



Follow-Up Survey of 2016 Bachelor's Degree Recipients at Maryland Public Four-Year Institutions

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Executive Summary

Every three years, the Maryland Higher Education Commission (MHEC) reports on statewide surveys of graduates from Maryland public four-year colleges and universities. This report presents results of the most current *Bachelor's Graduate Follow-Up Survey*, which includes responses from graduates who earned their degrees from a public four-year campus in Maryland during the 2015-2016 academic year. This report provides data on respondent demographics and data on post-baccalaureate outcomes (e.g., employment, residency, and additional higher education). In addition, analysis is provided tied to two research questions that aim to explore data on post-graduate outcomes, perceptions of preparedness for work and school, and perceptions of the role of financial aid. Appendices include trend data on a number of metrics that have been tracked for each cycle since 1985.

In 2016, 27,682 bachelor's degrees were awarded by Maryland public four-year institutions. Institutions surveyed these graduates, and, after adjusting the cohort to account for those students who had incomplete or missing contact information, the statewide response rate to the survey was 16.1%. This rate does mask some large discrepancies in response rates when comparing institutions. While it is difficult to reach any generalizable conclusions from a small sample of respondents, there is value in collecting and reporting on alumni data, especially due to the fact that data of perceptions and experiences are not captured, statewide, in any other way.

Analysis of post-graduation outcomes for the respondents shows that the overwhelming majority (85.5%) were working, with almost three-quarters working full time. These rates of employment do not vary a great deal by race, ethnicity, or gender. The data also showed there were wage disparities among respondents when the data were analyzed by major area of study, race/ethnicity, and gender. The patterns found in the survey data mirror national trends wherein college-educated women and minorities often earn lower wages than their male, white peers.

The survey data also show that the majority of respondents were satisfied with their preparation for work and/or further graduate study. Respondents working full time were not only satisfied with the preparation their undergraduate institution provided them for work, but they were working in jobs that required a bachelor's degree. In addition, most of those working in jobs where a bachelor's degree was required were more likely to be working in fields related to their area of study. Similarly, those respondents who enrolled in graduate or professional study felt that their undergraduate institution provided them suitable preparation for graduate school.

In response to questions about the role of financial aid, most respondents indicated that it was central to their successful completion of their undergraduate degree; some minority student populations reported relying on it more heavily than others as a means to persist to graduation. These students seemed to be most concentrated at minority-serving institutions.

Findings from this analysis could inform institutional and state financial aid policies in an effort to ensure adequate aid is in place to help students persist to graduation. In addition, attention could be paid to address persistent wage gaps, with a concerted effort from all stakeholders.

Introduction

Every three years, the Maryland Higher Education Commission (MHEC) reports on statewide surveys of graduates from Maryland public four-year colleges and universities. These surveys are a valuable tool that helps the State and campuses better understand student outcomes and students' perceptions about their educational experiences. This follow-up survey of bachelor's degree recipients is conducted one year after the students have graduated.

This report presents results of the most current *Bachelor's Graduate Follow-Up Survey*, which includes responses from graduates who earned their degrees from a public four-year campus in Maryland during the 2016 academic year. This report provides data on respondent demographics and data on post-baccalaureate outcomes (e.g., employment, residency, and additional higher education). In addition, analysis is provided tied to two research questions that aim to explore data on post-graduate outcomes, perceptions of preparedness for work and school, and perceptions of the role of financial aid. Appendices include trend data on a number of metrics that have been tracked for each cycle since 1985.

How the Survey Data Are Used

Selected results from the survey are included in each college's Performance Accountability Report (PAR) and in the Commission's Managing for Results (MFR) submission. The Bachelor's Graduate Follow-Up Survey provides MHEC with data that are currently not captured any other way. These include satisfaction with educational preparation, unemployment data, and workforce placement information.

Methods

MHEC developed and approved a common set of 17 questions in collaboration with the University System of Maryland, Morgan State University, and St. Mary's College of Maryland. The follow-up surveys were distributed by the institutions to students who earned a bachelor's degree at a Maryland public four-year university. Each institution administered its own survey, with institutions having the option of including items that are specifically relevant to their respective student populations in addition to the 17 core questions. Only the responses to the common questions were submitted to MHEC for analysis.

Data suppression methods have been used in presenting some of the data in this report. Some tables (e.g., statewide major areas of study) only report on data with more than 50 respondents. Other tables (e.g., employment status of respondents by race and gender) have asterisks in place of data with small counts. These methods are employed to both help protect the privacy of respondents and to address issues of data reliability and validity (often in question when using small numbers). Despite this, there are other analyses completed for this report that include small counts because the analysis was tied to a research question. These data were presented as percentages and were only shared when there was no risk of revealing respondent identity.

Response Rate and Limitations

In 2016, 27,682 bachelor's degrees were awarded by Maryland public four-year institutions. As Table 1 shows, after adjusting the cohort to account for those students who had incomplete or missing contact information, the statewide response rate was 16.1%. This rate does mask some large discrepancies in response rates when comparing institutions.

As is demonstrated in Table 1, several institutions had response rates well above the average (e.g., St. Mary's College of Maryland and the University of Maryland, Baltimore). Yet these institutions' responses are not in proportion to their number of bachelor's degree recipients in the overall pool. For example, the University of Maryland College Park constitutes 26.2% of the 2016 graduating class, yet represents 37.2% of the respondent pool. Therefore, caution should be applied in generalizing the results of this survey as representative of all graduates.

Table 1: Survey Response Rate by Institution and Statewide

Institution	Total Number of Bachelor's Degrees Awarded 2016	Number of Bachelor's Degree Recipients (reported by institution)	Number for Adjusted Cohort (reported by institution)	Number of Responses	Adjusted Response Rate
Bowie State University	833	846	787	29	3.7%
Coppin State University	465	464	419	17	4.1%
Frostburg State University	1,014	982	765	77	10.1%
Salisbury University	2,040	1,835	1,663	325	19.5%
Towson University	4,638	4,416	4,410	511	11.6%
University of Baltimore	721	729	669	92	13.8%
University of Maryland, Baltimore	399	398	398	105	26.4%
University of Maryland, Baltimore County	2,630	2,452	2,439	225	9.2%
University of Maryland College Park	7,253	6,748	6,746	1,479	21.9%
University of Maryland Eastern Shore	574	574	232	39	16.8%
University of Maryland University College	5,684	4,983	4,911	923	18.8%
Morgan State University	902	901	901	41	4.6%
St. Mary's College of Maryland	529	432	432	113	26.2%
Statewide	27,682	25,760	24,772	3,976	16.1%

It is important to note that the low response rate for the alumni survey is a severe limitation of this form of research. It is difficult to reach any generalizable conclusions from a small sample of respondents. While this report has drawn some conclusions from the data, the conclusions should be treated as preliminary, and additional research is needed to strengthen these conclusions.

It is also important to note that additional limitations of survey research generally include: 1) response bias (wherein the respondent may be inclined to provide false or inaccurate answers), 2) instrument reliability and validity (do the questions yield a consistent result over time and do the questions measure what they are intended to measure), and 3) missing responses.

Despite these limitations, there is value in collecting and reporting on alumni data, especially due to the fact that data of perceptions and experiences are not captured, statewide, in any other way.

That said, because of the small sample size and possible lack of representativeness, this report will primarily focus on statewide findings. A number of institutional-level data tables are presented in the appendices of this report.

Respondent Demographics

The following section provides some analysis of the survey respondents' demographic data and other data tied to the respondent pool. Where relevant, the data from the survey are compared to statewide data.

Table 2 provides demographic data for the survey respondents and the statewide bachelor's degree recipients in 2016. As this table shows, the demographics for the response pool are fairly reflective of those in the entire pool of bachelor's degree recipients.

Table 2: Respondent and Statewide Profile

Race or Ethnicity	% of Respondents	2016 Bachelor's Degree Recipients
White	55.4%	53.2%
African American	19.2%	20.4%
Asian	8.4%	8.7%
Hispanic	7.0%	7.0%
Unknown	4.7%	3.6%
Two or More Races	2.7%	3.6%
Foreign	2.2%	3.2%
Hawaiian/Pacific Islander	0.3%	0.2%
Native American	0.2%	0.2%
Gender	% of Respondents	2016 Bachelor's Degree Recipients
Women	58.1%	56.1%
Men	41.4%	43.9%
Unknown	0.3%	0.0%

Table 3 (page 4) shows that while no one area of baccalaureate study was most dominant among the respondents, the most popular majors were business, social science, and computer science. This distribution reflects the overall statewide data on the 2016 bachelor's degree recipients.

Table 3: Survey Respondents and Statewide Major Areas of Study

Major Area of Study	% of Respondents	% of 2016 Bachelor's Degree Recipients
Business	16.6%	17.3%
Social Science	13.9%	13.1%
Computer Science	10.0%	9.2%
Psychology	7.5%	6.9%
Engineering	7.3%	5.3%
Health	7.0%	8.7%
Biological Sciences	6.6%	6.7%
Education	6.4%	6.9%
Communications	5.9%	5.2%
Letters	3.3%	3.2%
Public Affairs	2.4%	3.3%
Fine Arts	2.3%	4.2%
Interdisciplinary Studies	2.1%	3.0%
Agriculture	1.8%	1.0%
Mathematics	1.6%	1.5%

Note: Table only includes data for major areas of study with 50 or more respondents.

