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COLLEGE OF BUSINESS AND ECONOMICS

Bureau of Business and Economic Research

From Higher Education to Work in West Virginia 2011

Summary results for work participation and wages with analysis by residency status, degree earned, area of concentration, gender, race, academic achievement, tuition assistance, industry, county, and metropolitan area.

January 2013

Prepared for the West Virginia Higher Education Policy Commission

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Funding for this research was provided by the West Virginia Higher Education Policy Commission. The opinions in this document are of the author, and do not necessarily reflect those of the West Virginia Higher Education Policy Commission, or the West Virginia University Board of Governors.

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Executive summary

Economic growth in any state relies heavily on increasing the productivity of firms and workers. Productivity growth improves an economy's ability to combine labor and capital to produce goods and services more efficiently, thus helping to raise the standard of living for workers, and provides new opportunities for firm creation and expansion.

One of the primary ways that productivity increases is through the expansion of human capital. Colleges and universities are a key part of the infrastructure that produces human capital, and thus retention of graduates educated in West Virginia's public higher education institutions is a critical concern for the state.

Some highlights of this report include:

Overview

- Of the 115,730 students who graduated in the last 10 years, 55,675 were working in West Virginia in 2011, which translates into a work participation rate of 48.1 percent.
- Work participation rates tended to fall as the time since graduation increased.
- Graduates earned a total of \$2.3 billion in annualized wages in 2011, excluding fringe benefits. This represented an average annual wage of \$41,577.

Residency when entering college

- In-state students, identified by their residency for fee purposes, were much more likely to work in the state after graduation than out-of-state students.
- Work participation for both in-state and out-of-state students declined as they gained more experience.
- Annual wages were higher for in-state students than out-of-state students working in the state.

Degree earned

- Graduates who earned an associate's degree were far more likely to work in West Virginia after graduation than those who graduated with other degrees. Associate's degree graduates also were more likely to work in the state as they gained experience.
- Wages for associate's degree graduates were lower than other categories. Average annual wages for associate's degree holders were \$34,147 in 2011.
- Graduates earning doctorate degrees were the least likely to work in West Virginia after graduation. The average work participation for all graduates with a doctorate was 17.6 percent.
- Graduates with a doctoral professional practice degree, a new category in this year's report, had an average work participation rate of 44.0 percent.
- At \$106,322, the average annual wage was significantly higher for graduates with doctoral professional practice degrees than all other categories.
- Master's degree recipients had an average work participation rate of 49.7 percent. Average annual wages for master's degree graduates was \$51,329.

Area of concentration

- Business, management, and marketing was the largest area of concentration among all West Virginia graduates in the past 10 years, with 18,434 graduates. This was followed by the health professions with 17,828.

- Many of the skilled trade degrees topped the work participation list, with precision production having the highest work participation rate at 75.7 percent.
- Graduates with engineering degrees earned the highest wages during 2011, with an average annual wage of \$68,113.

Gender

- Women represent the majority of public higher education graduates in West Virginia. Of the 115,730 graduates in the last five years, 57 percent of them were women.
- Women also are more likely to work in West Virginia when they graduate. The work participation rate for women was 52.6 percent, compared with 42.2 percent for men.
- For men, the top three areas of concentration were business, management, and marketing; liberal arts and sciences, general studies and humanities; and education. In all, 39.3 percent of male graduates worked in these three fields.
- Women were more highly concentrated in their top fields, with 53.1 percent of graduates choosing to work in health professions; education; and business, management, and marketing.
- Wages for men were highest in the health professions, averaging \$88,027. For women, the highest paying field was engineering, which paid \$61,458 on average per year.

Race

- Almost 90 percent of graduates from West Virginia's public higher education institutions in the last 10 years were white. Black graduates made up the next largest share of the graduates with 3.8 percent of the total, followed by non-resident aliens, which made up 3.6 percent. Asian graduates constituted 1.7 percent of the total, and Hispanic graduates were approximately 0.9 percent.
- White graduates also had the highest work participation rates among all of the graduates working in the state in 2011, with 50.8 percent.
- Asian, Pacific Islander, or Native Hawaiian graduates had the highest annual wages, with an average annual wage of \$44,971.

Academic achievement

- Work participation tended to rise with an increase in college GPA. Graduates with a GPA greater than 3.5 were found to be working in the state at a rate of 48.9 percent, while those with GPAs below 3.0 had a work participation rate of 47.0 percent.
- The trend was the opposite for ACT scores, however. Graduates with ACT scores above 22 had an in-state work participation rate of 55.5 percent. Those with scores below 19 had a work participation rate of 63.8 percent.
- Wages tended to rise with academic achievement. Higher ACT scores and GPA were associated with higher wages overall.

Tuition assistance

- The work participation rate for graduates who had a PROMISE scholarship was 60.5 percent, which was well above the average rate for all graduates of 48.1 percent.
- Students receiving needs-based grants from the Higher Education Grant Program (HEGP) had a work participation rate of 65.2 percent.
- Annual wages for PROMISE graduates tended to be lower than for HEGP graduates. On average PROMISE graduates earned \$32,871 per year, while HEGP graduates earned \$37,402.

