



BOISE STATE UNIVERSITY

OFFICE OF INSTITUTIONAL RESEARCH

**Are students who are low-income and/or first-generation-in-college
less likely to experience academic success at Boise State?**

Abstract

The relationship between being a low-income or first-generation student and academic success was studied for four student groups: those who were (1) both low-income and first-generation, (2) only low-income, (3) only first-generation, and (4) neither low-income nor first-generation. A majority of new first-time full-time students were neither first-generation nor low-income; the percentage ranged from 54% for the fall 2010 cohort to 64% for the fall 2013 cohort. Students who were low-income had lower first-term GPAs, a higher probability of being on academic probation, and were less likely to be retained one year later. Students who were low-income and/or first-generation also had lower graduation rates compared to students who were neither low-income nor first-generation. In general, it appeared that low-income students had greater difficulties compared to students who were first-generation but not low-income.

In addition, an analysis of a survey given to new fall 2010 students during their first semester indicated that low-income and/or first-generation students reported greater financial difficulty coupled with more hours spent working, higher stress levels, and less time spent on campus. Low-income and first-generation students were similar to students who were neither low-income nor first-generation in terms of their social interactions, perceived quality of instruction and interest levels in their classes, class attendance patterns, reported effectiveness of study time, and perceptions of the faculty as caring about their success. When predicting the probability of graduating in four years based on first-semester survey responses, of the seven items included in the model, low-income and/or first-generation students showed differences on four of them: time spent on-campus, help with finances, living in a residential college on-campus, and time spent working. Responses were similar for class attendance, making new friends, and balancing work and play.

The federal government and other organizations such as the Lumina Foundation recognize that students who are first-generation in college and/or low income have greater difficulty graduating from college and provide competitive grant awards to serve this population. As part of applying for the next set of Department of Education awards under the Student Support Services Program, information was gathered on the first generation and low-income status of our students and their experiences at Boise State.

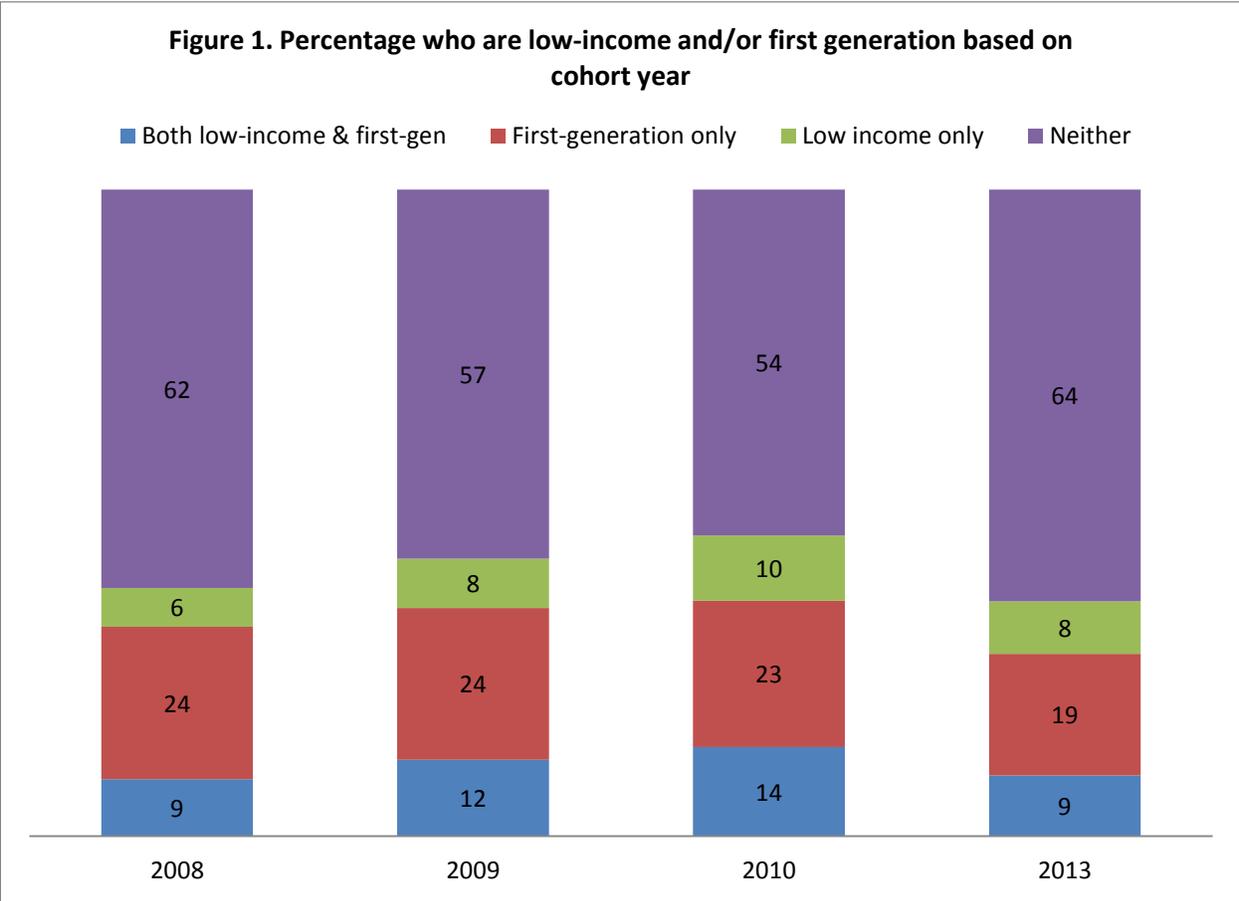
This report provides information on the percentage of students who were (1) both first-generation and low income, (2) low-income only, (3) first-generation only, or (4) neither low-income nor first-generation. Based on these four groups, the relationship between first-generation and/or low-income status and academic success (defined as GPA, academic standing, retention, and graduation in four, five, and six years) is reported. In addition, responses to a survey given to new students in fall of 2010 are analyzed to see if first-generation or low-income students reported different experiences and perceptions their first semester compared to those who are neither first-generation nor low-income and whether these differences are related to the probability of graduating in four years.