Data on Post-graduate Outcomes: Residency, Education, and Employment

This section explores the results from a series of prompts included in the alumni survey that are tied to post-graduate outcomes. The survey includes questions about residency, higher education, employment, and median salary. Each is discussed briefly below.

State Residency and Post-graduate Outcomes

Of the 3,976 respondents, 2,565 (64.5%) responded that they were currently living in Maryland, 1,346 (33.9%) indicated that they lived elsewhere and another 65 did not respond to the question.

Respondents were also asked about their in-state residence at the time of enrollment to their bachelor's degree institution. When the respondents' current residency is compared to their residency at the time of enrollment (Table 4, next page), the data shows that the vast majority (2,337) of current in-state residents were also Maryland residents when they enrolled. Another 195 respondents indicated they were current residents, but were not so at the time of enrollment. What these data reveal is that the majority of survey respondents were originally from Maryland and continued to reside in Maryland after graduation. Over 90 percent of the respondents currently residing in Maryland were also employed, enrolled in additional higher education, or both.

Table 4: Respondent Current Residence and Residence at Time of Enrollment

		State Resident at Time of First Enrollment			
		Maryland		Elsewhere	
		Count	%	Count	%
Current Residence	Maryland	2,337	92.3%	195	7.7%
	Elsewhere	524	39.1%	817	60.9%

Additional Higher Education

Respondents were asked several questions tied to post-baccalaureate enrollment in higher education. Table 5 shows that, of the 3,976 respondents, 35.2% (1,398) indicated pursuit of further higher education upon graduation. Of those pursuing higher education, the majority reported seeking a master’s degree. A smaller percentage reported re-enrolling to obtain an undergraduate-level award (e.g., undergraduate certificate, associate’s degree, or bachelor’s degree) or to earn additional credits not tied to a degree or certificate.

Table 5: Post-graduate Education

	% Enrolling After Graduation of All Respondents (N=3,976)
Undergraduate-Level Award	4.8%
Master’s Degree	21.6%
Doctorate	4.0%
Graduate-Level Certificate	1.1%
First Professional	2.3%
Non-Degree Seeking	1.4%
Total Re-Enrolled at Any Level	35.2%
Not Enrolled in Higher Education	64.8%

Additional aspects of respondents’ pursuit of higher education will be further discussed in the section entitled “Respondents and Post-graduate Outcomes” (page 10), which explores data related to students’ post-graduate outcomes and perceptions of preparation.

Employment

The survey asked a series of questions tied to the respondents’ employment. These included questions regarding employment status, field of work, and salary.

Table 6 (next page) provides employment outcomes for survey respondents by gender and race or ethnicity. The majority of respondents are employed full time, and rates of full-time employment are fairly consistent when analyzed demographically. The largest difference is the percentages of men and women working full time, with an 8.9 percentage point gap between them. This difference may be because of an added finding. Analysis of re-enrollment in higher education by gender shows that a greater proportion of women respondents (62.0%) indicated they had re-enrolled compared to men (37.5%). Therefore, women may be devoting all of their time to additional education, rather than working full time or part time in conjunction with enrollment.

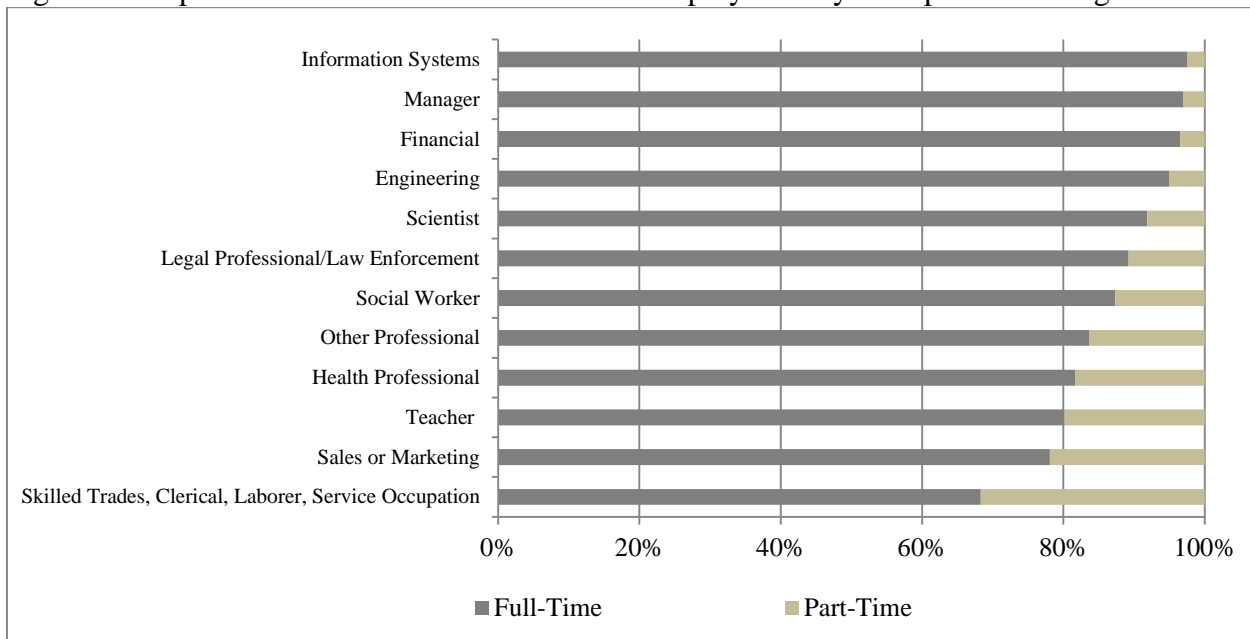
Table 6: Survey Respondents and Employment Status by Race and Gender

Employment	Full-time		Part-time		Not employed - seeking employment		Not employed - not seeking employment	
	Count	%	Count	%	Count	%	Count	%
Men	1,288	78.9%	145	8.9%	121	7.4%	79	4.8%
Women	1,601	70.0%	319	13.9%	209	9.1%	159	6.9%
White	1,639	75.0%	259	11.9%	156	7.1%	131	6.0%
African American	540	71.7%	88	11.7%	88	11.7%	37	4.9%
Hispanic	216	78.0%	*	*	*	*	*	*
Asian	238	71.9%	*	*	*	*	*	*
Two or More Races	78	74.3%	*	*	*	*	*	*
All	2,904	73.7%	464	11.8%	333	8.5%	239	6.1%

Note: These data are based on 3,940 responses. Responses totaling 50 or fewer are marked with an asterisk.

When full-time and part-time employment is analyzed across occupational categories (Figure 1), a number of differences emerge. Those working in skilled trades, as clerical staff, or in service occupations were the most likely to be employed part time. Conversely, those working in management, science and technology, or the financial sector were most likely to be employed full time.

Figure 1: Respondents' Full-Time and Part-Time Employment by Occupational Categories



Note: Figure only includes data for major areas of study with 50 or more respondents.

It is important to note that some respondents were managing both post-graduate employment and re-enrollment in college or graduate school. When data on employment are analyzed in conjunction with data on respondents' pursuit of additional higher education, survey findings

show that the majority (77.7%) of those who re-enrolled in higher education were also employed. Of the 1,398 who responded that they were pursuing additional higher education, the majority of them (813 or 58.2%) indicated they were working full time (Table 7).

Table 7: Full- and Part-time Employment and Enrollment in Post-Baccalaureate Education

	Are you employed?			
	Yes, Full-time		Yes, Part-time	
	Count	% of Those Enrolled in Higher Education	Count	% of Those Enrolled in Higher Education
Enrollment in Higher Education Following Graduation	813	58.2%	273	19.5%

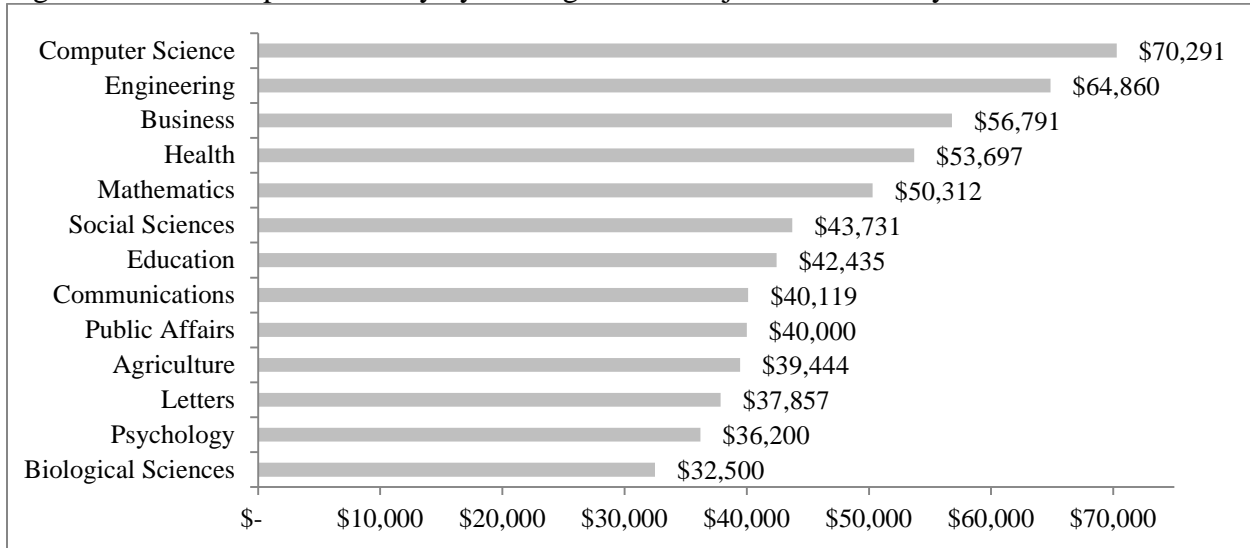
Note: The remaining respondents enrolled in additional higher education reported being unemployed or did not respond to employment questions in the survey..

