Degrees per All

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Executive Summary

This report provides information on degree productivity for certain undergraduate student populations at Maryland's four-year public institutions. The data address trends from 2014 to 2018 using the measure Degrees per All (DpAll), which is a derivative of the measure degrees per 100 students. DpAll incorporates identifiable characteristics, such as race/ethnicity and gender, into assessing degree productivity to provide a more inclusive degree attainment measure. In other words, DpAll is the measure of degree productivity of any student population.

Although approximately two-thirds of Maryland four-year public institutions meet or exceed the ideal undergraduate degree productivity benchmark of 25.0, some DpAll student groups fall significantly below the benchmark. In other words, **when all students are grouped, most of Maryland four-year public institutions award undergraduate degrees at or above the ideal degree productivity benchmark, but, when student groups are analyzed by race, ethnicity, and by gender, achievement gaps emerge.**

Certain minority student groups who are historically underrepresented in higher education in Maryland have positive trends in enrollment, FTE enrollment, and degree attainment yet have the lowest DpAll rates when compared to their counterparts. These results specifically pertain to African American male students (DpAA*m*) and Hispanic male students (DpH*m*).

This report concludes with policy recommendations at the state- and institution-level that focus on goals to close the degree attainment gaps.

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Introduction

This research report pertains to data on degree productivity for certain undergraduate populations at Maryland's four-year public institutions from 2014 to 2018 using a derivative of the measure degrees per 100 students (D100).[1] D100 is a measure which provides information on degree productivity at Maryland's four-year public institutions for both bachelor's and graduate degrees. D100 provides an assessment of institutional effectiveness on degree productivity over time, can be used to compare data from other states, takes into account all students for all degree types regardless of their enrollment or entry status, and complements the traditional measure of "graduation rates." This report introduces an umbrella measure, Degrees per All (DpAll), which provides a foundation for measures that address smaller populations of students. DpAll incorporates identifiable characteristics including race/ethnicity and gender into assessing degree productivity to provide a more inclusive degree attainment measure. This report focuses on gender (those identifying as male or female), the four largest racial/ethnic groups in the state (those identifying as white, African American, Hispanic, or Asian), and the males and females within each racial/ethnic group (African American males, white females etc.). This analytic approach was taken so if degree attainment gaps exist, they can be more easily recognized and addressed. In other words, DpAll is a measure of degree productivity for any student population and is a more inclusive version of D100.

The Maryland State Plan for Postsecondary Education specifies the state goal that 55% of all Marylanders will have at least an associate degree by the year 2025, and Maryland's public four-year institutions play a significant role in achieving this goal.[2] While the state is on track to meet its goal, it would be advantageous long-term for the workforce and overall state success if one or two groups were not the sole drivers of degree attainment.

This iteration of DpAll pertains to bachelor's degree attainment only, whereas the earlier reports on D100 addresses degree productivity for both bachelor's and graduate-level attainment. This report is intended to explore trends over time and specifically will address the achievement gaps which may exist across student groups.

Methodology

Data for this report are drawn from the Integrated Postsecondary Education Data System (IPEDS). Each DpAll metric is calculated by dividing the number of total bachelor's degrees awarded to a given population in a given 12-month year by the 12-month full-time equivalent (FTE) enrollment of that population and multiplying the ratio by 100.

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[1] For full details on the measure D100, see the 2018 report *Degree Productivity at Maryland's Public Four-Year Institutions from 2007 to 2016* https://mhec.state.md.us/publications/Documents/Research/AnnualReports/2018Degreesper100.pdf.

[2] *Maryland State Plan for Postsecondary Education 2017-2021* https://mhec.state.md.us/About/Documents/2017.2021%20Maryland%20State%20Plan%20for%20Higher%20Education.pdf

A simple example shows the ideal DpAll rate: (100 degrees awarded/400 FTE enrollment)*100=25.0. For a more detailed explanation of the methodology used in this report, see Appendix A. Analysis limitations can also be found in Appendix B.

What is degree productivity and how productive are Maryland's four-year public institutions at awarding bachelor's degrees to specified student populations?

As referenced in the 2019 report, *Degree Productivity at Maryland's Public Four-Year Institutions from 2008 to 2017*, "productivity" is defined as the rate of output per unit of input and the ideal benchmark for bachelor's degree productivity (degrees per 100 students or D100) is 25.0. That is, with the assumptions that all students are bachelor's degree seeking, are enrolled full-time, graduate in four years, and that students are equally distributed among each class (freshman, sophomore, junior, and senior), 25% of the student population should graduate each year in order for an institution to have ideal degree productivity. Another way to define productivity is effectiveness, i.e., how well an organization (college or university) meets the demands of its customers (students). Therefore, the more students that graduate, the more productive an institution is.

