



## The Consequences of Leaving Money on the Table: Examining Persistence among Students Who Do Not File a FAFSA.

By Heather Novak and Lyle McKinney

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# Editor's Column: The Good, the Right, and the Purposes of Financial Aid

A few weeks ago, walking across campus in the hurried way that an assistant professor does, I was drawn out of my mental list making by the echo of chanting and drums. Curious, I walked toward the sounds and found a small but hearty group of people walking with “Occupy Louisville” signs across the main campus quadrangle. I observed with interest, listening to the call and response and reading the placards. One student carried a poster about student loan debt. Another carried a board decrying the cost of college. As I made my way back to my office, I reflected on the debate about financial aid and higher education in the current social and economic climate.

How will the current generation of student loan, Pell Grant, and other aid recipients shape the debate about financial aid and higher education in the coming years? These students have gone through college on the heels of the Great Recession, witnessed the democratic movements across the Middle East, and may be participating in the Occupy movement, which according to one report from the *Guardian* (November 2011) is now in 951 cities and 82 countries around the world. How will financial aid be conceptualized in the years and decades to come? Moreover, what will these students believe to be the purpose of higher education? As our collective answers to these questions have shifted over the decades of the 20<sup>th</sup> Century and now the 21<sup>st</sup> Century, so too has the financing of higher education.

Edward P. St. John and others write about the consensus around the importance of financial aid that existed in the United States in the 1960s and 1970s. Across the political spectrum, financial aid was held up as an important policy tool for promoting economic development as well as social equity. Whether one believed higher education was primarily a private or public good, a measure of agreement held together a political and social coalition that supported the public funding of higher education. As this consensus eroded, according to St. John, we have seen a shift in financial aid policy. Arguably, we have also seen a concurrent shift in the fundamental beliefs about the purposes of higher education.

Regardless of political ideology, beliefs about the purpose of higher education, or perspectives on the role of financial aid in the United States, the current social and economic moment compels us to engage even more earnestly with discursive communities about the important questions facing the field. We are called to move beyond utilitarian frameworks and cost-benefit analysis to consider the moral and ethical aspects of financial

aid. We must consider both the *good* and the *right* in our conversations with colleagues, bosses, and fellow researchers. This is likely a familiar place for many financial aid practitioners, who are practiced at achieving ends while balancing ethical and moral imperatives.

As I step into the role of Editor gingerly and with great humility, I invite readers to continue building a discursive community through JSFA that promotes dialogue and debate about the *good* and the *right*. What is financial aid meant to accomplish? How shall it be done? What is higher education meant to accomplish? How shall it be done and what is the role of financial aid? These are empirical, ethical, moral, practical, and philosophical questions of the greatest importance. The authors in this issue wrestle with these questions implicitly through their focus on the role of financial aid in helping low-income students. I encourage you to reflect on the preceding questions as you read and make sense of their work.

### *In This Issue*

With the support of a NASFAA Sponsored Research Grant, Heather Novak, an analyst in the Colorado State University Office of Institutional Research, and Lyle McKinney, an assistant professor of higher education at the University of Houston highlight the importance of policies and programs that help low-income students take the necessary steps to attend postsecondary education. Looking at within-year persistence, Nova and McKinney report a strong positive relationship between filing a Free Application for Federal Student Aid (FAFSA) and persisting from fall to spring term for low-income students. Novak and McKinney are appropriately cautious in their work, refraining from making causal claims about the relationship between FAFSA completion and persistence given the potential for self-selection and unobserved factors (such as inherent motivation). Nonetheless, the pragmatic implications support the efforts of the financial aid practitioners who spend College Goal Sunday, evenings, or weekends visiting local high schools to encourage students to complete the FAFSA.

Nathan Lasilla, an analyst at the Minnesota Private College Foundation, investigates the relationship between institutional revenues and enrollment of low-income students. Similar to prior research, Lasilla finds that low-income students are sensitive to published prices, but price sensitivity can be affected by grant aid. Also echoing previous research findings, Lassila finds a positive relationship between institutional revenue (e.g., tuition and fees, government appropriations) and low-income student enrollment. Reflecting on these results in light of the current economic and political environment gives reason to take pause and raise important questions such as, how deep can we allow budget cuts to go? To what extent can we or should we protect the most vulnerable populations in a time of public retrenchment and fiscal crisis?

Finally, Peter Hurley, associate director of financial aid at the University of Michigan, offers an intriguing case study of a book voucher program at the College of Southern Nevada, a primarily Associate and Certificate granting institution. In this exploratory study, Hurley investigates the

relationship between book vouchers and academic performance. He hypothesizes that aid recipients will perform better in their studies if they have full access to the required textbooks. An assumption here is that as the cost of tuition increases the demand for textbooks decreases. Intuitively, such a relationship makes sense. Certainly, in looking at the textbook market with book buybacks, book rentals, and book exchanges we find some modest empirical evidence to suggest that students actively seek to offset the costs of books. Hurley finds modest evidence for a relationship between improved academic performance and receipt of a book voucher. As important as the findings is the example this case study provides as well as the call for additional research into the ways in which institutions help offset total costs of attendance.

Jacob Gross  
Editor

# The Consequences of Leaving Money on the Table: Examining Persistence among Students Who Do Not File a FAFSA<sup>1</sup>

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*Every year, millions of students who would have qualified for financial aid do not complete the Free Application for Federal Student Aid (FAFSA). Discouragingly, many of these students come from lower-income families and would have qualified for Pell Grants that do not have to be repaid. Using data from the Beginning Postsecondary Students Longitudinal Study (BPS:04/06) and logistic regression analysis, this study examined the relationship between filing a FAFSA and within-year persistence rates of first-year, full-time college students. Results show that after controlling for background characteristics and college experience variables, students who filed a FAFSA have 72% higher odds of persisting than their peers who do not file. The effect of filing a FAFSA was even more significant among lower-income Pell Grant eligible students, as these FAFSA filers have 122% higher odds of persisting compared to their lower-income peers who did not file a FAFSA. These results emphasize the critical need for targeted public policies and institutional practices aimed at increasing FAFSA completion rates.*

Financial aid in the form of grants, loans, work-study, and tax credits has helped make attending and graduating from college a reality for millions of college students. During the 2009-10 academic year, more than \$154 billion in student financial aid was awarded to America's undergraduates (College Board, 2010a). Recent data from the U.S. Department of Education indicate that approximately two-thirds of all undergraduates receive some type of financial aid (Wei, Berkner, He, Lew, Cominole, & Siegel, 2009). As the costs associated with attending college have risen dramatically within the last two decades (College Board, 2010b; Heller & Rodgers, 2006), a growing number of students and their families are relying upon financial aid to bridge the gap between their available resources and costs of earning a college degree.

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<sup>1</sup> This study was supported by funding from the National Association of Student Financial Aid Administrators (NASFAA) Sponsored Research Grant program. An earlier version of this study was presented at the 2011 Annual Forum of the Association for Institutional Research in Toronto, Ontario.

To receive most types of financial aid, students must first complete and file the Free Application for Federal Student Aid (FAFSA). The FAFSA is the standard application used by the federal government, state governments and most postsecondary institutions to determine students' aid eligibility and award financial aid. The number of students who file a FAFSA is increasing and from 2007-08 to 2010-11 there was a 45% increase in the number of FAFSA's filed (Kantrowitz, 2011a). This increase is potentially due to multiple interrelated factors including rising enrollments triggered by the economic downturn, increased policy efforts to improve FAFSA completion and simplification of the FAFSA form itself.

Despite the increased proportion of FAFSA filers, there are still substantial numbers of lower-income students who do not file. For example, in 2007-08 there were an estimated 2.3 million students who would have qualified for financial aid but did not complete the FAFSA (Kantrowitz, 2009a). This same policy report suggests that about a quarter of the students that do not file a FAFSA come from lower-income households and would have likely qualified for federal grant aid that does not have to be repaid. In essence, these students are leaving money on the table that could have been used to help pay for college simply because they did not file a FAFSA.

The purpose of this study was to examine the relationship between filing a FAFSA and within-year student persistence. In particular, we wanted to determine if failure to file a FAFSA resulted in poorer persistence rates among first-year, full-time college students. To that end, there were two research questions guiding this study:

1. How does FAFSA filing (i.e. filed or not filed) influence within-year persistence among first-year college students?
2. More specifically, how does FAFSA filing influence the persistence of lower-income students during their first year of enrollment in higher education?

## Literature Review

A considerable number of existing studies have examined the ways in which the receipt of financial aid shapes students' attendance patterns in higher education. Collective findings from these studies generally suggest that receipt of financial aid is positively associated with student persistence (e.g., Chen, 2008; DesJardins & McCall, 2010; Leslie & Brinkman, 1988; Li, 2008; St. John, 2000; St. John, Kirshstein, & Noell, 1991; St. John, Andrieu, Oescher, & Starkey, 1994; St. John, Musoba, & Simmons, 2003). However, there are mixed findings regarding the effects of different types of financial aid and additional research is needed to arrive at definitive conclusions about the effects of various sources of aid (i.e., grants, loans, work-study) on persistence and degree attainment (Dowd, 2004).

Previous research also indicates that students' income status and level of unmet financial need significantly affects their likelihood for attrition from higher education (Leslie & Brinkman, 1988; Long & Riley, 2007; St. John, 2000). Students from families in the bottom income quintile must contrib-

ute about 70% their total family income to attend a public four-year institution after grant aid, while families from the top income quartile only contribute about 10% of their household income (Lynch, Engle, & Cruz, 2011). Since lower-income students have greater levels of financial need they are more dependent upon financial aid than their higher-income peers in order to remain enrolled and persist until graduation (Long & Riley, 2007). Several studies have found that financial aid in the form of grants, which do not have to be repaid, has the most significant impact on persistence among lower-income student populations (Bettinger, 2004; Chen, 2008; Li, 2008; St. John, 2000). But despite receiving the majority of need-based grants, lower-income students still have higher levels of unmet need, borrow more through student loans, and graduate with higher levels of loan debt when compared to their middle- and upper-income peers (Choy, 2000; Cook & King, 2007).

Studies suggest that financial concerns about paying for college negatively impact how lower-income students prepare for, apply to, and succeed in postsecondary education (Advisory Committee on Student Financial Aid, 2010; Long & Riley, 2007). Lower-income students who do enroll are not graduating at the same rates as their upper- and middle-income peers, but there is evidence that financial aid can help increase degree attainment among these students, even though it does not level the playing field completely (Perna, 2006). In addition, students who miss out on available financial aid are often forced to attend college part-time or work more hours off campus, both of which place students at greater risk of attrition (Kantrowitz, 2009a). Policymakers and financial aid administrators should therefore strive to ensure that all lower-income students apply for financial aid because receiving grant aid can increase the likelihood for college success among this student population.

Several policy reports have examined the characteristics of FAFSA non-filers and the specific reasons why some students do not file a FAFSA (Kantrowitz, 2009a, 2011b; King, 2004, 2006). However, our review of the literature reveals that very little attention has been given to the relationship between filing a FAFSA and student persistence. The present study helps address a notable gap in the research literature and contributes to our understanding of the consequences associated with not applying for financial aid.