Median Salary

Respondents were asked to select their annual salary or wage bracket for their employment at the time of the survey, and the data presented in Figures 2 and 3 (next page) provide analysis of these data by undergraduate major area of study, gender, and race/ethnicity. In this section, analysis examines only those employed full time.

As Figures 2 and 3 show, median salary differs by major area of undergraduate study, race/ethnicity, and gender. Figure 2 reveals a substantial wage gap among respondents. For example, those who obtained degrees in biology and psychology report earnings approximately half that of those who studied computer science and engineering. These findings are similar to those in the occupational categories reflected in Figure 1, above. Information systems and engineering occupations are associated with high rates of full-time employment in Figure 1, and the corresponding majors are associated with high wages in Figure 2. However, it is important to note that there are significant differences as well. For example, despite the relatively high employment rate of scientists, graduates in biological sciences report the lowest salaries.

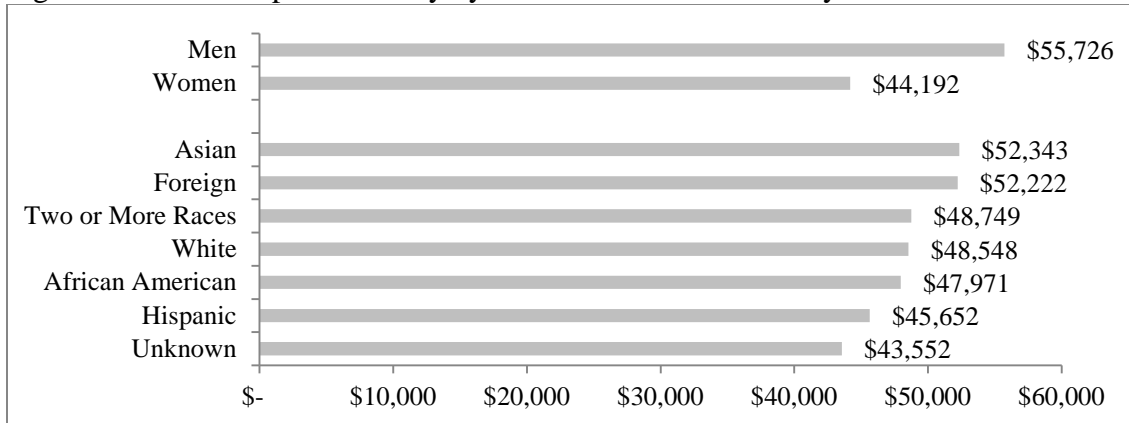
Figure 2 Median Reported Salary by Undergraduate Major Area of Study



Note: Figure only includes data for major areas of study with 50 or more respondents.

Analysis by gender and race/ethnicity reveal additional, but smaller, differences among groups. Men report a median salary 1.3 percent higher than women. Put another way, for every \$1.00 men reported earning, women reported earning \$.79. This is on par with the national wage data, which reports that the gender earnings ratio for full-time year round workers was 79.6 in 2015.¹

Figure 3: Median Reported Salary by Gender and Race/Ethnicity



Note: Figure only includes data for major areas of study with 50 or more respondents.

The median salary differences by race and ethnicity are slightly less than the differences reported between men and women, but the gaps are notable. For example, the gap between Hispanics and Asian respondents is such that for every \$1.00 earned, on average, by the Asian respondents, the Hispanic respondents earned an average of \$.87.

¹ U.S. Department of Labor, Women’s Bureau, *Women’s Earnings and the Wage Gap* Issue Brief, https://www.dol.gov/wb/resources/Womens_Earnings_and_the_Wage_Gap_17.pdf (retrieved March 8, 2018).

Research indicates that these gaps may be driven by differences in educational choices, occupation, and other measurable factors.² In addition, labor force experiences, such as pay disparities among equally skilled and educated workers in the same industries, can be drivers of wage gaps among demographic groups.³

Summary

These employment, education, and state residency results, taken together, provide some insight into the work and education pathways of Maryland's public four-year institutions' recent graduates. First, approximately one-third of the respondents were pursuing additional higher education one year after they graduated with a bachelor's degree. Of those seeking additional education, almost three-quarters (77.7%) were also working either full time or part time.

Second, the overwhelming majority of all respondents (85.5%) were working, with almost three-quarters working full time. These rates of employment do not vary a great deal by race, ethnicity or gender. Analysis did reveal that part-time employment was more prevalent for those working in the service, skilled trades, or clerical sectors. Full-time employment was more prevalent in management, IT, finance, and engineering fields.

Third, there were wage disparities among respondents when the data were analyzed by major area of study, race/ethnicity, and gender. Those graduating with computer science and engineering degrees reported higher wages than those who had majored in the biological sciences and psychology. One possible reason for these discrepancies is that those with computer science and engineering degrees were able to find immediate, full-time work in their fields. On the other hand, those who had studied biology and psychology may need to pursue additional education to obtain higher wages, as these two areas of study often require master's or doctoral level study to teach or engage in research. Moreover, occupations do not always correspond directly to undergraduate fields of study. Retail and legal occupations, for example, draw individuals with many different types of undergraduate degrees.

Wage disparities prevailed when the data were analyzed by gender and race/ethnicity. The patterns found in the alumni survey data mirror national trends wherein college-educated women and minorities often earn lower wages than their male, white peers.

Lastly, the majority of respondents continued to reside in Maryland upon graduation from college. The vast majority of the respondents residing in Maryland were contributing to the overall Maryland economy through employment, the pursuit of additional education, or both.

Respondents and Post-graduate Outcomes

This section will explore two sets of research questions tied to the survey data. Again, although there are limits to the representativeness of these data, they are worth exploring as they give

² Eileen Patten, *Racial, Gender Wage gaps Persist in US Despite Some Progress*, Pew Research Center, July 1, 2016, <http://www.pewresearch.org/fact-tank/2016/07/01/racial-gender-wage-gaps-persist-in-u-s-despite-some-progress/> (retrieved March 8, 2018).

³ Erik Grodsky and Devah Pager, *The Structure of Disadvantage: Individual and Occupational Determinants of the Black-White Wage Gap*, *American Sociological Review*, 2001, no. 4, 542-567.

insight into the experiences of those graduating from Maryland’s public four-year colleges and universities.

Research Question 1: How well are institutions preparing graduates for post-graduate opportunities? How do students perceive their preparation for work or additional education?

Exploring the data tied to these questions will follow two paths, one tied to post-graduate employment, and the other tied to post-baccalaureate education.

Table 6, located on page 7 of this report, provided a profile of survey respondents’ employment status. As this showed, the majority of respondents (73.7%) were employed full time, and another 11.8% were working part time. A smaller percentage were either looking for work (8.5%) or were not working nor actively seeking employment (6.1%).

Respondents were also asked a series of questions tied to their perceptions of how well their undergraduate institution prepared them for work or graduate or professional study, whether their employment was related to their major area of study, and whether they perceived that a bachelor’s degree was necessary for the work they were engaged in. All of these will be explored in the following section.

Post-graduate Employment

Of the respondents who were working full time or part time, the majority of them indicated that their higher education institution provided good to excellent preparation for their job. The data in Table 8 show that these ratings are slightly higher for those who were employed full time. Conversely, those who were employed part time were more likely to indicate that they were uncertain as to the level of preparation they received. This response may be driven by their employment status; those who were working part time may have been more likely to have been in jobs unrelated to their major area of study.

Table 8: Perceptions of Preparation for Job by Employment Status

How well did your higher education institution prepare you for your current job?		
	% Working Full Time	% Working Part Time
Excellent Preparation	22.6%	17.1%
Good Preparation	45.5%	35.0%
Fair Preparation	20.0%	22.6%
Poor Preparation	4.8%	6.7%
Uncertain	7.2%	18.7%

Answers to subsequent questions on the survey provide further insight into the responses illustrated in Table 8. An analysis of full- and part-time employed respondents shows sizeable differences in responses to the prompt “Was a bachelor’s degree required in order to obtain your current job?” Table 9 (next page) reveals that 64.8% of respondents who were working full time indicated that a bachelor’s degree was required for the job, while only 34.6% of those employed part time needed a bachelor’s degree for their job. One implication of these data is that those

working part time were less motivated, or less able, to be working in positions requiring baccalaureate degrees. For example, a graduate working part-time while pursuing education may be willing to accept work in a field unrelated to their long-term career objectives.