*Groups-to-Ideal Benchmark Comparisons*

The DpAll groups are categorized into student populations of greatest interest to the state. For this report the student groups are organized into the following measures:

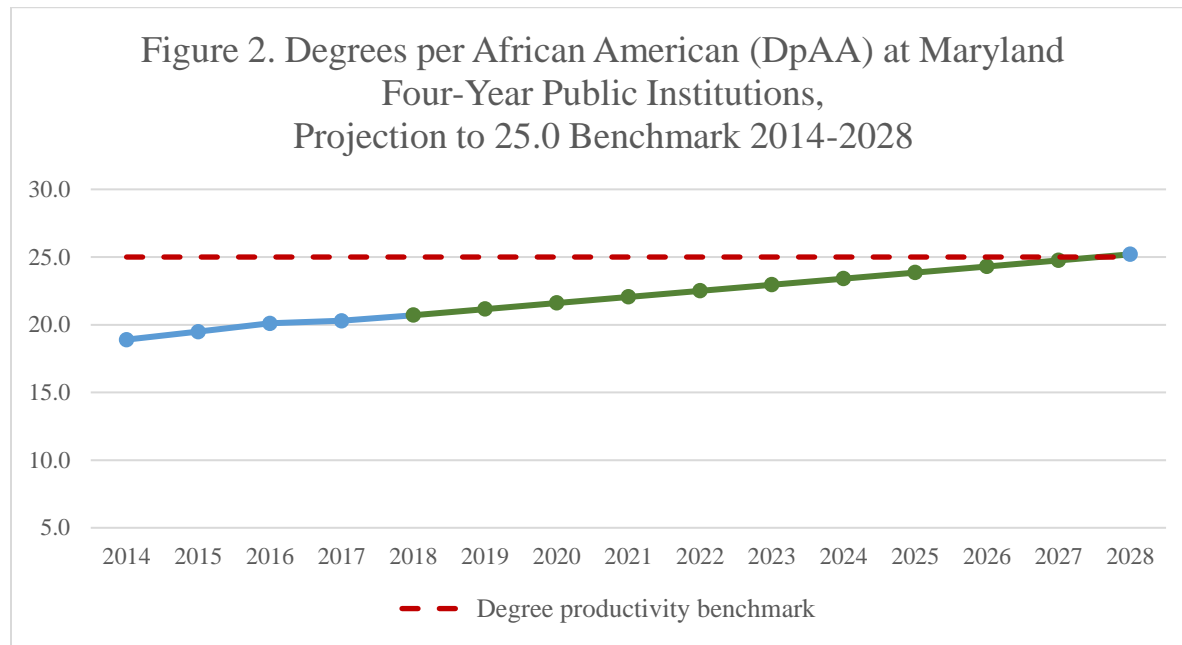| Table 1: DEGREES PER ALL (DpAll)	
Assessment of Institutional Effectiveness on Degree Productivity Over Time	
Name of Measure	**Acronym**
Degrees per Male students	DpM
Degrees per Female students	DpF
Degrees per African American students	DpAA
Degrees per African American male students	DpAA*m*
Degrees per African American female students	DpAA*f*
Degrees per Hispanic students	DpH
Degrees per Hispanic male students	DpH*m*
Degrees per Hispanic female students	DpH*f*
Degrees per Asian students	DpAS
Degrees per Asian male students	DpAS*m*
Degrees per Asian female students	DpAS*f*
Degrees per White students	DpW
Degrees per White male students	DpW*m*
Degrees per White female students	DpW*f*

It should be clarified that the ideal benchmark of 25.0 used in this report is an aspirational rate. Roughly one-third of Maryland's four-year public institutions fall below the ideal benchmark of 25.0 (see the November 2019 *Degree Productivity at Maryland's Public Four-Year Institutions from 2008 to 2017* report for further details).

Some groups at Maryland's four-year public institutions exceed this benchmark (e.g., white students and Asian students) for degree productivity. But more work needs to be done in order for all DpAll groups to reach the 25.0 rate, as several groups fall below the ideal benchmark (see Figure 1).

Degrees per male, African American, African American male, African American female, Hispanic, Hispanic male, and Hispanic female have degree productivity rates below the 25.0 benchmark for all five years of trend data (2014 through 2018). Despite these rates, the degree productivity for African Americans and African American females is steadily increasing each year.