The study is based on first-time full-time bachelor's degree-seeking students. The fall 2013 first-time full-time cohort is used to analyze information on first term GPA, academic standing in the spring, and retention after one year based on group membership. To analyze the relationship between group membership and four-year graduation rate, cohorts from fall 2008, 2009, and 2010 are employed. The fall 2009 and fall 2008 cohorts provide the data for the five-year graduation rate, and fall 2008 cohort provides the data for the six-year graduation rate.

Students are defined as "first-generation" if neither parent had graduated from college with a bachelor's degree. Students are identified as "low income" if they meet the Federal definition of having an annual income was less than \$17,505 for one-person households, \$23,595 for two-person households, or up to \$47,955 for six-person households. Financial aid information from the FAFSA forms was used to assign students to the groups; students who did not submit financial aid information were assigned to the "neither" category.

Figure 1 below shows the percentage of students who are low-income and/or first-generation for each of the cohort groups used in the analysis. A majority of our new first-time full-time students were neither first-generation nor low-income; the percentage ranged from 54% for the fall 2010 cohort to 64% for the fall 2013 cohort.

Note that in the fall of 2013, Boise State moved to a new admissions application where students were asked to identify their first generation status, making it unnecessary to rely on information included on their financial aid applications (FAFSA). In this study, 28% of the fall 2013 cohort was identified as first-generation using the FAFSA methodology, but 41% were identified as first-generation using the new admissions application information. Of the students who self-identified as first-generation on the admissions application, in 22% of the cases, information on their FAFSA that indicated that they were NOT first generation. Both methods are based on self-report, and it is impossible to know exactly what is true. It is simply noted here that different methods are related to different results and that the results are due to information provided by students that is directly contradictory.



