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Maryland
Governor's Workforce Investment Board

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Career Preparation Expansion Act Report

Annual Report to the Governor and General Assembly on the Workforce Outcomes of Maryland Public High School Graduates

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REPORT REQUIREMENTS

This Report is submitted in fulfillment of the requirement in *The Career Preparation Expansion Act* (CPEA), Chapter 695 of 2018 (see Education Article § 21-206, Annotated Code of Maryland). The Maryland Longitudinal Data System (MLDS) Center and the Governor's Workforce Development Board (GWDB) are required to produce a report on high school graduates for the five-year period after graduation on:

1. Wages earned;
2. Hours worked per week; and
3. The industry of employment.

See the **Technical Appendix** (Appendix 2) for information on the MLDS Center, the GWDB, and the data and methods used for this report.

REPORT POPULATION

The population of interest for this report was high school students who graduated from a Maryland public high school with a diploma between January and October of 2018 and are between the ages of 16 and 24 at the time of graduation[1]. This is the latest year that high school graduates had five years of available wage data post-high school graduation.

Table A. Maryland Public High School Graduates, 2018, Distribution by Demographic and Economic Characteristics

2018 High School Graduates			
All High School Graduates		***58,006***	
		#	%
Gender	Female	29,236	50.4%
	Male	28,770	49.6%
Ethnicity	Hispanic, Any Race	7,653	13%
Race	African-American/ Black Alone	19,958	34%
	Asian Alone	4,187	7%
	White Alone	28,537	49%
Economic Status[2]	FARMS	19,462	34%
	Non-FARMS	35,544	66%

Note: Race is reported independent of ethnicity therefore values do not equal the total. Some races are omitted to protect small populations.

Almost 60,000 students graduated from Maryland public high schools in 2018 under the high school graduate definition used for this report. See **Table A**.

High school graduates were disaggregated into educational attainment groups.[2] See **Table B**. Definitions used to determine assignment to each group can be found in the **Technical Appendix** at the end of this report**.**

Table B. Maryland Public High School Graduates, 2018, Distribution by Educational Attainment, Five Years after Graduation

Educational Attainment Level	2018 High School Graduates	
All High School Graduates	***58,006***	
	#	%
No College	15,211	26%
Some College	19,945	34%
Still in College	9,673	17%
Lower Division Degree	2,148	4%
Certificate	183	<1%
Associate's	1,965	3%
Bachelor's Degree or Higher	11,029	19%
Bachelor's	10,936	19%
Other Degree	93	<1%

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RESULTS

Question 1. Wages Earned Five Years after High School Graduation

Wage Visibility by Educational Attainment

There were 26,013 high school graduates, or 45% of all graduates, who had wages for three consecutive fiscal quarters ("full-quarter wages"[3]) five years after high school graduation (fiscal quarter 2 of 2023[4]) and were therefore included in the wage analysis. See **Table 1**.

Conversely, 31,993 high school graduates, or 55%, did not have wage data for the three consecutive fiscal quarters five years after high school graduation. High school graduates excluded from this calculation include individuals who may have had wage data for some but not all of the quarters required to meet the full-quarter definition, had wages from a source not reported to the MLDS,[5] or were unemployed.

Wage visibility, or the rate at which high school graduates meet the definition of full-quarter wages, was consistently around 45% for the 2012 (2017 wages), 2013 (2018 wages), and 2014 (2019 wages) cohorts. The overall visibility rate for the 2015 cohort (2020 wages) was only 17%, likely due to the economic shutdown in Maryland in 2020 during the onset of the COVID-19 pandemic. Post-COVID, wage visibility began to increase, with an overall rate of 40% for the 2016 cohort (2021 wages). Now, three years after the COVID economic shut down, the 2018 cohort (2023 wages) had an overall visibility rate (45%) similar to pre-COVID cohorts.

The visibility patterns by educational attainment have also returned to pre-COVID rates. As with prior reports, those with *Lower Division Degrees* are most visible in the wage data, while those with *Bachelor's Degrees or Higher* are the least visible. This pattern does not suggest a lack of employment opportunities in the Maryland economy for those with *Bachelor's Degrees or Higher.* Rather it reflects that most high school graduates in the *Bachelor's Degrees or Higher* group have not yet had sufficient time since degree attainment to accrue nine consecutive months of post-degree employment. High school graduates in this group spent most of the five-year period *after* high school completing a bachelor's degree which requires a minimum of four-years of study. Comparatively, all other groups were available to pursue career-track employment for at least the last two years of the five-year period.

Table 1. Maryland Public High School Graduates, 2018, Wage Visibility, Five Years after High School Graduation, Fiscal Quarter 2 of 2023

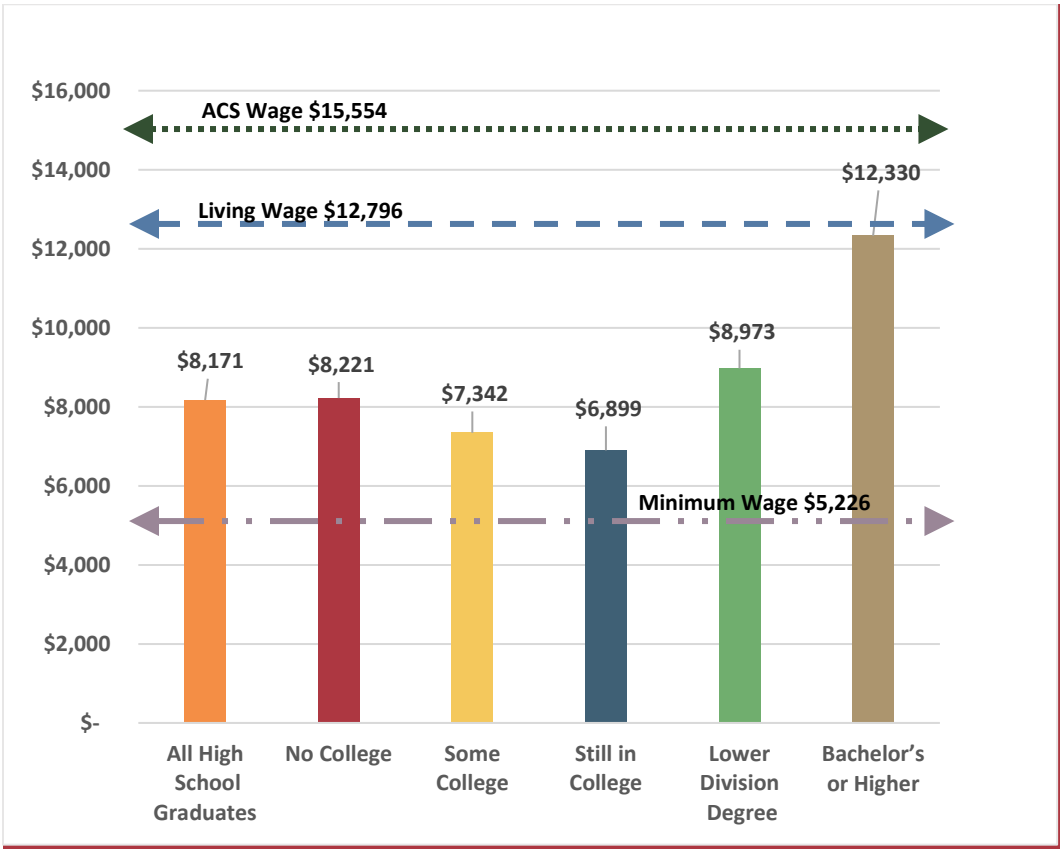
Educational Attainment	Total	Q2 2023 Full-Quarter Wages	
		#	%
All High School Graduates	***58,006***	***26,013***	***45%***
No College	15,211	6,715	44%
Some College	19,945	9,216	46%
Still in College	9,673	4,741	49%
Lower Division Degree	2,148	1,141	53%
Bachelor's Degree or Higher	11,029	4,200	38%

Median Quarterly Wages by Educational Attainment

Overall, the median quarterly wage for all high school graduates with full-quarter wages was $8,171 in the 20th quarter – fiscal quarter 2 of 2023. This is $4,635 below the living wage[6] in Maryland and $7,383 below the ACS median earnings for all workers in Maryland.[7]

The gap between the median quarterly wage and the living wage was not uniform across all educational attainment groups. High school graduates who did not continue to college, those with some college, and those still in college had a median quarterly wage that fell approximately $4,500 to $6,000 below the living wage. Those with a *Lower Division Degree* also had a median quarterly wage that fell $3,800 below the living wage. Only those with a *Bachelor's Degree or Higher* had a median quarterly wage close to the living wage. See **Chart 1**.

Chart 1. Maryland Public High School Graduates, 2018, Median Quarterly Wages by Educational Attainment Compared to Wage Indicators, Five Years after High School Graduation, Fiscal Quarter 2 of 2023



The *No College* group, which presumably went directly into the workforce, had a higher median quarterly wage than that of the *Some College* and *Still in College* groups. This is likely due to the fact that high school graduates in this group had five years to incrementally build higher wages while progressing through career-track employment.

The fact that students in the *Still in College* group had the lowest median quarterly wage is likely the result of working in a part-time

capacity to prioritize education. These students may have had a portion of their living expenses covered by their parents or received federal, state, or institutional financial aid to cover their living expenses.

The *Some College* group, who had some college but did not earn a degree, had a median quarterly wage below the living wage and $1,000 below that of high school graduates who did not continue on to college. In fact, the median quarterly wage for those with *Some College* is only $400 more than those *Still in College.* This lower wage may reflect two concepts. First, as compared to the *No College* high school graduates, the *Some College* high school graduates delayed entry into career track employment and are just now receiving the entry level wages their *No College* peers received five years prior. Second, the *Some College* high school graduates intermittently pursued postsecondary education, splitting their time and focus between college and the workforce, rather than concentrating on either earning a degree or building career-track employment.

High school graduates who completed a *Bachelor's Degree or Higher* had a median quarterly wage about $400 below the living wage. This is the first time in this reporting series that high school graduates with a *Bachelor's Degree or Higher* had a median quarterly wage below the living wage. This result, rather than suggesting that the value of a Bachelor's degree is declining, is driven by changes in the financial components used to calculate the living wage. The living wage calculator[8] was modified to include the cost of income and payroll taxes and other living expenses. If these new components had not been added, the living wage would have been approximately $11,500. Indeed, the continued monetary value of the Bachelor's degree is illustrated by the gap between the median quarterly wages for those with a *Lower Division Degree* and a *Bachelor's Degree or Higher.* The gap, typically between $2,000 and $2,500 widened to $3,400. It is also important to recall that the wages for those with a *Bachelor's Degree or Higher* represents entry-level earnings gained after 6 months in the labor market rather than five years of progressively building wages.