## **Conceptual Framework**

St. John's (1992) workable model of student persistence was used as the conceptual framework to guide this study. The model was initially developed to help institutions conduct their own research on the impact of financial aid for their student body (Paulsen & St. John, 1997; St. John, 1992), but it has been adapted and empirically tested in many subsequent studies examining the relationship between financial aid and student persistence in broader contexts (e.g., Gross, Hossler, & Ziskin, 2007; Hu & St. John, 2001; St. John et al., 2003; St. John, Hu, & Tuttle, 2000; St. John, Hu, & Weber, 2000; St. John, Hu, & Weber, 2001). This model has been used to investigate the impact of financial aid on persistence using nationally representative datasets, most notably the High School and Beyond

(HSB) survey and National Postsecondary Student Aid Study (NPSAS) (St. John et al., 1991; St. John et al., 1994).

The premise of the workable persistence model is that student persistence is a function of three constructs: students' demographic and academic background, college experiences, and financial factors. Studies utilizing St. John's model typically include gender, ethnicity, family income and high school GPA or high school rank in the first construct. The second construct, college experiences, typically contains variables such as college GPA, whether the student lives on or off campus and what type of postsecondary institution the student attends. The financial factors construct includes the variables related to the specific research questions of interest. For example, this construct usually contains either continuous or categorical variables for different types of paid financial aid the student received. For the purposes of this study, we adapted the financial factor construct to fit our research questions which focus on the relationship between FAFSA filing and persistence, rather than the relationship between paid aid and persistence (Gross et al., 2007; St. John et al., 2003).

A primary contribution of St. John's model is that it combines economic, sociological, and educational theories in order to identify the key variables that should be considered during data analysis. Specifically, the model suggests that, "decisions by currently enrolled students to persist are affected by social background, academic preparation in high school, college achievement, college experiences, and student aid (and price)" (St. John, 1992, p. 17). We utilized St. John's specification of relevant dependent and independent variables to develop logical models that help illuminate the relationship between filing a FAFSA and within-year persistence among first-year college students. Since the focus of this research is on the relationship between filing a FAFSA and persistence, the only variable in the financial factor construct is FAFSA application status.

## **Methodology**     *Data Source and Sample*

The data analyzed in this study were derived from the Beginning Postsecondary Students Longitudinal Study (BPS:04/06) conducted by National Center for Education Statistics (NCES). This longitudinal survey allows researchers to examine students' paths through postsecondary education. The BPS:04/06 study sampled a cohort of students who began their postsecondary education during the 2003-04 academic year, and followed their progress through 2006, three years after they first enrolled in postsecondary education. A benefit of using BPS:04/06 was that an EFC was statistically imputed, based on information gathered by phone and web surveys, for students who did not file a FAFSA. These data would not have been available at the institutional level because students who do not file a FAFSA are not typically asked to provide family income information. Another benefit of using BPS:04/06 data to address our research questions was that the sample size was large enough to ensure the predictor-to-observation ratio was acceptable for both the full and restricted samples (Peng, So, Stage, & St. John, 2002).

The full sample used for the purposes of this study consisted of BPS:04/06 undergraduates who were enrolled full-time in any type of postsecondary institution during the Fall 2003 and were eligible to receive federal financial aid, i.e. U.S. citizens and resident aliens (unweighted n=10,200). The exclusion of part-time students is an approach used in other studies employing the workable persistence model (Hu & St. John, 2001). To address our second research question, we restricted our sample to include only those students whose expected family contribution (EFC) qualified them to receive any amount of Pell Grant funding (unweighted n=3,720). For the 2003-04 academic year, Pell Grant eligibility included students who had an EFC of 3,850 or less and therefore this criterion was used to identify our restricted sample of lower-income students.

### *Variables*

The dependent variable of interest in this study was within-year persistence during the first year, specifically defined as continuous enrollment from the Fall 2003 to the Spring 2004 semester. Within-year, rather than between-year, persistence was designated as our outcome variable because existing research suggest that financial concerns are often the cause of the within-year attrition, while academic factors often influence between-year attrition (St. John et al., 2003; Somers & St. John, 1997). The outcome variable was dichotomously coded: 1 = persisted to Spring 2004, 0 = did not persist to Spring 2004. We were specifically interested in the impact of filing a FAFSA on persistence to the second semester, and students were classified as having persisted if they changed colleges or universities mid-year but were enrolled during the Spring 2004 semester.

Filing a FAFSA is associated with receiving federal and non-federal financial aid in the form grants, loans, and/or work-study. However, the act of filing a FAFSA in and of itself does not guarantee that a student will utilize financial aid to pay for college. For instance, a FAFSA-filer may be offered a financial aid package consisting only of federal student loans and then choose not to accept those loans. We intentionally omitted paid financial aid (e.g., Pell Grants, merit-based scholarships, loans) variables and dollar amounts from our models so that we could more clearly identify the specific relationship between filing a FAFSA and within-year persistence. While there is a large body of research examining the relationship between paid financial aid and persistence (Dowd, 2004; St. John, 2000), scarce attention has been given to the research questions we wanted to answer in this study.

St. John's workable model of persistence guided the selection of independent variables in this study. These variables were organized into three categories based upon the major constructs proposed by the model: background characteristics (gender, race, primary language, parental education, family income, educational expectations, academic preparation); college experiences (institution type, residency status, college GPA); and financial factors (filing a FAFSA). Table 1 summarizes the coding of each independent variable and provides descriptive statistics for the full sample and the restricted sample of Pell Grant eligible students. Table 1 also

**Table 1: Descriptive Statistics for Variables Employed in the Logistic Regression Models**

	Entire Sample			Pell Grant Eligible Students		
	Estimated percent of population	Estimated percent who files a FAFSA	Cramer's V from $\chi^2$ test**	Estimated percent of population	Estimated percent who files a FAFSA	Cramer's V from $\chi^2$ test**
Gender						
Female*	56%	90%	0.052	62%	96%	
Male	44%	87%		38%	96%	
Race/Ethnicity						
White*	70%	87%	0.105	53%	94%	0.09
African American	10%	98%		19%	99%	
Hispanic	10%	92%		17%	96%	
Asian	5%	88%		6%	96%	
Other***	5%	91%		5%	97%	
English is Primary Language						
Yes*	91%	89%	0.034	85%	96%	
No	9%	92%		15%	97%	
Parental Education						
Four year degree or more*	52%	86%	0.09	32%	93%	0.09
Less than a four year degree	48%	92%		68%	97%	
Pell Eligible						
No*	63%	85%	0.167	0%	0%	N/A
Yes	37%	96%		100%	96%	
Delay Enrollment						
No*	91%	89%		87%	96%	
Yes	9%	87%		13%	97%	
Student Education Expectations						
Four year degree or more*	95%	89%		92%	96%	
Less than a four year degree	5%	89%		8%	97%	
High School GPA						
$\geq 3.0^*$	77%	90%	0.066	70%	96%	0.066
$< 3.0$	23%	85%		30%	95%	
High School Type						
Public*	88%	89%	0.045	92%	96%	
Private	12%	85%		8%	94%	
Test score (ACT converted)						
Above 21*	51%	89%		36%	95%	0.048
21 and under	49%	89%		64%	97%	

**Table 1: Descriptive Statistics for Variables Employed in the Logistic Regression Models (cont.)**

	Entire Sample			Pell Grant Eligible Students		
	Estimated percent of population	Estimated percent who files a FAFSA	Cramer's V from $\chi^2$ test**	Estimated percent of population	Estimated percent who files a FAFSA	Cramer's V from $\chi^2$ test**
Institution Type						
Public 4-year*	46%	90%		40%	96%	
Public 2-year	25%	82%		29%	93%	
Private	24%	93%		21%	98%	
For Profit	5%	99%	0.153	10%	100%	0.119
Residency						
In state*	84%	89%		89%	96%	
Out of state	16%	90%		11%	96%	
College GPA						
$\geq 3.0$ *	55%	91%		52%	96%	
$< 3.0$	45%	87%	0.068	48%	95%	
Within-Year Persistence						
Did not persist*	3%	79%		3%	92%	
Persisted	97%	89%	0.057	97%	96%	
Filed a FAFSA						
		<i>Percent Persisted</i>			<i>Percent Persisted</i>	
No*	11%	96%		4%	93%	
Yes	89%	98%	0.048	96%	96%	

\* Indicates reference category for each variable.

\*\* Effect size is only provided when the Chi-Square test had a p-value  $d \geq .05$

\*\*\* “Other” race/ethnicity variable combines the following BPS categories: American Indian or Alaska Native, Native Hawaiian or other Pacific Islander, Other, and more than one race.

provides the FAFSA filing rate for each level of each independent variable. The independent variables were dummy-coded for the purposes of statistical analysis and the reference group for each variable is indicated with an asterisk.

### *Analytic Methods*

Descriptive analysis of the data included percentages of the full and restricted sample across each independent variable and particular attention was given to the rates of FAFSA filing across student groups. Chi-square tests were used to determine if the filing rate differs across each independent variable. When the Chi-square test is significant at the .05 level then an effect size, Cramer's V, was reported. Then we conducted two logistic

regressions to examine each of the research questions guiding this study. Because our outcome variable of interest was dichotomous (i.e., persisted or did not persist), logistic regression was the appropriate statistical technique (Cabrera, 2001; Hosmer & Lemeshow, 2000; Long, 1997; Peng, Lee, & Ingersoll, 2002; Peng, So, Stage, & St. John, 2002) and was conducted using the binary logistic command in SPSS. The three categories of independent variables were added in succession to a baseline model to be regressed against the dependent variable. The advantage of utilizing a sequential regression approach is that it allows for the grouping of related categories of variables based on a theoretical rationale (i.e., St. John's model). Specifically, this approach allowed us to examine changes in the impact of students' background characteristics and college experience variables on their within-year persistence as a result of introducing their FAFSA filing status to the model.

The primary statistic of interest produced by a logistic regression is an odds ratio for each predictor variable, which is equal to the exponential function of the predictor variable's coefficient. An odds ratio greater than one indicates that the comparison group has higher odds of persisting than the reference group after controlling for all other predictors included in the model. Ninety five percent confidence intervals for the odds ratios are included in the result tables. In addition, as recommended when analyzing large-scale secondary data that utilize a complex and/or multi-stage sampling design (e.g., NCES datasets), we accounted for weighting issues and survey design effects in order to correct for the oversampling of certain populations and clusters of homogeneity within sampling levels (Hahs-Vaughn, 2006; Thomas & Heck, 2001). All of our inferential bivariate and multivariate data analysis was conducted using the design effect adjusted normalized weight (Hahs-Vaughn, 2005; 2007).

