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Factors Related to Undergraduate Borrowing in Minnesota

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About the Minnesota Office of Higher Education

The Minnesota Office of Higher Education is a cabinet-level state agency providing students with financial aid programs and information to help them gain access to post-secondary education. The agency serves as the state's clearinghouse for data, research and analysis on post-secondary enrollment, financial aid, finance and trends.

The Minnesota State Grant Program, which is administered by the agency, is a need-based tuition assistance program for Minnesota students. The agency oversees tuition reciprocity programs, a student loan program, Minnesota's 529 College Savings Program, licensing and an early awareness outreach initiative for youth. Through collaboration with systems and institutions, the agency assists in the development of the state's education technology infrastructure and shared library resources.

Acknowledgement

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Executive Summary

Borrowing has become increasingly important in financing postsecondary education. Since federal student loans were first established in 1958, students have relied on loans to pay the costs of attending college. This report expands upon previous research and identifies factors related to borrowing behavior by Minnesota undergraduates enrolled in three types of institutions: public two-year, public four-year and private not-for-profit four-year institutions. In 2006, the Minnesota Office of Higher Education released *Undergraduate Borrowing in Minnesota*, which outlined the borrowing patterns of undergraduates enrolled in Minnesota postsecondary institutions.

The first part of this report provides a contextual overview of certain student demographics by institution type. The second part of the report provides analysis on factors related to student borrowing: both whether or not students borrow, and the amount borrowed.

The Minnesota Office of Higher Education has conducted research since 2005 using data from the National Postsecondary Student Aid Study, a national survey conducted by the U.S. Department of Education for the 2003-2004 academic year. This portion of the research aims to provide greater understanding of how Minnesota students pay for postsecondary education. *Factors Related to Undergraduate Borrowing in Minnesota* is part of a series of reports using data from the National Postsecondary Student Aid Study addressing undergraduates in Minnesota, their characteristics and their financial situations.

The majority of full-time students in Minnesota (71 percent of undergraduates) had student loans. Each student possessed an array of student characteristics that may or may not correlate with their borrowing behavior.

In previous reports on this data set, the Office of Higher Education used descriptive statistics, which provided information about one variable at a time. These one-way analyses provide useful background information. However, for most relationships, one-way analysis poses analytical challenges because the factors are closely related. A student's decision to borrow and the amount borrowed depend on many factors, several of which may be related to each other, such as income and parent's educational attainment. This analysis includes two regressions: 1) a logistic model to identify the individual effects of each factor on the decision to borrow and 2) a linear model to identify the factors that relate to the amount borrowed.[1]

Factors related to whether or not students borrowed

As the demographics of the student body attending each type of institution in the 2003-2004 academic year varied, so did the significant factors that related to the decision to borrow. For example for full-time students:

- Students with larger non-tuition expenses were more likely to borrow in all three types of institutions. Non-tuition expenses include room and board, books, transportation and other costs of being enrolled.[2]

[1] This study was possible due to access to the restricted NPSAS data.

[2] Each postsecondary institution establishes the level of non-tuition expenses to use in packaging financial aid for its students. Expenses vary widely. Some institutions choose to use a very frugal allowance; some base the amount on periodic surveys of student spending; and others base their allowance on external reference points such as the Bureau of Labor Statistics' moderate standard of living. Non-tuition expenses can very substantially from one institution to another. For example, the non-tuition expense portion of the student budget can differ by $1,000 or more from one community college to the next.

- At public and private four-year institutions, undergraduates with higher grade point averages in public were less likely to borrow.
- Students who worked more than 30 hours per week were twice as likely to borrow as students who worked fewer hours per week in public two-year colleges.
- At public and private four-year institutions, students from middle-income families were more likely to borrow than students from lower or higher income families.
- At private and public four-year institutions, students receiving grants and scholarships were more likely to borrow than those who did not receive grants and scholarships.

Factors related to how much students borrowed

Certain student characteristics correlated with amounts borrowed. For example for full-time students:

- Students in public two-year colleges borrowed less than those in the other institution types.
- Single independent students borrowed more than dependent students in public two-year colleges.
- Students with higher non-tuition expenses borrowed more than students with lower non-tuition expenses in public two-year colleges.
- Students from higher income families borrowed more than students from lower-income families in public two-year colleges.
- Students who worked 15 to 30 hours per week while enrolled were more likely to borrow than students who worked fewer hours in private four-year colleges.

The factors that did not have a substantial effect on the decision to borrow were just as important as those that did; age, gender, and whether students were dependent or independent financially were not significant factors in predicting the likelihood of borrowing in any of the three institution types.

The prevalence of student loans and the increasing reliance on them warrants a greater understanding of what factors are related to the decision to borrow. Through this understanding, financial aid agencies and institutions can more efficiently direct aid and information about financial aid options.

Introduction

Borrowing has become increasingly important in financing postsecondary education. This report aims to provide a greater understanding of how Minnesota students pay for postsecondary education, using data from the National Postsecondary Student Aid Study, a national survey conducted by the U.S. Department of Education for the 2003-2004 academic year. The report *Factors Related to Undergraduate Borrowing in Minnesota* is part of a series of reports using data from NPSAS addressing undergraduates in Minnesota, their characteristics and their financial situations. In 2006, the Minnesota Office of Higher Education released the *Undergraduate Borrowing in Minnesota* report which outlined the borrowing patterns of undergraduates enrolled in Minnesota postsecondary institutions.

In 2003-2004, the majority of full-time students in Minnesota (71 percent of the undergraduate student body) had student loans. Each student possessed an array of student characteristics that may or may not be related to their borrowing behavior.