Figure 1. Bachelor's Degrees per All in Maryland Four-Year Public Institutions, 2014 - 2018
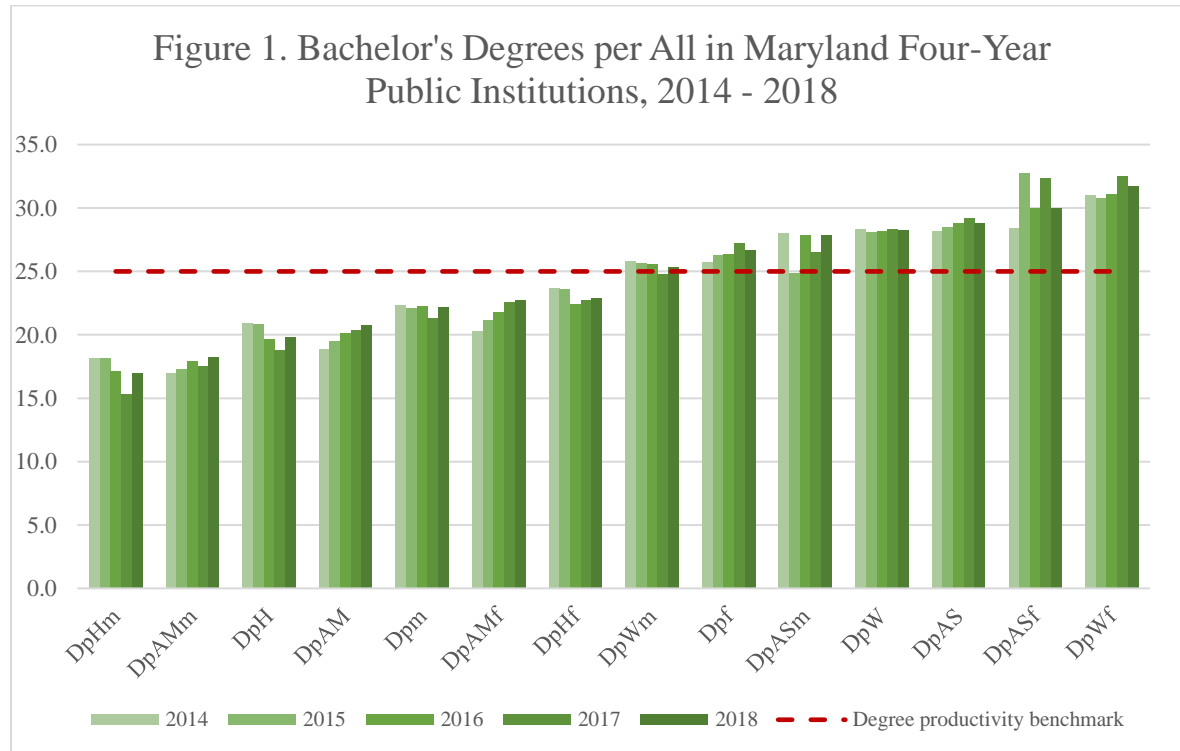
African American student outcomes are a particular area of focus for state and institutional policies, as strengthening graduation outcomes is a goal outlined in MHEC's Minority Achievement Report[3] as well as in the Maryland State Plan for Postsecondary Education. On average, DpAA increases 0.45 each year and therefore, at the current rate of increase, it would take approximately until the year 2028 for the rate to exceed 25.0 (the rate would be 25.2 in 2028). In 2027 the rate would be 24.8 (see Figure 2).

Figure 2. Degrees per African American (DpAA) at Maryland Four-Year Public Institutions, Projection to 25.0 Benchmark 2014-2028

Note: Projected rates begin at 2019

Another population of interest to the state are Hispanic students, but the data available make it challenging to determine how long it would take for this group to reach the 25.0 goal. Overall Hispanic student DpAll has declined each year from 2014 through 2017 but increased in 2018. This trend line is driven by drastic decreases in DpH*m* and general stability with slight fluctuations in DpH*f*. Work

[3] 2008 Minority Achievement Report, Maryland Community Colleges, University System of Maryland, Morgan State University, St. Mary's College of Maryland,
September 2008 https://mhec.state.md.us/publications/Documents/Research/2008Studies/2008MinorityAchvRep.pdf

needs to be done to obtain a positive trend line from year to year for DpH given that enrollment and degree attainment has actually increased each year for this group as previously discussed.

For a review of institution-level DpAll rates from 2018, please refer to Table 3 in Appendix C.