### *Limitations*

There are several limitations to this study that deserve attention. As is typical when analyzing secondary datasets, it was impossible to include all variables of potential interest in our regression models. To provide an example, the workable persistence model often includes a predictor variable for living on or off campus (St. John et al., 2001). However, the housing variable in BPS:04/06 is for the entire year rather than for just the Fall semester. If we had included that variable we would have had to eliminate students who changed institutions during the 2003-04 academic year, since they would have been coded as having multiple institutions for the housing variable. Our objective in this study was to track within-year persistence across any institution not within one institution. Consequently, we made the decision to omit the BPS:04/06 housing status variable in lieu of including in our study the students who persisted but changed institutions mid-year.

A second limitation of this study is the statistical issue of self-selection bias inherent with predicting the impact of filing for financial aid. The decision to file is interrelated with the family characteristics that influence persistence. Table 1 displays the FAFSA filing rate for each level of each predictor. Pell eligible students file a FAFSA at a rate of 96% compared to

non-Pell eligible students who file a FAFSA at a rate of 85%. The disparity in FAFSA filing rates across the Pell eligible predictor indicate that being low-income is not independent of filing status. Cross-sectional logistic regression analysis may not properly control for all of the various factors that influence a student's decision to file a FAFSA (Bettinger, 2004; DesJardins, Ahlburg, & McCall, 2002; DesJardins & McCall, 2010). This statistical bias can potentially undermine the precision of estimates, the magnitude of effects, and sometimes even the direction of effects (Dowd, 2008). Due to potential bias from self-selection and omitted variables, it is beyond the scope of this study to assert causation among any of the predictors and student persistence. Our intention is to address a gap in the persistence literature by describing the relationship between filing FAFSA and persisting after controlling for student background and college experience variables.

## **Results**     *Descriptive Statistics*

Table 1 provides descriptive statistics for the full and restricted samples. Bivariate results suggest that Pell Grant eligible students are less likely to report themselves as White (70% in the full sample and 53% in the restricted sample), more likely to not have English as their primary language (9% in the full sample and 15% in the restricted sample), more likely to have parents who have not completed a four year degree (48% in the full sample and 68% in the restricted sample), and less likely to attend a private high school (12% in the full sample and 8% in the restricted sample). Lower-income students also have characteristics that put them at risk for not being retained. For example, they are more likely to have an ACT test score equal to or below 21 (49% in the full sample and 64% in the restricted sample), more likely to start at a two-year public institution (25% in the full sample and 29% in the restricted sample), more likely to delay their enrollment in college after high school (9% in the full sample and 13% in the restricted sample), and more likely to have a college GPA below a 3.0 (45% in the full sample and 48% in the restricted sample).

With regards to FAFSA filing, Pell Grant eligible students filed a FAFSA at a higher rate (96%) than the full sample of first-year students (89%). Across all of the predictor variables, the restricted sample had higher FAFSA filing rates than the full sample. In the full sample FAFSA filing rates are highest among variables that are typically associated with being lower-income (e.g., primary language, lower levels of parental education, Pell Grant eligibility). Notably, for both the restricted and full sample the FAFSA filing rate is lowest for students at public two-year institutions (82% for the full sample and 93% for the restricted sample).

There was a high base rate of within-year student persistence, as 97% of both the full sample and restricted sample reenrolled in the Spring of 2004. In addition, there was a positive bivariate relationship between FAFSA filing and persistence. In both the full and restricted samples, students who file a FAFSA persisted at a slightly higher rate than students who do not file. As shown in Table 1, Pell eligible FAFSA filers persist at a rate of 96% compared to Pell eligible non-filers who persist at a rate of 93%.

## *Logistic Regression*

The logistic regression analysis indicates that filing a FAFSA has a strong positive relationship on within-year persistence. When controlling for background characteristics and college experience variables, students in the full sample who filed a FAFSA have 72% higher odds of persisting than their peers who do not file (see Table 2). The effect of filing a FAFSA was even more significant among the restricted sample of Pell Grant eligible students, as FAFSA filers have 122% higher odds of persisting compared to their lower-income peers who did not file a FAFSA (see Table 3). Overall, these findings suggest that all first-year college students benefit from a filing a FAFSA and therefore having the opportunity to be awarded federal (and often state and institutional) financial aid. The effect of filing a FAFSA on within-year persistence is particularly evident for lower-income students, and underscores the pressing need to help these students apply for financial aid.

Table 2 also provides results for the full-sample regarding the background characteristic and college experience variables that contribute to the probability of within-year persistence. Three background characteristic predictors were significant at all levels of the model. Whether or not a student delayed their enrollment appears to influence within-year persistence. In the full model, a student who delays their college enrollment after high school has 52% lower odds of persisting to their second semester. The second significant student characteristic predictor is whether or not the student had a high school GPA of a 2.99 or lower. Prior to adding the variables associated with college experiences and filing a FAFSA, a 2.99 or lower high school GPA results in a student having 34% lower odds of persisting. After the college experience and FAFSA filing variables are included in the model, the odds of persisting are not statistically different than one, based on having a 2.99 or lower high school GPA. Similarly, a student with an ACT test score below 21 has 37% lower odds of persisting. This suggests that variables associated with college experiences and filing a FAFSA negate the negative impact of having a lower high school GPA or lower ACT test score.

Two college experience predictors (i.e., institution type and college GPA) significantly affected the odds of persisting. Students at two-year public colleges, compared to students at four-year public institutions, have 51% lower odds of being retained. Students at all types of four-year institutions have similar odds of persisting regardless of whether they attend a public or private school. Lower college GPA has a strong negative relationship on the odds of being retained. Students with a college GPA less than 3.0 have 60% lower odds of being retained within-year when compared to their peers with a college GPA of 3.0 and higher. The strong negative relationship between low college GPA and attending a two-year public college remains when filing a FAFSA is included in the model, indicating that FAFSA filing does not mediate this relationship.

Table 3 provides results from the logistic regression model for the restricted sample of Pell Grant eligible students. The purpose of fitting a

**Table 2: Logistics Regression Results – Full Sample**

	Student Characteristics			College Experiences			Financial Factor		
	Odds Ratio	95% C.I. for Odds Ratio		Odds Ratio	95% C.I. for Odds Ratio		Odds Ratio	95% C.I. for Odds Ratio	
		Lower	Upper		Lower	Upper		Lower	Upper
Gender (female)									
Male	.88	.64	1.22	.98	.71	1.36	.99	.71	1.37
Race/Ethnicity (White)									
African American	1.00	.59	1.68	1.09	.64	1.85	1.01	.59	1.72
Hispanic	.98	.55	1.74	1.06	.60	1.89	1.06	.60	1.89
Asian	1.40	.49	3.96	1.46	.51	4.17	1.48	.52	4.23
Other	1.17	.52	2.66	1.21	.53	2.76	1.20	.53	2.74
English is Primary Language (yes)									
No	1.46	.69	3.08	1.36	.64	2.87	1.32	.63	2.78
Parental Education (bachelor's or higher)									
Less than a bachelor's	.80	.57	1.13	.88	.62	1.24	.82	.57	1.17
Eligible for Pell Grants (no)									
Yes	1.24	.86	1.80	1.20	.83	1.74	1.08	.74	1.58
Delay Enrollment (no)									
Yes	<b>.43</b>	.28	.65	<b>.45</b>	.29	.69	<b>.48</b>	.31	.73
Student education expectations (bachelor's or higher)									
Less than a bachelor's	.81	.45	1.47	.94	.51	1.72	.93	.50	1.70
High School GPA ( $\geq 3.0$ )									
< 3.0	<b>.66</b>	.46	.95	.83	.57	1.19	.83	.58	1.19
High School Type (public)									
Private	1.13	.66	1.94	1.06	.61	1.83	1.11	.64	1.92
Test score ( $> 21$ )									
$\leq 21$	.63	.43	.92	.82	.56	1.21	.82	.56	1.21
Institution Type (public 4-year)									
Public 2-year				<b>.46</b>	.30	.69	<b>.49</b>	.33	.74
Private				.78	.48	1.27	.73	.45	1.20
For Profit				.55	.26	1.18	.51	.24	1.10
Residency (in state)									
Out of state				1.01	.60	1.70	1.01	.60	1.71
College GPA ( $\geq 3.0$ )									
< 3.0				<b>.39</b>	.27	.56	<b>.40</b>	.28	.57
Filed a FAFSA (no)									
Yes							<b>1.72</b>	1.18	2.50
Unweighted N			10,200			10,200			10,200
Cox & Snell R Square			.009			.016			.018

Note: Bold values indicate a p-value of  $\leq .05$

C.I. = Confidence Interval

**Table 3: Logistics Regression Results – Pell Grant Eligible Students Only**

	Student Characteristics			College Experiences			Financial Factor		
	Odds Ratio	95% C.I. for Odds Ratio		Odds Ratio	95% C.I. for Odds Ratio		Odds Ratio	95% C.I. for Odds Ratio	
		Lower	Upper		Lower	Upper		Lower	Upper
Gender (female)									
Male	<b>.54</b>	.32	.91	.59	.35	1.01	<b>.58</b>	.34	.98
Race/Ethnicity (White)									
African American	.72	.38	1.36	.82	.43	1.55	.75	.39	1.44
Hispanic	1.04	.44	2.46	1.12	.47	2.67	1.11	.47	2.65
Asian	1.62	.33	7.88	1.77	.36	8.78	1.68	.34	8.26
Other	1.02	.29	3.54	1.11	.31	3.91	1.05	.30	3.70
English is Primary Language (yes)									
No	1.12	.43	2.88	1.04	.40	2.68	.99	.38	2.55
Parental Education (bachelor's or higher)									
Less than a bachelor's	.83	.45	1.53	.84	.45	1.56	.77	.41	1.45
Delay Enrollment (no)									
Yes	<b>.38</b>	.21	.68	<b>.39</b>	.21	.71	<b>.39</b>	.22	.71
Student education expectations (bachelor's or higher)									
Less than a bachelor's	.83	.37	1.86	.91	.40	2.10	.93	.40	2.13
High School GPA ( $\geq 3.0$ )									
< 3.0	.82	.48	1.42	1.01	.57	1.76	1.01	.58	1.77
High School Type (public)									
Private	1.24	.42	3.65	1.19	.40	3.55	1.19	.40	3.57
Test score ( $> 21$ )									
$\leq 21$	.52	.26	1.07	.67	.32	1.38	.65	.32	1.34
Institution Type (public 4-year)									
Public 2-year				<b>.45</b>	.23	.90	<b>.46</b>	.23	.92
Private				.87	.37	2.03	.79	.34	1.88
For Profit				.51	.20	1.33	.46	.18	1.20
Residency (in state)									
Out of state				.75	.31	1.84	.79	.32	1.94
College GPA ( $\geq 3.0$ )									
< 3.0				<b>.39</b>	.22	.71	<b>.40</b>	.22	.72
Filed a FAFSA (no)									
Yes							<b>2.22</b>	1.05	4.70
Unweighted N			3,720			3,720			3,720
Cox & Snell R Square			.015			.022			.024

Note: Bold values indicate a p-value of  $\leq .05$   
 C.I. = Confidence Interval

model to just the grant eligible students is to describe how the predictors influence retention for just the students who are truly missing out on “free money” for college by not filing a FAFSA. The relationship between student characteristics and within-year persistence seems to be slightly different for lower-income students. Males have 42% lower odds of persisting when compared to females and students who do not enroll in college directly after high school have 61% lower odds of persisting. The academic preparation variables of high school GPA and test score do not produce odds ratios different than one for the restricted sample.