Table 9: Perceptions of Necessity of Degree by Employment Status

Was a bachelor's degree required in order to obtain your current job?		
	% Working Full Time	% Working Part Time
Yes	64.8%	34.6%
No	30.5%	58.1%
I am not sure	4.8%	7.3%

An analysis of the relationship between the relevance of the respondents' college major to the respondents' work and their job's requirement for a bachelor's degree bears this out (Table 10). Those who felt that their major was directly related or somewhat related to their work were in jobs where a bachelor's degree was required. Conversely, the majority of those who were in a job not related to their major were not in jobs in which their bachelor's degree was required.

Table 10: Relationship between Necessity of Degree and Job's Alignment with College Major

Was a bachelor's degree required for your job?	How related is your job to your college major?			
	Directly related	Somewhat related	Not related, but that is not important to me	Not related, but I would like a job related to my major
Yes	74.9%	60.1%	48.9%	24.7%
No	20.2%	34.9%	43.7%	71.0%
I am not sure	5.0%	5.0%	7.4%	4.3%

Taken together these data show that the majority of respondents working full time were not only satisfied with the preparation their undergraduate institution provided them for work, but they were working in jobs that required a degree. In addition, most of those working in jobs where a bachelor's degree was required were more likely to be working in fields related to their area of study. Conversely, those respondents working part time were more likely to be employed in fields unrelated to their major; this might lead them to perceive that they were over-educated for the work. The next section will explore perceptions of those who were seeking additional education and the possible drivers of why respondents would seek additional higher education one year after graduation.

Post-baccalaureate Education

As discussed earlier in this report, 35.2% (1,398) respondents indicated they had re-enrolled in college to pursue additional education. Additional questions were asked tied to respondents’ perception of how well their undergraduate institution prepared them specifically for graduate or professional study.

Analysis of those respondents who specifically indicated they were pursuing graduate or professional study (n=1,126) shows that an overwhelming majority of those seeking an advanced degree felt they had received good or excellent preparation.(Table 11).

Table 11: Perceptions of Preparation for Graduate Study

How well did your undergraduate institution prepare you for graduate or professional study?	% of those pursuing an advanced degree
Excellent preparation	42.3%
Good preparation	41.9%
Fair preparation	13.4%
Poor preparation	2.4%

These results are helpful in understanding respondents’ perceptions of preparation for graduate school, but it is also of interest to discern what might be driving recent graduates to return to college so soon after completing their bachelor’s degree. Results can help better answer the research question “How well are institutions preparing students for post-graduate opportunities?”

In an effort to understand the choices and perceptions of those respondents who sought additional higher education, data were analyzed to see if employment, undergraduate major, or perceptions of satisfaction (or dissatisfaction) with their undergraduate education could be drivers of enrollment.

Findings show that students’ undergraduate major area of study may be a driver of the patterns of post-bachelor’s enrollment. When these data are analyzed by the respondents’ major area of study, some patterns emerge (Table 12). Those students whose undergraduate major was more closely aligned with additional post-graduate education (e.g. health, law, architecture, public affairs) were more likely to be pursuing an advanced degree or graduate certificate. Results also showed that certain areas of study had higher percentages of students seeking additional undergraduate-level awards; these seemed to be areas of study that required additional certification (e.g. education) or had lower earnings potential (fine arts).

Table 12: Select Undergraduate Major Areas of Study and Pursuit of Additional Higher Education

	Architecture	Education	Fine Arts	Health	Law	Public Affairs
Advanced Degree or Award Sought	100.0%	72.3%	70.8%	88.0%	92.3%	93.3%
Undergraduate Level or Lower Award Sought	0.0%	22.3%	25.0%	8.4%	7.7%	6.7%

Survey respondents were also asked “If you were to do it over, would you major in the same field again?” The majority of the respondents (2,385 or 63.7%) said they would probably or definitely do so.⁴

When this survey question was analyzed through the lens of the respondents who sought additional higher education (Table 13), those who were seeking an advanced degree were more positive about their undergraduate major selection (71.1% selected probably or definitely would choose the same major) than those who were pursuing additional undergraduate education (52.7% selected probably or definitely). These data may mean that those who are seeking additional undergraduate credentials may have felt, upon reflection, that the major they selected was not suitable for their personal and professional goals and therefore they engaged in undergraduate level work again in the hopes of securing a degree in a preferred area of study.

Table 13: Pursuit of Additional Higher Education and Satisfaction with Undergraduate Major

Continuing Education	Would you major in the same field again?				
	Definitely yes	Probably yes	Not sure	Probably no	Definitely no
Advanced Degree or Award Sought	43.9%	27.2%	9.8%	11.8%	7.2%
Undergraduate Level or Lower Award Sought	30.1%	22.6%	15.6%	19.4%	12.4%

Taken together, the analysis of respondents’ post-baccalaureate educational pursuits shows that those seeking an advanced degree feel suitably prepared by their undergraduate institution for graduate work. Reasons respondents may have re-enrolled in additional education may be tied to both the nature of their undergraduate area of study (e.g., those who majored in health may be continuing on in medical school or graduate school for research) or the requirements of the field (e.g., education majors may need additional certification to teach in Maryland or other states). Another reason may be tied to the respondents’ dissatisfaction with their undergraduate major; those who were unhappy with their choice may be seeking an opportunity to start again in a new area of study.

Summary

This section aimed to answer the research questions: Are institutions preparing graduates for post-graduate opportunities? How do students perceive their preparation for work or additional education?

The findings show that, for the most part, Maryland’s public colleges and universities are preparing graduates for post-baccalaureate opportunities. The data indicate that the vast majority of respondents were working, were enrolled in higher education, or both. Of those who were working, most felt that their undergraduate institutions prepared them for employment and that their major area of study was relevant and necessary for the work they were doing.

⁴ This reflects 2,385 of 3,743; 233 respondents did not answer this question in the survey.

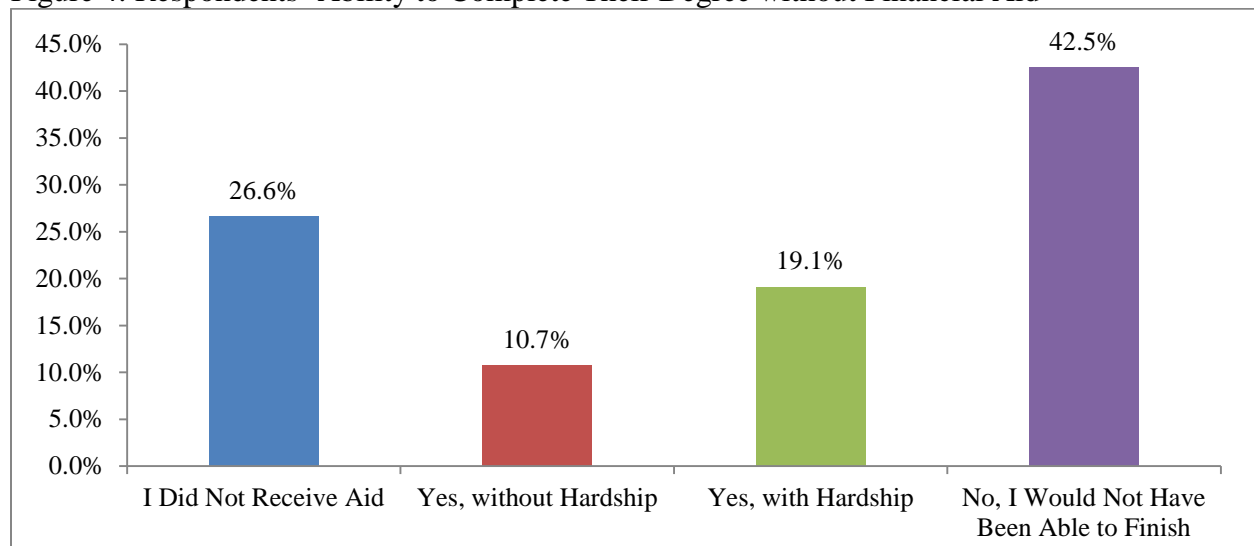
Those respondents who enrolled in graduate or professional study felt that their undergraduate institution provided them suitable preparation for graduate school. Respondents’ pursuit of additional education seemed to be driven, in part, by their undergraduate field of study. For some it was a natural extension of their undergraduate major (such as certification for education majors or law school for those who majored in law); for others it may have been a desire to pursue a field of study after dissatisfaction with the outcomes of their undergraduate major.

Research Question 2: How do those who faced financial difficulty funding college differ from those who did not, demographically and otherwise? Do they differ on post-graduate opportunities in comparison to those who did not face as much financial difficulty?

Role of Financial Aid

Respondents were asked the question “would you have been financially able to complete your degree without the financial aid you received?” As Figure 4 illustrates, the majority (42.5%) indicated that they would not have been able to finish their degree without aid. Another 19.1% indicated they would have faced major financial hardship for themselves or their family. Approximately one-tenth (10.7%) indicated that lack of aid would not have served as a barrier to completion, and about one quarter (26.6%) indicated that they did not receive any financial aid to pay for college.