Group-to-Group Comparisons

When comparing all DpAll groups to each other, statewide, the difference between the group with the highest degree productivity (white females at 31.7) and the group with the lowest degree productivity (Hispanic males at 17.0) is 14.7. This means that statewide, Maryland is awarding bachelor's degrees to Hispanic males at about half the rate as degrees are being awarded to white women (See Table 2). DpW*f* rates may be driven by a decreasing FTE rate, however, bachelor degree attainment for this group has also decreased. The group with the second lowest degree productivity rate, right after DpH*m*, is African American males with a DpAA*m* rate of 18.2. Again, when compared to DpW*f*, the state is awarding bachelor's degrees to African American males at roughly half the rate as degrees being awarded to white women (the difference between the two groups is 13.5).

Asian and white students maintain the highest DpAll rates amongst all groups. These student groups have higher DpAll rates than African American and Hispanic students even though African American and Hispanic students have positive trends in both enrollment and degree attainment.

Table 2. Bachelor's Degrees per All in Maryland Four-Year Public Institutions, 2014 - 2018					
DpAll	2014	2015	2016	2017	2018
Dp*m*	22.3	22.1	22.2	21.3	22.2
Dp*f*	25.7	26.3	26.4	27.2	26.7
DpAM	18.9	19.5	20.1	20.3	20.7
DpAM*m*	17.0	17.3	17.9	17.5	18.2
DpAM*f*	20.3	21.2	21.8	22.6	22.7
DpH	20.9	20.8	19.7	18.8	19.8
DpH*m*	18.1	18.1	17.2	15.3	17.0
DpH*f*	23.7	23.6	22.4	22.7	22.9
DpAS	28.2	28.5	28.8	29.2	28.8
DpAS*m*	28.0	24.9	27.9	26.6	27.9
DpAS*f*	28.4	32.8	30.0	32.3	29.9
DpW	28.3	28.1	28.2	28.3	28.3
DpW*m*	25.8	25.6	25.6	24.8	25.3
DpW*f*	31.0	30.8	31.1	32.5	31.7
Notes: Statewide degree productivity benchmark = 25.0 Figures in green indicate rates which meet or exceed 25.0. Figures in red indicate rates below 25.0.					

Enrollment, FTE, and Degree Trends: 2014-2018

To support DpAll data and figures, it is important to analyze 12-month enrollment, FTE, and bachelor's degree attainment trend data separately to ensure the trends being analyzed are driven by factors other than declining enrollments or degrees.

Twelve-month enrollment from 2014 to 2018 increased each year for each group with a few exceptions. The headcount and five-year percent change increased for each group, although the rate of change for each varied. The enrollment headcount for white men and white women decreased slightly (see Figure 3). Enrollment of African American and Hispanic students, however, increased each year, which is a notable trend as it pertains to the DpAll analysis. These students have positive trends in enrollment, FTE enrollment, and degree attainment yet have the lowest DpAll rates when compared to their counterparts (see Figures 3, 4, and 5).