Like the first regression model on the full sample, two college experience variables had odds ratios that were statistically significant. Lower-income students who started at two-year public colleges, compared to lower-income students who started at four-year public institutions, have 54% lower odds of being retained. Lower college GPAs also had a strong negative relationship with student persistence, as students with a GPA lower than 3.0 had 60% lower odds of being retained when compared to their lower-income peers who had college GPAs equal to or greater than 3.0. The magnitude of these relationships does not differ substantially with the addition of the FAFSA filing variable, indicating that filing does not mediate these relationships.

## **Discussion and Implications**

Findings from existing policy reports suggest that each year millions of eligible students do not file a FAFSA (Kantrowitz, 2009a, 2011a; King, 2004, 2006). Results from our study show that this failure to file negatively impacts the ability of first-year, full-time students to remain enrolled in higher education within the first year. By not filing a FAFSA, many students miss the opportunity to receive grant, loan, and/or work-study financial aid that could have helped them ease the total cost of attending college and persist to their second semester. The consequences of leaving money on the table were particularly evident among Pell Grant eligible students. Lower-income students who filed had 122% higher odds of persisting to the Spring semester when compared to their lower-income peers who did not file a FAFSA. This finding underscores the pressing need for effective public policies and institutional practice aimed at increasing FAFSA filing among students from less affluent backgrounds.

Recent efforts to shorten the FAFSA and make the application easier for students and their families to complete represent an important step towards increasing FAFSA filing among lower-income students (Asher, 2007; Bettinger & Long, 2009; Dynarski & Scott-Clayton, 2006, 2007, 2008). However, while these FAFSA simplification efforts are important, they are not sufficient on their own to ensure that all eligible students apply for financial aid. High schools and postsecondary institutions must also work to remove other barriers that prevent many students from filing a FAFSA, such as a lack of familiarity with the application (Avery & Kane, 2004; Bettinger, Long, Oreopoulos, & Sanbonmatsu, 2009) and general misconceptions about the financial aid process (College Board, 2010b; Vargas, 2004). In addition to providing accurate and timely information about the application process, research has shown that personalized

assistance in helping students complete the FAFSA results in greater rates of filing (Bettinger et al., 2009).

## **Future Research**

Future research should give further attention to the characteristics of those students who do not file a FAFSA and their reasons for not filing. Policy reports by the American Council on Education (King, 2006) and Kantrowitz (2009a, 2011b) shed initial light on these issues, but their analyses are limited by the nature of the data available from the National Postsecondary Student Aid Study (NPSAS). Qualitative research studies examining the perceptions and experiences of students who do not file a FAFSA would help provide a more nuanced understanding of this topic and represent a valuable contribution to the research literature.

Descriptive results from our study revealed that community college students were less likely than their peers at other types of postsecondary institutions to file a FAFSA. This is consistent with policy reports that explore FAFSA filing across different institution types. A possible explanation for the lower filing rates at public two-year institutions could simply be their lower cost of attendance (King, 2006; Kantrowitz, 2009b). However, receiving financial aid is especially important for this student population because a considerable number of lower-income students attend community colleges. Therefore, future research should give specific attention to the factors that predict filing, and non-filing, among community college students and effective strategies for increasing FAFSA filing among this student group. Because a large percentage of these students come from lower-income families and are eligible to receive Pell Grants, increasing their rates of FAFSA filing holds great promise for improving persistence among community college students. Future work on this student population should also consider students' educational intentions so the persistence of a non-filer who is only intending to enroll one year for a certificate does not affect the impact of filing a FAFSA for a student who intends to earn a bachelor's degree.

Finally, future research on this topic should give attention to several variables that were not included in this study. These variables include part-time attendance, living on or off campus, household size, dependency status, marital status, student's status as a single parent, and institution cost. The application of innovative conceptual frameworks and the examination of new variables could begin to help address many of the remaining unanswered questions regarding the relationship between FAFSA-filing and student persistence and degree attainment. In addition, this line of inquiry could be extended to explore the relationship between filing a FAFSA and between-year persistence.

## **Conclusion**

Numerous studies have found that receiving financial aid helps students remain enrolled in higher education and persist until graduation (Bettinger, 2004; Chen, 2008; Leslie & Brinkman, 1988; Long & Riley, 2007; St. John, 2000; Wei & Horn, 2002). The FAFSA is the critical gatekeeper to receiving this financial aid because the application is used as the basis to award

most federal, state, and institutional aid (Bettinger et al., 2009). Findings from our study show that failure to complete this important first step in the financial aid process has a negative association with the persistence rates of first-year students who attend college full-time, particularly those who are lower-income. Therefore, it is critically important that all students who would benefit from receiving financial aid complete the FAFSA. Effective policies and practices that result in higher rates of FAFSA filing have the potential to increase student persistence and degree attainment in American higher education.

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# Effects of Tuition Price, Grant Aid, and Institutional Revenue on Low-Income Student Enrollment

By Nathan E. Lassila

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*Evidence of greater economic stratification brings challenges to higher education's enrollment of low-income students. With a growing proportion of potential college students coming from low-income households, increasing their post-secondary participation rate is vital in developing and growing the pool of educated individuals for the labor force as educated baby boomers retire. Using a combination of IPEDS, NPSAS:08, U.S. Census, and ACT data, this study analyzes three empirical models for public, private not-for-profit, and all institutions (both public and private not-for-profit institutions combined). Findings support previous scholarship in that price and grant aid affect student enrollment. Adding to the research regarding institutional revenues, findings indicate institutional revenues at private not-for-profits are significant and positively related to low-income enrollment.*

Research has shown that low-income students do not enroll in or complete college at the same rate as their higher-income peers. As the changing demographics and financial policies in the United States bring greater economic stratification, challenges to higher education enrollment and degree production will increase. This poses a problem for an economy that is predicted to require a higher proportion of individuals with a college degree. Policymakers note the United States will need to maintain or likely increase the proportion of individuals with a college credential. At the same time the population that has been less likely to participate in college is increasing as a proportion of the population. This will challenge the country's ability to increase college participation and completion. The purpose of this research is to examine factors associated with enrollment of low-income students. Being from a low-income family has proven to be a major risk factor for college participation and this population is growing. Specifically, this research examines the relationship with tuition costs, effects of specific sources of grant aid, and institutional revenue for public and private not-for-profit, 4-year institutions. Examining institutional revenue as a factor of low-income enrollment, in conjunction with price and aid, hopes to add to the variety of literature examining enrollment trends.

## Background

A growing number of Americans live in poverty. According to DeNavas-Walt, Proctor, and Smith of the U. S. Census Bureau (2010), the poverty rate in 2009 (14.3%) was at its highest level since 1994, and the number of people in poverty in 2009 (43.6 million) is the largest it has been in the 51 years that Census data have been published. Most recently, between 2008 and

2009, the poverty rate increased for children under the age of 18 (from 19.0% to 20.7%) and people age 18 to 64 (from 11.7% to 12.9%).

Along with the growth of the general population who are in poverty, low-income student enrollment (defined as Pell grant recipients) in postsecondary education has increased greatly over the past three decades. However, there is a large gap in the ratio of low-income and higher-income students who enroll in post-secondary education (Schultz & Mueller, 2006). While college enrollment rate for students from low-income families has increased over the past 35 years, the rate for students from higher-income families has been much greater. One study indicates an enrollment gap between individuals from low-income families and those from higher-income families. The research notes that 40% of low-income students participate in college while 81% of individuals from higher-income families participate (Engle & O'Brien, 2007). More recently, the National Center for Education Statistics (NCES) indicates that in 2009, immediate college enrollment (i.e., enrollment in the fall following high school graduation) for high school completers from low-income families was 55% compared to 84% of high-income completers (Aud, Hussar, Kena, Bianco, Frohlich, Kemp, & Tahan, 2011). As the proportion of lower income students grows, one important approach to maintain or grow the country's proportion of the population that has a college credential is to increase the percent of low-income students that continue on to college.

Low enrollment rates of low-income students are not necessarily reflective of their academic ability (Baum & Ma, 2007). According to the Baum and Ma (2007), comparing all students that scored in the top quartile on an eighth grade math assessment, thus students of high academic ability, the college completion is staggering among the high achieving students when income levels are examined. Completing college for low-income families (29%) is dramatically lower when compared with high income families (74%).

While there are many challenges for individuals from low-income families concerning college enrollment, financial challenges can be mitigated by policy that reduces costs for these students. Lower cost may counter the fact that low-income students are debt averse and will avoid borrowing to participate in college (Burdman, 2005; Mortenson, 1988). High loans and the aversion to accumulate debt create consequences for higher education degree production. Students with large loans persist at lower rates than those with less loans or no financial need (Bresciani & Carson, 2002). Even at less expensive community colleges, students who borrow may be less likely to persist in their education than non-borrowers (Dowd & Coury, 2006).

From the policy perspective, policymakers note that the U.S. needs more college credentials to maintain and grow the economy. At the same time, the future college enrollment pool is becoming more low-income proportionately. Further, low-income students participate and complete college at lower rates. This jeopardizes the future output of college graduates from the higher education system unless low-income student higher education participation and completion increase.

In 2010, the Organisation of Economic Cooperation and Development (OECD) reports 40% of U.S. population aged 55 to 64 are the world leaders in holding a college degree when compared to 31 industrialized countries. Conversely, the percent with a college credential for the age group 25 to 34 is similar to aged group 55 to 65; however, the U.S. is not world leaders in holding a college degree for the age group 25 to 34. In fact, several other countries have caught and surpassed the U.S. rate. In addition to our stagnant rate and growing world competition, the population of 25 to 34 year olds in the U.S. is much smaller than the 55 to 64 year olds.

The under-representation of low-income students in higher education poses economic problems to the extent it contributes to the U.S. failing to maintain or increase postsecondary degree production. The likelihood of matching the jobs that will be created over the next decade and the education and training of our adult workers may be low if the proportion of low-income, college age individuals enrolling in higher education does not increase. Further, postsecondary education and training is quickly becoming the only viable path to the American middle class. Estimates suggest that the postsecondary education and training system will fall short by three million or more postsecondary degrees; that kind of breakdown in the ability to meet employers' needs would have a negative impact on the economy and decrease access to a middle class (or greater) career (Carnevale, Smith, & Strohl, 2010).

## **Theoretical Framework**

Using a public choice theoretical framework, students and their families will choose the college or university offering the lowest cost *ceteris paribus*, meaning while holding everything else as constant (Winston & Zimmerman, 2000). No doubt there are several challenges specifically for low-income students to navigate when considering college including lacking knowledge of how to apply or find financial aid information, being averse to accumulating debt, and of course published cost. The market theory employed herein suggests that all else being equal, cost (as impacted by institutional wealth to subsidize students) will be a deciding factor. In addition to barriers, there are also student preferences such as small or large college, faith based, or location. Again, all things being equal, the research theorizes that cost will play the larger role in enrollment decisions.

