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Policy Brief

Office of Research and Policy Analysis

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Baby Carrot and Big Stick: Does a Credit Requirement for Financial Aid Improve Student Academic Progression?

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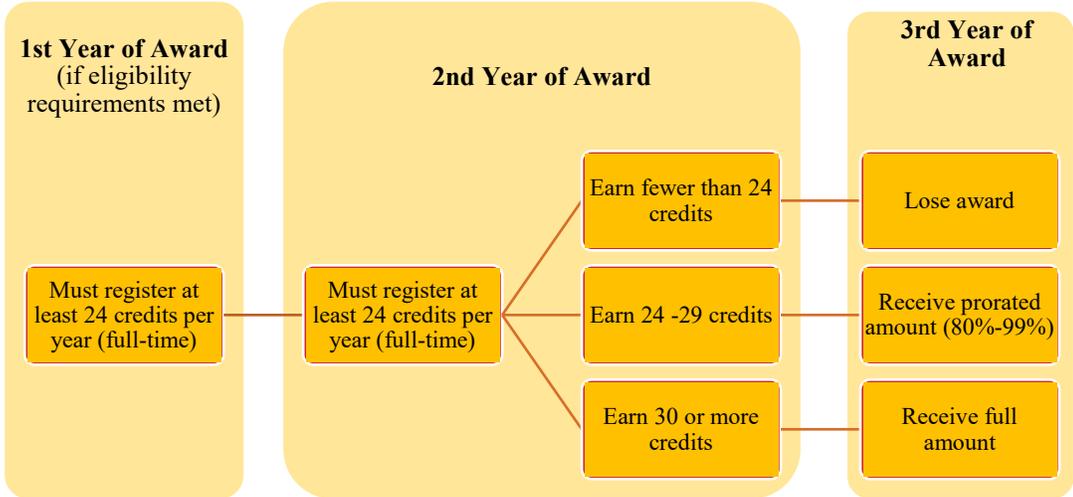
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Introduction

Ensuring equitable access to affordable and high-quality postsecondary education for all Maryland residents has been a long-standing commitment for Maryland for decades. Offering need-based financial aid is one of the most important tools to eliminate financial barriers for low-income students in Maryland. Among four need-based undergraduate financial aid programs administered by the MHEC Office of Student Financial Assistance (OSFA), the **Delegate Howard P. Rawlings Education Excellence Awards (EEA) Program** is the largest program. In 2021, approximately \$80 million dollars were disbursed to over 22,000 students. About 16% of first-time full-time undergraduate students received EEA in 2021.

The Maryland General Assembly passed the College Affordability Act of 2016¹, which added a merit-based eligibility criterion for the EEA program. The new criterion applied only to students who received the award for at least two years. Among these students, starting in the 2018-2019 academic year, only those completing at least 30 credits in the previous year can maintain the full award. Students completing at least 24 credits but fewer than 30 credits receive a prorated amount of award according to how many credits they completed. Students lose the entire grant if they fail to *complete* 24 credit hours in the previous year (Figure 1).²

Figure 1: Current Eligibility Requirements for the EEA Program



OSFA reports that almost two thirds of the target population (EEA recipients who had received the award for at least two years) were impacted under the new policy in 2018-19, the first year when the policy was enacted.³ In fact, 37% of the EEA recipients completely lost

¹ Senate Bill 676 (<https://mgaleg.maryland.gov/2016RS/bills/sb/sb0676T.pdf>) and House Bill 1014 (<https://mgaleg.maryland.gov/2016RS/bills/hb/hb1014E.pdf>).
² See <https://mhec.maryland.gov/preparing/Pages/FinancialAid/EEAProgramChanges.aspx> for the detailed explanation of the requirement.
³ <https://mgaleg.maryland.gov/pubs/budgetfiscal/2024fy-budget-docs-operating-R62I0010-MHEC---Student-Financial-Assistance.pdf>

eligibility, having failed to meet the 24-credit minimum, while 27% of recipients received a prorated amount, having completed at least 24 credits, but fewer than 30 credits.

With so many students affected, both legislators and MHEC are concerned about the consequences of the credit requirement policy. How does it affect student academic progression and success? This report summarizes the main findings of a study conducted by MHEC in 2022 about the short-term and long-term effects of the credit requirement policy on student outcomes.

Table 1: Summary of the Grants under the Delegate Howard P. Rawlings Education Excellence Awards Program

	Educational Assistance (EA)	Guaranteed Access (GA)
Household income (initial award)	Adjusted financial need	130% of poverty level ⁴
Eligible students	Current high school senior or degree-seeking undergraduate	Current high school senior or GED holders under the age of 26
Merit requirements (initial award)	N/A	High school GPA 2.5 or GED 165
Supplement award	N/A	Matching grant provided by independent four-year institutions
Maximum award	\$3,000/year	\$20,000/year
Average award in FY 2021⁵	\$2,185/year	\$12,117/year
Total number of four-year institution⁶ recipients in FY 2021	14,796	2,649
Total number of community college recipients in FY 2021	5,003	457

Background

The Delegate Howard P. Rawlings Education Excellence Awards Program provides financial assistance to low-income Maryland students enrolled full-time at an in-state college or university. The EEA Program includes two major grants: the **Educational Assistance (EA) Grant** and the **Guaranteed Access (GA) Grant**⁷. While the EA grant is more modest and supports the broader student population who have unmet financial needs, the GA grant covers

⁴ For example, in FY 2021, a household income that is 130% of the poverty level was \$34,450 for a family with four persons.

⁵ For Maryland, fiscal year 2021 started on July 1 2020 and ended on June 30 2021. The fiscal years throughout the reports use the end year to represent the whole timeframe.

⁶ Both public and state-aided independent institutions are included. See endnotes for the full list of institutions.

⁷ EEA also provides the Campus Based Educational Assistance Grant for the institutions to fund the low-income students who do not file Free Application for Federal Student Aid (FAFSA) or Maryland State Financial Aid Application (MSFAA) by the application deadline. It is not within the scope of the policy discussion.

100% of the financial needs for students in households at a high poverty level. Table 1 compares the main features of EA and GA grant.

The 30-credit requirement emerged from a national movement called *15 to Finish*⁸ that put forward policy recommendations aimed at improving on-time undergraduate student completion. The objective of the initiative was to encourage students to complete 15 credits per term, or 30 credits per year instead of 12 credits per term, or 24 credits per year as full-time status requires. By earning 30 credits per year, students would earn an associate degree (60 credits) in two years at community colleges and a bachelor's degree (120 credits) in four years at four-year institutions, which is often considered "on-time completion". At the pace of credit accumulation that just maintains full-time enrollment status (e.g., 12 credits per term or 24 credits annually), community college students would take between 2 ½ and 3 years to finish, and those pursuing bachelor's degrees might take closer to five years. Taking a longer time to complete a degree often means more cost, which likely means increased debt, increased financial need from state taxpayer funds, and increased risks of stopping or dropping out, all of which are of great concern to college/university leaders and policymakers.