Those with an Associate's degree or postsecondary Certificate (*Lower Division Degree)* had a median quarterly wage about $800 above high school graduates with *No College.* The gap between the median quarterly wage for these two groups in prior versions of this report was around $1,100 to $1,300. It is likely the continued increases in the minimum wage, and the overall increase in hourly wages post-COVID, has narrowed this gap. Notably, those with a *Lower Division Degree* had a median quarterly wage almost $1,700 more than those with *Some College,* demonstrating the value of even short-term credential like a postsecondary Certificate or Associate's Degree. And, at the point of wage observation, *Lower Division Degree* graduates may have been in the workforce post-college graduation for only two or three years, making this wage an early career wage rather than one that results from five years of continuous employment.

Currently, the *No College*, *Some College,* and *Still in College* groups are on pace to earn $1 million in their lifetime, while individuals with some level of college degree are on pace to earn $1.5 to $2 million in their lifetime.[9] The results for both groups align to research[10] on the financial returns to education.

Variation to Living Wage by Educational Attainment

Another way to analyze wages five years after high school graduation is to determine the number of graduates with full-quarter wages that had wages above the living wage. Identifying the number of high school graduates with quarterly wages above the living wage helps to quantify the number of graduates that were engaged in the workforce at a level that provides for or exceeds the basic cost of living in Maryland and the number who may be engaged in the workforce but unable to meet these basic expenses. See **Table 2**.

Table 2. Maryland Public High School Graduates, 2018, Wage Visibility and Median Quarterly Wages, Five Years after High School Graduation, Fiscal Quarter 2 of 2023

Educational Attainment	2018 High School Graduates						
	Total	Full-Quarter Wages Q2 2023			Variation to Living Wage ($12,796)	Above Living Wage	
		#	%	Median Quarterly Wage		#	%
All High School Graduates	***58,006***	***26,013***	***45%***	***$8,171***	($4,625) ↓	*5,324*	*20%*
No College	15,211	6,715	44%	$8,221	($4,575) ↓	1,130	17%
Some College	19,645	9,216	46%	$7,342	($5,454) ↓	1,103	12%
Still in College	9,673	4,741	49%	$6,899	($5,897) ↓	834	18%
Lower Division Degree	2,148	1,141	53%	$8,973	($3,823) ↓	289	25%
Bachelor's Degree or Higher	11,029	4,200	38%	$12,330	($466) ↓	1,968	46%

↑value is above the living wage ($12,796), ↓ value is below the living wage

From this perspective, overall, 20% of high school graduates with full-quarter wages had a quarterly wage above the living wage. The rate was lowest for those with *Some College* where only 12% of high school graduates in this group, despite having some level of additional postsecondary education, had wages above the living wage. This low rate may again confirm the split focus of this group, trying to both work and go to college without being able to focus exclusively on either pursuit. The number of high school graduates with *No College,* despite being available to engage in the labor market for the full five-year period, had wages above the living wage at only a slightly higher rate than those with *Some College*, 17%.

This point is particularly important when one considers that the *No College* and *Some College* graduates make up approximately 61% of high school graduates with full quarter wages, yet only 14% of the high school graduates across these two group have a living wage sufficient to meet the basic cost of living in Maryland. In comparison, 46% of those with *Bachelor's Degree or Higher* and 25% of those with a *Lower Division Degree* had wages above the living wage.

Finally, it is worth noting the impact the change in the living wage formula has had on this result. In prior years, the overall rate of high school graduates with wages above the living wage was 29%, with *No College, Lower Division Degrees* and *Bachelor's Degrees or Higher* at

27%, 41% and 55% respectively. While inflation has outpaced wages for many in this post-COVID period, the decline in the population of students with wages above the living wage is directly attributed to the change in the financial components included in the living wage calculation.

Question 2. Hours Worked Per Week

The MLDS Center does not contain data on hours worked therefore this section of the reporting requirement cannot be fulfilled. This section is left intentionally blank.

Question 3. High School Graduates and Labor Sector

There were 19,574 high school graduates, or 34% of all high school graduates, who had wages with the same employer[11] for three consecutive fiscal quarters five years after high school graduation that can be analyzed for wages by labor sector. See **Table 3**.

Or considered another way, this means that 75% of 26,013 high school graduates with full-quarter wages (wages for three quarters) remained with the same-employer for all three fiscal quarters; 25% of high school graduates with full-quarter wages changed employers at least once during this period and are therefore removed from analysis in this section.

Table 3. Maryland Public High School Graduates, 2018, Full-Quarter and Same-Employer Wages, Five Years after High School Graduation, Fiscal Quarter 2 of 2023

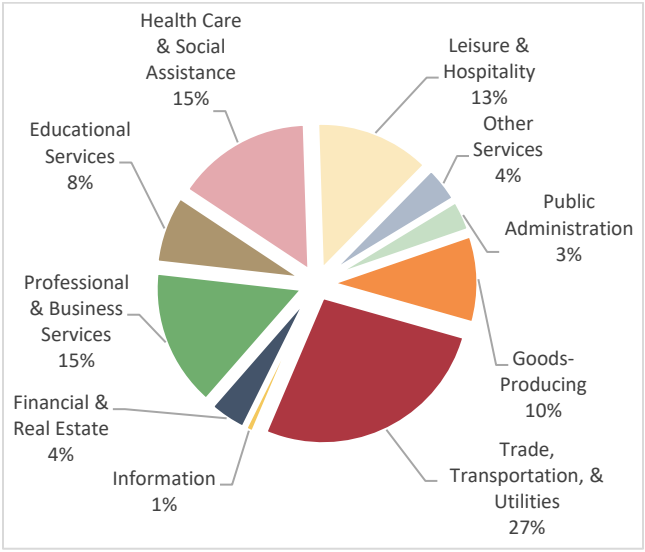
2018 High School Graduates	Total	%
All High School Graduates	***58,006***	
High School Graduates with Full-Quarter Wages	26,013	45%
Same-Employer Wages	19,574	34%

Labor Sector and Median Quarterly Wages by Educational Attainment

Five years after high school graduation, the labor sector[12] with the largest share of high school graduates with same-employer wages was *Trade, Transportation, & Utilities* (27%). *Health Care & Social Assistance* and *Professional & Business Services* were the next two largest sectors with 15% each. See **Chart 2**.

In 2023, collectively, these three sectors employed over 1.3 million Marylanders (around half of all wage earners) through more than 101,000 businesses and paid $16 billion in wages (half of all wages paid).[13] These three sectors represented $185 billion of the $516 billion private sector gross domestic product in 2023[14] and included industries important to Maryland's infrastructure, business administration, and health, including freight and air transportation, retail trades, power distribution, accounting, law, nursing, and home health care.

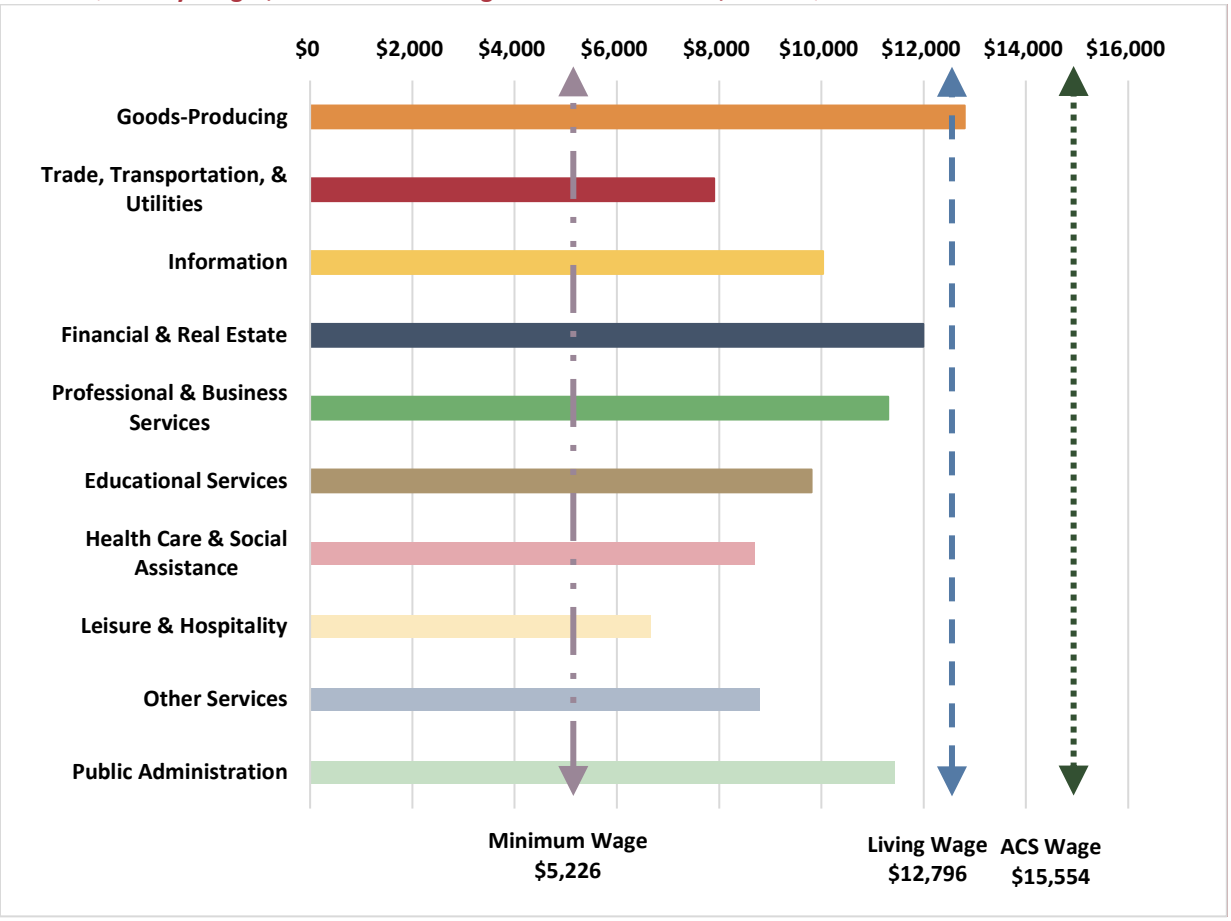
Chart 2. Maryland Public High School Graduates, 2018, Same-Employer Wages, Sector of Wages, Five Years after Graduation, Fiscal Quarter 2 of 2023



High school graduates with same-employer wages had median quarterly wages at or above the living wage in one labor sector, *Goods Producing*. Four labor sectors had median quarterly wages within $1,000 of the living wage (*Information Technology, Financial & Real Estate, Professional & Business Services,* and *Public Administration)*. See **Chart 3** and **Table 4**. These five sectors account for 34% of all high school graduates with same-employer wages. The remaining 66% were in labor sectors with a median quarterly wage $3,000 to $6,000 below the living wage.