There are several examples in education literature that discuss education phenomena using market theory (Coulson, 1996; Hoxby, 1997; Winston & Zimmerman, 2000). Winston and Zimmerman (2000), who investigated the price competition among post-secondary institutions, found institutions with lower tuition prices were considered wealthier colleges and may have an advantage in luring low-income student enrollment over institutions with fewer resources.

A large body of work regarding enrollment responsiveness suggests that increases in cost negatively impact enrollment decisions (Kane, 1995; Heller, 1997; Hossler, Braxton, & Coopersmith, 1989; Leslie & Brinkman, 1987; Paulsen & St. John, 2002; St. John, 1990; Savoca, 1990). Foundational research from Leslie and Brinkman's (1987) meta-analysis of 25 quantita-

tive studies found evidence that tuition increases resulted in declines in the college participation rate of approximately 0.75% per \$100 tuition increase. Similarly, St. John (1990) found that a \$1,000 increase in tuition is related to a 2.8% decrease in enrollment.

Changes in published price having a negative relationship with enrollment generally, may be exacerbated when examining enrollment rates of low-income students. Low-income students, more so than their more affluent peers, lack specific information on college going (De La Rosa & Tierney, 2006; Kane & Avery, 2004). This leads to perceptions that the published tuition price is too costly and college is out of reach. Yet students and families do not know to take into account that the published tuition price is often subsidized by government and institutional grant aid; thereby, the actual net cost, or the out-of-pocket costs, to students is much lower than the published tuition price.

When need is not met through grant aid, borrowing is considered a solution and borrowing by students has increased dramatically in the past decade. However, there seems to be validity to the perception that certain racial/ethnic groups are more averse to borrowing than other groups (Cunningham & Santiago, 2008). Asian and Hispanic students are less likely to borrow even if they have significant remaining financial debt after receiving grant aid. This pattern for Asian and Hispanic students holds true across income levels, types of institutions attended and whether they attend full- or part-time. Hispanic students and parents have been found to prefer to make college choices based on their current income situation and base their college choices on the “sticker price” of a college education without considering types of aid available. Similarly, Asian parents have indicated that loan debt is a negative situation for students and their families (Cunningham & Santiago, 2008). The sticker shock phenomenon has a substantial effect on college enrollment decisions of low- and middle-income families where cost is a larger determinant of the college-going decision (Kane, 1999; King, 1999; McPherson & Schapiro, 1998).

While increases in published tuition are negatively associated with enrollment, financial aid has been found to improve enrollment odds. Avery and Hoxby (2000) found the student enrollment decision to be rational driven by receipt of financial aid. Dynarski (2003) examined the effect of a federal grant program on college enrollment over time. Examining aid options and enrollment data from 1965 to 1982, Dynarski’s research suggests that the elimination of financial aid through the Social Security Student Benefit program was related to significant decreases in college enrollment.

Research suggests that both state and federal grant aid can play a role in increasing enrollment. More specifically, distinctive state aid programs are helpful in encouraging enrollment while not diminishing the effectiveness of federal aid. Singell, Waddell, and Curs (2006) examined the implementation of the merit-based HOPE (Helping Outstanding Pupils Educationally) scholarship in Georgia. They found the implementation of the HOPE scholarship was associated with improved access for low-income students.

Preparation and achievement of rigorous courses are often cited as factors related to enrollment after high school (Adelman, 2006; Choy, 2002; Fitzpatrick & Turner, 2006). Academic preparation in high school has been shown to lead to positive higher education outcomes. Students who take rigorous courses in high school are more likely to enroll and complete college than those who do not (Adelman, 2006; Choy, 2002). However, the effect of aid remains an important predictor of enrollment even when controlled for by other factors such as academic preparation. For instance, an examination of Indiana's Twenty-first Century Scholars Program showed that academic support for low income high school students had a modest influence on college participation. Grant aid however played a large part in the participation decision and seemingly a necessary component to the postsecondary program (St. John, Musoba, Simmons, Chung, Schmit, & Peng, 2004).

Parents' highest educational attainment has a positive relationship to their children's postsecondary options. As parents' education increase, high school graduates are more likely to plan to continue their education immediately after high school, are more likely to enroll within two years, and, if they planned to attend a four-year college immediately after high school, are more likely to do so (Choy, 2002). In this study, the regression models will control for academic preparation and parental education of enrolled low-income students.

As presented, the literature is filled with studies examining the effects of college enrollment. This research attempts to add to that literature by investigating the relationship of institutional wealth with low-income enrollment while also including price and aid variables. If lower college cost is a driver for student decision making, it would make sense that a wealthier college (i.e., those with higher tuition revenue, larger endowment and investment revenue) would be at an advantage than a college with fewer resources. A central economic fact of the higher education market is the differences in schools' revenues create a pronounced hierarchy based on schools' wealth and the student subsidies it is able to provide (Winston & Zimmerman, 2000). While Winston and Zimmerman examine the effect of institutional wealth and price competition, this research will empirically test the relationship between low-income enrollment and institutional wealth.

## **Data and Method**

Previous research has noted the complicating factors related to cross state analysis of tuition change and enrollment. Different market conditions by state may affect pricing policies largely based on student supply and demand or recession periods (Fitzpatrick & Turner, 2006). Thus, this research attempts to control for these dimensions. One such variable that may affect an institution's cost is its revenue. Investment return and government appropriations are institutional revenue streams that can contribute to lower published tuition. In the past few years, several states have seen the erosion of public dollars to subsidize college costs. Likewise, institutional revenue has seen decreasing returns which may cause some colleges to temporarily limit payout for financial aid.

Institutional revenue is measured using the 2007-08 Integrated Postsecondary Education Data System's (IPEDS) total revenue variable from the Finance Survey. The total revenue variable is the sum of the following amounts: tuition and fees; government appropriations, grants and contracts; private gifts, grants, and contracts; contributions from affiliated entities; investment return (income, gains, and losses); sales and services of educational activities and auxiliary enterprises; hospital revenue; independent operations revenue; and other revenue.

Few empirical studies have examined the relationship between institutional revenues and enrollment. In this research, institutional revenues are examined as a predictor of low-income students' enrollment in the models. Institutional revenues are measured as the sum of state appropriations and revenues from other streams including tuition and fees and investment return. As expected, private not-for-profit colleges have no state appropriations while public institutions have both appropriations and investment returns to a lesser degree.

Demographic shifts may be associated with changes in enrollment such as growth of various subgroups or the population in general. Controlling for state level demographic data such as median household income, percent of state population in poverty, total state population are also part of the analysis.

The dependent variable low-income enrollment is measured as the enrollment rate of students receiving a federal Pell grant. This is calculated as the percent of Pell grant recipients of total enrollment. The use of Pell grant to identify an institution's low-income enrollment has limitations. It is possible that some students from low-income families do not file for financial aid and thus not only do not receive Pell grant and thus would not be identified in the data. International or undocumented students also would not be included if they are low-income as they are not eligible for federal aid. Finally, low-income enrollment would be understated by students that are low income, but never apply or enroll in college due to factors such as price being perceived as so far out of reach that they never consider applying for college. However, given these limitations, the use of Pell grant recipients as a proxy for low-income students is the best option available from the source data used for the study.

In addition to the total revenue variable of interest, other institutional data for higher education variables are also obtained from the IPEDS. For the year 2007-08, a total of 1,631 four-year degree granting (primarily baccalaureate or above) institutions are included in the analysis (530 public and 1,101 private not-for-profit). Cases with missing data for tuition were removed. Other state-level data are obtained from the National Postsecondary Student Aid Study (NPSAS:08), American College Testing office (ACT), and the U.S. Census Bureau. Descriptive statistics are provided in Table 1. All variables represent the year 2007-08 except the state average ACT score which is for year 2006-07. ACT is lagged as it represents the performance attained in the year prior to the college enrollment year.

**Table 1: Descriptive Statistics**

Variable	Minimum	Maximum	Mean	Standard Deviation
Percent enrollment receiving Pell Grant	0.00%	94.48%	25.34%	14.18%
Published tuition (in 100's)	\$ 20.60	\$ 392.40	\$ 155.37	\$ 96.18
Average all grants (in 100's)	\$ –	\$ 326.29	\$ 76.64	\$ 47.72
Average amount of federal grant aid received (in 100's)	\$ 4.98	\$ 97.94	\$ 38.58	\$ 9.62
Average amount of institutional grant aid received (in 100's)	\$ 0.70	\$ 322.86	\$ 74.72	\$ 56.78
Average amount of state/local grant aid received (in 100's)	\$ 2.52	\$ 107.06	\$ 32.35	\$ 17.18
Total revenue in millions (appropriations, investment return, or other sources)	\$ –	\$5,699.78	\$ 110.28	\$ 359.04
Undergraduate enrollment (in 1,000's)	.01	56.91	5.42	7.37
State population (in 100,000's)	5.33	367.57	107.93	90.96
State median household income (in 1000's)	\$ 37.79	\$ 70.55	\$ 52.50	\$ 7.59
Percent of population in poverty (State Average)	5.76%	14.55%	9.54%	1.64%
ACT composite (State Average)	18.9	23.6	21.63	1.09
Level of low-income parent's educational attainment (State Average)	3.1	6.5	4.08	.61
Low-income students years of math completed (State Average)	.0	3.8	3.44	.41
Percent of low-income students earning Advanced Placement credit (State Average)	0.00%	31.80%	18.33%	4.55%

Note: All institutions included are degree granting, granting at least a bachelor's degree. Fifty-four institutions have total enrollment less than 100 students including the lowest, Yeshiva Toras Chaim Talmudical Seminary, with 9 reported students.

Demographic variables obtained from the U.S. Census Bureau are used as state level controls. Population, percent of population in poverty, and median household income are included. As research suggests that K-12 preparation and family educational history are positively associated with college enrollment (Adelman, 2006; Choy, 2002; Fitzpatrick & Turner, 2006; Perna & Titus, 2004), this research attempts to control for preparation using data from NPSAS:08 reflecting college students from families at or below 200% of federal poverty guidelines for 2008.

Parent's educational attainment is measured on a numeric scale indicating level of postsecondary education attained ranging from no education completed to completion of doctoral study. The data represented in this research has a mean of four which corresponds to less than two years of college, a minimum of three indicating vocational or technical training, a maximum of 6.5 which is between those that have at least two years of college with no degree and those completing a bachelor's degree.

This research examines the association between multiple factors and low-income enrollment. The data reflect a linear relationship between the independent and dependent variables and are normally distributed; therefore, ordinary least squares (OLS) regression is suitable for the analysis. In addition to tests for normality, the model also did not suffer from multicollinearity, where two or more variables are highly correlated. Three separate empirical models will be analyzed: 1) for all institutions combined, 2) public only, and 3) private not-for-profit only. Examining each sector individually will provide a comparison of how the endogenous variables may effect enrollment under different enrollment management models varying between public and private institutions.