Among other states who adopted similar interventions advocated by *15 to Finish*⁹, Maryland's 30-credit requirement has three unique features:

- 1) It only applies to the second-time renewal (the third award) or more; students who renew for their second award are exempt from the credit requirement.
- 2) The requirement is the same for students enrolled in community colleges and four-year institutions.
- 3) Students failing to complete 30 credits in the second year do not necessarily lose their total award in the third year; instead, they receive a prorated amount if they complete at least 24 credits in the second year.

Due to these unique features, the 30-credit requirement in Maryland created a **"big stick"** and a **"baby carrot"** for second year recipients. This is because, before the 2016 change, students could have received the full amount by merely *registering* for 24 credits in their second year. Now, students have to *successfully complete* all 24 credits (or register for more credits) or lose the whole award. That is to say, unproductive credit enrollment (e.g. enrolling in classes but earning "D" or "F" grades or withdrawing) punishes students by making them ineligible for the award in subsequent years ("big stick"). However, the credit requirement also contains a component that mildly rewards a specific credit accumulation that leads to on-time graduation. For example, students who are barely eligible to renew the award (earning 24 credits in the second year) could earn an additional amount (20% of the full award)¹⁰ if enrolling and completing more credits in the second year ("baby carrot"). Table 2 explains the differences in eligibility before and after the new credit requirement policy was enacted.

⁸ For more details about the initiative, see <https://completecollege.org/strategy/15-to-finish/>

⁹ For example, Indiana passed the bill in 2013 and set 30-credit requirement for the Twenty First Century Scholars Program. In contrast to Maryland, the credit requirement in Indiana affects all aid renewals and has no prorated amount for students who fail to complete 30 credits per year.

¹⁰ Twenty percent of the EA is \$600 per year; that amount can pay the in-state tuition of two credits in Maryland community colleges in 2021 approximately (using average in district tuition).

Table 2: Changes in Eligibility and Award Amount for the EEA Program

	Before 2016 Legislation	After 2016 Legislation
2 nd year credit earned <24 Credit registered <24	\$0 – ineligible	\$0 – ineligible
2 nd year credit earned <24 Credit registered ≥24	Full amount renewal	\$0 – ineligible
2 nd year credit earned ≥24 & <30	Full amount renewal	Up to 20% deduction
2 nd year credit earned ≥30	Full amount renewal	Full amount renewal

Analysis: How Did the Credit Requirement Affect GA and EA Recipients in Maryland?

Between 2013-14 and 2018-19, approximately 22,500 students received an EEA grant every year. Overall, there is a decline in the number of students receiving the third award when comparing before and after the 2016 legislation (see Table 3). However, it is not clear whether the decline in third-year award recipients is because of the sooner completion (a positive and intended outcome) or because of earlier stopout/dropout (a negative and unintended outcome).

Table 3: Changes in the Number of Awards Received by EEA Recipients

	Four-year institutions		Community colleges	
	Before	After	Before	After
Received EA award 3 times or more	35%	27%	9%	4%
Received GA award 3 times or more	63%	52%	19%	5%

Note: The sample includes all EEA recipients who first entered college in 2013-14 to 2018-19 academic years and tracks their EEA records for at least three years.

Also, comparing the credit accumulation or degree completion rate before and after the year when the new policy was implemented does not lead to a causal conclusion. There may be other factors that influenced credit accumulation and degree completion rates for EEA recipients. In the same time frame, Maryland colleges and universities conducted a series of other interventions to improve student success. For example, many public four-year institutions and community colleges in Maryland conducted large-scale reforms in developmental or remedial education around 2016-17, which may also have increased the degree completion of EEA recipients.

A simple descriptive analysis is insufficient to study the effect of the policy on students. To better understand the impact of this policy change, MHEC conducted a causal analysis¹¹ of the EEA recipients and studied how the 30-credit requirement policy impacted credit accumulation and degree completion. The study sought to answer the following research questions:

- What is the effect of the 30-credit requirement on recipients' academic momentum and degree completion?
- Do EA and GA recipients, when comparing those attending community colleges and four-year institutions, react differently to the policy change?
- How do the effects, if any, vary across recipients by credits attempted and earned?

Research Tip: Observing an increase in credit or degree completion rates after the 30-credit requirement policy was enacted does not necessarily imply causation between positive outcomes and the policy's implementation. However, with well-designed empirical research, we can establish causation. In this study, we employ a quasi-experimental method, difference-in-differences, to find evidence toward causal relationships.

Finding 1: The 30-credit requirement increases credit completion for both EA and GA recipients but increases on-time degree attainment for EA recipients only.

Research Tip: For all results, we only claim the effects if they are statistically significant at 90% or higher. Statistical significance at a level of 90% indicates a likelihood of 90% that an observed relationship is attributable to the cause. Vice versa, when we say "no statistically significant effect", it means we cannot rule out the possibility that an observed relationship is due to chance. Note that significance does not infer effect size.

The credit requirement had an effect on annual credit enrollment and credit completion. The credit requirement encouraged EA recipients that attended a four-year institution to enroll and complete 0.6-0.8 more credit hours in the second, third, and fourth year of enrollment. There was no impact on first year credit enrollment and completion. Table 4 presents the summary of the full results.

By the end of the fourth year, the cumulative credits earned increased by 5.1 credit hours, equating to 1.7 courses (a typical course bears 3.0 credits); these effects on credit hour improvements translate to a 6.0 percentage point increase in on-time bachelor's degree attainment (e.g., from X% to X+6%).

For EA recipients that attended a community college, the credit requirement policy increased the second-year credit completion by 1.0 credit hour and led to a 3.0 percentage point increase in on-time associate degree attainment. In contrast to four-year institutions, there was a statistically significant positive effect on first-year credit enrollment and completion, which are

¹¹ The study utilizes the MHEC administrative records of community colleges and four-year institutions and employs the quasi-experimental design Difference-in-Differences (DID) approach. The differences in outcomes between EA/GA students and no-aid students before and after the adoption of the credit completion requirement were compared. The DID rules out any confounding factors (e.g., reform in developmental education) that could affect the outcomes of both EA/GA recipients and no aid students simultaneously, thus the over-time changes in the difference between EA/GA recipients and no aid students are solely attributed to the implementation of the credit requirement. See Technical Appendix for the full details on the data and methodology.

not determinants of the award renewal. In addition, the study finds a negative effect on third-year credit enrollment. This finding implies that EA recipients in community colleges attempt to accelerate their enrollment in the first two years in order to avoid enrollment in third-year and second-time award renewal.