The largest labor sector, *Trade, Transportation, & Utilities*, with 27% of all high school graduates with same-employer wages, had a median quarterly wage over $4,800 below the living wage. Or considered another way, high school graduates in this sector have almost a $20,000 annual shortfall between the living wage and earnings.

Chart 3. Maryland Public High School Graduates, 2018, with Same-Employer Wages, Sector of Employment and Median Quarterly Wages, Five Years after High School Graduation, Fiscal Quarter 2 of 2023



Equally important to the median wage, is the percentage of high school graduates within each sector with wages above the living wage. See **Table 4**.

Five of the ten sectors not only had median quarterly wages above or near the living wage, but 40% or more of the high school graduates with same-employer wages in those sectors had wages above the living wage.

In the remaining five sectors, it is the minority of high school graduates who have wages above the living wage. This rate is as low as 9% in *Leisure & Hospitality*.

Table 4. Maryland Public High School Graduates, 2018, Same-Employer Wages and Median Quarterly Wages, Five Years after High School Graduation, Fiscal Quarter 2 of 2023

2018 High School Graduates					
Sector	Total	%	Median Quarterly Wage	Above Living Wage	% Above Living Wage
Goods-Producing	1,892	10%	$12,802 ↑	947	50%
Trade, Transportation, & Utilities	5,289	27%	$7,902 ↓	774	15%
Information	179	1%	$10,032 ↔	59	33%
Financial & Real Estate	803	4%	$11,992 ↔	344	43%
Professional & Business Services	3,006	15%	$11,306 ↔	1,207	40%
Educational Services	1,476	8%	$9,807 ↓	473	32%
Health Care & Social Assistance	2,969	15%	$8,697 ↓	530	18%
Leisure & Hospitality	2,519	13%	$6,658 ↓	227	9%
Other Services	776	4%	$8,787 ↓	147	19%
Public Administration	665	3%	$11,432 ↔	265	40%
Total	**19,574**		**$9,131 ↓**	**4,973**	**25%**

↑value is above living wage ($12,796), ↔ value is close to living wage,↓value is below living wage

Median quarterly wages within each sector can also be considered by educational attainment. When considering the four sectors with the largest share of high school graduates, *Trade, Transportation & Utilities,* with 27% of all graduates, showed minor variation in median quarterly wages by education. See **Chart 4**. *Goods Producing,* with 10% of all graduates, had a gap of approximately $6,000 between those with a *Bachelor's Degree or Higher* and all other educational attainment groups.

One sector, *Health Care & Social Assistance,* with 15% of all graduates, exhibits a unique pattern. Those with a *Lower Division Degree* have a higher median quarterly wage than those with a *Bachelor's Degree or Higher.* This result may be driven by two factors. First, the path to employment as a nurse begins with an Associate's degree and the average hourly rate for all registered nurses in Maryland is $44 per hour or approximately $80,000 per year.[15] Further, MLDS dashboards on Maryland public high school graduates with a college degree in health care show that these graduates have a median quarterly wage of $16,975 or around $68,000 annually at age 25.[16] Second, it is possible that, at lower levels of education, individuals in the *Health Care & Social Services* sector are engaged in positions that include the opportunity to work overtime, so that wages do not reflect a standard 40 hour work week.

Chart 4. Maryland Public High School Graduates, 2018, Sector of Employment and Median Quarterly Wages by Educational Attainment, Five Years after High School Graduation, Fiscal Quarter 2 of 2023

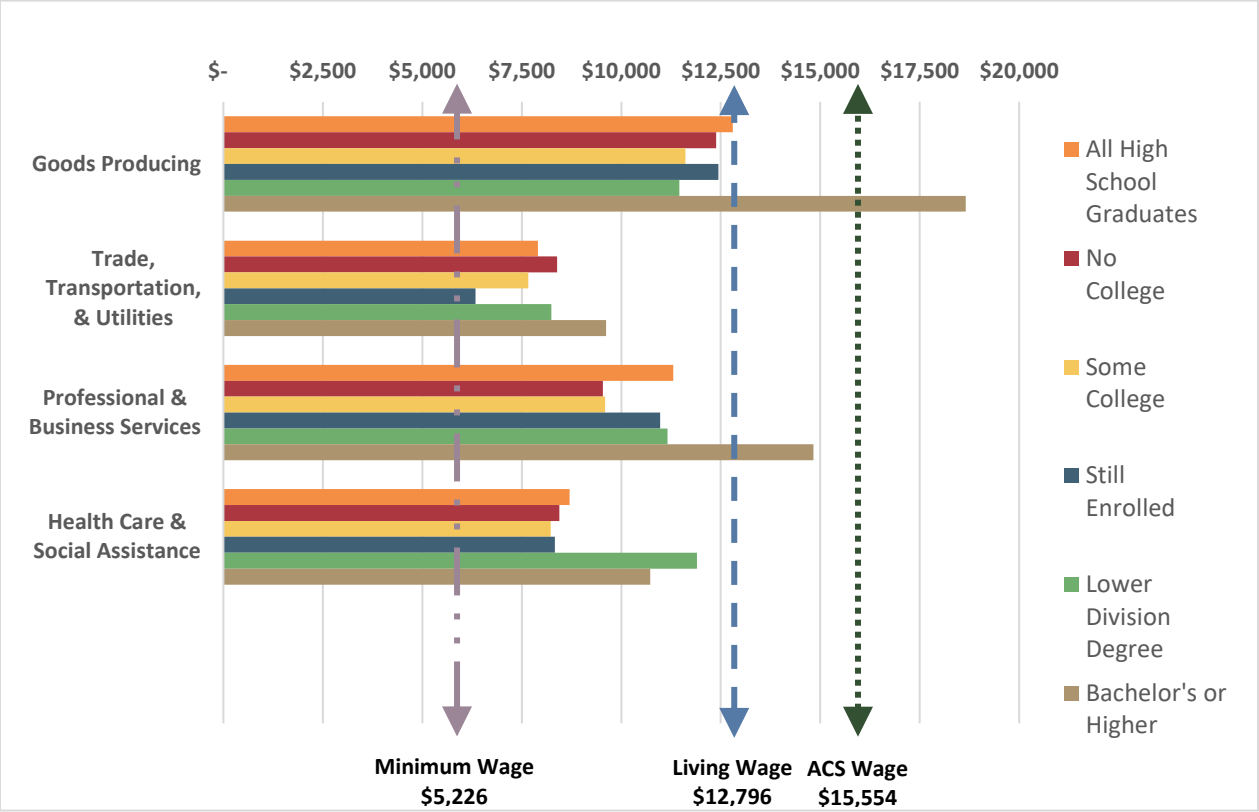


Table 5. Maryland Public High School Graduates, 2018, Same-Employer Wages and Median Quarterly Wages, Five Years after High School Graduation, Fiscal Quarter 2 of 2023

Sector	All High School Graduates	No College	Some College	Still in College	Lower Division Degree	Bachelor's Degree or Higher
Goods-Producing	↑ $12,802	↔ $12,384	↔ $11,614	↔ $12,437	↔ $11,463	↑ $18,658
Trade, Transportation, & Utilities	$7,902	$8,386	$7,661	$6,333	$8,241	$9,614
Information	$10,032	$8,339	$7,824	$6,722	↔ $11,039	↑ $13,533
Financial & Real Estate	↔ $11,992	$10,495	$10,521	↔ $11,308	$10,550	↑ $15,817
Professional & Business Services	↔ $11,306	$9,536	$9,592	$10,977	↔ $11,161	↑ $14,831
Educational Services	$9,807	$7,879	$7,850	$9,162	$7,694	↑ $13,066
Health Care & Social Assistance	$8,697	$8,445	$8,229	$8,329	↔ $11,902	$10,730
Leisure & Hospitality	$6,658	$7,107	$6,545	$5,735	$6,860	$7,621
Other Services	$8,787	$9,705	$7,752	$6,979	$8,400	↔ $11,406
Public Administration	↔ $11,432	↔ $11,931	$10,700	$10,287	↑ $15,250	↔ $11,817
Total	**$9,131**	**$9,046**	**$8,240**	**$8,359**	**$9,651**	**↑ $13,190**

↑value is above living wage ($12,796), ↔value is close to living wage

Overall, those with a college degree have higher wages in all sectors and had more sectors with wages near or above the living wage ($12,796). For example, seven of ten sectors for those with a *Bachelor's Degree or Higher* and five of ten sectors for those with a *Lower Division Degree* had median quarterly wages near or above the living wage ($12,796). Comparatively only one or two sectors for those with *No College, Some College* or *Still in College* have a median quarterly wage near the living wage ($12,796) and none were above the living wage. See **Table 5**.

Consistent with prior year reports, two labor sectors had median quarterly wages close to or above the living wage at all levels of education attainment. The first, *Goods Producing,* had median quarterly wages that varied from a low of $11,463 (*Lower Division Degree)* to a high of $18,658 (*Bachelor's Degree or Higher).* The second sector was *Public Administration* which had a similar range of median quarterly wages, with a low of $10,287 (*Still in College)* to a high of $15,250 (*Lower Division Degree).*

Also consistent with prior reports, two other sectors, *Trade, Transportation & Utilities* and *Leisure & Hospitality,* do not have median quarterly wages above the living wage for any educational attainment groups.

One interesting pattern that persists each year is for those *Still in College.* High school graduates in this group are still engaged in postsecondary education would be presumed to be working at a reduced capacity to prioritize education and yet they fared better in several labor sectors than those who would be expected to be engaged in the labor market full-time (*No College* and *Some College).* This may result from the fact that many high school graduates still in college have already attained a degree (either an Associate's or Bachelor's) and have entered the labor market while pursuing an additional credential.