## **Findings**

Results from three OLS regression analyses are shown in Table 2. A review of the results indicates that the relationship with low-income student enrollment is similar whether looking at all institutions combined or public and private not-for-profit institutions separately. Five of the primary variables of interest are statistically significant in models representing all institutions and private nonprofits only and four are statistically significant for public institutions only sharing the same directional relationship in all three models. One of the control variables, total undergraduate enrollment, was also statistically significant indicating a negative relationship with low-income enrollment.

Similar to previous research, higher tuition has a statistically significant, negative relationship with low-income student enrollment, regardless of sector (Heller, 1997; Hossler, Braxton, & Coopersmith, 1989; Kane, 1995; Leslie & Brinkman, 1987; Paulsen, & St. John, 2002; St. John, 1990; Savoca, 1990). Additionally, total grant aid received is positively related to enrollment. This suggests that increasing aid from all sources to lower net tuition may positively impact low-income student enrollment. Interestingly, while total aid received is positive, individual aid sources separately do not have the same directional relationship. Federal grant aid is not statistically significant in any of the models while state grant aid and institutional grant

**Table 2: OLS Regression Results on Low-Income Student Enrollment**

	Coefficients (Standardized on Bottom)		
	All Institutions	Private Institutions	Public Institutions
Published tuition (in 100's)	-.048 ***	-.090 ***	-.107 ***
	-.355	-.486	-.197
Average amount of all grant aid received (in 100's)	.088 ***	.036 **	.295 ***
	.318	.106	.353
Average amount of federal grant aid received (in 100's)	-.007	.052	.028
	-.005	.040	.013
Average amount of institutional grant aid received (in 100's)	-.086 ***	-.040 **	-.091 **
	-.375	-.167	-.137
Average amount of state/local grant aid received (in 100's)	-.069 ***	-.050 *	-.110 **
	-.090	-.068	-.114
Total revenue in millions (appropriations, investment return, other sources)	.002 *	.002 *	-.001
	.052	.071	-.013
Undergraduate enrollment (in 1,000's)	-.621 ***	-.940 ***	-.356 ***
	-.353	-.209	-.288
State population (in 100,000's)	.010 *	.001	.024 ***
	.068	.003	.192
Median household income (in 1,000's)	.155 ***	.188	.000
	.090	.101	.000
Percent of population in poverty	1.88	1.862 ***	.391
	.238	.215	.059
ACT composite (2007)	-.034	.535	-.132
	-.003	.042	-.012
Level of low-income parent's educational attainment (State Average)	-.445	-.861	-1.537
	-.021	-.037	-.086
Low-income students years of math completed (State Average)	.112	-.352	4.549 *
	.004	-.010	.176
Percent of low-income students earning Advanced Placement credit (State Average)	.029	.123	-.224
	.010	.040	-.092
Adjusted R2	0.306	0.389	0.305
N	1,631	530	1,101

Dependent variable: Percent Students Receiving Pell Grant

\* p < .05, \*\* p < .01, \*\*\* p < .001

Data were tested and found no problems associated with multicollinearity.

aid have a statistically significant, negative relationship with low-income student enrollment. This may suggest that each aid source alone does not impact the enrollment decision, but the packaging and accumulation of all grant aid sources does.

The relationship between Pell grant and enrollment of low-income students in this research may lack statistical significance for multiple reasons. This research examines a snapshot in time where change or variance in Pell grant received is limited. Thus with such little room due to a federal maximum, institutional variance in the Pell grant variable is small. For example, a similar low-income student attending a similar institution would receive the same average Pell grant. Thus, there is limited variance to be measured between institutional enrollment and Pell grant amount. Also, as Pell grant average is measured at an institutional level, the average award across institutions would be relatively the same whether enrolling one student or 100 students as the average by institution is essentially dictated by federal policy. Again, there would be minimal variance explained between the institutional Pell grant average and enrollment level. However, total grant aid includes greater variability in the average amount received as it includes differing state and institutional aid policies.

Institutional revenues have a statistically significant positive relationship with low-income enrollment for models including all institutions and private not-for-profit only. While private institutions' revenues are based on investment earning and other revenue streams, public revenues come from both sources but are predominately state appropriations. For the cases used in the three models, mean state appropriations to private nonprofits are zero while publics have a mean of over \$86 million. Private not-for-profit mean revenue from other sources is \$115 million compared to public institutions mean of \$15 million. It would initially appear that the revenues from non-government sources drive the statistical relationship as it is statistically significant in the private nonprofit model and for all institutions. These revenues are typically from endowment income and other investment activities. Typically, a percentage of endowment revenues are spent down in the form of financial aid and, thus, may be the reason for the positive relationship with low-income enrollment as institutions with high revenue are redistributing it toward financial aid with the intent to increase low-income student access.

Increased enrollment is not related with greater low-income enrollment. This finding suggests that simple enrollment increases may not contribute to a proportional increase in low-income students. While the number and percent of the U.S. population in poverty has grown over time, this has not seemed to impact the rate of enrollment of low-income students.

## **Discussion**

Previous research, as well as current policy discussion, has indicated the importance of the United States to increase the proportion of the population with a college degree. Over the decades the U.S. has lost its leading position in terms of the population with a college degree. According to data from the OECD, the U.S. was a leader for those aged 55 to 64 with

40% of the population attaining some postsecondary credential (OECD, 2010). However, when looking at a younger age cohort, 25 to 34, while the percent of the population attaining a degree has remained relatively the same, U.S. has lost its position as many countries have surpassed or caught up to the U.S. rate of attainment. Additionally, while the U.S. percentage attaining a college credential has remained at a similar rate, this does not reflect the drop in raw numbers as the younger cohort reflects a smaller total compared to the baby boom generation.

The need for college educated individuals to spur innovation and replace retiring baby boomers will be further challenged by the growth of low-income students who have traditionally attended and completed college at lower rates. To increase the rate of enrollment and completion of this subgroup, policy options should be explored to determine what may account for an increase in participation.

The negative relationship between low-income enrollment and published tuition may suggest that institutions with higher tuition and low levels of grant aid see lower rates of enrollment of the low-income population. This could be the effect of student sticker shock or a rational decision based on costs being too high or insufficient grant aid. To lower costs, institutions use one or all financial aid sources including federal, state, and/or institutionally funded grant aid. Grant aid lowers the net price paid and according to this research and previous scholarly work, has a positive relationship with enrollment. Previous scholarly work also note key findings that financial aid, specifically grants that do not have to be paid back, had a positive effect on access and persistence, and encouraged students to enroll in more expensive institutions (Avery & Hoxby, 2000; Dynarski, 2003).

Another detriment of high published tuition is that it often will eliminate that institution from a list of choices for a low-income student before the student even communicates with any institution. This early “table sweep” is due to lack of knowledge related to financing college. High tuition may be a barrier to low-income student enrollment as they may not understand the financial aid that is available to lower net price (Johnstone, 1999). Further, states with high tuition, high aid policy may still lose students that should attend a four-year college to less expensive two-year institutions due to this lack of financial aid knowledge (Johnstone, 1999). While it is reasonable to suggest many financial and non-financial factors play a role in the enrollment decision by students, pricing policies are among the only factors that are under the direct control of postsecondary education policy makers in state governments, the federal government, and in public and private colleges and universities (Heller, 2001).

The findings indicate that total grant aid is a statistically significant contributor to the rate of low-income enrollment, though individual aid sources do not share the same relationship. This suggests that each option on its own does not contribute to greater low-income student enrollment, but the grant aid package as a whole does. One example of the reason for this relationship may be that the federal needs analysis formula does not guarantee that a student will have all demonstrated financial need met. Thus, total Pell grant may be less than total financial need leading to fiscal

constraints that may limit the college options a low-income student will consider if college is chosen at all (Fitzpatrick & Turner, 2006). The models use of total grant aid includes greater variability in the average amount received as it includes the differing state and institutional aid policies by state and institutions.

Previous research has shown the disparity in price paid for an education between wealthy and less wealthy institutions (Winston, 1999). Winston (1999) found that students enrolled at the wealthiest 10% of institutions paid \$.20 for each dollar of institutional educational spending while students in the poorest 10% paid \$.78 for each dollar of educational spending. Thus, institutional revenue was found to have an effect on price paid.

A primary variable of interest in this study, institutional revenues, is statistically significant and positive for the model including all institutions and the model for private not-for-profit institutions only. Thus, institutions may be encouraging college enrollment of low-income students by subsidizing student costs with funds derived through institutional revenues. Generally, public institutions receive state appropriations and private nonprofit institutions rely on investment revenue. However, this is not to discount growth in public institutions endowment which has led to increased institutional aid that could curb costs or be used for need based aid. The recession has affected both of these revenue options in recent years. Public institutions have experienced budget cuts or freezes and private not-for-profit have seen decreased endowment value which reduces the funds that are used for tuition subsidy and need-based aid.

The positive relationship between higher revenues and low-income enrollment may be a reflection of trends over the past decades. Per capita revenues have increased for all sectors of education but the greatest growth has been primarily at private nonprofits and research universities. This includes revenue from tuition and appropriations from government. Over the same time, institutional grant aid funding has increased in terms of spending of discretionary revenue (Wellman, Desrochers, & Lenihan, 2008).

Previous research has examined the advantage of wealthier schools, and hypothesized effects on enrollment noting the advantage of being able to provide greater subsidies to students (Winston & Zimmerman, 2000). As private not-for-profit institutions have relied on the creation and funding of endowments for longer, it may contribute to the reason this variable is statistically significant for private nonprofits but not publics. However, having access to large resources doesn't mean an institutions total enrollment will increase. For instance, private not-for-profit institutions have an inflexible access to providing financial aid due to donor restrictions. Such restrictions limit an institution's full capacity to subsidize their students; in other words, the more an institution expands the total number of students, the less subsidy amount each student receives (Winston & Zimmerman, 2000). Thus, the use of subsidy may be used to support need-based aid and increase low-income access as supported in this research or to target

other demographic groups, and thereby, changing the composition of their student body not simply expanding it.

There is evidence that the institutions that serve the majority of low-income students are overwhelmingly those that have the least to invest in their success, and more low-income students are being concentrated in these institutions (Wellman, et al., 2008). This may be true of the raw numbers of low-income students enrolling in college. However, the findings in this research indicate that four year institutions exhibit a relationship between higher revenues and enrolling a higher rate of low-income students. This evidence could provide policymakers and university administrators evidence of the positive effect four-year institutions with higher revenues can have on lower income students' college participation.

## **Conclusion**

This research suggests that higher education policy can have a role in increasing low-income student enrollment. Increasing published tuition may have a negative effect on the enrollment of low-income students. However, when that published tuition is mitigated by grant aid, the lower net tuition may lead to increased enrollment. Additionally, higher published tuition alone is not necessarily a problem as affluent students, able to pay the full price, contribute to an institution's operational costs and to the ability of institutions to provide institutional grant aid to students of lesser means. This model of higher education would be considered high tuition, high aid. It is important for states with this policy framework is to ensure that need-based grant aid keeps up with inflation or risk becoming a high tuition, moderate- or low-aid state. This latter condition would lead to lesser low-income enrollment as suggested by the findings in this research.

