MI	1	100.0	0	0.0	1
MN	1	100.0	0	0.0	1
MO	5	83.3	1	16.7	6
MS	3	100.0	0	0.0	3
MT	2	100.0	0	0.0	2
NC	11	100.0	0	0.0	11
ND	1	100.0	0	0.0	1
NE	3	100.0	0	0.0	3
NH	2	100.0	0	0.0	2
NJ	4	100.0	0	0.0	4

State of Local Address	Default				Total
	No		Yes		
	N	% of row	N	% of row	
NM	11	100.0	0	0.0	11
NV	1	100.0	0	0.0	1
NY	10	100.0	0	0.0	10
OH	4	100.0	0	0.0	4
OK	13	100.0	0	0.0	13
OR	1	100.0	0	0.0	1
PA	4	100.0	0	0.0	4
RI	2	100.0	0	0.0	2
SC	3	100.0	0	0.0	3
SD	1	100.0	0	0.0	1
TN	12	100.0	0	0.0	12
TX	8,696	95.9	373	4.1	9,069
UT	2	100.0	0	0.0	2
VA	10	90.9	1	9.1	11
WA	6	100.0	0	0.0	6
WI	2	100.0	0	0.0	2
WY	2	100.0	0	0.0	2
XX	2	100.0	0	0.0	2
<b>All Undergraduates</b>	<b>12,176</b>	<b>95.3</b>	<b>600</b>	<b>4.7</b>	<b>12,776</b>

*State of Permanent Address*

State of Permanent Address	Default				Total
	No		Yes		
	N	% of row	N	% of row	
Missing	645	90.3	69	9.7	714
AA	1	50.0	1	50.0	2
AE	2	66.7	1	33.3	3
AK	6	100.0	0	0.0	6
AL	8	100.0	0	0.0	8
AR	19	95.0	1	5.0	20
AZ	7	100.0	0	0.0	7

State of Permanent Address	Default				Total
	No		Yes		
	N	% of row	N	% of row	
CA	64	95.5	3	4.5	67
CO	47	100.0	0	0.0	47
CT	3	100.0	0	0.0	3
DC	2	100.0	0	0.0	2
DE	1	100.0	0	0.0	1
FL	31	96.9	1	3.1	32
GA	16	88.9	2	11.1	18
GU	2	100.0	0	0.0	2
HI	2	100.0	0	0.0	2
IA	7	100.0	0	0.0	7
ID	3	100.0	0	0.0	3
IL	27	100.0	0	0.0	27
IN	7	100.0	0	0.0	7
KS	13	92.9	1	7.1	14
KY	5	100.0	0	0.0	5
LA	68	94.4	4	5.6	72
MA	6	100.0	0	0.0	6
MB	1	100.0	0	0.0	1
MD	20	100.0	0	0.0	20
ME	2	100.0	0	0.0	2
MI	4	100.0	0	0.0	4
MN	5	100.0	0	0.0	5
MO	14	93.3	1	6.7	15
MS	8	80.0	2	20.0	10
MT	6	100.0	0	0.0	6
NC	12	92.3	1	7.7	13
ND	2	100.0	0	0.0	2
NE	14	100.0	0	0.0	14
NH	2	100.0	0	0.0	2
NJ	13	92.9	1	7.1	14
NM	23	100.0	0	0.0	23
NV	4	80.0	1	20.0	5

State of Permanent Address	Default				Total
	No		Yes		
	N	% of row	N	% of row	
NY	15	100.0	0	0.0	15
OH	11	100.0	0	0.0	11
OK	41	100.0	0	0.0	41
OR	9	100.0	0	0.0	9
PA	13	100.0	0	0.0	13
PR	5	100.0	0	0.0	5
RI	1	100.0	0	0.0	1
SC	6	85.7	1	14.3	7
SD	1	100.0	0	0.0	1
TN	14	100.0	0	0.0	14
TX	10,876	95.5	508	4.5	11,384
UT	7	100.0	0	0.0	7
VA	26	96.3	1	3.7	27
WA	15	93.8	1	6.3	16
WI	4	100.0	0	0.0	4
WY	6	100.0	0	0.0	6
XX	4	100.0	0	0.0	4
<b>All Undergraduates</b>	<b>12,176</b>	<b>95.3</b>	<b>600</b>	<b>4.7</b>	<b>12,776</b>

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