See **Appendix 1** for additional labor sector and educational attainment data tables by race, ethnicity, gender, economic status.

CONCLUSIONS

The analysis in this report, like prior reports, demonstrates that outcomes, five years after high school graduation, vary greatly by educational attainment and labor sector. Wages are higher for high school graduates who finish college than those who 1) do not pursue postsecondary education, 2) are still in college, or 3) do pursue postsecondary education but disengage without earning a degree. These results are also consistent with national data available on earnings by level of educational attainment.[17]

Applied to this report, this means that as many as 30,000 high school graduates from the 2018 cohort or half of the graduating class (*No College* + *Some College*) included in this report may be more likely to experience lower wages for at least early periods of their career, something that can have long term implications for lifetime earnings and career growth.

The *No College* group, the only group with five full years to pursue career track employment and experience wage progressions, had a median quarterly wage that was $600 lower than those with a *Lower Division Degrees* and $4,000 below those with a *Bachelor's Degree or Higher*. It is possible that some high school graduates who do not continue to college may be exploring career options and training programs, including completing licensure requirements or apprenticeships, which may depress wages during the first two or three years of employment after high school. While that gap between *No College* and *Lower Division Degree* may seem minor, when annualized, the $2,400 gap would contribute to the annual cost of internet/cell service ($1,937) or medical expenses ($3,034) in Maryland.[18]

Determining the percentage of each educational attainment group with wages above the living wage also identified patterns that were not apparent when comparing median quarterly wages alone. When considered from this perspective, 25% of those with a *Lower Division Degree* had wages above the living, which is eight percentage points higher than those with *No College.*

High school graduates with *Some College* had a lower median quarterly wage than those without any exposure to college, suggesting that trying college and not finishing may be a worse career decision than not going to college at all. And only 12% of this group had wages above the living wage. Comparatively, larger shares of those with *No College* and those *Still in College* had wages above the living wage (17% and 18% respectively). Short-term credentials like a Certificate or Associate's degree may help increase the lifelong earning potential for those with *Some College*.

What is also clear from this analysis is that some labor sectors, no matter the level of education, do not provide sufficient wages to meet the cost of living in Maryland. The *Leisure & Hospitality* labor sector had median quarterly wages between $5,800 and $7,600 for all educational attainment groups, even those with college degrees. Or stated another way, high school graduates in this labor sector had median quarterly wages that were only half the required living wage ($12,796). This pattern exists in all prior cohorts analyzed over the six years of this reporting series. This labor sector continues to have one of the largest shares of high school graduates (13% of all with same-employer wages) and only 9% of those in this sector, regardless of educational attainment, had wages above the living wage. Comparatively, six of the ten sectors had between 32% and 50% of high school graduates with wages above the living wage.

It is also worth noting that, this 2018 cohort of high school graduates with wages in 2023, has almost rebounded to pre-COVID rates of wage visibility. The road to economic recovery and the return to traditional labor market patterns for high school graduates, five years after graduation, has taken a full three years post the COVID economic shutdown. See **Table 6**.

Table 6. Maryland Public High School Graduates, Wage Visibility, Five Years after High School Graduation

Cohort Year	Total Graduates	Rate of Wage Visibility	
2012 Cohort (2017 wages)	59,510	27,535	46%
2013 Cohort (2018 wages)	59,560	27,822	47%
2014 Cohort (2019 wages)	58,136	27,330	47%
2015 Cohort (2020 wages)	57,509	9,706	17%
2016 Cohort (2021 wages)	57,502	23,179	40%
2017 Cohort (2022 wages)	57,170	22,797	40%
2018 Cohort (2023 wages)	58,006	26,013	45%

The 2018 cohort graduated high school two years prior to COVID and may have experienced disruptions in employment and education that could have a long-term impact on lifelong earnings. They also entered the labor market during a period of rapidly increasing inflation. When adjusting for inflation, the 2018 cohort, with 2023 wages, realized a $448 increase in the median quarterly wage over the 2017 (2022 wages) cohort and an $802 increase in median quarterly wages over the first cohort (2017 wages) in the reporting series. See **Table 7**.

Table 7. Maryland Public High School Graduates, Median Quarterly Wages, Five Years after High School Graduation

Cohort Year	Graduates Visible in Labor Market	Median Quarterly Wages	
		Nominal Wage	Inflation Adjusted to Q2 2023
2012 Cohort (2017 wages)	27,535	$5,916	$7,369
2013 Cohort (2018 wages)	27,822	$6,160	$7,459
2014 Cohort (2019 wages)	27,330	$6,160	$7,338
2015 Cohort (2020 wages)	9,706	$5,792	$6,855
2016 Cohort (2021 wages)	23,179	$7,138	$8,016
2017 Cohort (2022 wages)	22,797	$7,500	$7,723
2018 Cohort (2023 wages)	26,013	$8,171	-

Finally, it is important to note that the analysis presented here was conducted at the early stages in this population's career and represents entry level wages. Many individuals in this population have only been in the workforce for a short period of time. The wage outcomes reported here may increase rapidly. It is difficult to predict if the wages gaps present in early-career, entry-level wages between educational, demographic, or economic groups will widen or narrow as this cohort progresses through their careers.

APPENDICES

Appendix 1: High School Graduates, State of Maryland, 2018, Median Quarterly Wages Five Years after High School Graduation, Fiscal Quarter 2 of 2023

The tables below provide the distributions of high school graduates by select characteristics and the median quarterly wage for those graduates with same-employer wages. See the **Technical Appendix** for information on same-employer wages.

	All Same-Employer High School Graduates		Overall				No College				Some College				Still in College			
			Female		Male		Female		Male		Female		Male		Female		Male	
Sector	n	$	n	$	n	n	n	$	n	$	n	$	n	$	n	$	n	$
Goods Production	1,892	$12,802	379	$11,666	1,513	$13,016	78	$10,806	731	$12,663	121	$10,250	374	$11,792	59	$9,849	180	$13,245
Trade, Transportation and Utilities	5,289	$7,902	2,215	$7,367	3,074	$8,282	632	$7,662	1,186	$8,893	957	$7,297	1,230	$7,913	339	$5,977	388	$6,812
Information Technology	179	$10,032	94	$10,182	85	$9,425	11	$6,775	10	$9,124	31	$8,448	27	$7,443	12	$5,943	15	$7,325
Financial and Real Estate	803	$11,992	406	$11,032	397	$12,946	73	$10,197	75	$10,820	144	$9,961	115	$11,250	65	$11,126	72	$11,500
Professional and Business Services	3,006	$11,306	1,462	$10,394	1,544	$12,420	235	$8,640	366	$10,426	413	$9,144	404	$10,064	265	$9,934	273	$12,405
Education	1,476	$9,807	1,044	$10,095	432	$9,469	75	$6,913	69	$9,094	174	$7,574	120	$8,345	246	$9,489	109	$8,315
Health Services	2,969	$8,697	2,511	$8,799	458	$8,275	422	$8,434	87	$8,475	894	$8,231	163	$8,200	555	$8,440	97	$7,559
Leisure and Hospitality	2,519	$6,658	1,286	$6,486	1,233	$6,836	305	$6,946	339	$7,441	547	$6,335	569	$6,650	236	$5,591	202	$6,040
Other Services/Unclassified	776	$8,787	398	$8,151	378	$9,402	90	$7,754	158	$11,047	154	$7,583	120	$8,191	64	$6,735	48	$7,753
Public Administration	665	$11,432	262	$10,629	403	$12,221	33	$9,479	105	$13,011	61	$10,067	130	$11,022	56	$10,456	65	$10,286
Total	**19,574**	**$9,131**	**10,057**	**$8,699**	**9,517**	**$9,725**	**1,954**	**$8,122**	**3,126**	**$9,881**	**3,496**	**$7,931**	**3,252**	**$8,622**	**1,897**	**$8,094**	**1,449**	**$8,784**

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The tables below provide the distributions of high school graduates by select characteristics and the median quarterly wage for those graduates with same-employer wages. See the **Technical Appendix** for information on same-employer wages.

	All Same-Employer High School Graduates		Overall				Lower Division Degree				Bachelor's Degree or HIgher			
			Female		Male		Female		Male		Female		Male	
Sector	n	$	n	$	n	$	n	$	n	$	n	$	n	$
Goods Production	1,892	$12,802	379	$11,666	1,513	$13,016	25	$10,232	41	$11,939	96	$17,566	187	$18,990
Trade, Transportation and Utilities	5,289	$7,902	2,215	$7,367	3,074	$8,282	81	$7,914	123	$8,413	206	$8,766	147	$10,952
Information Technology	179	$10,032	94	$10,182	85	$9,425	6	^	4	^	34	$11,510	29	$16,249
Financial and Real Estate	803	$11,992	406	$11,032	397	$12,946	17	$10,255	11	$12,822	107	$14,993	124	$16,816
Professional and Business Services	3,006	$11,306	1,462	$10,394	1,544	$12,420	50	$9,759	61	$12,261	499	$13,286	440	$16,455
Education	1,476	$9,807	1,044	$10,095	432	$9,469	52	$7,594	16	$9,066	497	$13,278	118	$11,695
Health Services	2,969	$8,697	2,511	$8,799	458	$8,275	153	$12,422	19	$10,872	487	$11,656	92	$8,547
Leisure and Hospitality	2,519	$6,658	1,286	$6,486	1,233	$6,836	60	$6,666	46	$6,860	138	$8,170	77	$7,171
Other Services/Unclassified	776	$8,787	398	$8,151	378	$9,402	25	$9,042	17	$8,160	65	$11,476	35	$10,769
Public Administration	665	$11,432	262	$10,629	403	$12,221	34	$10,064	48	$17,481	78	$11,816	55	$11,903
Total	**19,574**	**$9,131**	**10,057**	**$8,699**	**9,517**	**$9,725**	**503**	**$9,271**	**386**	**$10,237**	**2,207**	**$12,599**	**1,304**	**$14,544**

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The tables below provide the distributions of high school graduates by select characteristics and the median quarterly wage for those graduates with same-employer wages. See the **Technical Appendix** for information on same-employer wages.