The 12-month FTE trend data by group (Figure 4) show similar trends to the enrollment data. Most notably, underrepresented minorities have large positive rates of change from 2014-2018.
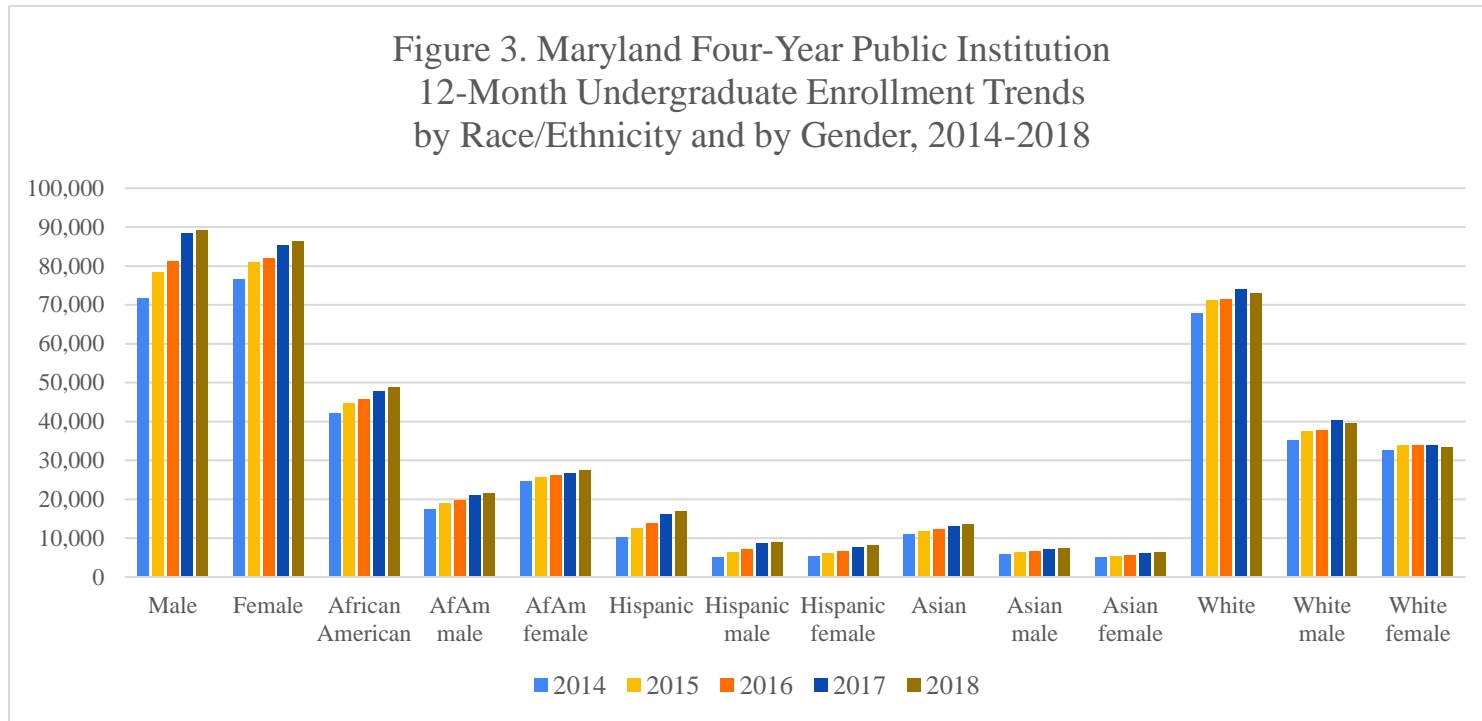
Figure 3. Maryland Four-Year Public Institution
12-Month Undergraduate Enrollment Trends
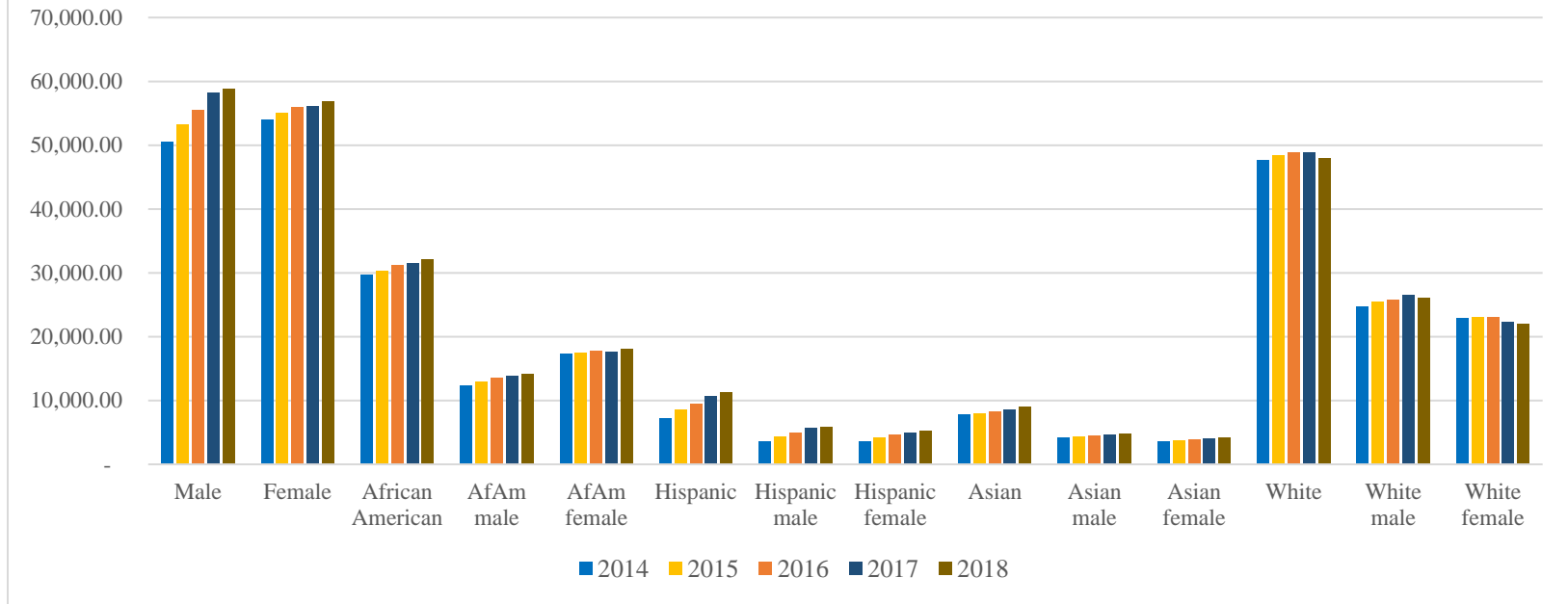by Race/Ethnicity and by Gender, 2014-2018

Figure 4. Maryland Four-Year Public Institution 12-Month FTE Trends by Race/Ethnicity and by Gender, 2014-2018

Degree attainment from 2014-2018 also increased each year for all groups except amongst female Asian, and white students. (see Figure 5). Similar to enrollment trends, degree trends for African American and Hispanic students saw annual increases.