Evidence from this research suggests that institutional revenues have a positive relationship with enrollment of low-income students at four-year institutions, specifically private not-for-profit. While revenues at institutions are restricted in the amount to be used toward financial aid, targeted use of these revenues may be useful for increasing enrollment of the growing low-income population.

Other policy strategies, which would be of lower cost to state and institutions than increasing grant aid or tuition subsidy, could be employed to increase the rate of low-income enrollment. All students, especially low-income students, would benefit from a strategy to increase awareness of concepts regarding published tuition versus net tuition, sources of aid and scholarships, cumulative debt by sector, and generally assistance with the Free Application for Federal Student Aid (FAFSA).

Further, the financial aid award process could be streamlined and made more predictable. One example would be to simplify the student aid application process by eliminating the FAFSA and obtaining all needed financial information from the Internal Revenue Service. Financial aid should be provided as clearly, transparently, and simply as possible (The College Board, 2008).

Finally, communication with families and students about college opportunity should be early, proactive, encouraging, sustained and accurate (The College Board, 2008). An information campaign should be created and sustained and begin in middle school for students and their parents. Proper enrollment decisions and the basic consideration of the possibility of a college are only possible if armed with information and an easily understandable process.

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# Book Vouchers: An Exploratory Analysis of Their Use and Effectiveness

By Peter M. Hurley

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*Book vouchers serve as one component of need-based financial aid packages at the College of Southern Nevada (CSN), one of the nation's largest community colleges. This study compared the academic performance of Free Application for Federal Student Aid (FAFSA) applicants in attendance at CSN during the 2008-09 and 2009-10 academic years. A basic exploratory analysis was conducted that examined the academic outcomes of seven students groups with different financial aid packaging outcomes. Student groups were ranked by their academic performance, which comprised of grade point average (GPA), percentages of full-time attendance, and percentage of successful, full-time attendance completion. Within these measures, book voucher recipients were found to have better overall academic performance than students who received Federal Pell Grants – even when Pell was combined with institutional grant or work-study funds.*

Aid offices across the United States face the difficult task of offering aid packages that can provide access to the growing numbers of students qualifying for aid. The situation was particularly acute in the Las Vegas Valley, home to the College of Southern Nevada (CSN).

The College of Southern Nevada is among the 10 largest community colleges in the nation, serving nearly 45,000 students each semester. Classes are offered at three main campuses, through distance learning, and at 13 community instructional locations. The college has one Baccalaureate degree program, and primarily awards Associate degrees and Certificates of Achievement. Operating in an open enrollment environment, the college performs no academic evaluation process at the point of student admissions. CSN has no ethnic majority, attracts an almost equal number of men and women, seven of ten of which attend as part-time, and most of its students fall between 20 – 34 years old.

As an open-enrollment institution, the growth in enrollment resulting in higher demand for aid is typically expected during times of economic recessions. From 2006-07 to 2009-10, CSN received from 15,000 to over 45,000 Free Application for Federal Student Aid (FAFSA) applications, which is an increase of 200%. During the same period, Federal Pell Grant recipients nearly tripled from 4,700 to more than 13,000, resulting in an increase of 177%.

In concert with the college's new mission statement and strategic plan that emphasizes access, quality and diversity, the aid office allocated more institutional money for student employment programs and the book

voucher program. The potential benefits of redirecting institutional aid dollars to student employment are documented in the extant research literature (Anderson, 1981; Astin, 1975; Tinto, 1993; Velez & Javalgi, 1987). However, the effects of book voucher program are less studied. As such, the CSN administration encouraged this study.

Using a pool of FAFSA applicants, I hypothesize that book voucher recipients will perform better academically than non-recipients. FAFSA applicants eligible for need-based assistance while attending two-year schools in the form of direct cash refunds may forgo purchasing books because of more pressing expenses. Those who do not receive grants or work-study awards, and who are loan averse, may elect to skip purchasing course material altogether as a way of managing educational costs.

While the financial aid office had detailed bookstore receipts for the voucher recipients, we did not attempt to measure whether or not the non-voucher students actually purchased required course material. While this is a limitation of the study, the nature of this study is exploratory and the potential linkages between book vouchers and academic performance warrant investigation.

### **Background: Book Voucher Program at CSN**

Initially, the book voucher program grew from a 2004 marketing plan initiated by then President Richard Carpenter, who invited the public to take their first-class and get the first textbook free at CSN (T. Holcomb, personal communication, August, 10, 2010). Carpenter authorized a portion of collected fee revenues to pay for the marketing strategy to draw in new students. The college would pay for a three-credit class and provide a \$100 book voucher for use at the college's bookstore. The program was modestly successful, but never attracted more than 80 new student recipients per academic year.

Despite the modest success of the marketing strategy, the popularity of book vouchers, however, allowed for the establishment and development of the program at CSN. As seen in Table 1, expenditures for the book voucher program dramatically increased in the 2008-09 academic year to over a quarter of a million dollars and by 2010-11. Essentially, funding for the book voucher program grew to more than 45% of the funds allotted by the college for financial aid programs.

Thus, Student Financial Services began including book vouchers as part of its financial aid packaging methodologies starting in 2008-2009. To qualify for a book voucher, an otherwise eligible student must meet the following requirements:

1. Be a first time undergraduate;
2. Have an Expected Family Contribution (EFC) below 8,000;
3. Comply with Satisfactory Academic Progress Policy (SAPP) requirements;
4. Not receive a Federal Supplemental Educational Opportunity Grant (FSEOG).

**Table 1: Funding for The College of Southern Nevada Book Voucher Program, 2003-2010**

<b>Academic Year</b>	<b>Expenditures</b>
2003-04	\$ 67,470
2004-05	\$ 54,150
2005-06	\$ 112,720
2006-07	\$ 59,675
2007-08	\$ 80,620
2008-09	\$ 251,700
2009-10	\$ 855,220
2010-11*	\$1,550,000

\* Budgeted

So long as funding remained, vouchers were awarded to Federal Pell Grant or CSN Access Grant eligible students. Pell students can also receive either the CSN Access Grant or a work-study award, but not both. In other words, book vouchers can only be awarded to Pell Grant or CSN Access Grant recipients. See award combination groups in Methodology.

The value of the voucher ranged from a minimum of \$100 for less-than-half time enrollment to a maximum of \$400 for full-time study. Book voucher purchases were limited to required textbooks and supplies like pens, notebooks, calculators, and dictionaries. Specialized academic programs like the Dental Hygiene and Nursing programs are awarded much larger vouchers to accommodate first-year materials such as equipment and uniforms. Purchases were not subject to state sales tax because the voucher is issued from a tax-exempt organization.

Federal aid regulations indicate aid payments cannot be disbursed to students earlier than ten-days prior to the start of school (U.S. Department of Education, 2009). Institutions dealing with concerns over “Pell Runners” (Field, 2011), students who fraudulently seek the benefit of a Pell Grant refund and have no intention of achieving a degree or even attending the school, frequently delay paying aid in order to avoid the financial liability these students create. However, on October 29, 2010 the U.S. Department of Education issued *Program Integrity Issues; Final Rule* (2010), which further emphasized the school’s obligation to make books available to Pell Grant students without delay. Because CSN’s books voucher program did not involve cash transactions to students, voucher recipients were allowed to make purchases before the semester started, which can provide an added benefit of reading a head of assignments. Conversely, aid recipients, who did not receive a book voucher, had to wait for the aid refund process to their buy books.

The book voucher program depends upon an important collaboration between Student Financial Services, student recipients, CSN Purchasing, and the Follett Corporation. Book voucher utilization is limited to the CSN Bookstore because the college is technologically limited in its data exchange capabilities. As such, reimbursement to Follett can take up to eight weeks, and necessitates that the vendor has significant financial wherewithal. While the aid office is the single largest bookstore customer, it leverages no discount because the college already receives a commission on generated sales activity.

Including book vouchers as part of a financial aid package requires special regulatory compliance sensitivity; thus, immediate access to transaction receipt detail is critical. For example, program beneficiaries who become subject to Federal Return to Title IV recalculation requirements have the value of the voucher included as a direct institutional expense. In terms of “unearned” financial aid related to Return to Title IV requirements, book vouchers increase the financial liability of the institution.

### **Literature: Book Voucher Programs**

As noted earlier, little prior research has explored the potential effects book vouchers have on academic performance. A review of ERIC, JSTOR, Google Scholar and, specifically, the *Journal of Student Financial Aid* yielded little empirical research. One study at California’s community college system looked at the impacts of book voucher programs. MacCallum (2008) demonstrated that the processing policies of the aid office impacted student enrollment decisions, retention, and academic success. In his study, book voucher programs were used as a variable demonstrating the administrative capability of the aid office. Where book vouchers were offered, MacCallum saw the aid office as having a higher level of administrative capability.

The effects of other forms of financial aid, however, are well-tread in the research literature and generally demonstrate a positive relationship between aid and academic outcomes. For instance, St. John’s (2000) research about the effects of financial aid on student recruitment and retention concluded:

Without adequate student aid, growing numbers of students become periodic consumers, taking their courses as they can afford to do so. This means reductions in persistence rates, an outcome of increasing importance in the domain of public accountability (p. 72).

Because two-year institutions are often the epicenter of periodic consumers, using book vouchers as a new form of need-based aid could potentially prove revolutionary and aid with student persistence. At a minimum, book vouchers could better help some students meet their direct education expenses. With an exploratory analysis from one institution’s experience with book voucher, I hope to expand the importance of book vouchers for college students.

## Methodology

The working hypothesis is tested by gathering and comparing three measures of performance: grade point average, credit completion rates, and credit attempted rates. The use of grade point average (GPA) serves as a proxy for academic performance. Students who attempt full-time credit loads are assumed to have higher confidence in their own academic abilities and intent to earn a degree. Examination of the rate of full-time attempted enrollment is included because full-time students are seen as demonstrating a stronger intent to earn a degree and are understood to be making more efficient use of institutional resources. Graduation data were not available for this study. For this exploratory study, then, combining the three variables into one composite becomes the measure of overall success.

Academic data was gathered from FAFSA applicants attending CSN in 2008-09 and/or 2009-10. When an applicant was approved for awarding, there were seven potential categories of aid receipt:

- 1.) Federal Pell Grant Only
- 2.) Federal Pell Grant and Work-Study
- 3.) Federal Pell Grant and a Book Voucher
- 4.) Federal Pell Grant and a CSN Access Grant
- 5.) CSN Access Grant Only
- 6.) CSN Access Grant and a Book Voucher
- 7.) Applicant, No Aid

Because CSN does not automatically include loans in its award methodologies, being a FAFSA applicant who received “no aid” is a valid outcome, and includes more affluent students represented by higher EFCs. The groups are not of equal size because of the varying amounts of financial aid funds available for awards. While funding for Federal Pell Grants is seemingly limitless, the CSN Access Grant is awarded to about 1,000 students, and work-study dollars provide funds to roughly 150 students per year.

