MHEC
MARYLAND HIGHER EDUCATION COMMISSION

Report on Unmet Need and Student Success at Maryland Public Four-Year Institutions

September 2013

The Maryland Higher Education Commission submits this report examining the impact of financial need on student success in response to a charge outlined in the 2013 Joint Chairmen's Report. The charge included in the 2013 Joint Chairmen's Report is as follows:

> "As part of the Access and Affordability goal of the 2009 State Plan for Postsecondary Education, the State is to work toward breaking down financial barriers for higher education. To determine the State's progress on this goal, the Maryland Higher Education Commission (MHEC) has begun an analysis of student financial need and financial aid using the Financial Aid Information System data for the fiscal 2011 cohort. The committees request that MHEC enhance this report and analyze progression, retention, and graduation data from public four-year institutions and compare levels of financial need met and the amount of unmet need remaining, both before and after loans are included."

College affordability has been among the top policy issues dominating the discourse on higher education for the past several years. Given the relatively inexpensive cost of community colleges, much of the attention has focused on the public four-year sector, where approximately 37% of all undergraduates and 45% of full-time undergraduates are enrolled nationwide (U.S Department of Education). From 2004 to 2012, after adjusting for inflation, the average tuition and fees for all public four-year institutions increased 40% from $6,201 to $8,655 (College Board, 2012).

The narrative in Maryland is somewhat different. According to 2012 data, four-year, public institutions enroll a slightly higher share of students than is exhibited nationwide. In Maryland, 40% of all undergraduates and 52% of full-time undergraduates attend these institutions. Moreover, tuition and fees at Maryland public four-year institutions only increased 0.3% (or $31) according to the College Board. This marginal increase in tuition and fees was the result of a four-year tuition freeze that was initially implemented by Governor Martin O'Malley in 2006. Prior to the freeze Maryland tuition and fee rates were 32% above the national average in 2004 (College Board, 2012).

Despite the successful moderation of tuition and fees, the state is still very much concerned with the issue of college affordability. Although tuition and fees remained constant, the state's financial aid appropriation remained stagnant despite a considerable increase in demand. From FY 2009 to FY 2013, applications for state aid increased 63%, from 109,314 to 179,000, but limited financial resources prevented the state from increasing its investment in student aid. As a result, the financial aid waitlist grew from 5,000 to 36,000 students during this time, and many students with significant financial need – many of whom were eligible for the Federal Pell Grant – were unable to receive educational grants from the state. In order to pay for college, it is likely that many of these students were forced to increase their reliance on loans or suspend their educational pursuits temporarily or altogether. As the state looks to produce a more college-educated workforce and achieve Governor Martin O'Malley's goal of 55% degree attainment by 2025, it is critical that affordability is not an obstacle for students seeking to obtain a college education.

In preparation for this project, higher education research literature on financial aid was reviewed. This literature is quite extensive and, in many cases, complex. However, there are several primary themes that consistently reoccur through the research. They are listed below:[1]

- Financial aid has a small positive impact on student persistence;
- Grant aid is more effective than loans;
- Work-study has a consistent positive effect on persistence;
- Debt accumulation has a negative influence on persistence;
- College costs have more profound impacts on students from low- and moderate-income backgrounds;
- Grants tied to academic performance have been found to boost college outcomes; and
- Program complexity can stymie the impact of aid on enrollment and persistence.

Purpose of this Report

This report will focus on the impact of net cost of attendance (NCOA) on student persistence and completion. NCOA is the student's cost of attendance minus all financial aid received. The more financial aid a student receives, the lower their NCOA. If a student receives no financial aid, the NCOA is simply the institution's cost of attendance or "sticker price." For this study, an institution's cost of attendance includes tuition, room and board (on or off campus), books, supplies, transportation, and fees. Thus, the cost of attendance reflects the attendance and commuter status of the student. The two research questions guiding this study are as follows:

1. How does NCOA at public four-year institutions impact the odds that a student will return for a second year (i.e., persistence)? and
2. How does NCOA at public four-year institutions impact the odds that a student will complete a degree in four years (i.e., completion)?