A student's decision to borrow and the amount borrowed depend on many factors, several of which are related to each other, such as income and parent's educational attainment. This multivariate analysis includes two regressions: 1) a logistic model to identify the individual effects of each factor on the decision to borrow and 2) a linear model to identify the factors that relate to the amount borrowed.[3]

[3] This study was possible due to access to the restricted NPSAS data. Working with the full dataset posed several obstacles; these issues were addressed to the extent possible and some assumptions were necessary due to data limitations.

A Demographic Overview of Undergraduates in Minnesota

This report presents student borrowing patterns by institution type. The demographics of students attending institutions in three major types ─ public two-year, public four-year and private not-for-profit four-year – vary widely.[4] This section provides an overview of undergraduate demographics in Minnesota and a brief background of the financial situation facing them.[5]

Table 1 contains estimates for student characteristics across the three institution types. Many of these characteristics are related to one another and several are closely linked to the student's propensity to borrow.

The dependency status of a student is important, as it is a characteristic established by several demographic criteria including age, marital status and whether the students have children (see Appendix A for the complete list). The major criterion for determining dependent status is age; students aged 24 years or older are automatically granted independent status. The majority of students in public four-year and private not-for-profit four-year institutions were dependent students while the majority of students attending public two-year colleges were independent students (57 percent).

Table 1: Demographic characteristics of undergraduates in Minnesota by institution type

	Total	Public two-year	Public four-year	Private not-for-profit four-year
Dependency status				
Dependent	59%	43%	71%	76%
Independent	41%	57%	29%	24%
Age groups				
15-23 years old	64%	51%	75%	79%
24-29 years old	14%	18%	13%	9%
30 years old and older	21%	31%	13%	12%
Marital status				
Single, divorced or widowed	78%	68%	87%	86%
Married	21%	31%	12%	12%
Separated	1%	2%	1%	2%
Undergraduates with children				
Students with dependent children	21%	33%	10%	12%
Single-parent students	8%	12%	3%	5%

Many students worked while enrolled in school (Table 2). Employment produces income to finance studies, but it can also divert time and energy from studies. The level of student engagement in work differed across institution types. Overall, 83 percent of undergraduates in Minnesota worked while enrolled. Almost half of students attending public two-year institutions reported working an average of 30 hours or more per week

[4] NPSAS does not contain representative data on for-profit institutions at the state level.
[5] For more information on undergraduate student demographics in Minnesota, please refer to the Minnesota Office of Higher Education report *Minnesota Undergraduate Demographics: Characteristics of Post-Secondary Students*.

which was much higher than the other institution types (28 percent for both).[6] Public four-year institutions had the largest share of students not working while enrolled (24 percent).[7]

Less than full-time attendance is associated with traits such as higher levels of employment (Table 2). Students attending on a full-time basis are more likely to persist. However, students may refrain from enrolling on a full-time basis for many reasons including financial or time constraints. Private not-for-profit four-year institutions had 83 percent of students enrolled mostly full time[8] during the 2003-2004 academic year compared to 62 percent of those in public two-year colleges. The number of credit hours taken by a student, which is denoted by their attendance status, is related to borrowing since the number of credit hours determines the price of attendance. This is explained further below.

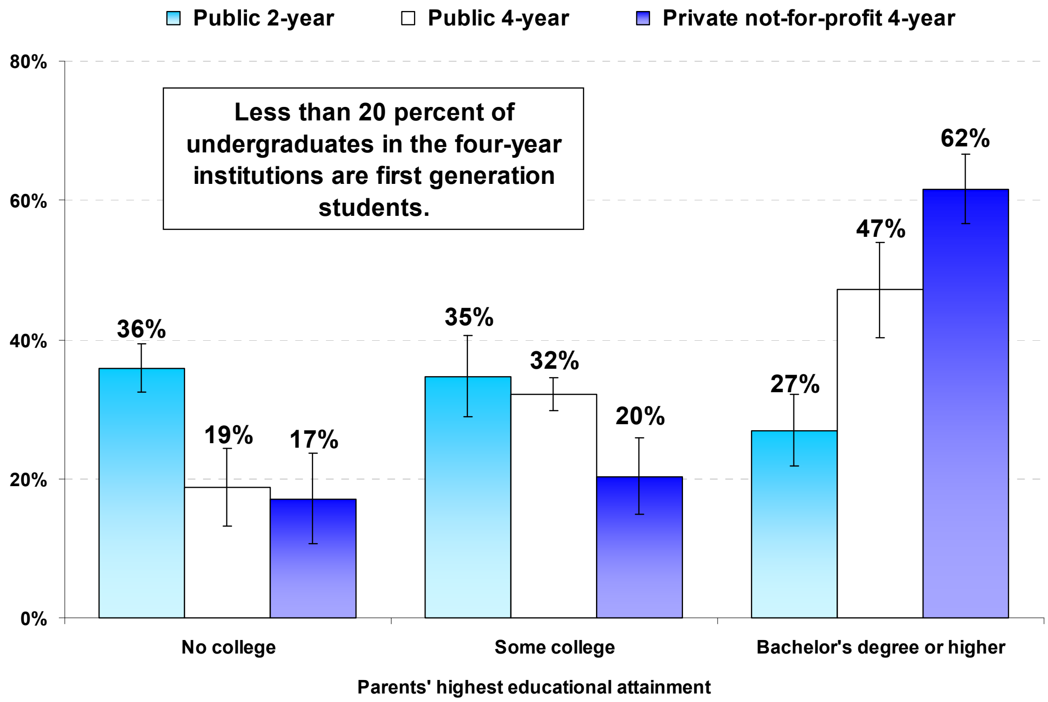
Table 2: Attendance status and employment intensity for undergraduates in Minnesota by institution type