The data collected were analyzed to compare the performance of the book voucher recipients relative to their peer groups that received aid, but not a book voucher, and that of a larger cohort of financial aid applicants who did not receive any aid during the same enrollment period. Those who did not apply for financial aid were excluded as immaterial to the study.

The academic performance measures are individually problematic at CSN. For example, grade point average, by itself, is an ineffective measure of ability because many students withdraw from classes when they perceive themselves as failing to preserve a high GPA. A limitation of this study may be treating each performance measure as an equal contribution to overall success. Doing so reflects the researcher’s perspective and may not comply with more commonly accepted variables. The only homogeneity and stability characteristics accounted for include the student having

submitted a FAFSA and being a degree seeking at the college, which may limit this study's validity.

## Results

The summarized data for each award group within each measurement category are illustrated in Table 2. Each group's three scores are summed, averaged and then ranked, with "1" being the highest value and "7" representing the lowest value. The last column reflects the three ranked individual variables summed, averaged, and then re-ranked to provide the overall academic performance of each group.

As expected from prior research, students participating in the work-study program had the highest level of performance. Work-study students, on average, were tied for the highest percentage of groups completing a full-time course load and were second with regard to the percentage attempting full-time enrollment during the period reviewed. Student grade point averages ranked third among the seven groups studied. In addition, the work-study group reflected the smallest population of students for reasons previously discussed.

Pell Grants are awarded to students that demonstrate the greatest amount of financial need. Students who only received a Pell Grant ranked the lowest of the studied groups in overall academic performance. Conversely, students receiving a Pell Grant combined with a CSN Access Grant performed slightly better overall. Grant stacking then appeared to provide this population adequate financing to allow for higher percentage rates of attempted full-time enrollment. However, they did not successfully complete the full-time course load at an equivalent percentage when compared against Pell Grant Only students.

**Table 2: Ranking Results of Academic Performance Measures by Award Categories**

Award Categories	Full-Time Population Count	GPA (rank)	Full-Time Attempted (rank)	Full-Time Completed (rank)	Overall Rank
CSN Access Grant and Book Voucher	28	3.095 (1)	47% (1)	89% (1)	1
Federal Pell Grant and Work-Study	18	2.795 (3)	34% (2)	89% (1)	2
CSN Access Grant Only	118	2.826 (2)	26% (4)	79% (3)	3
Federal Pell Grant and Book Voucher	344	2.728 (4)	25% (5)	75% (5)	4
FAFSA No Aid	1,991	2.661 (5)	17% (7)	76% (4)	5
Federal Pell Grant and CSN Access Grant	704	2.636 (6)	29% (3)	73% (7)	5
Federal Pell Grant Only	1,714	2.602 (7)	22% (6)	74% (6)	7

The study's comparison group, those students who submitted a FAFSA but did not qualify for the funds awarded to the other six groups, were tied for fifth in overall academic performance. This population included late aid applicants who, because of their EFCs, did not qualify for Pell, but may have qualified for a CSN Access award and, perhaps a book voucher award. However, long before these FAFSAs had cleared the validation process, voucher funds were exhausted. The population also included applicants who did not demonstrate any financial need-based aid eligibility and did not choose to borrow although they qualified for student loans. These characteristics at least suggest enhanced affluence compared to the other studied populations.

Students in that comparison group also ranked last in the percentage attempted full-time enrollment and were near the bottom in grade point average. These rankings may imply they were balancing regular employment responsibilities. Unfunded applicants did relatively well in terms of the percentage of students completing full-time credits, ranking fourth in that category. This might suggest that these students had a greater sense of ownership of the classes they paid for out-of-pocket.

Pell Grant and Book Voucher recipients ranked fourth-best in overall academic performance. Among Pell Grant eligible students, this group finished behind only those that also had work-study employment. It is significant to note that students receiving Pell and a voucher performed better than students receiving Pell and a CSN Access Grant. This observation may support a shift in awarding strategies; reduce dollars allocated to the CSN Access Grant program, while increasing voucher program allocations even further.

The group observed to have the top academic performance ranking among all evaluation criteria was the student population receiving CSN Access Grants, coupled with the Book Vouchers. These FAFSA applicants demonstrated sufficient affluence that they did not qualify for the federal grant program. Fitting squarely into the middle-class, they had expected family contributions below \$8,000. Their financial strength provided slightly more than half of the \$14,300 total cost of attendance, but left plenty of room for need-based assistance. Coupled with their own family resources, the college awarded a \$1,800 CSN Access grant and an \$800 Book Voucher for the year until exhausting available funding.

## **Conclusions and Reflections**

While not demonstrating causation, the data provide a correlation between the CSN Book Voucher Program and improved academic performance. Ironically, the two groups that performed the best – Pell Grant & Work-study, and CSN Access Grant & Book Voucher recipients – were also the smallest populations reviewed. However, the rankings of these two groups re-enforces the benefit of better integrating students into college and, perhaps, suggests that book vouchers are another way to accomplish integration. In that context, sweeping changes may not be justifiable based upon the data and suggests that additional study would be prudent.

Anecdotally, there is a psychological impact to the CSN Book Voucher Program that emerged. As the fall 2010 semester approached, many students visited the aid office asking staff to explain why they did not receive a book voucher. Frequently, the question originated from a student receiving Pell and CSN Access Grants, which tied for fifth in this study. Aid counselors clarified that voucher funding was limited but that grants provided by the aid office netted students an additional \$200 more than Pell Grant students with a voucher. Interestingly, on numerous occasions, students asked to convert their \$1,000 CSN Access award to an \$800 CSN Book Voucher.

This experience might be explained in the context of timing. Vouchers could be used before classes began, while grant payments in excess of registration fees were refunded during the first week of classes. Getting started on book work before the semester's started may have been worth the potential \$100 per semester reduction to these students' financial aid checks.

As a member of CSN's aid office and the architect of the book voucher program, its success is important to the author. My annual performance evaluation included a grade for the effective use of funding resources as well as how well the financial aid office executes its responsibilities in terms of the CSN Mission Statement.

Another research study that employs a more scientific analysis, or a similar study using different definitions of academic performance, could produce dissimilar results. The hypothesis warrants testing at other types of higher education institutions and may not produce identical results outside of CSN. The current economic conditions of the Las Vegas Valley with record unemployment and foreclosures rates or other unstudied variables may be responsible for the observed academic performance differences.

Although this analysis is exploratory at one institution and reflective in nature, the lack of literature on this topic and the findings of this study suggest avenues for additional research. While this study did not include graduation data, future book voucher studies at other colleges either considering a book voucher program or have a program in place might consider the value of including graduation data. Lastly, future research might consider designing a qualitative study of this issue by conducting individual interviews or focus groups of the college's faculty. Interviews with a variety of classroom instructors might be an effective way to research such a theory. Several CSN faculty members voluntarily acknowledged the aid office for its focus on assisting students with textbook purchases, suggesting that CSN faculty members might be open to a qualitative study in the future.

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# Guidelines for Authors

**T**he *Journal of Student Financial Aid* invites the submission of manuscripts that report original research or discuss policy or position issues. The Editorial Board also welcomes correspondence about financial aid issues or articles and letters appearing in the Journal.

## Writing and Organizing Manuscripts

Authors should present their material in clear and concise language appropriate for the general reader as well as financial aid administrators. Attention should be given to the use of proper English. The presentation and development of the theme should be orderly, avoiding irrelevancies and wordiness. Generally, articles are structured into segments with headings that suggest the logical progression from introduction to conclusion. Headings reflect the manuscript organization and denote the relative importance of each topic.

### Research Articles

A research article should begin with an introductory statement of purpose, which does not have a heading. It should proceed with a discussion of recent and related research, followed by a presentation of the methodology. The analysis of the evidence follows, then conclusions and implications directly related to the evidence presented.

### Statistics, Charts, and Graphs

Statistical data should be summarized in the text. Figures and tables must be clear, comprehensible, and used only when they add to the presentation or when they reduce the need for a lengthy discussion in the manuscript. Particularly complex research (including statistical terminology) should be explained in an understandable way for readers not fully acquainted with research methodology and analysis. Complicated graphs should be submitted with actual plotting points indicated.

### Issue Articles

An issue article should address a position or a perspective on a student aid policy or topic. The headings should reflect the organization of the article. The author presents the issue in the introduction, which is not headed. Unlike the components of a research article, the sections of an issue article are arranged by relationship. The sections display the perspectives of others, the evidence and logical argument, and positive and negative implications. The conclusion should suggest next steps or otherwise finalize what has been introduced and argued earlier.

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Scholarly book reviews on related topics critically examine the purpose, thesis, contentions, and methods of analysis. Thus, book reviews do not just summarize the book contents. Written in 1,000 words or fewer, book reviews evaluate the author's presentation of ideas while providing commentary on the book's contribution to the understanding of student aid and access. Strong book reviews present a discussion of the main ideas, types of sources and methods used, compelling points or shortcomings,

and how the book adds or changes current knowledge or discussions on student aid and access.

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Questions of style should be referred to the most recent edition of the Publication Manual of the American Psychological Association (APA). Although APA style has been historically oriented toward research, the APA stresses the adaptability of the style to more theoretical manuscripts.

Authors unfamiliar with APA style should read the first chapter of the manual, "Content and Organization of a Manuscript," from which the primary points of these guidelines are derived.

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### **Footnotes**

Footnotes are generally avoided because they distract the reader. Reference citations are never footnoted, but are included in a reference list. Whenever possible, information germane to an article should be integrated within the text. Necessary supporting documentation may be included as an appendix. Table notes, author identification notes, and copyright permission footnotes are acceptable and are addressed in the APA Publication Manual.

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The use of the APA reference is simple and straightforward. All references cited in the text must be listed alphabetically by author in a reference list at the end of the article. Since this list must enable the reader to locate the works cited, the reference data must be correct and contain all of the details necessary for identification and library research.

Reference materials not readily available to readers (unpublished works, papers presented at meetings, work in progress) should be cited only when they are essential to the article. They must be included in the reference list. As much information as possible should be noted, following the APA style, including: author, title, date, address from which material may be obtained, and whatever information is necessary to explain the source (for example, "Paper presented at the...").

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Articles should be submitted in Microsoft Word or WordPerfect format via email to [jacob.gross@louisville.edu](mailto:jacob.gross@louisville.edu) or on a CD mailed to Jacob Gross, Assistant Professor, College of Education and Human Development, University of Louisville, Room 338A, Louisville, KY 40292. Indicate in the cover e-mail or on the CD which format was used. If you wish to submit your article in a different format, please contact Gigi Jones at NASFAA, (202) 785-6943.

Manuscripts should be in upper and lower case. All copy, including indented material and references, should be double-spaced and generally no longer than 15 pages (including tables, figures, and references). Each page after the first page should be numbered. The title of the article should appear at the top of the first page of text.

Since the Editorial Board has a blind review policy, the author's name should not appear on any page of the text. A cover sheet should include the title of the manuscript, author's name, institutional affiliation, mailing address, phone number, e-mail address, and the date the manuscript is submitted. Authors are also asked to include on the cover page a 150-200 word abstract or a two- to three-sentence anecdotal description of the manuscript.

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