	All Same-Employer High School Graduates		Overall		No College		Some College		Still in College		Lower Division Degree		Bachelor's Degree or Higher	
			Hispanic, Any Race		Hispanic, Any Race		Hispanic, Any Race		Hispanic, Any Race		Hispanic, Any Race		Hispanic, Any Race	
Sector	n	$	n	$	n	$	$	n	n	$	n	$	n	$
Goods Production	1,892	$12,802	312	$12,450	182	$12,592	84	$11,545	23	$12,437	8	$8,697	15	$18,842
Trade, Transportation and Utilities	5,289	$7,902	790	$8,426	307	$9,046	338	$8,346	97	$6,942	24	$8,538	24	$10,273
Information Technology	179	$10,032	17	$11,141	7	^	5	^	*	^	*	^	*	^
Financial and Real Estate	803	$11,992	118	$11,701	36	$11,063	51	$11,124	15	$12,097	4	$13,569	12	$14,333
Professional and Business Services	3,006	$11,306	384	$10,847	117	$9,646	143	$10,637	55	$10,120	15	$13,385	54	$12,684
Education	1,476	$9,807	146	$9,839	19	$9,333	42	$8,863	34	$8,173	9	$8,742	42	$14,118
Health Services	2,969	$8,697	435	$9,024	114	$9,118	178	$8,703	66	$8,126	22	$10,105	55	$10,806
Leisure and Hospitality	2,519	$6,658	329	$7,500	132	$7,691	134	$7,574	43	$5,272	6	$6,692	14	$9,845
Other Services/Unclassified	776	$8,787	95	$9,216	40	$9,356	25	$8,518	*	^	*	^	*	^
Public Administration	665	$11,432	67	$11,468	12	$10,051	17	$11,317	15	$9,978	11	$15,752	12	$13,490
Total	**19,574**	**$9,131**	**2,693**	**$9,437**	**966**	**$9,584**	**1,017**	**$9,034**	**364**	**$8,269**	**106**	**$10,350**	**240**	**$12,491**

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Appendix 1: High School Graduates, State of Maryland, 2018, Median Quarterly Wages Five Years after High School Graduation, Fiscal Quarter 2 of 2023

The tables below provide the distributions of high school graduates by select characteristics and the median quarterly wage for those graduates with same-employer wages. See the **Technical Appendix** for information on same-employer wages.

Sector	All Same-Employer High School Graduates		Overall						No College					
			African-American / Black Alone		Asian Alone		White Alone		African-American / Black Alone		Asian Alone		White Alone	
	n	$	n	$	n	$	n	$	n	$	n	$	n	$
Goods Production	1,892	$12,802	309	$10,999	70	$18,776	1,337	$13,092	110	$10,573	*	^	623	$12,735
Trade, Transportation and Utilities	5,289	$7,902	2,046	$7,455	244	$6,321	2,432	$8,420	692	$7,884	22	$6,914	901	$8,790
Information Technology	179	$10,032	45	$8,823	11	$16,500	114	$9,937	10	$8,581			7	^
Financial and Real Estate	803	$11,992	242	$11,507	68	$16,723	413	$12,143	51	$10,307	*	^	78	$10,753
Professional and Business Services	3,006	$11,306	865	$9,492	246	$14,987	1,587	$12,402	237	$8,511	10	$6,819	276	$10,508
Education	1,476	$9,807	393	$8,652	93	$9,471	868	$10,788	62	$7,788	*	^	62	$7,870
Health Services	2,969	$8,697	1,109	$8,381	222	$8,215	1,301	$9,112	241	$8,361	6	$10,209	181	$8,568
Leisure and Hospitality	2,519	$6,658	749	$6,529	166	$5,581	1,362	$6,786	241	$6,710	10	$4,844	334	$7,284
Other Services/Unclassified	776	$8,787	196	$8,448	30	$7,060	475	$8,747	58	$8,852	4	$11,445	159	$9,613
Public Administration	665	$11,432	209	$9,640	15	$9,520	383	$12,768	43	$10,583	*	^	82	$13,347
Total	**19,574**	**$9,131**	**6,163**	**$8,246**	**1,165**	**$9,129**	**10,272**	**$9,801**	**1,745**	**$8,239**	**62**	**$7,872**	**2,703**	**$9,614**

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The tables below provide the distributions of high school graduates by select characteristics and the median quarterly wage for those graduates with same-employer wages. See the **Technical Appendix** for information on same-employer wages.

	All Same-Employer High School Graduates		Overall						Some College					
			African-American / Black Alone		Asian Alone		White Alone		African-American / Black Alone		Asian Alone		White Alone	
Sector	n	$	n	$	n	$	n	$	n	$	n	$	n	$
Goods Production	1,892	$12,802	309	$10,999	70	$18,776	1,337	$13,092	126	$10,730	12	$11,969	303	$11,845
Trade, Transportation and Utilities	5,289	$7,902	2,046	$7,455	244	$6,321	2,432	$8,420	951	$7,300	113	$6,282	880	$8,129
Information Technology	179	$10,032	45	$8,823	11	$16,500	114	$9,937	18	$7,494	*	^	37	$7,859
Financial and Real Estate	803	$11,992	242	$11,507	68	$16,723	413	$12,143	101	$10,806	13	$7,609	111	$10,338
Professional and Business Services	3,006	$11,306	865	$9,492	246	$14,987	1,587	$12,402	327	$8,974	33	$10,000	350	$10,181
Education	1,476	$9,807	393	$8,652	93	$9,471	868	$10,788	121	$7,342	11	$7,126	132	$8,454
Health Services	2,969	$8,697	1,109	$8,381	222	$8,215	1,301	$9,112	492	$8,072	49	$6,443	367	$8,265
Leisure and Hospitality	2,519	$6,658	749	$6,529	166	$5,581	1,362	$6,786	367	$6,360	95	$5,997	541	$6,596
Other Services/ Unclassified	776	$8,787	196	$8,448	30	$7,060	475	$8,747	90	$6,735	13	$6,672	149	$8,151
Public Administration	665	$11,432	209	$9,640	15	$9,520	383	$12,768	82	$8,549	*	^	92	$12,618
Total	**19,574**	**$9,131**	**6,163**	**$8,246**	**1,165**	**$9,129**	**10,272**	**$9,801**	**2,675**	**$7,799**	**347**	**$6,842**	**2,962**	**$8,662**

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The tables below provide the distributions of high school graduates by select characteristics and the median quarterly wage for those graduates with same-employer wages. See the **Technical Appendix** for information on same-employer wages.

Sector	All Same-Employer High School Graduates		Overall						Still in College					
			African-American / Black Alone		Asian Alone		White Alone		African-American / Black Alone		Asian Alone		White Alone	
	n	$	n	$	n	$	n	$	n	$	n	$	n	$
Goods Production	1,892	$12,802	309	$10,999	70	$18,776	1,337	$13,092	37	$10,520	18	$17,543	156	$12,199
Trade, Transportation and Utilities	5,289	$7,902	2,046	$7,455	244	$6,321	2,432	$8,420	270	$6,345	52	$3,638	328	$6,766
Information Technology	179	$10,032	45	$8,823	11	$16,500	114	$9,937	*	^	*	^	18	$4,869
Financial and Real Estate	803	$11,992	242	$11,507	68	$16,723	413	$12,143	*	^	16	$19,034	71	$10,541
Professional and Business Services	3,006	$11,306	865	$9,492	246	$14,987	1,587	$12,402	159	$9,658	71	$15,251	266	$11,492
Education	1,476	$9,807	393	$8,652	93	$9,471	868	$10,788	89	$8,671	30	$9,340	209	$9,826
Health Services	2,969	$8,697	1,109	$8,381	222	$8,215	1,301	$9,112	212	$8,402	65	$7,456	327	$8,414
Leisure and Hospitality	2,519	$6,658	749	$6,529	166	$5,581	1,362	$6,786	94	$6,653	35	$4,833	263	$5,360
Other Services/ Unclassified	776	$8,787	196	$8,448	30	$7,060	475	$8,747	20	$8,103	*	^	75	$6,801
Public Administration	665	$11,432	209	$9,640	15	$9,520	383	$12,768	34	$7,818	6	^	73	$10,723
Total	**19,574**	**$9,131**	**6,163**	**$8,246**	**1,165**	**$9,129**	**10,272**	**$9,801**	**960**	**$7,983**	**301**	**$8,620**	**1,786**	**$8,650**

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The tables below provide the distributions of high school graduates by select characteristics and the median quarterly wage for those graduates with same-employer wages. See the **Technical Appendix** for information on same-employer wages.

Sector	All Same-Employer High School Graduates		Overall						Lower Division Degree					
			African-American / Black Alone		Asian Alone		White Alone		African-American / Black Alone		Asian Alone		White Alone	
	n	$	n	$	n	$	n	$	n	$	n	$	n	$
Goods Production	1,892	$12,802	309	$10,999	70	$18,776	1,337	$13,092	11	$11,450	*	^	48	$10,966
Trade, Transportation and Utilities	5,289	$7,902	2,046	$7,455	244	$6,321	2,432	$8,420	50	$8,123	11	$8,955	124	$8,067
Information Technology	179	$10,032	45	$8,823	11	$16,500	114	$9,937	*	^			7	^
Financial and Real Estate	803	$11,992	242	$11,507	68	$16,723	413	$12,143	*	^	*	^	17	$10,354
Professional and Business Services	3,006	$11,306	865	$9,492	246	$14,987	1,587	$12,402	18	$9,169	12	$10,375	71	$11,616
Education	1,476	$9,807	393	$8,652	93	$9,471	868	$10,788	*	^	*	^	46	$7,311
Health Services	2,969	$8,697	1,109	$8,381	222	$8,215	1,301	$9,112	28	$9,554	10	$8,863	118	$13,391
Leisure and Hospitality	2,519	$6,658	749	$6,529	166	$5,581	1,362	$6,786	15	$5,710	10	$5,264	75	$7,550
Other Services/ Unclassified	776	$8,787	196	$8,448	30	$7,060	475	$8,747	6	^	*	^	25	$8,160
Public Administration	665	$11,432	209	$9,640	15	$9,520	383	$12,768	13	$8,973			57	$16,303
Total	**19,574**	**$9,131**	**6,163**	**$8,246**	**1,165**	**$9,129**	**10,272**	**$9,801**	**157**	**$8,520**	**52**	**$9,448**	**588**	**$9,724**