Group membership and academic standing, first-term GPA, and retention

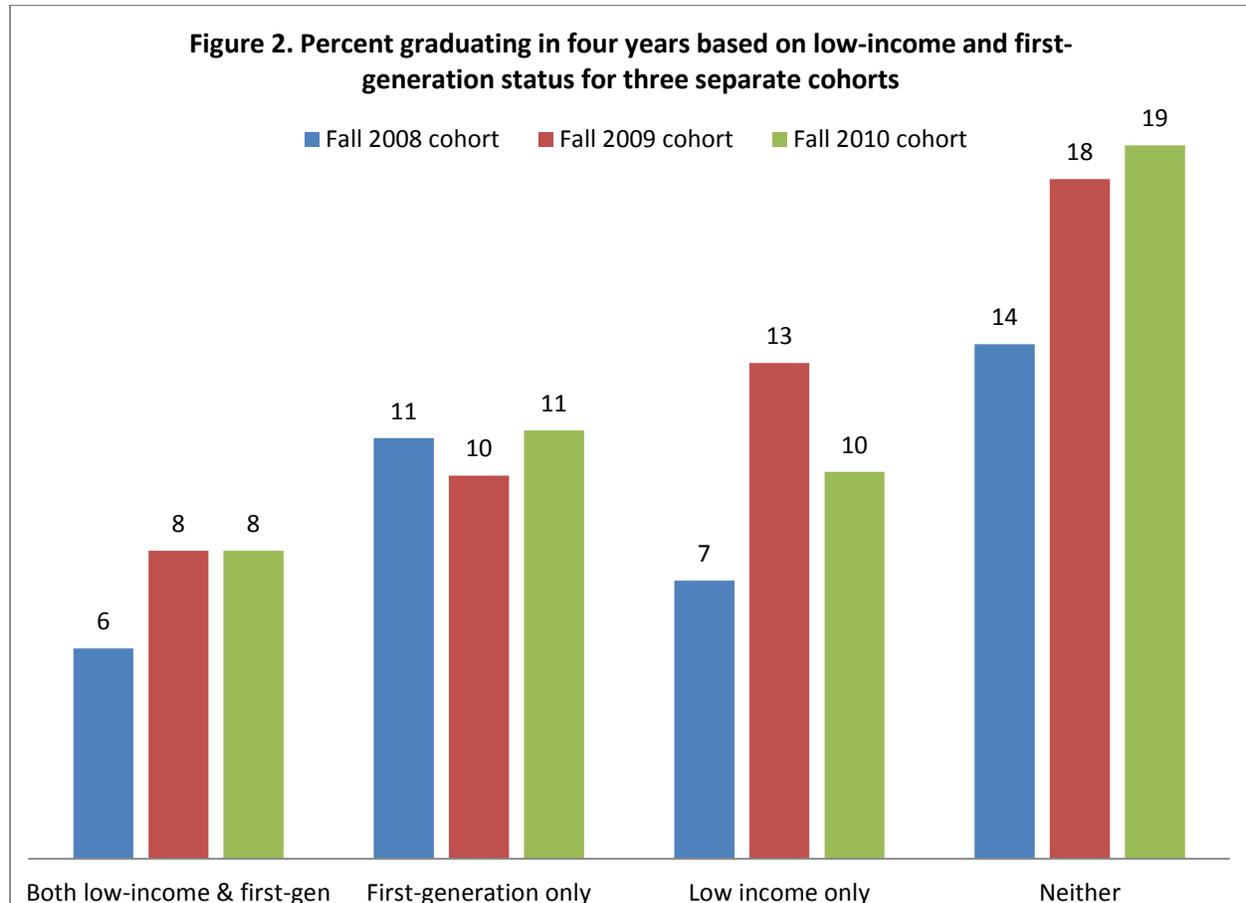
Based on the fall 2013 cohort, significant differences were found by group for all three measures: academic standing in the spring term, first-term GPA, and retention one year later. As shown by Table 1, students who were low-income or both low-income and first-generation were more likely to be on probation compared to students who were first-generation only or neither first-generation nor low-income, $\chi^2(2070, 3)=7.90, p=.04$. Not surprisingly, the two low-income groups also had significantly lower first-term GPAs ($F(3,2066)=5.69, p=.0007$) and were less likely to be retained one year later, $\chi^2(2070, 3)=13.35, p=.0039$.

Table 1. Academic standing, retention, and average first-semester GPA by group status for the fall 2013 cohort

Group	Number in group	Percent on probation in spring	Percent retained one year later	Average first-term GPA
Both low-income and first-generation	195	17.4%	65.6%	2.58
First-generation only	389	10.3%	77.6%	2.84
Low-income only	168	15.5%	69.6%	2.58
Neither low-income nor first-generation	1,318	63.7%	75.8%	2.83
Total	2,070	12.4%	74.7%	2.78