Figure 5. Maryland Four-Year Public Institution Bachelor's Degree Trends by Race/Ethnicity and by Gender, 2014-2018
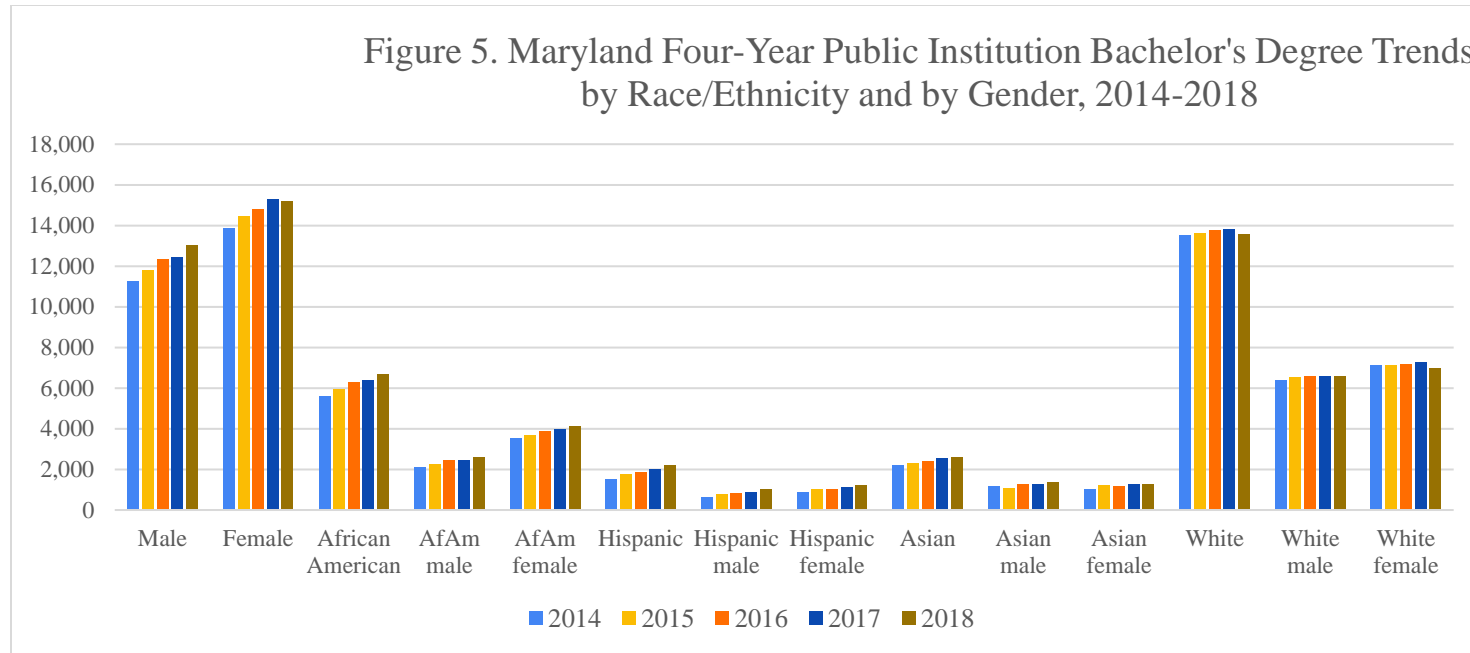
With the exception of Asian and white students both enrollment and degree attainment increased each year for each demographic group. Some groups have higher enrollment counts and degree attainment than others, but the numbers nevertheless have increased annually.

Maryland's four-year public institutions' trends in enrollment and degree completion by race and ethnicity somewhat mirror national patterns. Nationally, enrollment of white students has been generally stable, but statewide enrollment of white students has decreased. Both nationally and statewide, bachelor's degree attainment has increased annually for Black and Hispanic students[4].