Table 4: Summary of the Estimated Effects of 30-Credit Requirement on EEA Recipients

Outcomes		EA		GA	
		Four-year institutions	Community colleges	Four-year institutions	Community colleges
Persistence	2 nd Year	2.4 points increase	No effect	No effect	No effect
	3 rd Year	No effect	No effect	No effect	6.7 points decrease
	4 th Year	No effect	N/A	No effect	N/A
Annual credits registered	1 st Year	No effect	0.9 credits increase	No effect	1.0 credit increase
	2 nd Year	0.8 credits increase	0.5 credits increase	No effect	No effect
	3 rd Year	0.8 credits increase	0.5 credits decrease	No effect	2.0 credits decrease
	4 th Year	0.6 credits increase	N/A	No effect	N/A
Annual credits completed	1 st Year	No effect	1.7 credits increase	No effect	2.9 credits increase
	2 nd Year	0.7 credits increase	1.0 credits increase	No effect	No effect
	3 rd Year	0.8 credits increase	No effect	No effect	1.5 point decrease
	4 th Year	0.6 credits increase	N/A	No effect	N/A
Cumulative credits earned	2 nd or 4 th Year	5.1 credits increase	3.1 credits increase	3.6 credits increase	3.8 credits increase
On-time degree attainment	2 nd or 4 th Year	6.0 points increase	3.0 points increase	No effect	No effect

Note: Red represents a positive and statistically significant effect. Blue represents a negative and statistically significant effect. The study tracks outcomes of four years for four-year institution students and three years for community college students. On-time degree attainment refers to obtaining a bachelor's degree in four years and an associate degree in two years. Credits registered include all credit hours for which the student is registered and courses that may not earn credit toward an award, such as audited and remedial or developmental courses. Credits completed include credit hours completed in credit courses (excluding transfer credits) and audited and developmental or remedial courses are not included. See Appendix for the full results.

For GA recipients, although the credit requirement had an effect on cumulative credits earned, the study fails to identify any statistically significant effects on on-time degree attainment for either students at four-year institutions or community colleges. It may imply that boosting credit completion does not necessarily accelerate degree attainment for the GA recipients. Besides credit bearing, there are other barriers that impede students from on-time graduation.

Finding 2: Students who are at risk of losing the entire award due to their failure to earn 24 credits in their first year react the strongest to the credit requirement because there is more to lose (i.e., the whole award). Conversely, for those who complete 24 credits or more and have a lower risk to lose the award, the incentive (i.e., additional funds) is likely too small to make them try for the full 30 credits.

Do students react to the credit policy differently? Hypothetically, students with different academic capacities may be under different stakes and respond to the new credit requirement in one of two ways:

- 1) students who do not carry the minimum requirement for on-time degree completion would attempt more credits per year so that they can renew the award for the *full* amount, or
- 2) those who cannot meet the minimum credit requirement enroll part-time, or are discouraged to continue enrolling and may stop out or drop out.

To investigate the effects across students with various academic preparedness, the study disaggregated the students by the number of credits completed in their first-year (i.e., students who earned fewer than 24 credits, 24 to 29 credits, and more than 30 credits in the first year) and implemented the same model on each group. The first-year credit completion could reflect the difficulty/ease the student would face regarding fulfilling the credit requirement and serve as a test for students who miss the cutoff of 24 or 30. Theoretically, students who *complete* less than 24 credits by the end of the first year in college are in danger of losing the whole award in the third year should they maintain that same, lower credit completion in the second year. Likewise, students who meet the 30-credit requirement in the first year are more likely to be eligible to renew the award in full amount if they complete the same credit load in the second year.

The results show that EA recipients who failed to complete 24 credits in the first year react the strongest – almost all the effects observed on credit completion and degree attainment are contributed by those students who fall short of earning the 24 credits in the first year. For example, the credit requirement increased second- and third-year credit completion by 1.5 and 1.2 credit hours for the EA recipients who attended four-year institutions and earned fewer than 24 credits in their first year. More strikingly, their second- and third-year retention were improved by 4.0 and 3.0 percentage points, respectively. Eventually, the increasing credit accumulation led to a 7.8 percentage point increase in on-time bachelor’s degree attainment. In contrast, the impact of the credit requirement policy on EA recipients who earn 24 credits or above is much smaller and statistically insignificant. **In other words, the “stick” of punishing those who do not carry the minimum credit load by removing the entire grant is the only aspect of the policy that has a statistically significant effect. The “carrot” – i.e., additional funding – is likely too small to change the behavior of those who have already met the “minimum” credit requirement (24 credits per year).**

When examining the different effects for GA recipients with different academic preparedness, the study finds that the credit requirement decreased the second- and third-year persistence for community college recipients who earned less than 24 credits in the first year. This suggests that **community college students were discouraged from continuing enrollment when they were at the margin of losing the GA award.**

Table 5: Summary of the Estimated Effects of 30-Credit Requirement on EA Recipients with Different 1st-Year Credit Completion

EA Outcomes		Four-year institutions			Community colleges		
		Year 1 credit below 24	Year 1 credit 24-29	Year 1 credit 30 or higher	Year 1 credit below 24	Year 1 credit 24-29	Year 1 credit 30 or higher
Persistence	2 nd Year	4.0 points increase	No effect	No effect	No effect	No effect	No effect
	3 rd Year	3.2 points increase	No effect	No effect	No effect	No effect	No effect
	4 th Year	No effect	No effect	No effect	N/A	N/A	N/A
Annual credit registered	2 nd Year	1.7 credits increase	No effect	No effect	No effect	No effect	No effect
	3 rd Year	1.1 credits increase	No effect	No effect	No effect	No effect	No effect
	4 th Year	No effect	0.9 credits increase	No effect	N/A	N/A	N/A
Annual credit completed	2 nd Year	1.5 credits increase	1.0 credit increase	No effect	0.6 credits increase	No effect	No effect
	3 rd Year	1.2 credits increase	No effect	No effect	No effect	No effect	No effect
	4 th Year	No effect	0.8 credits increase	No effect	N/A	N/A	N/A
Cumulative credits earned	2 nd or 4 th Year	5.2 credits increase	4.1 credits increase	3.7 credits increase	1.9 credits increase	1.1 credits increase	No effect
On-time degree attainment	2 nd or 4 th Year	7.8 points increase	3.8 points increase	3.6 points increase	0.9 points increase	No effect	No effect

Note: Red represents a positive and statistically significant effect. Blue represents a negative and statistically significant effect. The study tracks outcomes of four years for four-year institution students and three years for community college students. On-time degree attainment refers to obtaining a bachelor's degree in four years and an associate degree in two years. Credits registered include all credit hours for which the student is registered and courses that may not earn credit toward an award, such as audited and remedial or developmental courses. Credits completed include credit hours completed in credit courses (excluding transfer credits) and audited and developmental or remedial courses are not included. See Appendix for the full results.