	Total	Public two-year	Public four-year	Private not-for-profit four-year
Attendance status				
Enrolled *full time* for more than half of the year	71%	62%	76%	83%
Enrolled *half-time* for more than half of the year	28%	37%	23%	15%
Full time & part-time equally	1%	1%	1%	2%
Hours worked per week				
No job	17%	13%	24%	13%
Less than 15 hours	17%	12%	17%	30%
15 – 29 hours	29%	25%	31%	29%
30 + hours	37%	50%	28%	28%

Parents' highest level of educational attainment can greatly influence student educational outcomes. Parents' backgrounds vary greatly across institution type (Figure 1). The majority of students (62 percent) in private not-for-profit four-year institutions had parents who attained at least a bachelor's degree (or higher) and approximately half of the students (47 percent) attending public four-year institutions were similar. In contrast, only 27 percent of students attending public two-year colleges had parents who attained a bachelor's degree or higher.

[6] For information on employment and undergraduates in Minnesota, please refer to the Minnesota Office of Higher Education Insight article *Student employees: The majority of undergraduates work while enrolled in school*.
[7] These estimates include all types of employment such as work study and assistantships.
[8] Students were classified as "mostly full time" if they enrolled on a full-time basis for more months than they enrolled on a part-time basis.

Figure 1: Parents' educational attainment for undergraduates in Minnesota by institution type[9]



Students whose parents never attended college are considered first-generation college students. In public two-year colleges, 36 percent of undergraduates were first generation students as compared to 19 and 17 percent in public four-year and private not-for-profit four-year institutions respectively.

Table 3: Parents' educational attainment for undergraduates in Minnesota

	Total	Public two-year	Public four-year	Private not-for-profit four-year
Parents' educational attainment				
No college	26%	36%	19%	17%
Some college	31%	35%	32%	20%
BA or more	41%	27%	47%	62%

Income, whether of the dependent student's family or of the independent student, influences many decisions including the decision to borrow. Overall, A larger number of Minnesota students belonged to higher income categories than students across the U.S. (Figure 2).

[9] Each column has an error bar which represents the margin of error. The values in the columns are estimates based on a stratified random sample. The error bars show the range within which the actual value lies – 95% of the time the actual value will be within the range shown by the error bar.

Figure 2: Income distribution of all undergraduates in Minnesota and the U.S.