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[4] https://nces.ed.gov/programs/digest/d18/tables/dt18_322.20.asp

Conclusions, Policy Recommendations, and Next Steps

Certain minority student groups who are historically underrepresented in higher education in Maryland have positive trends in enrollment, FTE enrollment, and degree attainment yet have the lowest DpAll rates when compared to their counterparts. Specific examples of this pertain to African American male students (DpAA*m*) and Hispanic male students (DpH*m*). This may mean that there are less obvious factors taking place (such as poverty[5], lack of parental or societal support, or unstable living situations, for example), which require further investigation.

Avenues to help address gaps include but are not limited to federal and state legislation, county support, private-public partnerships, institutional policies, support from governing boards, and community involvement. Further, state and institutional solutions should mirror national recommendations, as appropriate, for closing racial inequity gaps in degree attainment.

Federal Recommendations

The White House Initiative on Educational Excellence for African Americans has made recommendations to support African American academic outcomes, which can serve to help all student groups needing additional support.[6] These recommendations include:

- Implement cultural competency professional development for institution faculty and staff.
- Incentivize and support educators in developing and using culturally relevant curricula.
- Shape classroom practices and content to connect with the cultures students have lived in and experienced.
- Improve practices for recruiting and retaining more educators of color.

Credentialed Faculty

In mirroring federal recommendations, institutions should require their faculty to teach with practices that have been previously used to improve student achievement and close equity gaps. For example, some faculty have found that becoming ACUE-credentialed[7] has been helpful in closing achievement and completion gaps at certain institutions.

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[5] U.S. Department of Education https://www2.ed.gov/offices/OPE/AgenProj/report/theme1a.html

[6] U.S. Department of Education, "The White House Initiative on Educational Excellence for African Americans" https://sites.ed.gov/whieeaa/

[7] Broward College, Research Brief 13, "Course Completion Gap Closed for Black Students and Gap in Passing Courses Closed for Pell-Eligible Students Taught by ACUE-Credentialed Faculty at Broward College," May 2020. https://acue.org/efficacy_reports/broward-college-students-report-stronger-instruction-among-acue-credentialed-faculty/

Equity Audits

Another way to address inequitable outcomes is through the use of equity audits.[8] Equity audits are an evaluation of inequities that have become a popular method of analysis in K-12 schools. Postsecondary education can use equity audits to serve as a benchmarking tool to identify and address disparities in educational systems which will help address disparities in outcomes for students. These audits also help identify unintentional biases that may exist in institution policies.

Mandatory Help

Targeted and invasive interventions can also help student groups increase their DpAll rates, with particular emphasis on DpAA*m* and DpH*m* rates, in the form of free and mandatory tutoring in areas of need, mandatory peer mentoring and advising, and mandatory non-peer mentoring and advising with frequent check-ins. More research and analysis should also be done on how financial need affects DpAll rates and possible solutions to address gaps which are created due to financial need. The State Higher Education Executive Officers Association (SHEEO), published a report which provides a quality foundation for the work which should be done to analyze financial-aid and need for students in postsecondary education.[9]

Bringing Student/Youth Voices into Policy-Making

It is also important to recognize the value of including student/youth voices into the policy making process, as it is advantageous to include the perspectives and ideas of those the policy will be impacting. Research suggests that "when adults perceive young people as valuable resources that can inform many of the decisions that impact them, they also see improvement in the quality of the decisions that are made."[10]

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[8] Inside Higher Ed, "Equity Audits Should be Commonplace," March 2020. https://www.insidehighered.com/views/2020/03/25/more-colleges-should-use-equity-audits-address-inequalities-their-institutions

[9] State Higher Education Finance (SHEF) Report, 2019. https://shef.sheeo.org/report/

[10] Portland State University, "Assessing the Meaningful Inclusion of Youth Voice in Policy and Practice: State of the Science," 2018. https://pdxscholar.library.pdx.edu/cgi/viewcontent.cgi?article=1230&context=socwork_fac

Collaboration

Lastly, institutions can collaborate with nonprofit organizations and other community partners in creating programs which aim to help specific student groups, such as MDRC's Men of Color College Achievement Project,[11] and look to national postsecondary education leaders, like SHEEO,[12] which publishes relevant project reports and data.

When inclusive degree productivity measures are analyzed, education leaders can make informed decisions and provide targeted interventions to increase degree productivity in the state.