NCOA and Persistence to the 2nd Year

Both descriptive statistics and logistic regression were used to examine the relationship between NCOA and persistence to the second year. The analytical cohort consisted of students who were:

- First-time students in the Fall of 2010 at a Maryland public four-year institution,
- Initially enrolled full-time in Fall of 2010,
- Recent graduates from a Maryland high school in the previous year,
- Free Application for Federal Student Aid (FAFSA) completers, and
- Considered dependent as defined by the FAFSA.

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[1] Hossler, Ziskin, Gross, Kim, and Cekic, 2009; Heller 2013; Dynarski and Scott-Clayton, 2013

After the data were cleaned and prepared for analysis, the final analytical cohort (n) included 9,016 students. This represents roughly 58% of the first-time entry cohort in 2010. Women comprised 56% of the sample. While roughly 46% of the sample identified as White, approximately 36% of students indicated they were Black or African American. Nearly 8% were Asian American, and 5% were Hispanic. The remaining 5% of the sample identified as unknown, biracial, foreign or another racial/ethnic group. All data was obtained from MHEC's Enrollment Information System (EIS), High School Graduate System (HGS), and Financial Aid Information System (FAIS) collections.

Descriptive Findings

Figure 1 below provides a descriptive look at persistence to the second and third year by each income decile[2]. The graph indicates that family income and persistence to the second or third year have a positive relationship. Simply put, as family income rises, so do the chances of

Figure 1: Student Persistence by Income Decile
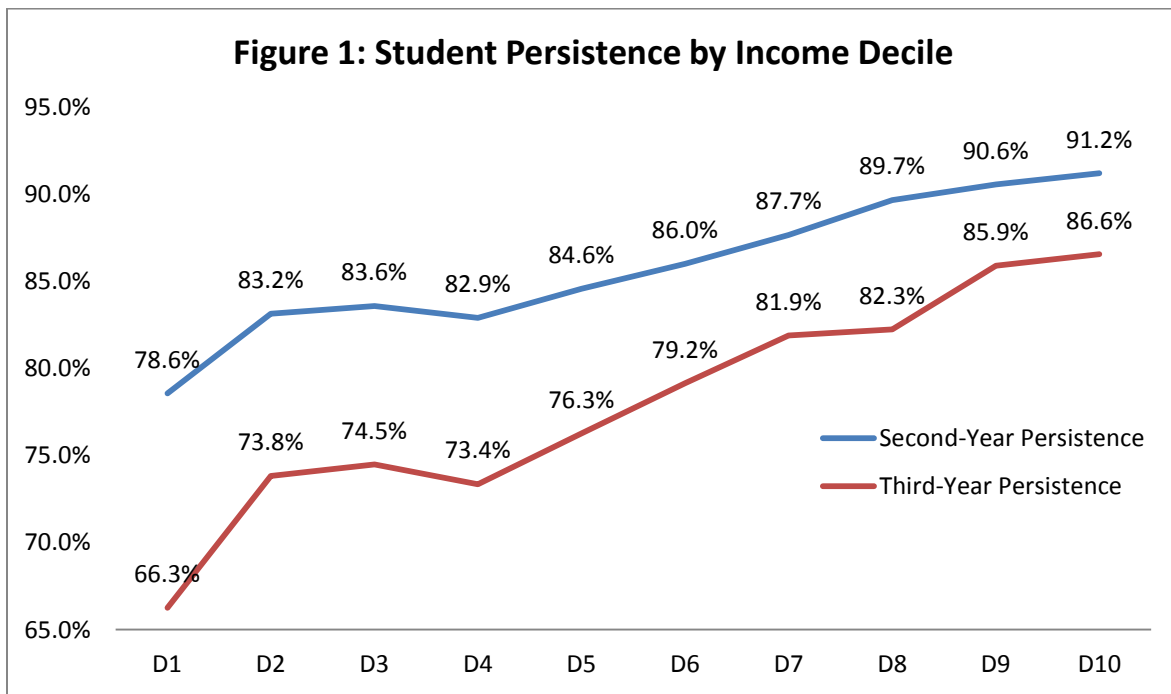
student persistence. While over 91% of students from the highest income decile (D10) persist to the second year, slightly less than 79% of students from the lowest income backgrounds (D1) return for their second year. Figure 1 also suggests that income-based differences in persistence may widen over time. While a nearly 13 percentage point difference was witnessed between the highest and lowest income decile on second-year persistence, a 20 percentage point gap exists between these groups when third-year persistence is examined. Only 66% of students from the lowest income decile return for their third year, compared to nearly 87% of students from the highest quintile. Furthermore, the decline from second- to third-year