Table 6: Summary of the Estimated Effects of 30-Credit Requirement on GA Recipients with Different 1st-Year Credit Completion

GA Outcomes		Four-year institutions			Community colleges		
		Year 1 credit below 24	Year 1 credit 24-29	Year 1 credit 30 or higher	Year 1 credit below 24	Year 1 credit 24-29	Year 1 credit 30 or higher
Persistence	2 nd Year	No effect	No effect	No effect	5.0 points decrease	No effect	No effect
	3 rd Year	No effect	No effect	No effect	8.1 points decrease	No effect	No effect
	4 th Year	No effect	No effect	No effect	N/A	N/A	N/A
Annual credit registered	2 nd Year	No effect	No effect	No effect	No effect	No effect	No effect
	3 rd Year	No effect	No effect	No effect	1.9 credits decrease	No effect	No effect
	4 th Year	No effect	No effect	No effect	N/A	N/A	N/A
Annual credit completed	2 nd Year	No effect	No effect	No effect	No effect	No effect	No effect
	3 rd Year	No effect	No effect	No effect	1.5 credits decrease	No effect	No effect
	4 th Year	No effect	No effect	No effect	N/A	N/A	N/A
Cumulative credits earned	2 nd or 4 th Year	No effect	No effect	No effect	No effect	No effect	No effect
On-time degree attainment	2 nd or 4 th Year	5.8 points increase	No effect	No effect	No effect	No effect	No effect

Note: Red represents a positive and statistically significant effect. Blue represents a negative and statistically significant effect. The study tracks outcomes of four years for four-year institution students and three years for community college students. On-time degree attainment refers to obtaining a bachelor's degree in four years and an associate degree in two years. Credits registered include all credit hours for which the student is registered and courses that may not earn credit toward an award, such as audited and remedial or developmental courses. Credits completed include credit hours completed in credit courses (excluding transfer credits) and audited and developmental or remedial courses are not included. See Appendix for the full results.

Finding 3: Impacts of the credit requirement are distinct by type of award (EA versus GA) and institutional segment (community college or four-year institution).

Why did the credit requirement policy cause statistically significant effects on degree completion for EA recipients but not for GA recipients? Why did the community college EEA recipients increase their credit accumulation in the first year, while four-year institution EEA recipients did not?

To answer the first question, Table 7 shows the annual average credits registered and completed for all EA and GA recipients entering college from 2013-14 to 2015-16, the years

prior to the College Affordability Act of 2016. Before the 30-credit requirement policy took effect, the average number of credits *completed* for students attending a four-year institution was 25.6 for EA recipients and 27.2 for GA recipients. In general, GA recipients accumulated higher credits than EA recipients, which could be attributed to the extra eligibility requirements (e.g., high school GPA, GED grade, and minimum age) bound to GA application. **In other words, the eligibility criteria favored GA recipients to receive the full amount of the award without needing to make significant changes in their course load. The credit policy enacted in 2016 did little to disrupt the behaviors of GA recipients.**

Table 7: Average 2nd-year Credit Registration and Completion before Policy Enacted

	EA		GA	
	Average credit registered	Average credit completed	Average credit registered	Average credit completed
Four-year institutions	28.4	25.6	29.9	27.2
Community colleges	23.1	17.7	23.9	19.1

Regarding the difference between four-year institutions and community colleges, students attending a community college completed far fewer credits prior to the 30-credit policy implementation. EA recipients earned 17.7 credits and GA recipients earned 19.1 credits in the second year at the community colleges, well below what would be needed to maintain their EEA eligibility. This means that **in the absence of the credit requirement policy, an average EA recipient at a community college has a higher likelihood to lose the total award than an average EA recipient at a four-year institution does.** Under a higher level of risk, an EA recipient at a community college had to increase their course load to maintain eligibility for the third award or/and avoid renewing the award for the third year when the 30-credit policy was implemented. Therefore, it is not surprising to see that community college aid recipients started to accumulate more credits in the first year so that they could complete the program within two years and get rid of applying for the third award.

Policy Implications: What Else Can Maryland Do?

This study suggests that the 30-credit requirement does improve the academic progression for EA recipients. The effect is particularly large for the students at risk of losing eligibility for the award. However, the policy does not encourage the on-time degree attainment for GA recipients, as designed. For the students at-risk of losing eligibility for the award, the policy negatively impacts their retention.

Considering these findings, we propose a package of possible policy solutions to consider. Taken together, they may improve the design of EEA program in ways to promote on-time completion in the future.

Strengthen the financial incentive for additional credit completion.

One important conclusion drawn from the research is that the incentive is too small to motivate students to increase credit enrollment and completion, especially for EA. By doing simple math, we can easily understand the rationale behind a student's choice to either take the minimum number of credits (24 credits) or the ideal maximum number of credits (30 credits), or something in between. Enrolling in additional six credits per year (i.e., two additional courses per year) may require the student to commit 7.5 hours per week to coursework (3 hours for class time and 4.5 hours of study/prep time)¹² as well as additional tuition and fees if the institutions do not provide a fixed rate for full-time enrollment. The benefit of doing so is 20% of the full award - \$600/per year for EA. If the student chooses not to enroll in an additional six credits, the monetary value of missing the "carrot" could be easily substituted - an EA recipient only needs to work additional 1.2 hours per week at the minimum wage.¹³ **The pro-rata approach may have inadvertently created a disincentive from the goal of students accumulating 30 credits each year.**

To strengthen the incentive, one thing that Maryland can do is **raise the cap amount for EA. State law¹⁴ has capped the maximum EA Grant at \$3,000 since 1991.** It does not adjust in response to the change in the cost of attendance and cost of living as GA does. Pro-rating the EA award to a higher amount can create a larger incentive for students to perform better. More importantly, a larger EA award itself serves as a powerful tool to remove financial constraints for low-income students, thus improving student success.¹⁵

Another innovative way in which Maryland can improve the design of the credit requirement is to **reward through bonus grants rather than deduct from the current award as the incentive for students.** One of the potential limitations of the pro-rata approach is that it may distract student's attention from attempting more credits to gain the full award to maintaining the minimum credit-bearing to keep the basic eligibility because of the fear to the penalty. Maryland could award additional grants to those who complete additional degree-required credits and guarantee students the full amount of the EA or GA award if they maintain full-time status.

¹² According to the Code of Maryland Regulations 13B.01.01.09, one credit hour is the equivalent of 15 hours of classroom instruction per semester. A typical length of the fall or spring semester in Maryland is 14-16 weeks. There is no consensus on the prep time for each credit hour. Some institutions regulate that for each credit the student should receive one hour of instruction plus spend two hours of study/prep time per week (<https://wgss.osu.edu/credit-hours-and-class-instruction-time>). Here we assume for each credit the student should receive one hour of instruction and spend 1.5 hours of study/prep time per week.

¹³ Minimum wage in MD was \$12.20 per hour in 2021. The average length of one academic year is 42 weeks (15 weeks for fall and spring semester and 12 weeks for summer semester).

¹⁴ Maryland Education Code Section §18-304 raised the maximum amount of the EA grants from \$2,500 to \$3,000 in 1991 and the cap remained unchanged afterwards.

¹⁵ LaSota, R. R., Polanin, J. R., & Perna, L. W. (2022). *Effects of postsecondary grant aid on college student outcomes: Briefing of results from a systematic review and meta-analysis*. Bethesda, MD: Development Services Group, Inc. retrieved from https://dsgonline.com/College_Aid_Meta/Updated%20Under%20Review%20Watermarked%20PDF.01.04.21.pdf

Create different renewal requirements for students enrolling in community colleges and four-year institutions.