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[11] MDRC "Men of Color College Achievement (MoCCA) Project" https://www.mdrc.org/project/men-color-college-achievement-mocca-project#overview
[12] State Higher Education Executive Officers Association, https://sheeo.org/our-work/

Methodology

While 12-month FTE can be found in IPEDS, FTE for each demographic group is not readily available and therefore has been calculated for each group discussed in this report. For example, for a given year, Degrees per Female (DpF) is calculated by dividing the number of total bachelor's degrees awarded to female students by the 12-month FTE enrollment of undergraduate female students and multiplying the ratio by 100. Using the same example, 12-month *female* FTE is calculated by taking the percentage of females of the total 12-month enrollment and multiplying that number by the overall 12-month FTE, which is provided by IPEDS. Therefore, the total number of female undergraduate students enrolled (X) divided by the total undergraduate enrollment (Y) and multiplied by 100 gives the percentage of female undergraduate students of the total undergraduate population (Z).

$$(X/Y)*100 = Z\%$$

The percentage of female students is then multiplied by the 12-month FTE for a given year (N) to produce an estimated 12-month FTE for female students in year (N).

$$Z\%*12\text{-month FTE in year (N)} = \text{Female 12-month FTE for year (N)}$$

After calculating each respective 12-month FTE for a given year, DpAll is calculated by dividing the total number of bachelor's degrees awarded in a given year for a specified student group (female students for this example) by the 12-month FTE of the specified student group, multiplied by 100:

$$\text{Total Bachelor's Degrees of student group in year N/ 12-month FTE of student group}*100 = \text{DpAll}$$

Using the above example, the calculation would produce DpF (degrees per female students).

Appendix B

Analysis Limitations

Like all degree productivity measures, the measure of DpAll alone is not universally telling of an institution's success or future success because the rate of DpAll fluctuates and may be affected by many factors, such as institutional admission policies, enrollment of part-time and full-time students, and the amount of time students spend in undergraduate programs. The measure does not address various forms of inequities, such as socioeconomic differences and financial aid needs. The measure also does not address graduate degree, associate degree, or certification attainment. Further, this study is not cohort-based but rather utilizes a snapshot in time of enrollment combined with a snapshot of degree attainment in a given year. Analysis relies on complete data as reported by Maryland four-year public institutions to IPEDS.

Table 3. Bachelor's Degrees per All in Maryland Four-Year Public Institutions by Institution, 2018													
Institution Name	**Total Men**	**Total Women**	**Total Asian**	**Asian Men**	**Asian Women**	**Total African American**	**African American Men**	**African American Women**	**Total Hispanic**	**Hispanic Men**	**Hispanic Women**	**Total White**	**White Men**	**White Women**
Bowie State University	14.5	17.7	16.1	15.0	17.6	16.8	15.0	18.0	15.9	14.3	16.6	24.3	14.8	30.0
Coppin State University	19.5	19.5	39.1	35.2	40.2	19.3	20.2	19.1	26.8	14.1	32.8	15.7	0.0	29.3
Frostburg State University	20.5	27.1	30.7	22.8	35.3	19.7	16.3	23.4	27.4	23.2	30.5	27.3	24.0	30.0
Morgan State University	17.1	19.2	32.8	33.8	30.4	17.5	15.5	19.1	23.4	25.1	22.2	27.1	31.0	22.6
Salisbury University	24.4	26.9	14.9	13.1	16.4	21.5	20.7	22.1	22.9	22.8	22.9	26.9	25.2	28.2
St Mary's College of Maryland	20.7	22.2	22.0	22.6	21.7	19.6	18.8	20.5	26.0	32.8	20.8	21.8	20.4	22.8
Towson University	23.3	26.6	22.4	22.3	22.5	20.4	17.8	21.9	20.5	17.1	22.7	28.3	26.4	29.7
University of Baltimore	32.7	34.3	40.2	56.5	29.2	31.5	27.0	33.9	49.8	55.7	44.1	40.3	39.2	41.4
University of Maryland Eastern Shore	17.0	18.4	14.1	15.1	12.9	16.7	15.0	18.1	12.0	15.7	8.8	22.6	24.9	19.7
University of Maryland, Baltimore	55.3	51.9	53.9	50.4	54.6	47.9	41.2	49.3	49.0	27.7	51.8	55.5	70.5	53.6
University of Maryland, Baltimore County	23.8	28.0	26.7	25.7	27.7	22.7	19.6	25.5	25.2	21.6	28.6	27.5	25.3	30.8
University of Maryland, College Park	25.8	27.4	25.9	26.2	25.5	23.6	21.9	24.9	26.4	24.1	28.5	28.1	27.8	28.5
University of Maryland Global Campus	21.4	25.7	25.1	24.1	26.7	22.0	20.6	23.4	17.5	16.7	18.8	26.3	23.2	31.4

Notes: Statewide degree productivity benchmark = 25.0

Figures in green indicate rates which meet or exceed 25.0. Figures in red indicate rates below 25.0.

Outlier rates at UMB may be due to its large share of transfer students; transfer students usually take less than four years after transfer to complete their degrees.