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	All Same-Employer High School Graduates		Overall						Bachelor's Degree or Higher					
			African-American / Black Alone		Asian Alone		White Alone		African-American / Black Alone		Asian Alone		White Alone	
Sector	n	$	n	$	n	$	n	$	n	$	n	$	n	$
Goods Production	1,892	$12,802	309	$10,999	70	$18,776	1,337	$13,092	25	$19,134	35	$19,869	207	$17,952
Trade, Transportation and Utilities	5,289	$7,902	2,046	$7,455	244	$6,321	2,432	$8,420	83	$7,218	46	$10,863	199	$10,500
Information Technology	179	$10,032	45	$8,823	11	$16,500	114	$9,937	10	$11,707	6	^	45	$13,991
Financial and Real Estate	803	$11,992	242	$11,507	68	$16,723	413	$12,143	47	$14,050	33	$18,220	136	$15,557
Professional and Business Services	3,006	$11,306	865	$9,492	246	$14,987	1,587	$12,402	124	$14,037	120	$16,695	624	$14,956
Education	1,476	$9,807	393	$8,652	93	$9,471	868	$10,788	110	$11,632	47	$10,231	419	$13,479
Health Services	2,969	$8,697	1,109	$8,381	222	$8,215	1,301	$9,112	136	$10,082	92	$8,321	308	$12,588
Leisure and Hospitality	2,519	$6,658	749	$6,529	166	$5,581	1,362	$6,786	32	$6,471	16	$6,690	149	$8,159
Other Services/ Unclassified	776	$8,787	196	$8,448	30	$7,060	475	$8,747	22	$11,475	*	^	67	$11,400
Public Administration	665	$11,432	209	$9,640	15	$9,520	383	$12,768	37	$11,420	*	^	79	$12,127
Total	**19,574**	**$9,131**	**6,163**	**$8,246**	**1,165**	**$9,129**	**10,272**	**$9,801**	**626**	**$11,540**	**403**	**$14,172**	**2,233**	**$13,744**

Education Article § 24-703(h)(4), Annotated Code of Maryland, states that, "data that may be identifiable based on the size or uniqueness of the population under consideration may not be reported in any form by the Center." Due to the small population under consideration data are suppressed and disaggregations are omitted in compliance with the above requirement. Suppressed data are indicated with an *. Median quarterly wages are only provided when calculated from populations of 10 or more. Redacted medians are indicated with an ^. The MLDS Center uses a variety of methods for suppressing, including rounding and perturbing. For additional information or questions, please contact the MLDS Center at MLDS.Center@maryland.gov. Note: Race is reported independent of Ethnicity therefore values do not sum to the total.

Appendix 1: High School Graduates, State of Maryland, 2018, Median Quarterly Wages Five Years after High School Graduation, Fiscal Quarter 2 of 2023

The tables below provide the distributions of high school graduates by select characteristics and the median quarterly wage for those graduates with same-employer wages. See the **Technical Appendix** for information on same-employer wages.

Sector	All Same-Employer High School Graduates		Overall				No College				Some College				Still in College			
			FARMS		Non-FARMS		FARMS		Non-FARMS		FARMS		Non-FARMS		FARMS		Non-FARMS	
	n	$	n	$	n	$	n	$	n	$	n	$	n	$	n	$	n	$
Goods Production	1,892	$12,802	606	$11,710	1,286	$13,418	355	$11,759	454	$12,861	164	$10,510	331	$11,863	40	$13,372	199	$12,290
Trade, Transportation and Utilities	5,289	$7,902	2,176	$7,881	3,113	$7,914	958	$8,095	860	$8,780	865	$7,817	1,322	$7,420	240	$6,549	487	$6,268
Information Technology	179	$10,032	43	$10,305	136	$9,937	13	$9,425	8	^	15	$8,182	43	$7,443	6	^	21	$5,163
Financial and Real Estate	803	$11,992	246	$10,933	557	$12,499	70	$10,278	78	$10,712	95	$10,806	164	$10,163	38	$10,232	99	$11,496
Professional and Business Services	3,006	$11,306	866	$9,662	2,140	$12,233	286	$8,696	315	$10,190	303	$9,105	514	$9,831	139	$10,058	399	$11,533
Education	1,476	$9,807	344	$8,609	1,132	$10,302	61	$7,706	83	$8,168	105	$8,187	189	$7,605	84	$8,349	271	$9,572
Health Services	2,969	$8,697	1,082	$8,591	1,887	$8,769	284	$8,551	225	$8,398	469	$8,382	588	$7,997	174	$8,553	478	$8,169
Leisure and Hospitality	2,519	$6,658	915	$6,760	1,604	$6,608	374	$7,259	270	$7,029	387	$6,487	729	$6,577	104	$6,485	334	$5,335
Other Services/Unclassified	776	$8,787	232	$8,525	544	$8,893	101	$9,377	147	$9,880	79	$7,765	195	$7,751	24	$7,709	88	$6,979
Public Administration	665	$11,432	172	$11,753	493	$11,420	45	$13,290	93	$11,431	50	$11,183	141	$10,619	34	$11,341	87	$9,922
Total	**19,574**	**$9,131**	6,682	$8,599	12,892	$9,487	2,547	$8,629	2,533	$9,446	2,532	$8,261	4,216	$8,214	883	$8,332	2,463	$8,372

Education Article § 24-703(h)(4), Annotated Code of Maryland, states that, "data that may be identifiable based on the size or uniqueness of the population under consideration may not be reported in any form by the Center." Due to the small population under consideration data are suppressed and disaggregations are omitted in compliance with the above requirement. Suppressed data are indicated with an *. Median quarterly wages are only provided when calculated from populations of 10 or more. Redacted medians are indicated with an ^. The MLDS Center uses a variety of methods for suppressing, including rounding and perturbing. For additional information or questions, please contact the MLDS Center at MLDS.Center@maryland.gov.

Appendix 1: High School Graduates, State of Maryland, 2018, Median Quarterly Wages Five Years after High School Graduation, Fiscal Quarter 2 of 2023

The tables below provide the distributions of high school graduates by select characteristics and the median quarterly wage for those graduates with same-employer wages. See the **Technical Appendix** for information on same-employer wages.

Sector	All Same-Employer High School Graduates		Overall				Lower Division Degree				Bachelor's Degree or Higher			
			FARMS		Non-FARMS		FARMS		Non-FARMS		FARMS		Non-FARMS	
	n	$	n	$	n	$	n	$	n	$	n	$	n	$
Goods Production	1,892	$12,802	606	$11,710	1,286	$13,418	14	$10,286	52	$11,728	33	$19,666	250	$18,351
Trade, Transportation and Utilities	5,289	$7,902	2,176	$7,881	3,113	$7,914	57	$8,013	147	$8,407	56	$8,770	297	$9,678
Information Technology	179	$10,032	43	$10,305	136	$9,937	4	^	7	^	5	^	57	$13,533
Financial and Real Estate	803	$11,992	246	$10,933	557	$12,499	8	^	20	$10,709	35	$13,650	196	$16,273
Professional and Business Services	3,006	$11,306	866	$9,662	2,140	$12,233	26	$11,631	85	$11,161	112	$13,349	827	$14,985
Education	1,476	$9,807	344	$8,609	1,132	$10,302	14	$7,919	54	$7,694	80	$13,317	535	$13,030
Health Services	2,969	$8,697	1,082	$8,591	1,887	$8,769	44	$10,506	128	$12,376	111	$10,173	468	$10,927
Leisure and Hospitality	2,519	$6,658	915	$6,760	1,604	$6,608	22	$6,583	84	$6,997	28	$6,001	187	$7,821
Other Services/Unclassified	776	$8,787	232	$8,525	544	$8,893	9	^	33	$8,640	19	$9,401	81	$11,538
Public Administration	665	$11,432	172	$11,753	493	$11,420	25	$11,392	57	$16,551	18	$12,778	115	$11,583
Total	**19,574**	**$9,131**	**6,682**	**$8,599**	**12,892**	**$9,487**	**223**	**$9,128**	**667**	**$9,766**	**497**	**$12,326**	**3,013**	**$13,305**

Education Article § 24-703(h)(4), Annotated Code of Maryland, states that, "data that may be identifiable based on the size or uniqueness of the population under consideration may not be reported in any form by the Center." Due to the small population under consideration data are suppressed and disaggregations are omitted in compliance with the above requirement. Suppressed data are indicated with an *. Median quarterly wages are only provided when calculated from populations of 10 or more. Redacted medians are indicated with an ^. The MLDS Center uses a variety of methods for suppressing, including rounding and perturbing. For additional information or questions, please contact the MLDS Center at MLDS.Center@maryland.gov.

Appendix 2: Technical Documentation

Introduction

This technical documentation contains information on the primary data and methods used to prepare *The Career Preparation Expansion Act* (CPEA) report as well as overviews of the two state agencies who produce the report.

The annual CPEA report is submitted in fulfillment of the requirement in *The Career Preparation Expansion Act* (CPEA), Chapter 695 of 2018 (see Education Article § 21-206, Annotated Code of Maryland).

Report Requirements:
The Maryland Longitudinal Data System (MLDS) Center and the Governor's Workforce Development Board (GWDB) are required to produce a report on high school graduates for the five-year period after graduation on:

1. Wages earned;
2. Hours worked per week; and
3. The industry in which the individuals are employed.

State Agencies

The **Maryland Longitudinal Data System Center** (MLDS Center) is the State of Maryland's central repository for student and workforce data. The MLDS Center develops and maintains the MLDS to provide analyses, produce relevant information, and inform choices to improve student and workforce outcomes in the State of Maryland.

The **Governor's Workforce Development Board** (GWDB) helps plan, coordinate, and monitor the State of Maryland's programs and services for workforce development, and advises the Governor on the development, implementation, and modification of the four-year State Plan, as required by federal law.

MLDS Data

The MLDS connects data from across Maryland's education and workforce agencies. These data are subject to strict data management, security, and privacy requirements. The MLDS may only report aggregated, de-identified data. All research conducted by the MLDS Center focuses on what happens to students before and after critical transitions between education and workforce pathways. All research and analysis using the MLDS is cross-sector.

The analysis in the CPEA report focuses on the employment of individuals as they transition into the workforce after receiving their high school diploma, including whether any of the graduates enrolled in college or earned a college degree subsequent to high school graduation. Below is an overview of the available data within the System to support this analysis:

Education Data

The MLDS contains education data on all students from Maryland public high schools, students attending Maryland public and state-aided independent institutions of higher education, and adults completing GED® Testing or the National External Diploma Program® (NEDP®). Education data begin with the 2007-2008 academic year. The MLDS does not contain education data on students in private high schools. The MLDS contains limited data on students in private colleges and in workforce training programs. Further, data on unsuccessful attempts at fulfilling the GED® or NEDP® requirements are not included in the System. The MLDS contains limited information on out-of-state college enrollment and graduation for Maryland public high school graduates.