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[2] Income deciles represent the family income distribution disaggregated into 10 equal shares. The number of students included in each decile and the income parameters are listed in Table 1.

persistence decreased by slightly more than 12 percentage points (78.6% to 66.3%) for students from the lowest income decile, while students from the highest income families incurred a decline of less than 5 percentage points (91.2% to 86.6%).

Table 1 (below) examines the relationship between NCOA, expected family contribution (EFC), uncovered educational costs (need), and family income. The data listed in column F of Table 1 show that nearly 47% of all students receiving some form of financial assistance are unable to pay the cost of attendance after all financial aid and the EFC are considered. The remaining uncovered costs are referred to as unmet need (column D). Table 1 also indicates that unmet need is more common among students from families with fewer financial resources. Roughly 85% of students from the bottom two deciles (bottom 20%) have unmet need compared to 8% of their peers from the highest two income deciles (top 20%). This considerable discrepancy is largely due to the high EFCs of students coming from more affluent families, but the relatively large, average unmet need for students coming from the bottom four deciles suggests that financing college for these students may be quite difficult to sustain over time. Some of this remaining need can be offset through employment and the use of institutional payment plans. However, income earned through part-time or full-time work might decrease students' eligibility for financial aid in subsequent years since income earned would most likely increase their EFC when filing for aid in future years.

Table 1: Net Cost of Attendance, Expected Family Contribution, & Uncovered Costs by Income Decile						
	A	B	C	D	E	F
Family Income Decile	(n)	Average NCOA	Average EFC	Average Need	# With Need	% With Need
D1: Income ≤ $14,134	901	$ 6,639	$ 1,683	$ 4,956	752	83.50%
D2: Income > $ 14,134 - $30,626	902	$ 5,654	$ 369	$ 5,285	786	87.10%
D3: Income > $30,626 - $46,737	902	$ 6,786	$ 2,173	$ 4,613	712	78.90%
D4: Income > $46,737 - $62,542	901	$ 8,171	$ 5,011	$ 3,160	601	66.70%
D5: Income > $62,542 - $79,990	902	$ 9,460	$ 8,859	$ 601	479	53.10%
D6: Income > $79,990 - $101,850	902	$ 10,903	$ 14,192	$ (3,289)	343	38.00%
D7: Income > $101,850 - $122,411	901	$ 11,244	$ 19,842	$ (8,598)	224	24.90%
D8:Income > $122,411 - $148978	902	$ 12,563	$ 25,753	$ (13,190)	168	18.60%
D9: Income > $148978 - $188,331	902	$ 13,453	$ 34,756	$ (21,303)	96	10.60%
D10: Income > $188,331	901	$ 16,880	$ 56,380	$ (39,500)	53	5.90%
ALL STUDENTS	9,016	$ 10,173	$ 16,899	$ (358)	4,213	46.70%

The data provided in Table 1 includes student loans in calculation of NCOA. Although borrowing money in order to finance college is now considered the norm, there is some concern about overloading students with significant debt, particularly for those that may not complete a degree. For this particular cohort, the average loan debt in the first year was $7,336, and the median loan debt was $5,500 – the Federal direct Stafford loan limit. The average substantially exceeds the median because many families and students from middle- and upper-income

families secure private loans to cover additional expenses or portions of the EFC that they are unable or unwilling to pay. This overreliance on loans for these families is shown in Table 2, which displays the percent of cost of attendance (COA) covered by loans, grants, scholarships, work study, and EFC. On average, students from family incomes between $46,737 and $122,411 are using loans to pay for 35% to 38% of the COA. Also included in Table 2 is the percentage of COA that is not covered by the student's financial aid package and their EFC. For students in the lowest three income deciles (D1-D3), the percentage of their COA that is unmet surpasses 20%. As expected, much of the COA for these students is covered by grant aid, which is primarily need-based. On the contrary, scholarship dollars, which are primarily merit-based, cover a greater percentage of the COA for students from higher income backgrounds.