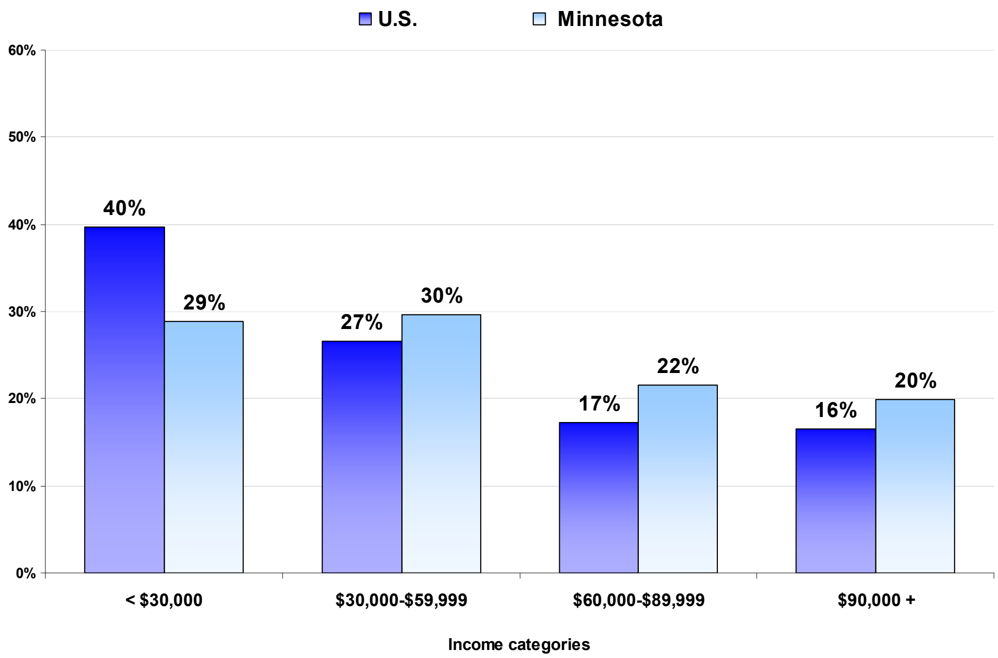


Figure 3: Income distribution of undergraduates in Minnesota by institution type

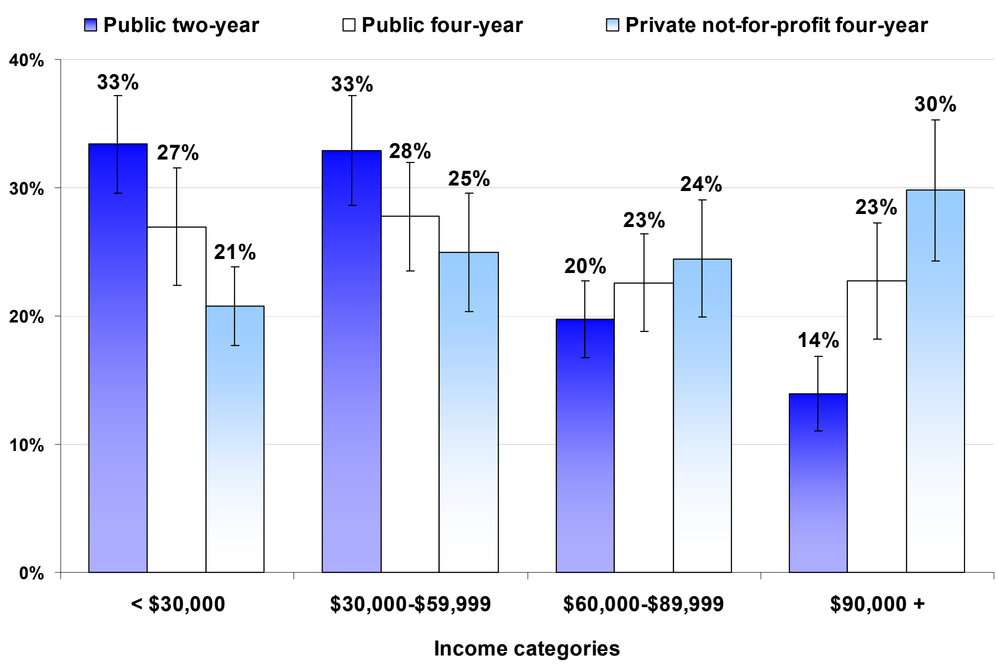


Figure 3 illustrates income distributions for undergraduate students by institution type.[10] It is clear that a significantly larger percent of students in public four-year and private not-for-profit four year institutions belong to the highest income group ($90,000 and greater) than students in public two-year colleges.

[10] For more detailed information on income distributions, see *Minnesota Undergraduate Demographics: Characteristics of Post-Secondary Students,* Minnesota Office of Higher Education, May 2006.

Students in the lowest income category (less than $30,000) varied more than students in higher income categories with respect to the amount of hours (or credits) in which they enrolled at one time, and their dependency status. Some students may reduce their enrollment intensity, thus enrolling part-time, to limit their costs. Dependent and independent students differ greatly in terms of their specific characteristics.[11]

Undergraduate Finances

Undergraduates finance their education through grants, scholarships, loans, savings, work study and other means. Thus, borrowing is complementary to other options. It is also a response to the price of attendance that students face. Students often receive a range of need-based and merit-based aid in the form of grants and scholarships. The net price (the student budget minus all grants and scholarships) is the actual price students must pay.[12] Grants and loans depend on various characteristics such as the student's academic performance, family income, and a student's level of enrollment.

Table 4: Prices and aid for undergraduates in Minnesota enrolled mostly full time by institution type

	Total	Public two-year	Public four-year	Private not-for-profit four-year
Average tuition and fees	$7,260	$2,760	$4,800	$20,000
Average student budget	$15,700	$12,100	$12,600	$27,800
Average net tuition	$4,630	$1,680	$3,500	$12,100
Average net price	$12,700	$10,600	$11,000	$19,800
Percent borrowing in 2003-04	58%	46%	65%	71%
Average annual amount borrowed in 2003-04	$6,300	$4,780	$6,310	$8,210
Percent who ever borrowed (by class level)				
1st year undergraduate	58%	55%	59%	71%
2nd year undergraduate	61%	57%	62%	74%
3rd year undergraduate	75%	-	80%	70%
4th year undergraduate	70%	-	64%	78%
Average ever borrowed (by class level)				
1st year undergraduate	$6,260	$5,170	$5,990	$9,310
2nd year undergraduate	$8,980	$8,970	$8,190	$11,400
3rd year undergraduate	$14,400	-	$15,000	$17,000
4th year undergraduate	$18,300	-	$16,100	$21,300

Federal and state loan limits are based on a student's dependency status and enrollment intensity (see Table 7 in Appendix A). Average borrowing by Minnesota undergraduates was relatively high across all institution types and various demographic categories, but variation is clear across different groups of students.[13]

[11] For more detailed information on dependency status, see the Minnesota Office of Higher Education Report *Minnesota Undergraduate Demographics: Characteristics of Post-Secondary Students.*

[12] Grants vary by different student characteristics. For example, need-based grants target lower-income students to reduce their net prices to a range that is more affordable for their financial situation. The averages in the table tend to neglect this factor by combining all types of students into one estimate.

[13] *Undergraduate Borrowing in Minnesota*, Minnesota Office of Higher Education, February 2006, covers borrowing behavior in detail.

Since several factors are closely correlated, it is hard to separate their individual influences through basic summary statistics. To better understand previously identified variations across institution types and demographic characteristics, regression analysis was used to identify some of the individual factors related to borrowing behavior.

About the Data

Source of data

The data presented in this report came from the National Postsecondary Student Aid Study. The National Center for Education Statistics of the U.S. Department of Education administered NPSAS. NCES has conducted NPSAS six times since its inception in 1986. The most recent cycles of NPSAS were in 2000 and 2004. NPSAS provides a nationally-representative stratified random sample of undergraduate, graduate and first-professional students attending postsecondary institutions. The survey aims to understand how students and their families finance education and to assess the characteristics of students enrolled in postsecondary education.

Preparation for the data gathering began in 2001 by the U.S. Department of Education. For the first time in NPSAS history, the 2003-2004 survey obtained larger samples for twelve states to provide data for state-level analysis of postsecondary student characteristics. NCES selected twelve states for larger samples, due to their interest and involvement in previous cycles of NPSAS. The states were California, Connecticut, Delaware, Georgia, Illinois, Indiana, Minnesota, Nebraska, New York, Oregon, Tennessee and Texas.