Figure 4: Respondents’ Ability to Complete Their Degree without Financial Aid

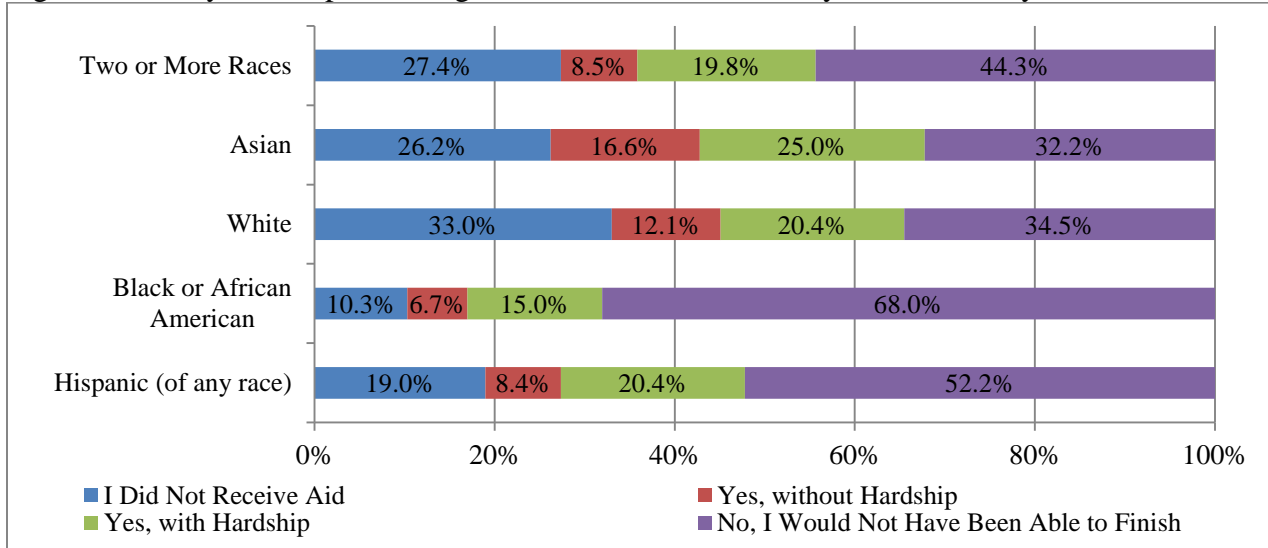


Note: Percentages do not total 100% because of missing responses.

Additional analysis shows that responses to this survey question differ by student demographics and other characteristics. A tabulation of responses to the survey question by race and ethnicity (Figure 5, next page) shows white students, students who identify as two or more races, and Asian students were the most likely to receive no aid (33.0%, 27.4%, and 26.2% respectively). Conversely, African American and Hispanic students were the most likely to have been unable to complete their degree without aid (68.0% and 52.2% respectively).⁵

⁵ These five categories of race and ethnicity were included because they have the highest representation within the sample.

Figure 5: Ability to Complete a Degree without Financial Aid by Race/Ethnicity



When these data were analyzed by institution (Table 14), the results were particularly noteworthy. For example, at eight of the 13 public four-year institutions, 50% or more of the respondents indicated that they would have been unable to finish college without the presence of financial aid.⁶

Table 14: Ability to Complete a Degree without Financial Aid by Undergraduate Institution

	I Did Not Receive Aid	Yes, without Hardship	Yes, with Hardship	No, I Would Not Have Been Able to Finish
Bowie State University	6.9%	3.4%	6.9%	82.8%
Coppin State University	5.9%	17.6%	11.8%	64.7%
Frostburg State University	19.5%	10.4%	19.5%	50.6%
Salisbury University	22.6%	6.6%	20.8%	50.0%
Towson University	25.4%	8.4%	16.2%	49.9%
University of Baltimore	9.8%	6.5%	16.3%	67.4%
University of Maryland, Baltimore	27.9%	0.0%	29.8%	42.3%
University of Maryland, Baltimore County	25.9%	13.8%	21.9%	38.4%
University of Maryland College Park	37.3%	15.4%	20.6%	26.7%
University of Maryland Eastern Shore	12.8%	2.6%	10.3%	74.4%
University of Maryland University College	17.0%	6.4%	18.3%	58.3%
Morgan State University	0.0%	9.8%	17.1%	73.2%
St. Mary's College of Maryland	29.4%	19.3%	18.3%	33.0%

⁶ Results should be interpreted with caution due to low response rates among some institutions.

As Table 15 (next page) shows, analysis of employment status and the students' ability to complete their degree without financial aid showed little difference among respondents. Therefore, the respondents' likelihood of post-graduate employment was the same regardless of their reliance on financial aid to fund their education.

Table 15: Employment Status by Ability to Complete a Degree without Financial Aid

Employment	I Did Not Receive Aid	Yes, without Hardship	Yes, with Hardship	No, I Would Not Have Been Able to Finish
Full-Time	73.8%	72.7%	77.4%	72.2%
Part-Time	11.2%	12.8%	10.4%	12.4%
Unemployed but Seeking Employment	7.7%	5.9%	5.9%	10.8%
Not Employed and Not Seeking Employment	7.3%	8.5%	6.2%	4.7%

Analysis of the salary data in conjunction with the question responses revealed few differences among those students who heavily relied on financial aid and those who did not. That said, it is notable that 20.5% of those earning \$70,000 or more after graduation faced no financial hardships in funding college, compared to 13.6% of those who would not have been able to finish college without it. In addition, these same respondents who faced financial hardship are slightly over-represented in the lower- to middle-income brackets (<\$20,000 - \$54,999) compared to the remaining respondents. Approximately three-quarters (72.7%) of those who indicated that they would not have been able to complete a degree without aid are in these lower- to middle-income brackets. This is ten percentage points higher than the other respondent groups, who make up approximately 63% of these income brackets.

Table 16: Annual Salary by Ability to Complete a Degree without Financial Aid

Annual Salary	I Did Not Receive Aid	Yes, without Hardship	Yes, with Hardship	No, I Would Not Have Been Able to Finish
<\$20,000	12.8%	12.7%	12.1%	12.8%
\$20,000-\$24,999	6.0%	5.2%	5.1%	6.9%
\$25,000-\$29,999	3.1%	5.5%	5.2%	6.7%
\$30,000-\$34,999	7.8%	8.1%	8.0%	7.5%
\$35,000-\$39,999	6.9%	7.5%	7.8%	8.6%
\$40,000-\$44,999	9.4%	6.6%	10.1%	11.9%
\$45,000-\$49,999	9.7%	8.4%	7.7%	10.3%
\$50,000-\$54,999	7.7%	8.4%	7.2%	8.0%
\$55,000-\$59,999	8.3%	6.3%	7.4%	5.1%
\$60,000-\$64,999	7.2%	5.5%	6.4%	5.1%
\$65,000-\$69,999	4.7%	5.5%	4.8%	3.5%
\$70,000+	16.4%	20.5%	18.3%	13.6%

Lastly, analysis shows differences emerge for respondents re-enrolling in higher education. When asked “Have you enrolled in college again?,” those students who would not have been able to finish their baccalaureate degrees without financial aid were more likely to have enrolled in additional education than their peers.

Table 17: Additional Enrollment in Higher Education and Ability to Complete a Degree without Financial Aid

Have you enrolled in higher education again?	I Did Not Receive Aid	Yes, without Hardship	Yes, with Hardship	No, I Would Not Have Been Able to Finish
Yes	29.5%	38.4%	34.4%	41.2%
No	70.5%	61.6%	65.6%	58.8%

Further analysis shows that they are disproportionately overrepresented in those seeking a master’s degree. The analysis shows that 858 respondents indicated they were pursuing a master’s degree; of them, 467 (54.4%) indicated that they would not have been able to complete their undergraduate degree without financial aid. This compares to those who did not receive aid (18.9% of master’s enrollees), those who received aid but faced no financial hardship (9.6% of master’s enrollees), and those who would have faced hardship without aid (17.1% of master’s enrollees).

Summary

This section aimed to answer the research questions: How do those who faced financial difficulty funding college differ from those who did not, demographically and otherwise? Do they differ on post-graduate opportunities in comparison to those who did not face as much financial difficulty?

Taken together, these data show that the role of financial aid differed among respondents. First, the majority of respondents relied heavily on financial aid to complete their degree, with almost half of respondents seeing the presence of financial aid as a key factor in graduating or not. That said, the importance of aid did differ for racial and ethnic groups, with Hispanic and African American student relying on it most heavily.

In addition, the students who saw financial aid as crucial to their college completion were concentrated more heavily at certain institutions, with the minority-serving institutions enrolling a higher percentage. For example, a high percentage of respondents (approximately 75%) from three of the four historically black colleges and universities indicated they would not have completed their degrees without financial aid.⁷

On the other hand, dependence on financial aid had little impact on students’ subsequent employment or salary. However, those who received more aid were more likely to pursue further education, possibly because they had a greater need for education to enter higher income brackets.

⁷ Results should be interpreted with caution due to low response rates among some institutions.

Analysis of the data shows that, upon graduation, students who responded that they would not have completed their degree without financial aid were as likely to be employed or seeking employment as their peers, but a greater proportion of them indicated they were, after graduation, working in employment sectors that paid lower wages. It is possible that those who took on the greatest debt to fund their college educations might be less able to pay off that debt based on their post-graduate income.

Conclusions and Recommendations

This report presents results of the most current *Bachelor's Graduate Follow-Up Survey*, which includes responses from graduates who earned their degrees from a public four-year institution in Maryland during the 2016 academic year. The findings highlighted in this report present statewide data and may complement the institutional-level reports generated by the institutions.