Table 2: Percentage of COA covered by Loans, Grants, Scholarships, Work Study, and EFC by Income Decile

Family Income Decile	AVG COA	% COA MET BY LOANS	% COA MET BY GRANTS	% COA MET BY SCHOLAR	% COA MET BY WORK STUDY	% COA MET BY EFC	% COA UNMET
D1: Income ≤ $14,134	$ 22,125	25%	**38%**	7%	1%	8%	**22%**
D2: Income > $ 14,134 - $30,626	$ 22,222	22%	**46%**	6%	1%	2%	**24%**
D3: Income > $30,626 - $46,737	$ 22,372	28%	**34%**	8%	1%	10%	**21%**
D4: Income > $46,737 - $62,542	$ 22,706	**35%**	21%	8%	0%	22%	14%
D5: Income > $62,542 - $79,990	$ 22,600	**37%**	10%	10%	0%	39%	3%
D6: Income > $79,990 - $101,850	$ 23,478	**38%**	5%	11%	0%	60%	NONE
D7: Income > $101,850 - $122,411	$ 23,393	**37%**	2%	13%	0%	85%	NONE
D8: Income > $122,411 - $148978	$ 24,315	34%	2%	12%	0%	106%	NONE
D9: Income > $148978 - $188,331	$ 25,001	33%	1%	**13%**	0%	139%	NONE
D10: Income > $188,331	$ 26,965	24%	0%	**13%**	0%	209%	NONE

Logistic Regression Findings

It was assumed that the impact of NCOA on persistence may vary depending on a student's family income, so several regression models were constructed examining students in different income classifications. Given the sample size restrictions, it was most appropriate to use quintiles instead of deciles. Therefore, five logistic regression models were constructed for students belonging to each family income quintile. Family income is defined as the 2010 adjusted family income reported on the student's FAFSA submission. The family income quintile groups are as follows:

- Lowest Quintile = Family incomes ≤ $30,626.20
- Second Quintile = Family incomes > $30,626.20 and ≤ $62,542.20
- Third Quintile = Family incomes > $62,542.20 and ≤ $101,850.00
- Fourth Quintile = Family incomes > $101,850.00 and ≤ $148,978.40
- Highest Quintile = Family incomes > $148,978.40

For the logistic regression models, MHEC modeled NCOA and several other independent control variables on whether a student would persist (or not) to the second year. The sample means, sample standard deviations, and definitions of all variables included in the logistic regression models are included in Table A in the appendix. The control variables used in the regression analyses were:

- Cumulative First-year College GPA
- SAT score
- Female
- Declared a STEM Major
- Expected Family Contribution (EFC)

The racial/ethnic diversity in some quintile groups was limited, so a variable controlling for race and ethnicity was not included in order to preserve regression model stability and consistency.

The regression analyses conducted for this study complement the narrative portrayed in descriptive data provided above. For students with family incomes in the lowest quintile, NCOA was found to have a statistically significant, negative influence on persistence to the second year after controlling for the effects of the control variables. The odds ratio for NCOA was 0.958. This means for every $1000 reduction in a student's NCOA, the odds of persisting to the second year increases by a factor of 1.04. This is a small change for every $1000 fluctuation in NCOA. For example, decreasing NCOA by $1000 could, theoretically, increase a low-income student's chances of returning for a second year from 80.0% to 80.6%. However, a decrease of $5,000 for this student, which equals the average unmet need for students in the lowest quintile, would increase the probability of persistence to the second year from 80.0% to 83.0%. NCOA was also found to have an impact on students from the second income quintile. For those students, a $1000 increase in NCOA would decrease a student's odds of persisting to the second year by a factor of .966 (from 80.0% to 79.3%). NCOA did not have an impact on second-year persistence for students in the third, fourth, and fifth quintiles. Detailed results are listed in Table B in the appendix.