Industry

- Among all graduates of the state's public higher education institutions, more than half were employed in just two industries: health care and social assistance, and educational services. In all, 27.1 percent of graduates were employed in health care, and another 23.4 percent were employed in education.
- Compared with the share of state employment, graduates were less likely than workers statewide to be employed in retail trade; accommodations and food services; manufacturing; construction; and mining.
- Graduates with associate's degrees were clustered heavily in the health care fields. Educational services was by far the top industry for graduates with a master's degree, while graduates with bachelor's degrees worked in a wide variety of industries.
- Graduates working in mining earned the highest wages, averaging \$65,793 per year. Utilities; manufacturing; management of companies; and wholesale trade rounded out the top five wage earners.
- The lowest paid industries included administration and waste services; retail trade; other services; accommodation and food services; and arts, entertainment and recreation.

County statistics

- Graduates were highly concentrated in Kanawha, Monongalia, and Cabell counties; 38 percent of graduates worked in these three counties.
- Counties with larger shares of total employment and population attracted larger numbers of graduates. Graduates were over-represented in counties with larger metropolitan areas and institutions of higher education.
- Graduates were paid exceptionally high wages in Boone and Clay counties, which had average annual wages of \$48,219 and \$40,599 respectively. The lowest wages were found in Tucker County, where average annual wages were \$22,956.

Metropolitan area statistics

- Metropolitan counties attracted the largest numbers of graduates and had higher wages overall than non-metropolitan counties. Of the graduates employed in the state in 2011, 64 percent worked in counties that were part of a Metropolitan Statistical Area.
- The Charleston MSA employed the largest number of graduates with 21.4 percent of graduates employed in the state. The Charleston MSA also had the highest average annual wages, at \$37,256.
- The Morgantown MSA employed 12.5 percent of graduates, followed by Huntington-Ashland MSA with 11.0 percent. Average annual wages were \$34,690 in the Morgantown MSA, and \$34,142 in the Huntington MSA.

Overview

Using data provided by the WV Higher Education Policy Commission (HEPC), this report provides a comprehensive summary of employment and wages of the state's public higher education graduates working in West Virginia in 2011. The data is broken down by a wide variety of categories, including workplace experience, original residency, degree earned, area of concentration, and a number of demographic characteristics. The report also examines which industries graduates are working in, as well as where those jobs are located within the state.

This report covers a total of 115,730 students who graduated between the 2000-2001 academic year and the 2009-2010 academic year. The total number of post-secondary graduates rose almost every year in that time frame, as Table 1 shows. Between 2000-2001 academic year to the 2009-2010 academic year, the total number of graduates rose from 9,734 to 14,188, a gain of 4.3 percent per year on average.

Of the total number of graduates, 55,675 were working in West Virginia in 2011, which translates into a work participation rate of 48.1 percent (Table 1). Work participation rates tended to fall as the time since graduation increased. For the most recent graduates, 56.3 percent worked at establishments located in the state, while 41.1 of students who graduated 10 years earlier did so.

There are a number of potential reasons why the work participation rate might fall over time. As graduates gain more work experience,¹ they become more marketable and thus have a greater ability to acquire employment outside the state. Workers also are more likely to become self-employed as they gain more experience. Since these data only include employees on payroll at establishments in the state,² self-employed people do not show up in the numbers. Lastly, workers may be more likely to drop out of the workforce as they get older and life circumstances change; for example, a worker may become a stay-at-home spouse.

Table 1: Work participation and average annual wages by year of graduation

Graduation Year	Total graduates	Graduates working in West Virginia	Work Participation (%)	Average Annual Wage
2000-2001	9,734	4,005	41.1	\$54,555
2001-2002	9,733	4,069	41.8	\$49,797
2002-2003	10,129	4,409	43.5	\$50,907
2003-2004	10,465	4,655	44.5	\$47,739
2004-2005	11,102	5,243	47.2	\$45,365
2005-2006	11,545	5,495	47.6	\$43,324
2006-2007	12,260	6,003	49.0	\$40,826
2007-2008	13,039	6,539	50.2	\$37,298
2008-2009	13,535	7,269	53.7	\$33,243
2009-2010	14,188	7,988	56.3	\$30,105
Total	115,730	55,675	48.1	\$41,577

West Virginia public higher education graduates earned a total of \$2.3 billion in annualized wages in 2011, excluding fringe benefits. This represented an average annual wage of \$41,577. Workers tended to

¹ Time since graduation is not necessarily an indication of work experience. Graduates could have less experience if they were unemployed or not in the labor force since graduation. Also graduates could have more experience if they worked prior to entering school.

² See Appendix for more information on the data.

earn more as they gained experience in the workplace. Average annual wages grew from \$30,105 for the most recent graduates to \$54,555 for the most experienced in the sample. This represents a gain of \$2,716 on average for each year of experience, a rise of 6.8 percent on an annualized basis.