Wage Data

The MLDS System contains workforce data from quarterly Unemployment Insurance (UI) filings beginning with the first fiscal quarter of 2008 for individuals with a Maryland educational record (see the MLDS Data Inventory for a definition of *educational record*). UI filings are only available for Maryland employees who work for an in-state employer required to file UI and have a Maryland education record. Examples of employers that are not required to file UI include the federal government (including the military), certain non-profits, and self-employed and independent contractors. Individuals working in temporary employment, including federal postsecondary work-study programs, are also not subject to UI filings. These omissions mean it is incorrect to assume that individuals not counted as "employed" are unemployed.

The UI wages reported reflect the compensation paid during a fiscal quarter, rather than when the compensation was earned. UI wages reflect the sum of all compensation, including bonuses, commissions, tips, and other forms of compensation. The UI wage data do not distinguish between part-time and full-time employment, hourly and salaried wages, regular wages and commissions, bonuses, and other incentive pay. The UI wage data provided do not indicate the number of days or the number of hours a person worked in a fiscal quarter.

UI filings for a fiscal quarter may be incomplete. Employers may have filed UI wages after the data have been transmitted to the MLDS Center or have omitted individuals from their file.

Missing wage data and/or corrections to previously reported wages may be provided in subsequent fiscal quarters. While there is no time limit on correcting UI filings, most changes (additions and/or corrections) are completed within one fiscal quarter. The CPEA report includes three fiscal quarters of UI wage data. Two of the fiscal quarters have had at least one fiscal quarter of subsequent UI data reported, including the fiscal quarter used to derive median quarterly wages; therefore, errors in wage amounts due to corrections and late filings have been minimized. One of the fiscal quarters has not yet had a subsequent quarter of UI wage data filed. This fiscal quarter is used as part of the wage full-quarter wage methodology (see below); therefore, the reported wage visibility may be either overstated or understated.

Wage data in the MLDS include North American Industry Classification System (NAICS) codes for employers. This system classifies employers by sector rather than identifies the specific jobs performed by employees. For example, NAICS 62 is Health Care and Social Assistance, and NAICS 6221 is General Medical and Surgical Hospitals. Individuals who are doctors, hospital administrators, dietitians, and janitorial staff at a hospital would all have this same NAICS code. Employers select the sector and may change their sector designation at any time.

Contextual Data

Three sources of data were selected to provide context for the results and guide the analysis. Collectively, these sources provide comparisons to the outcomes reported.

MIT Living Wage Calculator

The Living Wage Calculator developed by the Massachusetts Institute of Technology (MIT) provides data on the cost of living in various geographic areas across the United States. The living wage calculator considers the cost of food, housing, health insurance, transportation, taxes, clothing, and other personal items to derive the minimum annual income required for basic self-sufficiency. It is more comprehensive than traditional poverty measures, which do not incorporate these broader costs of living. The measure selected from the Living Wage Calculator is *required annual income before taxes for one adult with no dependent children* ("Living Wage"). This annual income is converted to a quarterly income to align to the MLDS quarterly wage data. The Living Wage Calculator is reviewed each year in preparation for producing the CPEA report and the income reported is inflation adjusted (if necessary) using the CPI Inflation Calculator provided by the U. S. Department of Labor, Bureau of Labor Statistics to align to the wage period of the CPEA report. In 2024, the Living Wage Calculator was modified to include new categories of living expenses which, in turn, increase the living wage in Maryland by approximately $2,500 per quarter over the prior formula.

American Community Survey 5 Year Estimates

The second source of contextual data was American Community Survey (ACS) 1-Year Estimates, 2022 (S2001). This survey provides extensive data on demographic characteristics, housing, and wages for states and counties throughout the United States. The measure selected from the ACS is *median earnings for workers* ("ACS Wage"). This annual income measure is converted to quarterly earnings to align to the MLDS quarterly wage data. This value is adjusted each year using the CPI inflation calculator provided by the U. S. Department of Labor, Bureau of Labor Statistics to align to the wage period of the CPEA report.

Minimum Wage in Maryland

The minimum wage in Maryland from July 2018 to December 2019 was $10.10 per hour. Maryland raised the minimum wage to $15.00 per hour with an annual phased-in increase of $0.60 to $0.75 per hour between January 1, 2020 and January 1, 2026 contingent upon the number of employees. The quarterly minimum wage is calculated based upon employment for 30 hours per week for 52 weeks per year. The 30 hours per week threshold was selected to calculate earnings as employment at 30 hours is the minimum to be classified as full-time.

Full-Quarter Wage Methodology

The high school graduates included in the wage analysis are selected by using the U. S. Census Bureau Stable or Full-Quarter Employment Methodology (referenced as Full-Quarter throughout the report)[19]. This methodology excludes individuals from the median calculation who do not have wage data in either the fiscal quarter before or after the period of interest. The period of interest for CPEA is five years or

the 20th fiscal quarter after high school graduation; accordingly, individuals were included in the median wage calculation if, in addition to having wages in quarter 20, they also had wages in quarters 19 and 21. For each high school cohort, the 20th quarter after graduation is fiscal quarter 2 in a calendar year. For the 2023 report on the 2018 cohort of high school graduates, the 20th quarter was fiscal quarter 2 of 2023. Accordingly, individuals were included in the median wage calculation[20] if, in addition to having wages in quarter 2 of 2023, they also had wages in fiscal quarter 1 of 2023 and fiscal quarter 3 of 2023.

The Full-Quarter Methodology provides a standardized method of determining whose wages to include in the analysis. Restricting analysis to "stable wage earners" provides a clearer picture of wage outcomes for workers fully engaged in the workforce and eliminates the potential to deflate median wage calculations by including the wages, or lack of wages, of workers who are absent, transient, or not fully engaged in the workforce. This method also reduces the impact of UI wage data limitations by excluding wages that may be incorrect due to incomplete or late filings.

Same-Employer Wage Methodology

The U.S. Census Bureau Stable or Full-Quarter Employment Methodology[21] was used as a basis for selecting high school graduates to include in the industry-level wage analysis with the added requirement that the high school graduate must have been employed by the same employer for the nine-month period (Q19, Q20, and Q21) before deriving median wage calculations using Q20 wages.[22]

Wage Bands

Wage bands were constructed to align to the contextual indicators selected for this report. The wages earned in the 20th quarter for those with full-quarter employment were used to assign each high school graduate to one of four wage groups. The wage band values are updated each year to align to that year's wages.

Income Band	20th Fiscal Quarter Wage
Less than Minimum Wage	$1 to <Minimum Wage
Between Minimum Wage and Living Wage	>=Minimum Wage to Living Wage
Between the Living Wage and ACS Wage	>=Living Wage to ACS Wage
Greater than or equal to the ACS Wage	>= ACS Wage

NAICS Groupings

The industry of employment was determined by evaluating the North American Industry Classification System (NAICS) code reported with each wage record. NAICS codes were grouped according to standard reporting categories.[23]

Sector Category	Sector Sub-Category	NAICS
Goods Producing	Natural Resources & Mining	Agriculture (11)
Goods Producing	Natural Resources & Mining	Mining (21)
Goods Producing	Goods Production	Construction (23)
Goods Producing	Goods Production	Manufacturing (31-33)
Service Providing	Trade, Transportation, & Utilities	Utilities (22)
Service Providing	Trade, Transportation, & Utilities	Wholesale & Retail (42-45)
Service Providing	Trade, Transportation, & Utilities	Transportation & Warehousing (48-49)
Service Providing	Information	Information Technology (51)
Service Providing	Financial & Real Estate	Finance & Insurance (52)
Service Providing	Financial & Real Estate	Real Estate (53)
Service Providing	Professional & Business Services	Professional, Scientific, Technical Services (54)
Service Providing	Professional & Business Services	Management (55)
Service Providing	Professional & Business Services	Administrative, Support & Waste Management (56)
Service Providing	Education & Health Services	Educational Services (61)
Service Providing	Education & Health Services	Health Care & Social Assistance (62)
Service Providing	Leisure & Hospitality	Arts, Entertainment & Recreation (71)
Service Providing	Leisure & Hospitality	Accommodation & Food Services (72)
Service Providing	Other Services	Other Services (81)
Service Providing	Public Administration	Public Administration (92)

Educational Attainment Methodology

Educational attainment has important implications for workforce outcomes:

- First, research suggests that employment outcomes and wages may vary by level of educational attainment.[24]
- Second, high school graduates enrolled in college may be employed in part-time entry-level minimum-wage positions so they can prioritize college; comparatively high school graduates that did not enroll in college may have been available to enter the workforce in full-time career-track employment.
- Finally, the time to degree widely varies based upon the type of postsecondary degree. Certificate, Associate's, and Bachelor's degree programs are designed to require one, two, or four years of full-time study respectively. The length of each program impacts the amount of time graduates may have been in the workforce after earning their college degree. For example, Certificate graduates may enter the workforce three years earlier than Bachelor's degree graduates, while Associate's graduates may enter the workforce two years earlier than Bachelor's degree graduates.

Accordingly, separating the population of interest into groups by educational attainment helps identify wage differences that may occur when using a common point in time (five years after high school graduation) as a measure for a population who has had different amounts of time in the workforce.

Educational attainment was frozen 6 months prior to the end of the five-year period to allow students in each category time to transition from college to workforce and thus provide a more accurate picture of wages and industry of employment after college. The 20th quarter after high school graduation aligns with the postsecondary Spring term which would end in May or June of a given year; however, assignment to an educational attainment category is made as of each student's status in Fall (for example, December 2020 or Quarter 18 post-high school graduation for the 2018 cohort).

Seven educational attainment groups were created using the definitions below. The dates referenced below are for the 2018 cohort of high school graduates.

1. **No College**: High school graduates without an in-state or out-of-state college enrollment record by the end of Spring term 2023.
2. **Some College**: High school graduates enrolled for at least one term between Fall 2018 and Fall 2022 but who are not actively enrolled in college in the Spring 2023 or Fall 2023 terms and did not earn any level of postsecondary degree.
3. **Still in College**: High school graduates enrolled in college in-state or out-of-state in the Spring 2023 and/or Fall 2023 terms. These graduates may have earned a postsecondary degree by the end of the Fall 2022 term; however, they are still actively pursuing additional postsecondary education.
4. **Certificate Graduates**: High school graduates who earned a postsecondary Certificate by the end of the Fall term 2022 and are not enrolled in college in the Spring 2023 or Fall 2022 terms. These graduates may have continued their postsecondary education beyond the Certificate; however, they had disengaged from postsecondary education without earning an additional degree by Fall term 2022.