Although the effect of NCOA was statistically significant for students in the lowest two income quintiles, it should be noted that the effect size was small, especially compared to the impact of cumulative first-year GPA and academic preparation (defined by SAT scores). GPA had a statistically significant positive impact on persistence across all income quintiles. For every one-point gain in cumulative first-year GPA, the odds of persisting to the second year were increased by a factor of 3.29 for low-income students. For example, earning a 3.0 GPA instead of a 2.0 GPA would increase the probability of persisting to the second year from 75.0% to 90.8% for students in the lowest quintile. The impact of GPA on second-year persistence was larger for students from high-income backgrounds, slightly exceeding an odds ratio of 3.93. SAT scores were only found to be statistically significant predictors of second-year persistence for students in the first, second, and fourth quintiles. A 100-point increase in a student's SAT score would affect the odds of persistence by a factor of 1.10 to 1.24.

Again, both descriptive statistics and logistic regression were used to examine the impact of NCOA on four-year degree completion. The analytical cohort for this analysis consisted of students who were:

- First-time students in the Fall of 2008 at a Maryland public four-year institution,
- Initially enrolled full-time in Fall of 2008,
- Recent graduates from a Maryland high school in the previous year,
- Free Application for Federal Student Aid (FAFSA) completers, and
- Considered dependent as defined by the FAFSA.

After the data were cleaned and prepared for analysis, the final analytical cohort (n) included 9,057 students. This represents roughly 56% of the first-time entry cohort in 2008. Women comprised 56% of the sample. While roughly 48% of the sample identified as White, approximately 35% of students indicated they were Black or African American. Nearly 8% were Asian American, and 4% were Hispanic. The remaining 5% of the sample identified as unknown, biracial, foreign or another racial/ethnic group. All data for this was study was obtained from MHEC's Enrollment Information System (EIS), Degree Information System (DIS), High School Graduate System (HGS), and Financial Aid Information System (FAIS) collections.

Descriptive Findings

Figure 2 shows four-year graduation rates by income decile for the students included in the sample. The bar graph shows that graduation rates substantially increase with family income. Students from the lowest income decile (D1) had a 17% four-year graduation rate, which is 42 percentage points lower than the 59% graduation rate for students in the highest income decile (D10). Overall, the average graduation rate for the cohort was approximately 40%, which is still

Figure 2: Graduation in 4 Years by Income Decile
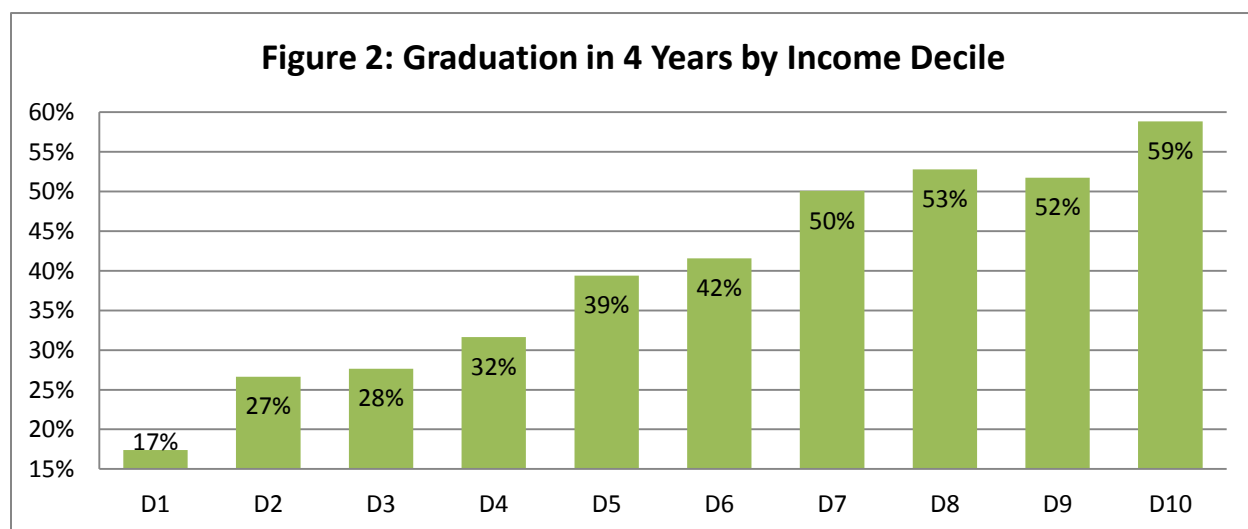
considerably higher than the rates for students in the lowest three or four income deciles. The 4-year graduation rate gap between the low- and high- income groups was considerably larger than the gaps by income for retention to the second and third year as displayed previously in Figure 1.