One major difference between community college students and four-year institution students is the academic program length (typically two years for an associate degree and four years for a bachelor's degree). Community college students who need EA/GA for the third year are those who cannot graduate and obtain an associate degree within two years. Therefore, the 30-credit policy precisely targets the population it wants—those who do not take a sufficient course load for on-time completion. Conversely, the students in four-year institutions who need EA/GA for the third year could be well on track for completion. **It might be fairer to consider the length of the degree program (associate versus bachelor's) and set the credit requirement accordingly.** For example, the credit requirement could be in place for determining the third award for community college students and the fourth award for four-year college students.

The other difference is in the “baseline” annual credit completion. As previously noted, on average, EA recipients in the pre-30-credit policy era completed 18 credits at community colleges and 26 credits at four-year institutions. The difference likely stems from a great variety of reasons (program design, academic preparedness, motivation, financial constraints, social background, etc.). Given these differences, one solution is to set a lower requirement of annual credit completion for community college students than for four-year students. Another approach is **to use cumulative credit completion/academic progression to determine the amount of renewal.** For example, a four-year institution student can renew the EA or GA award with the full amount for the fourth-year if they have completed 75% of the degree required credits by the end of the third year. Similarly, a community college student can renew the EA or GA award with the full amount for the third-year if they have completed 66% of the required credits by the end of the second year.

Eliminate the credit requirement for the GA program

The findings show that the credit requirement policy has no statistically significant effects on degree attainment for GA recipients, although it boosts credit completion to some extent. As discussed earlier, there has been a series of criteria for students to meet in order to receive the GA award, including an established high school GPA, GED grade, and age. These academic eligibility requirements, along with the necessary personal characteristics to help GA recipients successfully navigate the application process, signal that the GA recipients already demonstrate academic readiness and preparedness¹⁶. Furthermore, the fact that the effect on credit completion does not convert to the effect on degree attainment reveals the possibility that the barriers preventing GA recipients from on-time degree completion exist beyond the credit-bearing behaviors.

¹⁶ In 2023, the Maryland General Assembly passed HB923 that relieves the high school GPA, GED, and age requirements for the applicants. MHEC will continue to monitor the potential changes in characteristics of GA recipients over time.

Adding merit-based requirements may be problematic in a need-based financial aid program that was meant to help students from the lowest-income families, like GA. Previous research has demonstrated that such merit-based requirements in need-based financial aid (cutoff in GPA or in credit accumulation) creates negative outcomes for low-income students and racially/ethnically minority students¹⁷. More importantly, GA recipients are from the highest poverty families and may be more vulnerable to instability in financial aid and the loss of high value scholarships. Losing eligibility to the grant that is designed to cover 100% of the student's financial need creates a huge life shock for them¹⁸.

Financial aid alone is insufficient to improve on-time completion.

Last but not the least, it is crucial to realize the limitation of need-based financial aid – what it can do and what it cannot do. Need-based aid like EA and GA is an instrument to ensure the affordability of higher education and help low-income students gain equitable access to college. Setting performance-based criteria for need-based financial aid may be combining conflicting goals that challenge students in ways that are problematic.

How to increase on-time completion is a complicated topic that needs comprehensive efforts from all stakeholders - student advising, curriculum design, instructing, and many other factors outside the systems of higher education (e.g. K-12 education, communities, social welfare). Financial aid cannot serve as a silver bullet for solving all the issues around college access and completion; financial aid and affordability is only one part of ensuring student access and student success.

To better address on-time completion¹⁹, it is necessary to gather more information about student decision making and systemic barriers. What are the motivating reasons for students to take certain credit amounts in any given semester? Only after we learn more insights into the barriers, vsn erbetter support students to complete degrees on time.

¹⁷ Casey, M. D., Cline, J., Ost, B., & Qureshi, J. A. (2018). Academic probation, student performance, and strategic course-taking. *Economic Inquiry*, 56(3), 1646-1677.

Scott-Clayton, J., & Schudde, L. (2020). The consequences of performance standards in need-based aid evidence from community colleges. *Journal of Human Resources*, 55(4), 1105-1136.

¹⁸ LaSota, R. R., Polanin, J. R., Perna, L. W., Austin, M. J., Steingut, R. R., & Rodgers, M. A. (2022). The effects of losing postsecondary student grant aid: Results from a systematic review. *Educational Researcher*, 51(2), 160-168.

¹⁹ We may also need to reevaluate a nationwide prioritization for “on-time completion,” particularly to ensure that students who enroll part-time have access to the same advantages (i.e., financial aid) as students that enroll full-time. By creating and supporting systems that prioritize “on-time completion”, we maybe exacerbating equity gaps and promoting systemic inequity.

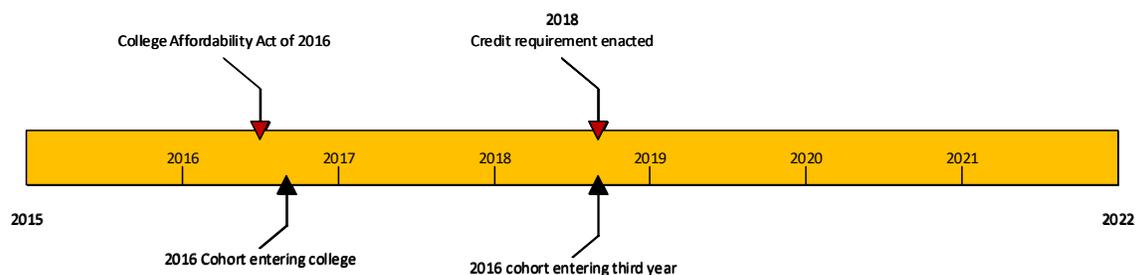
Technical Appendix

Data

The study utilizes the administrative records of community colleges and four-year institutions (public and independent private) collected by the Maryland Higher Education Commission. The sample includes all degree-seeking full-time undergraduates who entered college between 2013-14 and 2020-21. Students who did not receive EA or GA but received other financial aid (scholarship, grant, or work-study programs) are excluded from the study to isolate any indirect impact of the credit requirement policy on other aid recipients²⁰.

The sample includes student demographic information such as race/ethnicity, gender, and age, as well as prior academic performance such as high school GPA and remediation assignment. It is matched with student degree attainment and credit accumulation data. Degree and enrollment records out of the state cannot be tracked as the study only uses the MHEC data collection. The final sample includes 152,970 students in four-year institutions and 94,346 students in community colleges. Among students enrolled in four-year institutions, 53,372 are EA recipients and 5,663 are GA recipients; among community college students, 25,253 are EA recipients and 1,129 are GA recipients.

The timeline below specifies the details of the policy implementation timeline. In July 2016, the College Affordability Act was passed and enacted. It was regulated that the 30-credit requirement would be in effect in FY 2018-19 for the students who had received EEA at least two times. In Fall 2016, MHEC and the institutional financial assistance offices started to notify EEA recipients of the 30-credit requirement and its potential impact on the students in the upcoming two years. Conceptually, the EEA recipients who entered college in FY 2016-17 are the first cohort impacted by the policy change as they were in their junior year and subject to the new credit requirement policy in FY2018-19.