Although it is important to note that the low response rate for these survey results limit the strength of these findings, some key takeaways can be gleaned from the analysis. First, the analysis of the demographic data tied to employment and education data show that the overwhelming majority of all respondents (85.5%) were working, with almost three-quarters working full time. These rates of employment do not vary a great deal by race, ethnicity, or gender. More variation in employment was tied to the sector of work, with those in the service, skilled trades, or clerical fields more likely to be working part time as compared to those in management, IT, and finance.

Second, approximately one-third of the respondents were pursuing additional higher education one year after they graduated with a bachelor's degree. Of those seeking additional education, almost three-quarters (77.7%) were also working full time or part time.

Third, there were wage disparities among respondents when the data were analyzed by major area of study, race/ethnicity, and gender. These gaps in wages mirror national trends and may be driven by such factors as choice of major (e.g., men being more likely than women to select higher-wage areas of study like engineering and computer science) and institutional differences (e.g., assistance with career placement, internships, networking).

In addition, the analysis shows that Maryland's public colleges and universities are doing a good job of preparing graduates for post-baccalaureate opportunities. The vast majority of respondents are working, attending school, or both. Most felt that their undergraduate institutions prepared them for employment and that their major area of study was relevant and necessary for the work they were doing.

Those respondents who enrolled in graduate or professional study felt that their undergraduate institution provided them suitable preparation for graduate school. Respondents' pursuit of additional education may be driven, in part, by their undergraduate field of study – either because the rewarding work in their field of study requires additional higher education or their dissatisfaction with their original area of study requires them to re-enroll and pursue new credentials.

Lastly, financial aid was central to most respondents' successful completion of their undergraduate degree, with some minority student populations relying on it more heavily than others as a means to persist to graduation. These students seemed to be most concentrated at minority-serving institutions.

From this, several recommendations emerge. First, institutions and state policy makers should recognize the central role that financial aid plays in allowing students to persist to graduation. Policies and practices should be strengthened to ensure needy students receive necessary aid throughout enrollment. Systems should be put in place to identify those at financial risk so steps can be taken to intervene with emergency funds or last-dollar grants to ensure these students do not depart prior to completion.

In addition, institutional and state policymakers should focus attention on ways to address persistent wage gaps. For their part, institutions should continue to focus resources on encouraging women and minority students who show an interest in STEM fields to enroll in the appropriate majors. National data shows that these fields pay higher wages and have an underrepresentation of women and minority employees. State policymakers may wish to consider enacting laws that prohibit employers from asking for a salary history from applicants, or laws that require employers to post salary ranges in job advertisements. Employers who use salary histories for their hiring may risk over-relying on those as a guide for wage offers, thereby perpetuating wage gaps. In addition, public salary ranges can help create more transparency in hiring, allowing women and minorities to more easily advocate for themselves. Although Maryland is recognized as a state with strong equal pay protections, more can be done to address these persistent gaps.⁸ Pay disparity cannot be addressed solely by colleges and universities. It requires the concerted effort of employees, employers, and policymakers.

⁸ American Association of University Women, *AAUW Policy Guide to Equal Pay in the States*, October 25, 2017, <https://www.aauw.org/resource/state-equal-pay-laws/> (retrieved March 8, 2018).

Appendix 1

This appendix contains a series of institutional-level and trend data tables. The institutional-level tables reflect data collected from the 2016 *Bachelor's Graduate Follow-Up Survey*. It is important to note the institutional-level data should be interpreted with caution due to the low response rate.

The trend profile presents trends that have emerged from the *Bachelor's Graduate Follow-Up Survey* in the past three decades, from 1985-2016. Trends reflected in all of these figures should be interpreted with a good deal of caution. Throughout this time period, response rates have continued to decline, which may affect the power and validity of the results. Additionally, fluctuations in sample sizes may have particularly high impacts upon survey outcomes once they are disaggregated by sub-populations such as race and gender.

Institutional-level Data for 2016 Bachelor's Degree Recipients

Figure 1: Rate of Seeking an Advanced Degree by Institution

Institution	Seeking Advanced Degree
Coppin State University	64.7%
Frostburg State University	27.3%
Salisbury University	20.3%
Towson University	31.5%
University of Baltimore	39.1%
University of Maryland, Baltimore	11.4%
University of Maryland, Baltimore County	35.6%
University of Maryland, College Park	24.7%
University of Maryland Eastern Shore	43.6%
University of Maryland University College	35.3%
Morgan State University	51.2%
St. Mary's College of Maryland	33.6%

Figure 2: Graduates Transferred in to Bachelor’s Degree-Granting Institution by Institution

Institution	“Transfer From” Institution Type				Total Transfers
	None	Community College	Maryland 4-Year	Out-of-State	
Bowie	37.9%	37.9%	3.4%	20.7%	62.1%
Coppin	41.2%	29.4%	17.6%	11.8%	58.8%
Frostburg	61.0%	28.6%	5.2%	5.2%	39.0%
Salisbury	55.0%	32.8%	4.1%	8.1%	45.0%
Towson	59.1%	36.2%	1.6%	3.1%	40.9%
UB	13.0%	65.2%	6.5%	15.2%	87.0%
UMB	63.1%	23.3%	13.6%	0.0%	36.9%
UMBC	49.1%	37.9%	5.8%	7.1%	50.9%
UMCP	72.9%	20.1%	2.3%	4.7%	27.1%
UMES	56.4%	23.1%	7.7%	12.8%	43.6%
UMUC	32.1%	26.7%	7.3%	33.9%	67.9%
Morgan	63.4%	19.5%	0.0%	17.1%	36.6%
St. Mary’s	84.1%	10.6%	2.7%	2.7%	15.9%
Statewide	56.6%	26.9%	4.3%	12.2%	43.4%

Figure 3: Unemployment Rate by Institution

Institution	Unemployed
Bowie State University	6.9%
Coppin State University	11.8%
Frostburg State University	3.9%
Salisbury University	5.6%
Towson University	7.9%
University of Baltimore	9.8%
University of Maryland, Baltimore	1.0%
University of Maryland, Baltimore County	7.8%
University of Maryland, College Park	8.0%
University of Maryland Eastern Shore	12.8%
University of Maryland University College	11.1%
Morgan State University	9.8%
St. Mary’s College of Maryland	11.6%

Note: Graduates who reported being unemployed and not seeking work were excluded when calculating unemployment rates, in accordance with the methodology used by the US Bureau of Labor Statistics (BLS).

Figure 4: Unemployment rate by Race/Ethnicity, Gender, and Overall

Race	Unemployment Rate
African American	2.2%
Asian	0.5%
Hispanic	0.8%
White	4.0%
Two or More Races	0.2%
Gender	
Male	3.1%
Female	5.3%
All Respondents	8.5%

Note: Graduates who reported being unemployed and not seeking work were excluded when calculating unemployment rates, in accordance with the methodology used by the US Bureau of Labor Statistics (BLS).

Trend Profile

Figure 5: Percentage of Respondents Receiving Financial Aid: 1985 – 2016

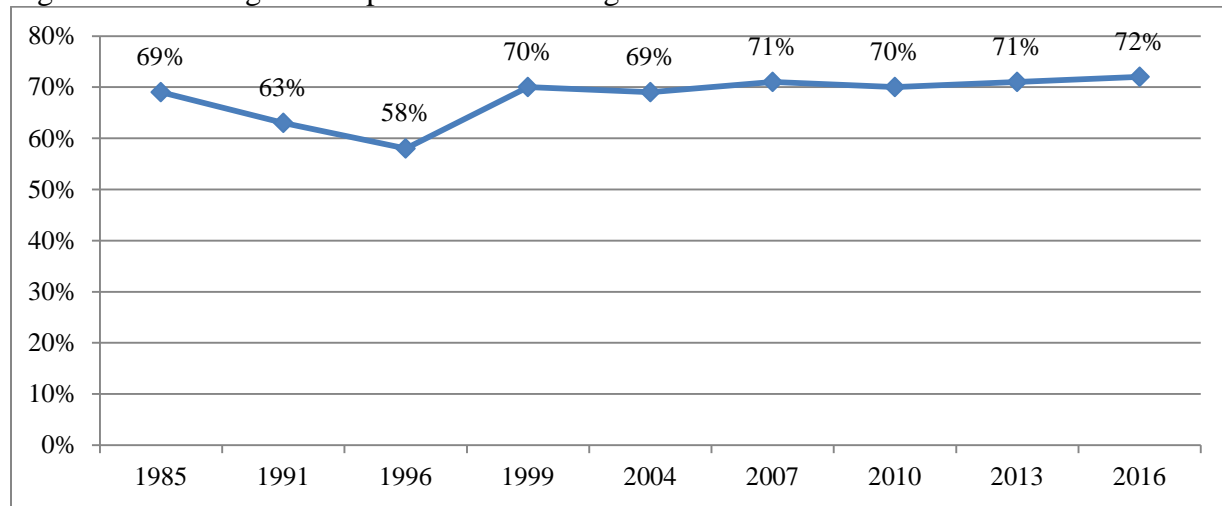


Figure 6: Respondents Not Able to Complete Their Degrees without Financial Aid Received: 1985-2016