This report includes information on undergraduates attending institutions that participated in Title IV student aid programs in the United States and in Minnesota.[14] The stratified random sample for Minnesota had approximately 1,800 students, 800 students from public two-year institutions, 500 students from public four-year institutions and 500 from private not-for-profit four-year institutions.

The research is supported by a grant from the Lumina Foundation for Education and aims to provide a greater understanding of how Minnesota students pay for postsecondary education.

Data notes

NPSAS 2004 did not contain representative data for the for-profit institutions at the state level. The state samples were representative only for students attending public two-year, public four-year and private not-for-profit institutions. Thus, the estimates in this report pertain to these three institution types.

Dependency status (whether a student is dependent or independent) is often discussed in this report. Dependent students are generally age 18-23, and their parents' income is counted in calculating their eligibility for financial aid. Independent students are generally 24 years old or older. The income of the student (and the student's spouse if the student is married) is counted in calculating eligibility for financial aid. Refer to Appendix A for definitions. All estimates for loan amounts exclude PLUS loans borrowed by the parents.[15]

[14] Title IV student aid programs were established by Title IV of the Higher Education Act of 1965 (as amended). This law governs the major federal student grant and loan programs.
[15] Federal Parent Loans to Undergraduate Students (PLUS) are federal loans in which the parent is the borrower, not the student.

In addition to the estimates, several graphs contain error bars. These error bars represent the 95 percent confidence interval of these estimates (which are approximately two standard errors below and above the average). The bars are used to indicate the magnitude of the margin of error for estimates. Appendix B provides tables of all estimates used in the report with the accompanying standard errors.

The analysis of the decision to borrow was restricted to students who attended on a mostly full-time basis in Minnesota. The analysis focused on whether or not the student borrowed at any point during her/his undergraduate academic career.[16] As illustrated in the previous sections, many factors relate to a student's decision to borrow. The analysis model included most of these factors. The student demographic characteristics included were gender, age, and dependency status. Since independent student status depends on several criteria (Appendix A, Table 7), independent students were broken into different categories depending on their marital status and whether or not they had children. The financial characteristics included were total income in 2002 for dependent students' parents or independent students and the number of hours a student worked while enrolled, that is, the student's work intensity. The student's financial situation was captured by including tuition and fees, other expenses beyond tuition and fees (e.g. room and board, transportation, books, etc) and whether or not grants (including scholarships) were received. The student's cumulative grade-point-average (GPA) and class level (whether a student was in the first, second, third, or fourth year of study (or higher) were also included).

Several factors were closely correlated to each other; thus, some were omitted from the analysis.

- Income and parents' educational attainment were closely (positively) correlated. For this reason, only the income variable was used.

- Tuition and non-tuition expenses related closely to the student budget, thus the two variables for tuition and non-tuition expenses were the variables used rather than the combined variable known as the student budget.

- Net price is the student budget minus the total of grants and scholarships received, thus tuition was used instead of net price.[17]

This model was analyzed for the three institution types. While the same factors appeared in each model, the relationship between the factors differed depending on the institution type. Several variables were broken down into discrete categories; these variables included income, tuition and fees, non-tuition expenses and GPA.[18]

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[16] The decision to borrow is analyzed using a logistic model which provides estimates for each individual factor that can then be used to calculate the odds-ratio, or the likelihood that a particular group has a propensity to borrow. The variable is whether or not the student borrowed. The variable is set equal to zero if the student never borrowed, and equal to one if the student borrowed at any time during his/her undergraduate education. The report analyzes whether several socioeconomic and demographic variables are associated with whether or not the student borrowed.

[17] Also, net price is not initially observable from the student's perspective, since they do not receive their full financial aid information until after enrolling. However, tuition and some non-tuition expenses are known by students before enrolling. This means that tuition is probably more relevant when determining overall borrowing decisions especially in the time period before enrollment.

[18] The continuous variables are converted to discrete categories to allow for clearer interpretation. These variables are broken into the three categories that represent the bottom-third, the middle-third and the top-third for each variable. For example, the income variable is analyzed on the basis of three categories: those whose incomes fall into the lowest one-third, those whose incomes fall into the middle one-third and those whose incomes fall into the top one-third.

Results of Analysis

Students face two basic decisions regarding borrowing. The first is whether to borrow, and the second is how much to borrow each year they enroll.

Probability of borrowing by students attending public two-year colleges

Students enrolled in public two-year colleges exhibited several characteristics distinguishing them from students enrolled in four-year institutions. Students in public two-year institutions tended to be older, worked more hours per week and exhibited greater diversity in terms of demographic and financial backgrounds. All of the factors are assumed to have a linear relationship to the dependent variable – the decision to borrow.

The amount of hours worked and tuition were two factors increasing the likelihood of borrowing:

- Students working more than 30 hours per week were 1.9 times more likely to borrow than those working 15 hours or less.[19] Students working more than 30 hours per week are likely to be independent students with incomes that cause them to receive little or nothing from Federal Pell Grants and Minnesota State Grants. Thus loans are likely to be the only financial aid they are able to obtain.

- Students facing non-tuition expenses between $7,500 and $11,300 were 1.8 times more likely to borrow than students facing less than $7,500. There was no significant difference between students who were facing other levels of non-tuition expenses (i.e., less than $7,500 and more than $11,300).

Overall, most other factors did not have statistically significant relationships with the decision to borrow. Variables for age, gender, dependency status, the class level (i.e. first or second year), whether or not a grant was received, tuition and fees, income, and cumulative GPA were not significantly associated with the likelihood of borrowing.