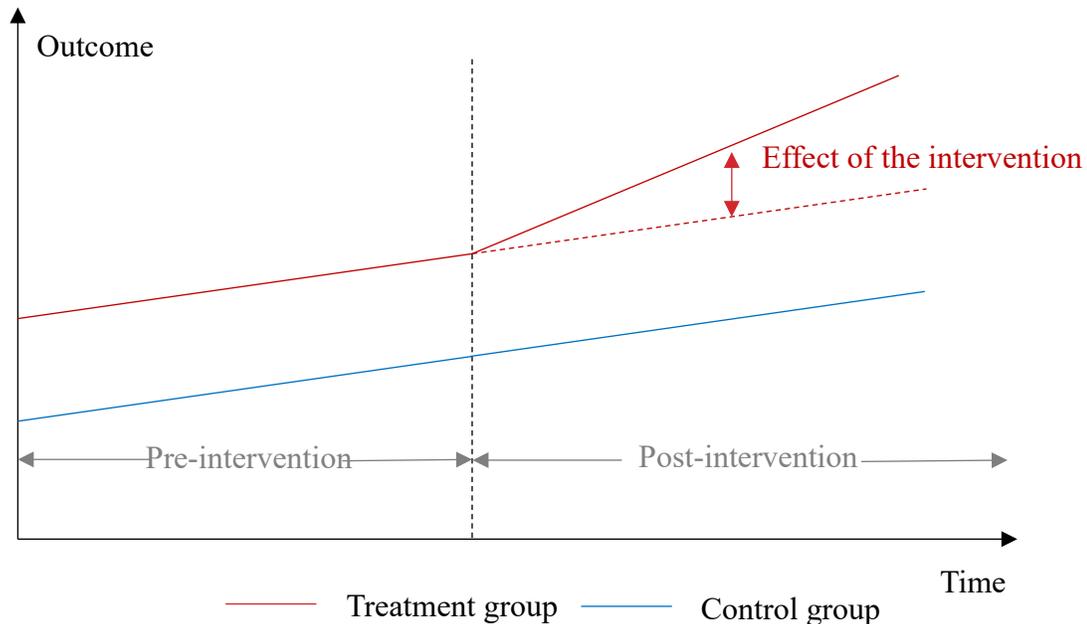


Methodology

The study employs a Difference-in-Differences (DID) approach. The basic idea of DID is to compare results from two groups over time. One group is called control group, where the subjects are not exposed to any treatment or intervention; the other group is called treatment group, where the subjects are exposed to a treatment or intervention at some point during the time period. The data is analyzed by 1) calculating the difference between treatment group and control in the pre-intervention period, 2) calculating the difference between treatment group and control in the post-intervention period, and 3) subtracting the average difference in the pre-intervention period from the average difference in the post-intervention period. The chart below

²⁰ For example, student failing to meet the requirement may turn to apply for other financial aid program.

depict the calculating process. It is important to notice, one of the assumptions of DID is the difference between treatment group and control group would have been constant over time should the intervention not be implemented.



In this study, DID approach compares the differences in outcomes between recipients of the GA/EA grant and students that received no financial aid before and after the adoption of the credit completion requirement. Specifically, it runs the regression model as follows:

$$Y_{it} = \beta_0 + \beta_1(Post_t \times EEA_{it}) + \beta_2EEA_{it} + \theta X_{it} + \varphi_t + \mu_{it} + \varepsilon_{it}$$

where Y_{it} includes a series of the outcomes for the student i entering college in year t , including in 1) persistence, 2) credit accumulation, and 3) degree attainment 4) annual GPA, 5) time to degree, and 6) transfer. $Post_t$ refers to the cohorts 2017 and later, while EEA_{it} stands for whether the student i received EA or GA award. The model also includes a vector of college fixed-effects (μ_{it}) and a set of cohort fixed-effects (φ_t) to control the systematic difference across cohorts or institutions. The vector X_{it} contains individual-level covariates including race/ethnicity (with White as the reference group), gender (with male as the reference group), age at initial enrollment, high school GPA, whether the student enrolled as a first-time student during the initial term, and a set of dummy indicators for whether students were assessed of needing remedial education. The model clustered standard errors at college-level. The coefficient of interest is β_1 , the effect of the 30-credit-hour completion requirement. An idiosyncratic error term is denoted by ε_{it} .

Table A1: Sample Descriptive Statistics

	Four-Year Institutions			Community Colleges		
	No Aid	EA recipients	GA recipients	No Aid	EA recipients	GA recipients
<u>Student characteristics</u>						
First-time in college	44%	45%	89%	62%	71%	82%
Female	48%	61%	65%	44%	61%	63%
Age when first entered college	22.36	22.68	19.38	21.67	22.42	19.52
African American or Black	15%	44%	47%	19%	40%	32%
Hispanic	7%	10%	11%	9%	15%	20%
Other race	27%	20%	23%	22%	18%	26%
Recent high school graduate	38%	40%	82%	50%	55%	78%
High School GPA	3.58	3.41	3.53	2.86	2.84	2.96
Ever need remedial math	6%	13%	14%	36%	48%	31%
Ever need remedial English	1%	2%	3%	15%	24%	15%
Ever need remedial reading	2%	4%	5%	12%	20%	13%
Private institution	15%	11%	28%	—	—	—
Credit completed in year 1	21.61	23.70	26.16	14.15	16.42	19.16
Annual GPA in year 1	2.84	2.74	2.53	2.69	2.79	2.92
<u>Year 2 outcomes</u>						
Still enrolled in year 2	72%	90%	88%	55%	79%	72%
Credit attempted in year 2	19.65	25.11	26.02	10.35	17.13	16.32
Credit completed in year 2	18.53	23.30	24.13	8.64	14.46	14.15
Cumulative credit completed by year 2	44.28	47.46	49.95	24.83	32.26	34.23
Annual GPA in year 2	3.03	2.82	2.59	2.78	2.79	2.91
Degree completion by year 2	—	—	—	10%	11%	13%
<u>Year 3 outcomes</u>						
Still enrolled in year 3	53%	72%	77%	31%	53%	45%
Credit attempted in year 3	13.45	18.76	23.04	4.47	9.09	8.13
Credit completed in year 3	12.82	17.51	21.76	3.65	7.58	6.94
Cumulative credit completed by year 3	57.00	64.58	71.07	28.65	39.46	40.54
Annual GPA in year 3	3.10	2.88	2.66	2.78	2.78	2.91
Degree completion by year 3	—	—	—	17%	24%	27%
Time to degree	—	—	—	2.26	2.50	2.45
Ever transfer in 3 years	—	—	—	25%	35%	48%
<u>Year 4 outcomes</u>						
Still enrolled in year 4	34%	49%	69%	—	—	—
Credit attempted in year 4	8.46	12.60	19.44	—	—	—
Credit completed in year 4	8.19	11.82	18.50	—	—	—
Cumulative credit completed by year 4	65.38	76.04	88.99	—	—	—
Annual GPA in year 4	3.16	2.89	2.70	—	—	—
Degree completion by year 4	47%	55%	45%	—	—	—
Time to degree	3.03	3.08	3.85	—	—	—
N	94,035	53,272	5,663	67,964	25,253	1,129

Note:

Sample includes the full-time undergraduate students who first entered college in 2013-14 to 2020-21 academic years. The cohort (first year in college) is defined by the academic year when students' record firstly found in the EIS. EA/GA recipients refer to the full-time undergraduate students who ever received EA/GA in any Maryland postsecondary institution. No aid students refer to the full-time undergraduate students not receiving any type of financial aid (grant, scholarship, work-study or loan) between 2013-14 and 2020-21. Year 2 outcomes exclude the 2020-21 cohort; year 3 outcomes exclude the cohort of 2019-20 and later; year 4 outcomes exclude the cohort of 2018-19 and later.