Graduation in four, five, and six years

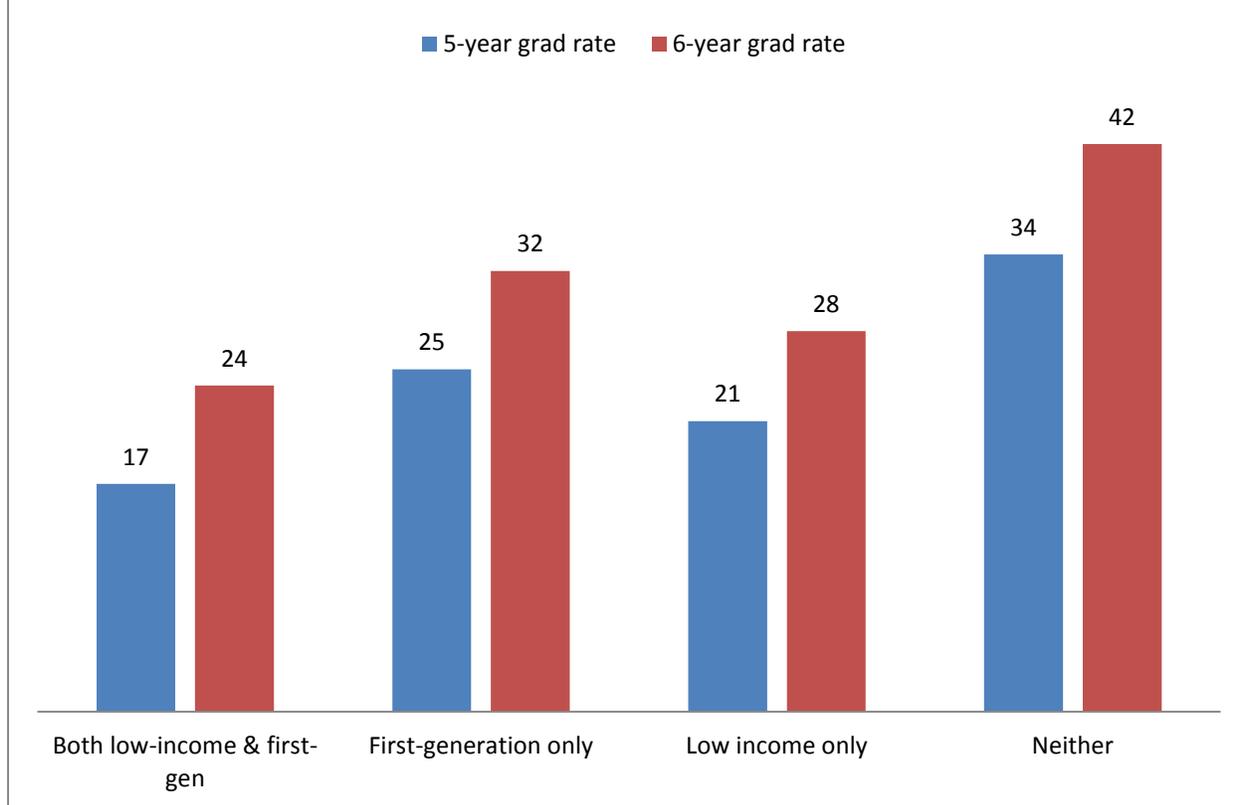
Enough time had elapsed to calculate four-year graduation rates for three fall cohorts: fall 2008, fall 2009, and fall 2010. As shown by Figure 2 below, four-year graduation rates have improved over time, especially for students who were neither first-generation nor low-income. For each cohort, students who were low-income and/or first-generation had lower four-year graduation rates compared to students who were neither.



Five-year graduation rates were available for two cohorts--fall 2008 and fall 2009--and six-year graduation rates were available for the fall 2008 cohort. For the 2009 cohort, significant differences in five-year graduation rates were found based on whether the student was low-income and/or first-generation, $\chi^2(2084, 3)=58.4, p<.0001$. Fall 2009 cohort members who were neither first-generation nor low-income had the highest five-year graduation rate at 36.9%. All other groups had significantly lower graduation rates. For first-generation only students, the graduation rate was 25.0% compared to 22.0% for low-income only and 16.3% for students who were both first-generation and low-income.

Figure 3 shows the five- and six-year graduation rates for the fall 2008 cohort based on first-generation and low-income status. Again, students who were first-generation and/or low income had decidedly lower graduation rates at both the five- and six-year marks. Note that the percentage who had graduated improved by about seven percentage points for each group when the five-year and six-year rates are compared.

Figure 3. Percent graduating in 5 and 6 years
Based on 2008 cohort and first-generation and/or low-income status



Psycho/social factors and graduation in four years: Results from a fall 2010 survey of new students

In the fall of 2010, all new students were asked to complete a survey in the middle of the fall term of their perceptions and experiences so far at Boise State. This analysis is based on 629 first-time full-time students who responded to the survey. Although the response rate was low for the survey (629/2304 or 27%), the respondents were generally reflective of the overall population in terms of the percentages who were low-income and/or first-generation.

The analysis was designed to address two main questions:

- Did students who were low-income and/or first-generation report experiences and perceptions that differed from students who were neither low-income nor first-generation?
- What items on the survey helped to predict graduation after four years? Were these the same items where initial group differences were found?