Amount borrowed by students attending public two-year colleges

Students in public two-year colleges generally borrowed less than those in the other institution types since they faced lower overall total costs. However, the students in this group generally tend to have lower incomes than students in the four-year universities. Several factors contributed to the amount borrowed by students in this group.

- Independent students who were single and did not have any children cumulatively borrowed, on average, about $8,000 more than dependent students.[20] Independent students with children borrowed a cumulative total of approximately $4,500 more than dependent students.[21] There was no significant difference between married independent students without children and dependent students with respect to the amount they borrowed.

- Students in their second year of study cumulatively borrowed almost $3,000 more than students in their first year of study.[22]

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[19] Significant at the 90 percent level.
[20] Significant at the 99.9 percent level.
[21] Significant at the 99.9 percent level
[22] Significant at the 99.9 percent level

- Higher non-tuition expenses increased the amount borrowed by students. Students with non-tuition expenses between $7,500 and $11,300 borrowed approximately $2,100 more than students with non-tuition expenses less than $7,500.[23] Students facing non-tuition expenses greater than $11,300 borrowed about $2,000 more than students with non-tuition expenses lower than $7,500.[24]

- Students in the highest income group in public two-year colleges (the top-third), with incomes larger than $57,000, borrowed about $2,000 more than students in the lowest income group, or the bottom third, who were from families making less than $27,000.[25]

Age, gender, tuition and fees, whether or not grants were received, GPA, and work intensity did not significantly relate to the amount borrowed.

Probability of borrowing by students attending public four-year institutions

The percentage of students borrowing in public four-year institutions in Minnesota was higher than the national percentage borrowing. Unlike public two-year institutions, several factors demonstrated a significant relationship with the likelihood of borrowing.

- Controlling for all factors, students in their third year of undergraduate study were three times more likely to borrow than first-year students.[26]

- The student's cumulative GPA was associated with the propensity to borrow.[27] Students whose GPAs were higher (greater than 3.3) were 2.1 times less likely to borrow than those with lower GPAs (lower than 2.7).

The financial situation facing students played a role in their decision to borrow.

- Students facing higher non-tuition expenses were more likely to borrow.[28] Students with non-tuition expenses between $6,800 and $8,600 were 4 times more likely to borrow than those with expenses less than $6,800. Students with non-tuition expenses larger than $8,600 were 11 times more likely to borrow than those with non-tuition expenses less than $6,800.

- Students receiving need-based grants were 2.5 times more likely to borrow than those receiving no grants.[29]

- Students with incomes between $42,000 and $82,000 were 3.3 times more likely to borrow than those with income less than $42,000.[30] Students in the other income groups (less than $42,000 or greater than $82,000) were equally likely to borrow.

Several factors did not demonstrate a significant relationship with the propensity to borrow: age, gender, dependency status, tuition and fees, and work intensity.

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[23] Significant at the 95 percent level.
[24] Significant at the 90 percent level.
[25] Significant at the 90 percent level.
[26] Significant at the 90 percent level.
[27] Significant at the 90 percent level.
[28] Significant at the 99.9 percent level.
[29] Significant at the 95 percent level.
[30] Significant at the 99 percent level.

Amount borrowed by students attending public four-year universities

Students in public four-year universities showed marked differences from public two-year colleges in the factors that are associated with the amounts they borrowed.

- The amount borrowed by undergraduates in this group increased with the student's age. In general, a one-year increase in age corresponded to an $890 increase in the amount borrowed.[31]
- Female students on average borrowed about $2,500 more than male students.[32]
- The class level of the student (first, second, third or fourth) played a large role in the amount the student cumulatively borrowed. Compared to students in the first year, students in their second year of undergraduate study borrowed a cumulative total of about $3,300 more[33]; students in the third year borrowed $3,700 more;[34] students in the fourth year borrowed $8,800 more[35], and students in the fifth year borrowed $5,500 more[36] than first-year students.
- Students receiving grants borrowed approximately $2,600 less than those who did not receive grants.[37]
- Students facing higher non-tuition expenses (greater than $9,700) took out, on average, $4,100 more in loans than students facing non-tuition expenses less than $7,500.[38]

Dependency status, GPA, work intensity, tuition and fees and income did not significantly relate to loan amounts.

Probability of borrowing by students attending private not-for-profit four-year institutions

Private not-for-profit four-year institutions tend to have higher prices of attendance; students in this group are more likely to borrow. Several factors were significantly associated with borrowing propensity in private not-for-profit four-year colleges.

- GPA was associated with the propensity to borrow.[39] Students with higher GPAs (greater than 3.4) were 3.3 times less likely to borrow than those with lower GPAs (lower than 2.9).
- Tuition and fees were associated with the likelihood of borrowing.[40] Students facing tuition between $18,000 and $21,000 were 2.9 times more likely to borrow than students facing lower tuitions (less than $18,000).
- Students with higher non-tuition expenses were also more likely to borrow.[41]

[31] Significant at the 99 percent level.
[32] Significant at the 95 percent level.
[33] Significant at the 99 percent level.
[34] Significant at the 95 percent level.
[35] Significant at the 99.9 percent level.
[36] Significant at the 90 percent level.
[37] Significant at the 90 percent level.
[38] Significant at the 95 percent level.
[39] Significant at the 99 percent level.
[40] Significant at the 95 percent level.
[41] Significant at the 95 percent level.

- Students receiving grants were 6.3 times more likely to borrow than those not receiving grants.[42]

- Students from families with income between $48,000 and $93,000 were 2.9 times more likely to borrow than students with incomes less than $48,000.[43] Students with higher incomes (greater than $93,000) were as likely to borrow as those with incomes less than $48,000.