Logistic Regression Findings

The same assumptions, analytical methods, and procedures that were used in the regression models examining the impact of NCOA on persistence to the second year were also used to investigate the effect of NCOA on degree completion in four years. The same five control variables were also used in these logistic regression models. Sample means, sample standard deviations, and definitions of variables included in the analysis are listed in Table C in the appendix. The income quintiles are provided below:

- Lowest Quintile = Family incomes ≤ $33,466.60
- Second Quintile = Family incomes > $33,466.60 and ≤ $65,513.80
- Third Quintile = Family incomes > $65,513.80 and ≤ $100,742.00
- Fourth Quintile = Family incomes > $100,742.00and ≤ $143,645.60
- Highest Quintile = Family incomes > $143,645.60

As shown in Table D in the appendix, the regression findings revealed that NCOA in the first year was a statistically significant, negative predictor of four-year degree completion for students in the bottom two quintiles. As the NCOA increased for these students, their odds of persisting declined. The odds ratios for NCOA were .972 and .974. Thus, for every $1000 decrease in NCOA, the odds of graduating in four years was adjusted positively by a factor of 1.03. NCOA was not a statistically significant predictor of graduation in four years for students in the other income quintiles.

Controlling for the effect of all other variables in the models, students' cumulative first-year GPA, SAT scores, and gender were also found to be statistically significant predictors of degree completion in four years. Across the models for each quintile, the effect sizes (i.e., odds ratios) for these variables were larger than the influence of NCOA. First-year GPA was the strongest predictor of four-year degree completion. The odds ratio was between 4.41 and 5.12. The association was positive, so increases in GPA were associated with increases in four-year degree completion. Being female also increased the odds of graduating in four years. In these models, the female variable exhibited the second largest effect size, ranging from an odds ratio of 1.40 to 1.82. Finally, higher SAT scores increased the odds of finishing a degree in four years. Outside of NCOA, the SAT construct had the smallest effect size, with odds ratios ranging from 1.23 to 1.28. More detailed results are listed in Table D in the appendix.

Summary

This data presented in this report clearly show that a significant number of students from low- and moderate-income households have considerable unmet financial need after all financial aid

and EFCs are considered. Nearly 47% of students included in the 2010 cohort sample have some sort of financial need, but this percentage exceeds 80% for students in the bottom three income deciles. On average, these students have an unmet need that exceeds 20% of their cost of attendance.

Additionally, the findings also reveal considerable inequities in second-year persistence and four-year degree completion by family income decile. The data show that Maryland students from low-income family backgrounds are less likely to persist to their second fall semester or complete a degree in four years. While the difference in second-year persistence between students in the highest and lowest income decile is 10 percentage points, the gap exceeds 40 percentage points when examining four-year degree completion. Only 17% of students from the lowest income decile receive a bachelor's degree in four years. The rates for students from the second and third income deciles are only moderately better at 27% and 28%, respectively. Certainly, these outcome disparities are the byproducts of various factors, particularly academic preparation for college. However, this study was designed to examine to what extent NCOA influences students' decisions to persist and ability to complete a degree in four years.