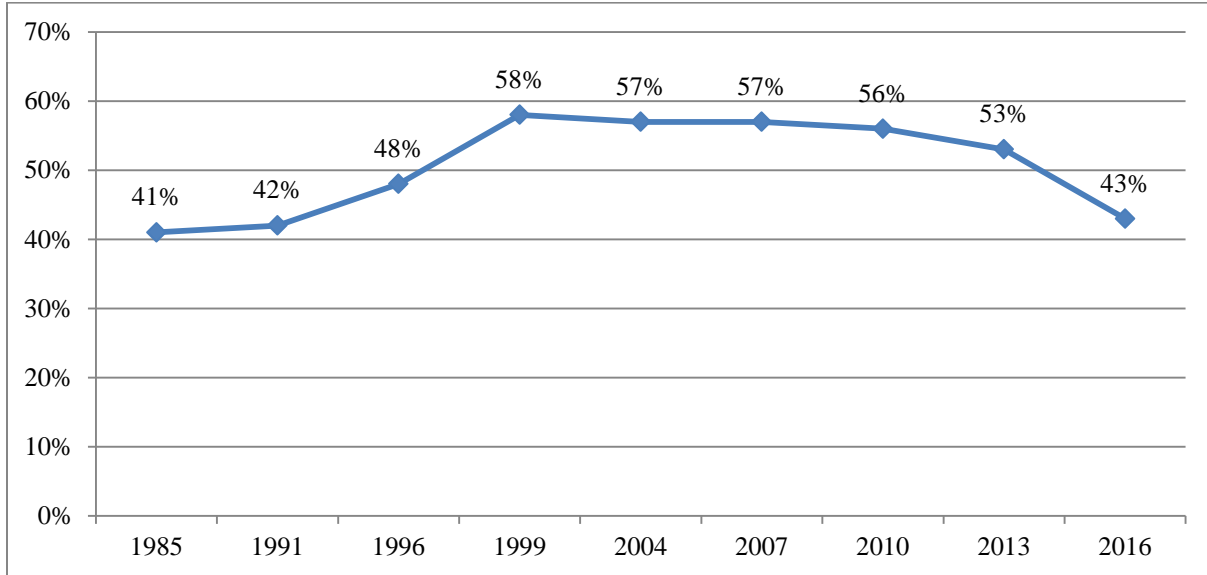


Figure 7: Respondents Seeking Advanced Degrees: 1985-2016

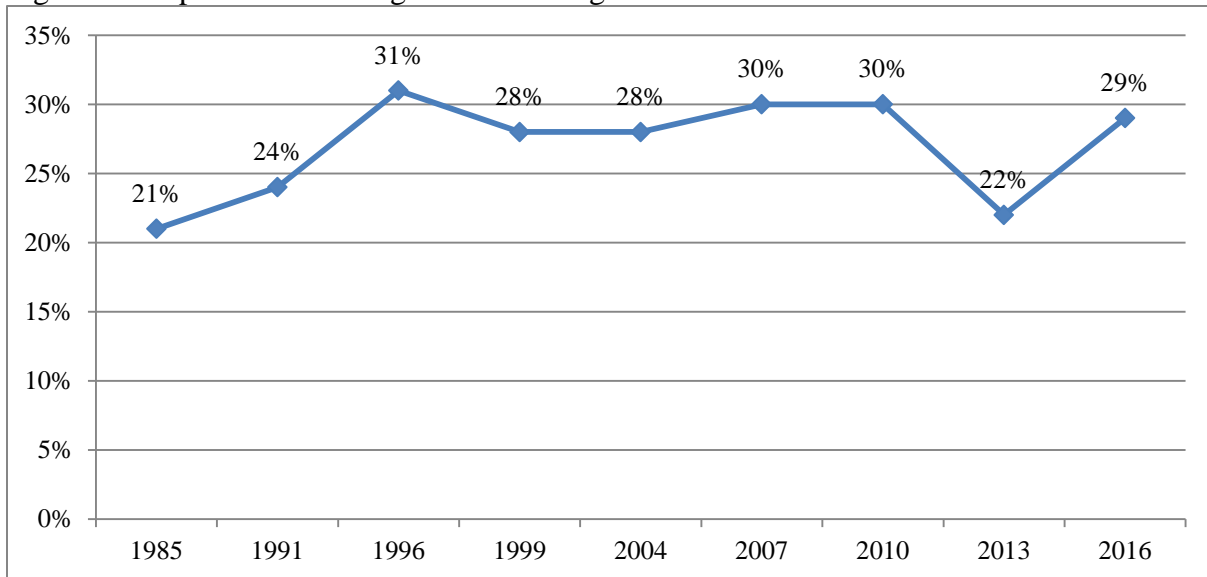


Figure 8: Respondents Seeking Advanced Degrees by Gender: 1985-2016

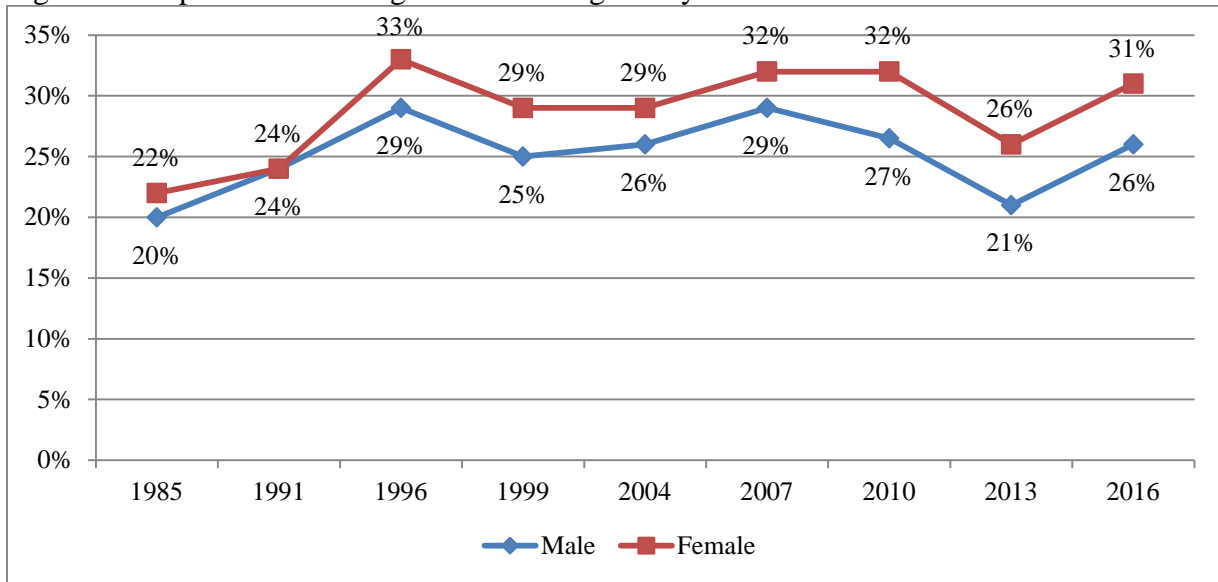


Table 1: Respondents Seeking Advanced Degrees by Race: 1985 – 2016

Race	Percent Seeking Advanced Degrees by Race: 1985 - 2016									
	1985	1991	1996	1999	2004	2007	2010	2013	2016	
African American	22%	31%	33%	34%	28%	32%	38%	33%	37%	
Asian	32%	30%	38%	33%	23%	30%	25%	21%	25%	
Hispanic	30%	31%	33%	22%	33%	27%	29%	15%	24%	
White	20%	22%	30%	25%	28%	30%	28%	20%	27%	

Figure 9: Respondents Working Full Time and Unemployed: 1985-2016

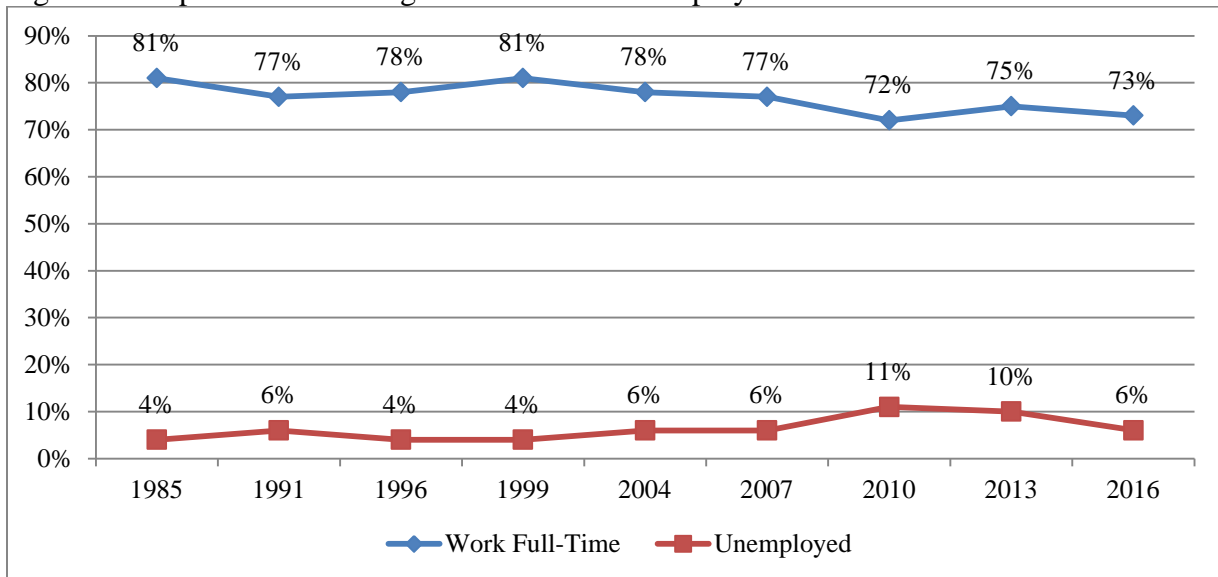


Figure 10: Respondents Working Full Time in a Job Related to their Undergraduate Major: 1985-2016