Age, gender, class level, dependency status, and work intensity did not significantly relate to borrowing status.

Amount Borrowed by students attending private not-for-profit four-year colleges

For students attending private not-for-profit four-year institutions, only two factors were significantly associated with the amount borrowed by students in private not-for-profit four-year colleges.

- Students' work intensity played a role in the amount borrowed; those working 15-30 hours per week borrowed a cumulative total of $5,700 more than students working less than 15 hours per week.[44]

- As in the other institution types, the students' class level was significantly associated with the amount borrowed. Compared to first-year students, students in the third year cumulatively borrowed about $6,200 more,[45] students in the fourth year borrowed about $9,900 more,[46] and students in the fifth year borrowed $31,000 more[47] than first-year students.

Age, gender, dependency status, GPAs, tuition and fees, non-tuition expenses, whether or not the students received grants, and income did not significantly relate to the loan amount borrowed by students.

Conclusion

Borrowing remains one of the key mechanisms undergraduates use to pay for education. This multivariate analysis allows for a better understanding of the complex relationships that are associated with borrowing. This report describes which factors relate to students' whether or not students borrow student loans and how much they borrow. Several observations arose:

- The students' performance in their coursework, reflected by their GPAs, demonstrated a strong relationship with the decision to borrow. While it is clear that GPA was associated with the decision to borrow, the direction of this relationship is unclear.
- Controlling for all factors, non-tuition expenses were a crucial factor across all institution types. Those in the middle group of non-tuition expenses were more likely to borrow than those facing lower or higher non-tuition amounts. Overall, younger undergraduates (in the early to mid-twenties) were more likely to borrow, while older students (older than 34) were less likely to borrow.
- The factors associated with loan amounts differed from those that were related to whether or not students decided to borrow. The common factor relating to the amount borrowed was the class level of

[42] Significant at the 99.9 percent level.
[43] Significant at the 95 percent level.
[44] Significant at the 95 percent level.
[45] Significant at the 95 percent level.
[46] Significant at the 99.9 percent level.
[47] Significant at the 99.9 percent level.

the student, which is not surprising since students accumulate loans as they move through undergraduate study. Also, savings for college may be depleted as the student continues through school and thus they must rely on other sources to meet expenses.

- Income was associated with the decision to borrow and the amount borrowed. However, due to considerable differences in the income profiles between the institution types, the relationship also differed across institution types. Students in public four-year and private not-for-profit four-year institutions generally had substantially higher incomes than those in public two-year colleges. This means that the income category for the top third of students in public two-year colleges is comparable to the income category for the middle third of students in public four-year universities and private not-for-profit four-year colleges. These differences contributed to the discrepancies between the borrowing behavior in the institution types.

- In public two-year colleges, a higher income correlated with borrowing larger amounts whereas in the other two institution types, the students in the highest income group tended to borrow less than the lowest income group.

Understanding the factors that may be associated with borrowing behavior helps set the stage for crafting better financial aid policies at both the state, federal and institution levels. It also allows institutions to target information regarding financial aid and student loans more effectively. Further studies should expand upon other factors which are related to the decision to borrow, such as the role of cultural and social attitudes toward debt and the extent to which students may be borrowing more than they need. The information may also help guide communications strategies with students to ensure they have accurate and complete borrowing information with which to make fully-informed borrowing decisions.

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Appendix A

Table 5: Definition of independent status from the NPSAS

Criteria for establishing independent status for students:
a. Age 24 or older on December 31, 2003
b. A veteran of the U.S. Armed Forces
c. Enrolled in a graduate or professional program beyond a bachelor’s degree
d. Married
e. Orphan or ward of the court
f. Have legal dependents other than a spouse

Data source: NPSAS DAS online retrieval system.

Table 6: Federal and state loan limits by class level and dependency status

Dependency Status	Class level	Stafford loan limits	Perkins loan limits	SELF loan limits
Dependent students	1st year	$2,625	$4,000	$4,500
	2nd year	$3,500	$4,000	$4,500
	3rd year	$5,500	$4,000	$6,000
	4th year	$5,500	$4,000	$6,000
	Cumulative limit	$23,000	$20,000	$25,000
Independent students	1st year	$6,625	$4,000	$4,500
	2nd year	$7,500	$4,000	$4,500
	3rd year	$10,500	$4,000	$6,000
	4th year	$10,500	$4,000	$6,000
	Cumulative limit	$46,000	$20,000	$25,000

Federal and State Loan Limits. The federal government administers the Stafford and Perkins loan programs. Stafford loans can be subsidized or unsubsidized. The federal government pays the interest on Subsidized Stafford Loans while students are attending postsecondary education. All students, regardless of need, are eligible for Unsubsidized Stafford loans. The eligibility for subsidized loans is determined by the student's calculated need. Perkins loans are available for students who demonstrate exceptional need. The SELF program is administered by the Minnesota Office of Higher Education. SELF loans are for Minnesota residents enrolled at least half-time, non-Minnesota residents enrolled at least half-time in postsecondary institutions in Minnesota, and Minnesota residents attending participating institutions in other states. The loan limits for independent students also apply to dependent students whose parents are denied PLUS loans. (*Source: FinAid, www.finaid.org; Minnesota Office of Higher Education, www.ohe.state.mn.us*)

Appendix B

Table 7: Demographic characteristics of undergraduates in Minnesota by institutional type