5. **Associate's Graduates:** High school graduates who earned an Associate's degree by the end of the Fall term 2022 and are not enrolled in college in the Spring 2023 and/or Fall 2023 terms. These graduates may have continued their postsecondary education beyond the Associate's; however, they had disengaged from postsecondary education without earning an additional degree by Fall term 2022.
6. **Bachelor's Graduates:** High school graduates who earned a Bachelor's degree by the end of the Fall term 2022 and are not enrolled in college in the Spring 2023 and/or Fall 2023 terms. These graduates may have continued their postsecondary education beyond the Bachelor's; however, they had disengaged from postsecondary education without earning an additional degree by Fall term 2022.
7. **Other Degree Attainment:** High school graduates who earned a post-baccalaureate degree or a graduate degree by the end of Fall 2022 term and are not enrolled in college in the Spring 2023 or Fall 2023 terms. These graduates may have continued their postsecondary education; however, they had disengaged from postsecondary education without earning an additional degree by Fall term 2022.

Educational attainment should not be interpreted as college graduation rates as the CPEA report does not provide the starting number of students entering each educational attainment category, only the number of students who obtained each degree, are still enrolled in college, or stop attending college without graduating. Reporting on time to degree and college completion rates is outside the scope of this report.

Note, some high school graduates received more than one degree during the five-year period. Each graduate is counted only once, based upon highest degree attained. For example, if a high school graduate earned an Associate's degree and then earned a Bachelor's degree, the high school graduate is counted in the Bachelor's category. Other high school graduates earned a degree but were still progressing toward an additional degree, therefore some high school graduates in the *Still in College* category have already earned a degree. No high school graduates in the *Some College* category earned any level of postsecondary degree.

Demographic and Economic Groups

All high school graduates were assigned to one racial category, one ethnic category, one gender category, and one economic category.[25]

Assignment to racial and ethnic categories were made based upon the methodology used by the U. S. Census for its Current Population Survey (CPS) which reports race independent of ethnicity. The racial and ethnic categories included in CPEA align to standard reporting practices employed by the U.S. Bureau of Labor Statistics (BLS). BLS reports labor data for three racial categories: White alone, Black or African-American alone, and Asian alone. Each racial category consists of individuals that identify with a single race but may be of any ethnicity. All other racial categories, including individuals identifying with two or more races, are omitted from BLS reports due to the small population size.[26] Small populations limit the conclusions that can be drawn from the data and may compromise the quality of any research.

This report uses student-level data on free or reduced-price meals (FARMS) eligibility for assignment to an economic category. FARMS is part of the National School Lunch Program (NSLP), administered by the United States Department of Agriculture (USDA). Students may be eligible for free or reduced-price meals through participation in certain need-based Federal Assistance Programs or if their family's income falls below a specified poverty threshold. Eligibility status may be determined through annual household applications or through direct certification. Students living in households with incomes at or below 130% of the federal poverty level are eligible for free meals, while students living in households with incomes between 130% and 185% of the federal poverty level are eligible for reduced-priced meals. Some students are directly certified based on participation in certain programs rather than exclusively on financial need (e.g., migrant education program, education of homeless children and youth, foster care).

FARMS does not measure socioeconomic status. Socioeconomic status is a complex measure that includes social status or prestige, occupation, educational attainment, income, and other factors. Many researchers use FARMS eligibility as a proxy for poverty. Using FARMS participation as a proxy for poverty may not correctly identify students experiencing poverty and treats all students as experiencing the same level of poverty. Using FARMS participation as a proxy for student poverty has limitations:

- The USDA has determined the number of children applying for FARMS declines in middle and high school due to the stigma associated with FARMS.
- Individual schools with 40% or more FARMS eligible students can elect to participate in the FARMS community eligibility provision. This election may report all students as FARMS even though some do not meet the poverty threshold.
- Student eligibility for FARMS can also change over time. Identifying FARMS participation in a single year may omit students who participated in FARMS in previous years.
- Not all students that participate in FARMS have identical levels of poverty. FARMS eligibility ranges from 130% to 185% of the federal poverty level.

A student's FARMS participation may be evaluated in a single year or based upon duration of time a student participates in FARMS. The method selected for determining FARMS participation can produce quite different results. The CPEA report evaluates FARMS status during 12th grade. As such, it likely underrepresents the number of students experiencing poverty in a given cohort, students living in poverty for longer durations, and does not include student cycling in and out of poverty throughout their elementary and secondary education.

Sources on FARMS:

- U.S. Department of Agriculture. Food and Nutrition Service. *Child nutrition programs: Income eligibility guidelines (July 1, 2019 - June 30, 2020)* https://www.fns.usda.gov/cnp/fr-032019
- Nation Center for Education Statistics. *Free or reduced price lunch: A proxy for poverty?* https://nces.ed.gov/blogs/nces/post/free-or-reduced-price-lunch-a-proxy-for-poverty
- Harwell, M., & LeBeau, B., *Student eligibility for a free lunch as an SES measure in education research*. Educational Researcher, 39(2), 120-131.

End Notes

[1]This definition of high school graduate was selected to align to reporting definitions used by the National Center for Education Statistics (NCES) and the U. S. Bureau of Labor Statistics (BLS).

[2]See Technical Appendix. *Educational Attainment Methodology* section. Educational attainment should not be interpreted as college graduation rates as this report does not provide data on the number of students starting each degree, only the number of students who obtained each degree, are still enrolled in college or stop attending college without graduating. Reporting on college completion is outside the scope of this report.

[3]See Technical Appendix. *Wage Data.*

[4]Wages are actual for Q2 2023 and not inflation adjusted to current day values. If an individual had more than one source of wages for the period those sources were summed to a personal quarterly wage and that value was used in determining the median.

[5]See Technical Appendix. *Wage Data.*

[6]Glasmeier, A. (2024). *Living Wage Calculator*. Massachusetts Institute of Technology. https://livingwage.mit.edu/states/24/locations

[7]United States Census Bureau. (2022). *2022 American Community Survey 1-Year Estimates (S2001)* https://data.census.gov/table/ACSST1Y2022.S2001

[8]Glasmeier, A. (2024). *Living Wage Calculator*. Massachusetts Institute of Technology. https://livingwage.mit.edu/states/24/locations

[9]Projected lifetime earnings are based on the sum of median quarterly wages for individuals through the age of 65 for each education level.

[10]For example, Baum, S, Ma, J. & Payea, K. (2013). *Education Pays 2013: The benefits of higher education for individuals and society*. College Board.

[11]See Technical Appendix. *Wage Data.*

[12]See Technical Appendix. *NAICS Groupings*.

[13]Maryland Department of Labor. (2023). *Maryland - Second Quarter 2023 - Industry Series - Maryland's Quarterly Census of Employment and Wages (QCEW) – OWIP*. https://www.labor.maryland.gov/lmi/emppay/statewide-historical-quarterly.shtml

[14]U.S. Bureau of Economic Analysist. (2022). *Annual Gross Domestic Product (GDP) by State (SAGDP2N)*. https://apps.bea.gov

[15]U. S. Bureau of Labor Statistics. (2024). Occupational Employment and Wage Statistics for Maryland, May 2023. https://data.bls.gov/oes/#/geoOcc/Multiple%20occupations%20for%20one%20geographical%20area

[16]MLDS Center (2023). *Maryland Public High School Graduates: College and Workforce Outcomes. Median Quarterly Wage Trends.* Baltimore, MD: Maryland Longitudinal Data System Center. https://mldscenter.maryland.gov/Dashboards.html

[17]Baum, S., Pender, M. & Welch, M. (2019). *Education Pays 2019: The benefits of higher education for individuals and society*. College Board.

[18]Glasmeier, A. (2021). *Living Wage Calculator*. Massachusetts Institute of Technology. https://livingwage.mit.edu/states/24/locations

[19]The Full-Quarter Employment (Stable) methodology is utilized by the U. S. Census Bureau to calculate average monthly earnings for individuals engaged in stable employment with any employer. The methodology is applied here to derive quarterly, rather than monthly median earnings. https://lehd.ces.census.gov/doc/QWI_101.pdf.

[20]Some individuals have wages in a quarter from more than one employer. Those wages were summed and then the sum was used in the median quarterly wage calculation.

[21]The Full-Quarter Employment (Stable) methodology is utilized by the U.S. Census Bureau to calculate average monthly earnings for individuals engaged in stable employment with the same employer. The methodology applied here derives quarterly, rather than monthly, median earnings. https://lehd.ces.census.gov/doc/QWI_101.pdf.

[22]For the NAICS quarterly median wage calculation, some individuals had wages in the quarter from more than one employer and more than one NAICS. Only wages from the employer that covered all three quarters were used in median wage calculations.

[23]The 20 NAICS codes were grouped based upon industry sector as aligned to U. S. Bureau of Labor Statistics and U.S. Statistical Agencies Office of Management and Budget (Federal), Economic Classification Policy Committee.

[24]For example, see:

Baum, S., Ma, J. & Payea, K. (2013). *Education Pays 2013: The benefits of higher education for individuals and society*. College Board.

Hout, M. (2012). *Social and economic returns to college education in the United States*. Annual Review of Sociology. 38: 379-400.

Kane, T.J. & Rouse, C. E. (1995). *Labor market returns to two-year and four-year college*. The American Economic Review, 85(3): 600-614

Thomas, S. & Zhang, L. (2005). *Post-baccalaureate wage growth within 4 years of graduation: The effects of college quality and college major*. Research in Higher Education. 46(4): 437-459.

[25]Economic status was determined through a student's Free or Reduced Price Meals (FARMS) eligibility in their final year of high school. FARMS indicates that a student is eligible to receive low-cost or no-cost meals each school day. Students may be eligible for free or reduced-price meals through participation in certain Federal Assistance Programs or based on their family's income falling below a specified poverty threshold. The education community and this report rely on FARMS eligibility to identify economically disadvantaged students. See Appendix 8 for a discussion on FARMS.

[26]U.S. Bureau of Labor Statistics. (2020). *Labor Force Statistics from the Current Population Survey: Concepts and Definitions*. https://www.bls.gov/cps/definitions.htm#race