Table A2: Estimated Effects of 30-Credit Requirement for Four-year Institution EEA Recipients

	EA		GA	
	Coefficients	S.E.	Coefficients	S.E.
<u>Year 1 Outcomes</u>				
Credit registered in year 1	0.2584	(0.4446)	-0.1108	(0.5798)
Credit completed in year 1	0.2451	(0.4354)	-0.2457	(0.5650)
N	<u>147,293</u>		<u>99,688</u>	
<u>Year 2 Outcomes</u>				
Still enrolled in year 2	0.0119	(0.0102)	-0.0193	(0.0208)
Credit registered in year 2	0.8132*	(0.4085)	0.1497	(0.6982)
Credit completed in year 2	0.6909*	(0.3868)	-0.1684	(0.6805)
Annual GPA in year 2	0.0613	(0.0431)	0.0554	(0.0663)
N	<u>133,654</u>		<u>88,112</u>	
<u>Year 3 Outcomes</u>				
Still enrolled in year 3	0.0237**	(0.0110)	-0.0181	(0.0175)
Credit registered in year 3	0.7914*	(0.4106)	0.0029	(0.5785)
Credit completed in year 3	0.7838*	(0.4013)	0.1560	(0.5764)
Annual GPA in year 3	0.0635	(0.0489)	0.1301	(0.0802)
N	<u>118,514</u>		<u>77,511</u>	
<u>Year 4 Outcomes</u>				
Still enrolled in year 4	0.0167	(0.0109)	0.0100	(0.0177)
Credit registered in year 4	0.6007*	(0.3495)	0.1342	(0.5979)
Credit completed in year 4	0.5851*	(0.3286)	0.2221	(0.5577)
Cumulative credit completed by year 4	5.1273***	(1.1261)	3.5511*	(1.7927)
Annual GPA in year 4	0.0811	(0.0592)	0.0800	(0.0705)
BA attainment by year 4	0.0596***	(0.0129)	0.0347	(0.0251)
Time to degree (BA)	-0.0465	(0.0432)	-0.0392	(0.0426)
N	<u>102,224</u>		<u>66,692</u>	

Note: Robust standard errors in parentheses

*** p<0.01, ** p<0.05, * p<0.1

Sample includes the full-time undergraduate students who first entered college in 2013-14 to 2020-21 academic years. The cohort (first year in college) is defined by the academic year when students' record firstly found in the EIS. EA/GA recipients refer to the full-time undergraduate students who ever received EA/GA in any Maryland postsecondary institution. No aid students refer to the full-time undergraduate students not receiving any type of financial aid (grant, scholarship, work-study or loan) between 2013-14 and 2020-21. Year 2 outcomes exclude the 2020-21 cohort; year 3 outcomes exclude the cohort of 2019-20 and later; year 4 outcomes exclude the cohort of 2018-19 and later.

Models control for cohort fixed effects and institution fixed effects. Standard errors are clustered at the institution level. Credit accumulation outcomes include not enrolled students (credit=0). GPA outcomes are conditional on students who are enrolled. Time to degree is conditional on students who have completed any degree within three (community colleges) or four (four-year institutions) years.

Table A3: Estimated Effects of 30-Credit Requirement for Community College EEA Recipients

	EA		GA	
	Coefficients	S.E.	Coefficients	S.E.
<u>Year 1 Outcomes</u>				
Credit registered in year 1	0.9362***	(0.2634)	1.0346**	(0.4501)
Credit completed in year 1	1.6877***	(0.3088)	2.8710***	(0.8031)
Annual GPA in year 1	0.0003	(0.0179)	-0.0810*	(0.0424)
N	<u>93,212</u>		<u>69,089</u>	
<u>Year 2 Outcomes</u>				
Still enrolled in year 2	0.0008	(0.0108)	0.0178	(0.0212)
Credit registered in year 2	0.5885*	(0.3287)	0.3887	(0.6999)
Credit completed in year 2	1.0084***	(0.3085)	0.7135	(0.6948)
Cumulative credit completed by year 2	3.1178***	(0.3997)	3.8445***	(1.2750)
Annual GPA in year 2	0.0301	(0.0261)	-0.0145	(0.0737)
AA attainment by year 2	0.0301***	(0.0072)	0.0246	(0.0240)
N	<u>85,319</u>		<u>62,375</u>	
<u>Year 3 Outcomes</u>				
Still enrolled in year 3	-0.0051	(0.0132)	-0.0672*	(0.0379)
Credit registered in year 3	-0.5330*	(0.2866)	-1.9518**	(0.8536)
Credit completed in year 3	-0.3331	(0.2271)	-1.4720*	(0.6960)
Cumulative credit completed by year 3	2.0872***	(0.3416)	2.2652	(1.3297)
Annual GPA in year 3	0.0363**	(0.0164)	0.0756	(0.0850)
AA attainment by year 3	0.0535***	(0.0095)	0.0401	(0.0322)
Time to degree (AA)	-0.0419	(0.0341)	-0.0557	(0.0850)
Transfer by year 3	-0.0032	(0.0102)	0.0167	(0.0221)
N	<u>75,510</u>		<u>55,208</u>	

Note: Robust standard errors in parentheses

*** p<0.01, ** p<0.05, * p<0.1

Sample includes the full-time undergraduate students who first entered college in 2013-14 to 2020-21 academic years. The cohort (first year in college) is defined by the academic year when students' record firstly found in the EIS. EA/GA recipients refer to the full-time undergraduate students who ever received EA/GA in any Maryland postsecondary institution. No aid students refer to the full-time undergraduate students not receiving any type of financial aid (grant, scholarship, work-study or loan) between 2013-14 and 2020-21. Year 2 outcomes exclude the 2020-21 cohort; year 3 outcomes exclude the cohort of 2019-20 and later; year 4 outcomes exclude the cohort of 2018-19 and later.

Models control for cohort fixed effects and institution fixed effects. Standard errors are clustered at the institution level. Credit accumulation outcomes include not enrolled students (credit=0). GPA outcomes are conditional on students who are enrolled. Time to degree is conditional on students who have completed any degree within three (community colleges) or four (four-year institutions) years.