	Total	Public two-year	Public four-year	Private not-for-profit four-year
Dependent status				
Dependent	59%	43%	71%	76%
	1.22	*2.30*	*1.66*	*2.24*
Independent	41%	57%	29%	24%
	1.22	*2.30*	*1.66*	*2.24*
Age groups				
15-23 years old	64%	51%	75%	79%
	1.4	*2.65*	*1.4*	*2.21*
24-29 years old	14%	18%	13%	9%
	0.92	*1.55*	*1.23*	*1.94*
30 years old and older	21%	31%	13%	12%
	1.27	*2.45*	*1.59*	*1.62*
Marital status				
Single, divorced or widowed	78%	68%	87%	86%
	1.05	*2.21*	*0.89*	*1.17*
Married	21%	31%	12%	12%
	1.05	*2.18*	*0.78*	*1.29*
Separated	1%	2%	1%	2%
	0.37	*0.57*	*0.41*	*1.39*
Undergraduates with children				
Students with dependent children	21%	33%	10%	12%
	1.13	*2.31*	*1.04*	*2.05*
Single-parent students	8%	12%	3%	5%
	0.79	*1.51*	*0.63*	*1.52*

**Standard errors are located below the estimates in italics.*

Table 8: Attendance status and employment intensity for undergraduates in Minnesota by institutional type

	Total	Public two-year	Public four-year	Private not-for-profit four-year
Attendance status				
Enrolled *full time* for more than half the year	71%	62%	76%	83%
	1.34	*2.5*	*1.96*	*1.82*
Enrolled *half time* for more than half the year	28%	37%	23%	15%
	1.4	*2.51*	*2.29*	*2.07*
Full time & part-time equally	1%	1%	1%	2%
	0.33	*0.29*	*0.76*	*0.71*
Hours worked per week				
No job	17%	13%	24%	13%
	1.05	*1.47*	*2.01*	*1.87*
Less than 15 hours	17%	12%	17%	30%
	0.99	*1.87*	*1.12*	*3.58*
15 – 29 hours	29%	25%	31%	29%
	1.24	*2.34*	*1.03*	*2.93*
30 + hours	37%	50%	28%	28%
	1.74	*3.43*	*2.42*	*3.01*

**Standard errors are located below the estimates in italics.*

Table 9: More demographic characteristics for undergraduates in Minnesota

	Total	Public two-year	Public four-year	Private not-for-profit four-year
Parents' educational attainment				
No college	26%	36%	19%	17%
	1.02	*1.75*	*2.87*	*3.34*
Some college	31%	35%	32%	20%
	1.41	*2.99*	*1.18*	*2.82*
BA or more	41%	27%	47%	62%
	1.61	*2.61*	*3.48*	*2.55*
Gender				
Female	56%	52%	56%	59%
	1.21	*2.09*	*2.4*	*3.11*
Male	44%	48%	44%	41%
	1.21	*2.09*	*2.4*	*3.11*
Race or ethnicity				
White	85%	84%	86%	87%
	1.13	*1.76*	*1.57*	*2.12*
Minority/non-white	15%	16%	14%	13%
	1.13	*1.76*	*1.57*	*2.12*
Black or African American	6%	7%	5%	5%
	0.69	*0.95*	*1.31*	*1.12*
Hispanic or Latino	2%	3%	2%	1%
	0.49	*1.04*	*0.18*	*0.36*
Asian/Pacific Islander	5%	3%	6%	5%
	0.64	*0.52*	*1.34*	*1.62*
American Indian or Alaska Native	1%	1%	1%	0%
	0.16	*0.22*	*0.24*	*0.3*
Other, more than one race	2%	2%	2%	1%
	0.37	*0.8*	*0.57*	*0.43*

**Standard errors are located below the estimates in italics.*

Table 10: Prices and aid for undergraduates in Minnesota enrolled mostly full time by institution type

	Total	Public two-year	Public four-year	Private not-for-profit four-year
Average tuition and fees	$7,260	$2,760	$4,800	$20,000
	210.35	*57.82*	*107.86*	*254.87*
Average student budget	$15,700	$12,100	$12,600	$27,800
	232.34	*309.86*	*195.3*	*271.55*
Average net tuition	$4,630	$1,680	$3,500	$12,100
	186.88	*65.07*	*89.12*	*600.75*
Average net price	$12,700	$10,600	$11,000	$19,800
	229.1	*284.12*	*272.12*	*621.88*
Percent borrowing in 2003-04	58%	46%	65%	71%
	1.3	*2.74*	*2.02*	*2.07*
Average annual amount borrowed in 2003-04	$6,300	$4,780	$6,310	$8,210
	193.36	*456.31*	*312.22*	*391.44*
Percent who ever borrowed (by class level)				
1st year undergraduate	58%	55%	59%	71%
	2.5	*3.97*	*5.3*	*4.35*
2nd year undergraduate	61%	57%	62%	74%
	3.4	*4.8*	*5.22*	*5.19*
3rd year undergraduate	75%	-	80%	70%
	3.41	-	*3.57*	*8.57*
4th year undergraduate	70%	-	64%	78%
	3.36	-	*3.87*	*5.07*
Average ever borrowed (by class level)				
1st year undergraduate	$6,260	$5,170	$5,990	$9,310
	459.19	*617.2*	*407.11*	*1653.55*
2nd year undergraduate	$8,980	$8,970	$8,190	$11,400
	623.05	*982.27*	*757.12*	*1066.21*
3rd year undergraduate	$14,400	-	$15,000	$17,000
	1306.42	-	*2751.29*	*1569.48*
4th year undergraduate	$18,300	-	$16,100	$21,300
	1056.56	-	*1599.91*	*1826.41*

**Standard errors are noted below the estimates in italics.*