After controlling for academic performance in the first year (GPA), academic preparation (SAT scores), gender, majoring in STEM, and expected family contribution (EFC), the regression models revealed that NCOA had a statistically significant, negative effect on both persistence and four-year degree completion for students in the two lowest income quintiles – that is, 40% of the students in each cohort sample. This finding is compatible with other research, which indicates lower income students are much more sensitive to fluctuations in college costs (Heller, 2013). However, it should be noted that the effect size of NCOA was small, particularly in comparison to the other statistically significant variables in the logistic regression models, particularly for the models where four-year degree completion was the dependent variable.

This study exclusively examined NCOA in the first year, and NCOA may have a cumulative and more substantial impact as students persist in their studies and accumulate more debt or continually stretch their budgets and expand their work hours in order to secure money for college. Obviously, this would have a negative, disproportionate impact on students from families with the lowest incomes that still have unmet need after their EFCs are taken into account.

As illustrated in Table 2, students from different income deciles finance their postsecondary education in various ways. Across all income groups, students are relying on loans to finance 25% to 38% of their cost of attendance. However, the loan burden is extremely high for students in the middle income groups (deciles 4 through 7). For these groups, loans are accounting for 35% to 38% of the cost of attendance. As expected, this is less common for students from the lowest income backgrounds, which rely heavily on grants, and students from the most affluent families that earn more scholarship dollars and have EFCs that can completely finance the yearly cost of postsecondary education.

The 2013 Joint Chairmen's Report asked for the Commission to conduct an analysis of financial need "before and after loans are included." Regression models were conducted examining

NCOA sans loans, but the results were difficult to interpret within the analytical framework. Thus, these results were not included in the report. However, if there is further interest in this topic, the Commission stands prepared to conduct that study using a different analytical framework that should produce more meaningful results.

Recommendations

- The State should continue to support efforts to control increases in tuition and fees.

- Given the limited impact of NCOA on retention and graduation for middle- and upper-income groups, State grant aid programs should continue to be directed toward students from the lowest income backgrounds.

- The State should consider expanding or developing additional financial aid programs that can reduce students' unmet need or debt burden. Such initiatives could include increasing appropriations to current grant programs or expanding loan forgiveness programs in high-need fields in the state.

- MHEC should develop a study that examines the impact of student loans and debt on retention and graduation.

- MHEC should examine all State financial aid programs in order to determine their impact on student success and alignment with State goals.

- MHEC should redefine eligibility for the financial aid wait list. Currently, students who apply for financial aid are placed on the wait list regardless of EFC or family income. This creates unreasonable expectations for students and families. In order to streamline the wait list, MHEC should establish a maximum family income or EFC that is aligned with the federal government's standard for financial aid grant awards.

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Appendix

Table A: Variable Minimum and Maximum Values, Means, Standard Deviations, and Definitions

	Min	Max	Mean	SD	Definition
Dependent Variable					
Second-year Persistence	0	1	0.86	-	Coded 1 for persisted and 0 for dropped out
Principal Independent Variable					
NCOA (*in $thousands*)	-26.04	50.09	10.17	8.66	Net cost of attendance minus all financial aid received
Independent Control Variables					
Cumulative 1st Year GPA	0	4	2.80	0.86	Student's cumulative GPA in their first year
SAT (*in 100s*)	5.60	16.00	10.87	1.97	SAT score (ACT scores transformed to SAT equivalent score)
Female	0	1	0.56	-	Coded 1 for female and 0 for male
STEM Major	0	1	0.28	-	Coded 1 for STEM major and 0 for all other majors
EFC (*in $thousands*)	0	100	16.9	20.65	Annual amount of money a family/student is expected to contribute toward education

Table B: Binary Logistic Regression Model Results for Persistence to the Second Year (NCOA)