Table A4: Estimated Effects of 30-Credit Requirement for Four-year Institution EEA Recipients by 1st-year Credit Completion

	EA			GA		
	Year 1 credit completion below 24	Year 1 credit completion 24-29	Year 1 credit completion 30 or higher	Year 1 credit completion below 24	Year 1 credit completion 24-29	Year 1 credit completion 30 or higher
Year 2 Outcomes						
Still enrolled in year 2	0.0396***	-0.0016	-0.0174	0.0277	-0.0334	-0.0431
Credit registered in year 2	1.7024***	0.3491	-0.3425	0.9288	-0.4844	-0.0431
Credit completed in year 2	1.4968***	0.1930	-0.4004	0.3277	-0.9174	-0.3155
Annual GPA in year 2	0.0738***	-0.0059	0.1015	0.0159	0.0278	0.0360
<u>N</u>	<u>59,023</u>	<u>33,858</u>	<u>40,773</u>	<u>40,336</u>	<u>20,000</u>	<u>27,776</u>
Year 3 Outcomes						
Still enrolled in year 3	0.0316**	0.0213	0.0033	-0.0222	-0.0333	-0.0302
Credit registered in year 3	1.1256*	0.6988	0.0033	-0.1372	-0.6122	-0.5566
Credit completed in year 3	1.1843**	0.6715	-0.0539	0.2362	-0.4939	-0.6008
Annual GPA in year 3	0.0570*	0.0289	0.1048	0.1285	0.0659	0.1612
<u>N</u>	<u>53,093</u>	<u>30,107</u>	<u>35,314</u>	<u>36,108</u>	<u>17,590</u>	<u>23,813</u>
Year 4 Outcomes						
Still enrolled in year 4	0.0121	0.0186	0.0150	-0.0128	-0.0149	0.0010
Credit registered in year 4	0.2950	0.8724*	0.4751	-0.3792	0.1486	-0.8232
Credit completed in year 4	0.3193	0.8086*	0.4903	-0.5671	0.4848	-0.7058
Cumulative credit completed by year 4	5.2486***	4.0940***	3.6696***	1.8880	0.8829	0.4043
Annual GPA in year 4	0.0492**	0.0455	0.1293	-0.0418	0.0424	0.1245
BA attainment by year 4	0.0783***	0.0380**	0.0359**	0.0584*	0.0214	-0.0292
Time to degree (BA)	0.0072	-0.0768	-0.0451	-0.2233	-0.0568	-0.0142
<u>N</u>	<u>46,159</u>	<u>25,789</u>	<u>30,276</u>	<u>31,317</u>	<u>14,996</u>	<u>20,379</u>

Note: Robust standard errors in parentheses

*** p<0.01, ** p<0.05, * p<0.1

Sample includes the full-time undergraduate students who first entered college in 2013-14 to 2020-21 academic years. The cohort (first year in college) is defined by the academic year when students' record firstly found in the EIS. EA/GA recipients refer to the full-time undergraduate students who ever received EA/GA in any Maryland postsecondary institution. No aid students refer to the full-time undergraduate students not receiving any type of financial aid (grant, scholarship, work-study or loan) between 2013-14 and 2020-21. Year 2 outcomes exclude the 2020-21 cohort; year 3 outcomes exclude the cohort of 2019-20 and later; year 4 outcomes exclude the cohort of 2018-19 and later.

Models control for cohort fixed effects and institution fixed effects. Standard errors are clustered at the institution level. Credit accumulation outcomes include not enrolled students (credit=0). GPA outcomes are conditional on students who are enrolled. Time to degree is conditional on students who have completed any degree within three (community colleges) or four (four-year institutions) years.

Table A5: Estimated Effects of 30-Credit requirement for Community College EEA Recipients by 1st-year Credit Completion

	EA			GA		
	Year 1 credit completion below 24	Year 1 credit completion 24-29	Year 1 credit completion 30 or higher	Year 1 credit completion below 24	Year 1 credit completion 24-29	Year 1 credit completion 30 or higher
<u>Year 2 Outcomes</u>						
Still enrolled in year 2	-0.0061	-0.0065	-0.0234	-0.0499*	0.0695	0.0103
Credit registered in year 2	0.2084	0.4147	-0.9339	-1.3425	1.6242	-1.8039
Credit completed in year 2	0.5639*	0.6363	-0.9048	-0.9474	1.6183	-2.5927
Cumulative credit completed by year 2	1.8782***	1.0593*	-0.0528	0.6769	-0.2666	0.8523
Annual GPA in year 2	0.0220	-0.0087	-0.0571*	-0.0128	-0.0744	-0.2572*
AA attainment by year 2	0.0087***	0.0298	0.0109	-0.0121	-0.0387	0.0782
<u>N</u>	<u>65,306</u>	<u>13,394</u>	<u>6,619</u>	<u>48,257</u>	<u>9,350</u>	<u>4,768</u>
<u>Year 3 Outcomes</u>						
Still enrolled in year 3	0.0045	-0.0093	-0.0004	-0.0807*	0.0002	-0.0479
Credit registered in year 3	-0.2431	-0.9567	-0.0716	-1.9325**	-1.6246	-0.8895
Credit completed in year 3	-0.0682	-0.8851	-0.0429	-1.4714**	-1.1343	-1.1922
Cumulative credit completed by year 3	1.4017***	-0.0046	0.0562	-0.8745	-0.7301	1.5386
Annual GPA in year 3	0.0498**	-0.0235	-0.0791	0.1676***	-0.1853	-0.3561
AA attainment by year 3	0.0392***	0.0250	0.0324	-0.0011	-0.0010	-0.0211
Time to degree (AA)	0.0135	-0.0559	-0.0162	0.0228	0.1387	-0.2842**
Transfer by year 3	-0.0158	-0.0165	-0.0019	-0.0247	-0.0724	0.1172*
<u>N</u>	<u>58,191</u>	<u>11,657</u>	<u>5,662</u>	<u>42,849</u>	<u>8,250</u>	<u>4,109</u>

Note: Robust standard errors in parentheses

*** p<0.01, ** p<0.05, * p<0.1

Sample includes the full-time undergraduate students who first entered college in 2013-14 to 2020-21 academic years. The cohort (first year in college) is defined by the academic year when students' record firstly found in the EIS. EA/GA recipients refer to the full-time undergraduate students who ever received EA/GA in any Maryland postsecondary institution. No aid students refer to the full-time undergraduate students not receiving any type of financial aid (grant, scholarship, work-study or loan) between 2013-14 and 2020-21. Year 2 outcomes exclude the 2020-21 cohort; year 3 outcomes exclude the cohort of 2019-20 and later; year 4 outcomes exclude the cohort of 2018-19 and later.

Models control for cohort fixed effects and institution fixed effects. Standard errors are clustered at the institution level. Credit accumulation outcomes include not enrolled students (credit=0). GPA outcomes are conditional on students who are enrolled. Time to degree is conditional on students who have completed any degree within three (community colleges) or four (four-year institutions) years.