Using one-way Analysis of Variance (ANOVA), no differences between groups were found for responses to the following items:

- Perceptions of how the students felt they were performing in their classes. (However, at the end of the term, students who were neither first-generation nor low-income had higher term GPAs compared to the other groups.)
- Comfort level in talking to people they didn't know
- Making new friends since arriving
- Balancing work and play

- Perceived quality of instruction
- Interest levels in their classes
- Class attendance patterns
- Reported effectiveness of study time
- Perceptions of faculty as caring if they succeed or not
- Likelihood to re-enroll next fall term (and actual retention rates one year later were indeed similar for the groups)

Most of the differences that emerged between the groups seemed to be related to finances. Differences were found for the following:

- Current financial situation: Over half (53%) of the “neither group” said their current financial situation was “OK” compared to 37-39% of the other groups. In addition, 17-18% of the two low-income groups reported that they were already in financial trouble.
- Help if in financial difficulty: Although 79% of the “neither” group had someone they could rely on if they got in financial trouble, only 55% of the first-generation group, 35% of the low-income group, and 34% of the both low-income and first-generation groups had someone they could rely on.
- Living on-campus: A majority (55%) of the “neither” group lived on campus compared to 40% of the first-generation group, 42% of the low-income, and 33% of the group that was both first-generation and low-income. In addition, 29% of the neither first-generation-nor-low-income group was part of a residential learning community compared to 26% of low-income-only, 23% of first-generation-only, and 17% of both low-income and first-generation.
- Working in addition to going to school: Students who were first-generation or low-income reported working more hours their first semester. While 19% of the “neither” group worked more than 15 hours per week, 28% of the first-generation group, 31% of the low-income group, and 29% of the “both” group reported working more than 15 hours.
- Spending time on campus: Low-income and first-generation students spent less time on campus outside of class. While 33% of the “neither” group spent ten hours or less per week on campus, 53% of first-generation, 51% of low-income, and 56% of students who were both first-generation and low-income spent ten hours or less weekly on campus.
- Stress: Students who were low-income or both low-income and first-generation reported higher stress levels compared to first-generation-only and the “neither” group
- Importance of a social life: Students who were low-income or both low-income and first-generation did not think an active social life was as important to them as the first-generation only group or the “neither” group of students.

What set of items on the survey was best related to the probability of graduating in four years? To address this question, a logistic stepwise regression was employed using $p \leq .05$ for variables to be selected and $p < .10$ to be removed. Table 2 shows the final model. Using Nagelkerke R^2 , it was estimated that the model accounted for 22% of the variability in graduation. Recall that the first variable selected in a stepwise regression model is the one with the strongest relationship to what is being predicted (i.e., probability of graduating in four years). For this model, the variable selected first for inclusion was the number of hours spent on-campus outside of class, indicating that students who spent more time on campus also had a higher probability of graduating. Other variables associated with a higher probability of graduating included going to class frequently, making new friends, having someone to could fall back on for financial help, and living on-campus in a residential college. Variables associated with reduced probabilities of graduating included playing too much (i.e., not balancing work and play) and working too many hours.

Table 2. Variables selected for prediction of graduation in four years using step-wise regression

	B	S.E.	Wald	df	Sig.	Exp(B)
How often are you attending class?	.603	.152	15.816	1	.000	1.827
Have you made new friends since arriving?	1.125	.549	4.207	1	.040	3.082
How are you balancing work and play? Responded “too much play”	-.668	.343	3.791	1	.052	.513
Do you have someone you can rely on to help you with finances?	.573	.260	4.844	1	.028	1.773
About how many hours do you spend in a typical week on campus outside of classes?	.202	.080	6.481	1	.011	1.224
Where are you living? Responded “residential college”	.499	.253	3.904	1	.048	1.647
How much are you working?	-.338	.124	7.494	1	.006	.713
Constant	-8.665	1.594	29.550	1	.000	.000

a. Variable(s) entered on step 1: How many hours do you spend on-campus in a week outside of classes

b. Variable(s) entered on step 2: How often are you attending class?

c. Variable(s) entered on step 3: Do you have someone you can rely on to help you with finances?

d. Variable(s) entered on step 4: How much are you working this semester?

e. Variable(s) entered on step 5: Have you made new friends since arriving?

f. Variable(s) entered on step 6: Living in a residential college

g. Variable(s) entered on step 7: Not balancing work and play—too much play

Recall that differences in responses based on low-income and/or first-generation status were found for four of the items: time spent on-campus, help with finances, living in a residential college on-campus, and time spent working. Responses were similar for class attendance, making new friends, and balancing work and play.

Conclusion

Being a first-generation or low-income student is associated with reduced academic success as measured by first-semester GPA, academic standing, retention, and graduation. It appears that being low-income had a greater impact compared to being a first-generation only student with more financial resources. Results of a first-semester survey confirmed that low-income and first-generation students appeared to be having a similar classroom experience but that they differed in time spent on-campus, hours worked, living on-campus, and having someone to back them up financially. These differences were related to lower graduation rates four years later.

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