	Lowest Quintile			Second Quintile			Third Quintile			Fourth Quintile			Fifth Quintile		
	Exp(B)	Sig.	S.E.	Exp(B)	Sig.	S.E.	Exp(B)	Sig.	S.E.	Exp(B)	Sig.	S.E.	Exp(B)	Sig.	S.E.
Principal Independent Variable															
NCOA (in $thousands)	.958	***	.011	.966	**	.012	.986		.010	.983		.010	.998		.010
Control Variables															
Cumulative 1st-Year GPA	3.185	***	.082	3.530	***	.089	3.805	***	.096	3.195	***	.104	3.926	***	.125
SAT	1.102	*	.049	1.238	***	.054	.984		.053	1.246	***	.056	1.130		.066
Female	1.064		.142	.981		.152	.884		.160	.976		.174	1.156		.200
STEM Major	1.027		.165	1.179		.173	1.408		.187	1.240		.206	1.669	*	.241
EFC (in $thousands)	.995		.015	1.001		.017	.988		.010	1.009		.008	1.002		.004
Cases in Analysis		1758			1784			1779			1772			1790	
Nagelkerke R Square		.253			.303			.277			.233			.255	
Correctly Classified		84.5%			86.8%			88.6%			90.2%			92.8%	
Null Model Correctly Classified		81.2%			83.5%			85.6%			89.0%			91.2%	

Exp(B) = Odds Ratio, Sig. = Statistical Significance (***p ≤ 0.001, **p ≤ 0.01, *p ≤ 0.05); S.E. = Standard Error

Table C: Variable Minimum and Maximum Values, Means, Standard Deviations, and Definitions

	Min	Max	Mean	SD	Definition
Dependent Variable					
Four-year Degree Completion	0	1	.40	-	Coded 1 for persisted and 0 for dropped out
Principal Independent Variable					
NCOA (*in $thousands*)	-10.56	46.57	10.05	8.12	Cost of attendance minus all financial aid received
Independent Control Variables					
Cumulative 1st Year GPA	0	4	2.77	0.87	Student's cumulative GPA in their first year
SAT (*in 100s*)	5.10	16.00	10.88	1.97	SAT test score (ACT scores transformed to SAT equivalent score)
Female	0	1	.56	-	Coded 1 for female and 0 for male
STEM Major	0	1	.26	-	Coded 1 for STEM major and 0 for all other majors
EFC (*in $thousands*)	0	99	18.53	21.06	Annual amount of $ a family/student is expected to contribute toward education

Table D: Binary Logistic Regression Model Results for Four-year Degree Completion (NCOA)

	Lowest Quintile			Second Quintile			Third Quintile			Fourth Quintile			Fifth Quintile		
	Exp(B)	Sig.	S.E.	Exp(B)	Sig.	S.E.	Exp(B)	Sig.	S.E.	Exp(B)	Sig.	S.E.	Exp(B)	Sig.	S.E.
Principal Independent Variable															
NCOA (in $thousands)	.972	*	.013	.974	**	0.10	1.011		.008	.999		.007	1.007		.006
Control Variables															
Cumulative 1st-Year GPA	4.995	***	.130	5.122	***	.118	4.804	***	.110	4.950	***	.112	4.410	***	.105
SAT (in 100s)	1.223	***	.046	1.279	***	.043	1.231	***	.040	1.281	***	.043	1.269	***	.040
Female	1.474	**	.150	1.630	***	.136	1.333	*	.123	1.816	***	.123	1.400	**	.118
STEM Major	.775		.166	.810		.152	.802		.143	.833		.135	.876		.132
EFC (in thousands)	1.011		.015	1.000		.011	.994		.006	.998		.005	1.001		.002
Cases in Analysis			94.0%			95.1%			95.1%			95.8%			97.4%
Nagelkerke R Square			.387			.400			.382			.402			.349
Correctly Classified			81.2%			76.7%			74.3%			74.0%			73.3%
Null Model Correctly Classified			77.8%			70.2%			59.4%			51.6%			55.7%

Exp(B) = Odds Ratio, Sig. = Statistical Significance (***p ≤ 0.001, **p ≤ 0.01, *p ≤ 0.05); S.E. = Standard Error