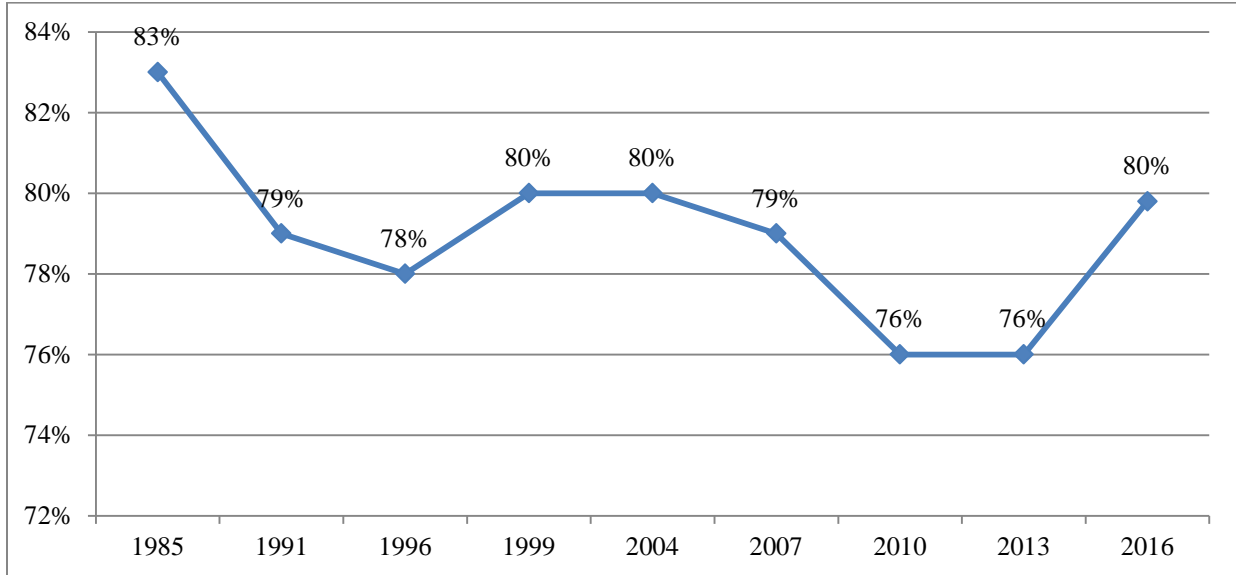


Figure 11: Respondents Working Full Time and Satisfied with Job Preparation: 1985 – 2016

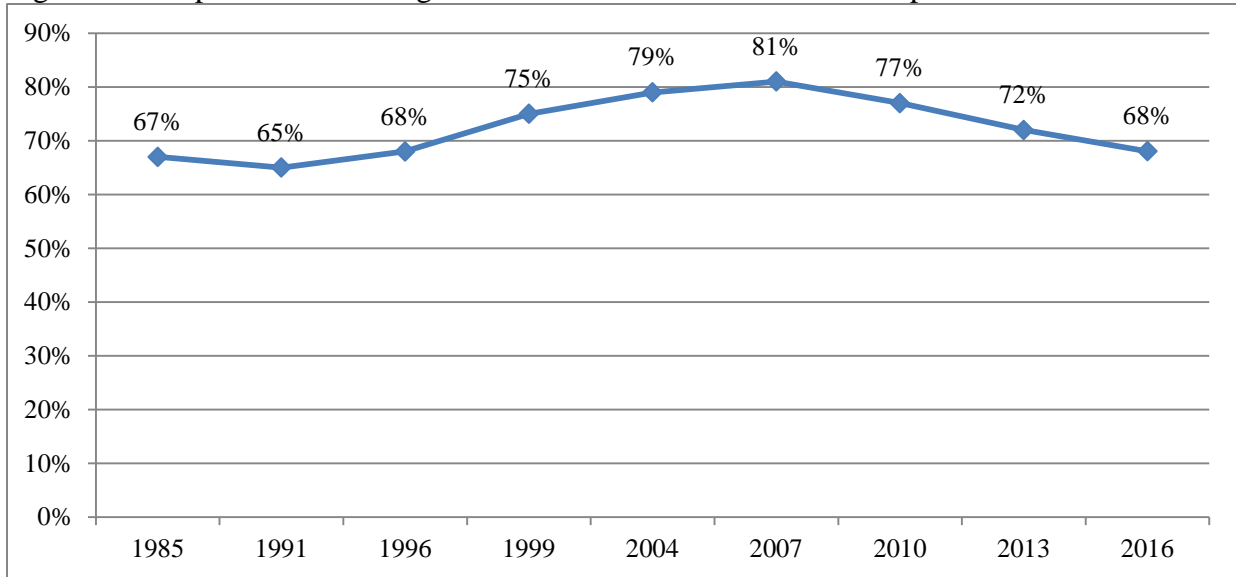


Table 2: Advanced Degree Seekers Who Felt Prepared for Graduate Study by Institution: 1985-2016

Institution	% Satisfied with Preparation for Graduate Study								
	1985	1991	1996	1999	2004	2007	2010	2013	2016
Bowie	89%	78%	76%	78%	96%	64%	81%	58%	80%
Coppin	68%	71%	82%	88%	*	77%	69%	N/A	64%
Frostburg	77%	75%	76%	92%	92%	80%	94%	69%	85%
Salisbury	79%	80%	73%	90%	93%	89%	94%	90%	86%
Towson	69%	79%	71%	84%	88%	89%	88%	89%	86%
UB	64%	86%	93%	80%	94%	97%	89%	78%	83%
UMB	69%	72%	100%	77%	92%	92%	73%	100%	88%
UMBC	83%	81%	77%	90%	87%	82%	90%	84%	84%
UMCP	72%	69%	78%	80%	89%	86%	88%	87%	86%
UMES	63%	93%	60%	74%	76%	65%	82%	44%	52%
UMUC	83%	82%	80%	89%	90%	93%	88%	91%	80%
Morgan	89%	64%	70%	81%	81%	84%	71%	78%	88%
St. Mary's	85%	87%	94%	87%	100%	95%	95%	88%	84%

Table 3: Full-time Workers who were Satisfied with Preparation for their Job by Institution: 1985 – 2016

Institution	% Satisfied with Job Preparation								
	1985	1991	1996	1999	2004	2007	2010	2013	2016
Bowie	88%	73%	72%	75%	80%	77%	75%	65%	77%
Coppin	79%	69%	75%	79%	81%	83%	75%	N/A	75%
Frostburg	70%	64%	70%	77%	76%	80%	77%	59%	75%
Salisbury	73%	70%	76%	83%	85%	83%	79%	79%	72%
Towson	60%	65%	61%	76%	76%	82%	74%	69%	68%
UB	64%	72%	79%	71%	82%	86%	84%	66%	59%
UMB	76%	84%	71%	65%	88%	93%	90%	96%	88%
UMBC	68%	66%	65%	77%	67%	77%	81%	71%	66%
UMCP	63%	58%	68%	71%	82%	82%	81%	71%	69%
UMES	58%	76%	72%	63%	68%	76%	72%	65%	58%
UMUC	73%	73%	72%	78%	81%	81%	80%	76%	63%
Morgan	73%	69%	61%	76%	73%	73%	51%	62%	59%
St. Mary's	75%	75%	84%	85%	81%	78%	79%	72%	75%

Table 4: Respondents Who Would Attend the Same Institution Again by Institution: 1985 – 2016

Institution	% Would Attend Same School Again								
	1985	1991	1996	1999	2004	2007	2010	2013	2016
Bowie	68%	77%	67%	77%	74%	64%	71%	57%	78%
Coppin	68%	69%	66%	84%	72%	74%	62%	N/A	59%
Frostburg	69%	74%	81%	89%	78%	84%	84%	64%	84%
Salisbury	71%	74%	80%	89%	89%	89%	85%	81%	N/A
Towson	65%	67%	67%	77%	77%	83%	81%	84%	80%
UB	81%	82%	89%	87%	83%	89%	89%	79%	83%
UMB	65%	79%	60%	79%	90%	97%	84%	89%	90%
UMBC	71%	71%	70%	78%	76%	79%	82%	80%	78%
UMCP	72%	66%	77%	85%	85%	84%	87%	84%	84%
UMES	62%	78%	71%	67%	67%	62%	59%	52%	59%
UMUC	92%	87%	90%	91%	89%	89%	88%	82%	85%
Morgan	63%	76%	73%	88%	71%	67%	56%	68%	93%
St. Mary's	76%	79%	89%	87%	85%	88%	89%	85%	76%

Note: Salisbury has an N/A due to incomplete data in MHEC data set on this item.