Residency when entering college

Where a student lived when entering higher education in West Virginia played a large role in whether they worked in the state after graduation. In-state students, identified by their residency for fee purposes, were much more likely to work in the state after graduation than out-of-state students. In all, 61.6 percent of in-state students worked in the state after graduation, compared with only 9.6 percent of out-of-state students.

Work participation for both in-state and out-of-state students declined as they gained more experience. For in-state students, work participation fell steadily over time, falling from 71.5 percent for the most recent graduates to 53.0 percent for the most experienced graduates. Out-of-state students' work participation fell rapidly in the first two years, then leveled off. The work participation rate for the most recent graduates was 17.3 percent, which fell to 10.0 percent for those who graduated in the 2007-2008 academic year.

Table 2: Work participation and average annual wages by residency

Graduation Year	In-State		Out-of-State		Other	
	Work Participation	Average Annual Wage	Work Participation	Average Annual Wage	Work Participation	Average Annual Wage
2000-2001	53.0	\$54,686	4.6	\$59,993	20.6	\$43,038
2001-2002	53.6	\$49,908	6.4	\$50,184	18.0	\$43,460
2002-2003	55.7	\$51,090	5.6	\$52,701	26.6	\$42,337
2003-2004	57.3	\$47,903	6.9	\$46,102	17.1	\$41,816
2004-2005	60.0	\$45,266	7.5	\$50,563	30.5	\$42,147
2005-2006	61.2	\$43,272	8.2	\$48,283	23.1	\$36,199
2006-2007	63.2	\$40,925	8.9	\$40,788	27.3	\$36,530
2007-2008	64.8	\$37,383	10.0	\$36,071	26.0	\$36,271
2008-2009	68.7	\$33,411	13.8	\$31,013	29.6	\$32,602
2009-2010	71.5	\$30,486	17.3	\$26,482	30.0	\$26,934
Total	61.6	\$41,831	9.6	\$38,472	25.1	\$37,134

Annual wages were higher for in-state students than out-of-state students working in the state. Overall, in-state students earned \$41,831 on average, compared with \$38,472 for out-of-state students. Graduates classified as other were lower than both, earning \$37,134 per year on average.³

Both in-state and out-of-state students received higher wages as the time from graduation increased. In-state graduates received an average of \$2,689 for each additional year of experience, an average annual gain of 6.7 percent. Out-of-state graduates' earnings rose faster, however. Graduates from out-of-state garnered \$3,723 of additional wages per year of experience, an average annual gain of 9.5 percent. Other graduates saw a gain of \$1,789 per year of experience, an average annual gain of 5.3 percent.

³ Other graduates include those participating in the SREB Academic Common Market, Reciprocity Agreement, Metro Agreement, and Disaster Relief (includes out-of-state students receiving a special tuition and fee rate as a result of a disaster in their state of legal residence).

Degree earned

The type of degree earned was an important determinant of work participation and wages for the state's graduates. Graduates earned degrees in seven different categories, ranging from two-year associate's degrees to graduate doctoral degrees.

This year's report includes a new category called doctoral professional practice. This category replaces the first professional category, and includes all of the degrees that had been under that category in previous reports, such as medicine, law, and dentistry. The category also includes other doctorate degree areas that are primarily designed to lead to professional careers, such as nursing, education, and business administration.

Graduates who earned an associate's degree were far more likely to work in the state after graduation than those who graduated with other degrees (Table 3). Of those graduates working in West Virginia in 2011, associate's degree graduates had a work participation rate of 65.7 percent, with the most recent group of graduates having a rate of 73.6 percent.

Associate's degree earners were also more likely to work in West Virginia as they gained experience than graduates with most other degrees. Work participation remained high for graduates in the 2000-2001 academic year, at 58.2 percent, and participation dropped slowly over time, resulting in a 2.6 percent reduction on an average annual basis. This high level of retention suggests that associate's degrees are well-matched to skilled jobs in the state.

Wages for associate's degree graduates were lower than other categories (Table 4). Average annual wages for associate's degree holders were \$34,147 in 2011. Wages for associate's degree holders were among the slowest growing, as well, gaining \$1,496 per year on average, translating into a 4.6 percent average annual gain.

Graduates earning doctorate degrees were the least likely to work in West Virginia after graduation. The average work participation for all graduates with a doctorate was 17.6 percent. Work participation also dropped considerably for doctoral graduates as time since graduation rose. Work participation fell from 26.0 percent for the most recent graduates to 10.3 percent for the graduates in the 2000-2001 academic year, a loss of 9.7 percent on average per year. The low work participation likely reflects the fact that half of the doctorate degree earners came from outside the state. Also, West Virginia offers limited job opportunities outside of academia for this level of education.

At \$61,934, wages for doctoral degree earners were the second highest on average for all degree-holders in 2011. It's difficult to draw conclusions about the effects of experience for this group because of the small sample size.

Graduates with doctoral professional practice degrees worked in West Virginia at significantly higher rates than their doctorate counterparts. Graduates in this category had an average work participation rate of 44.0 percent.

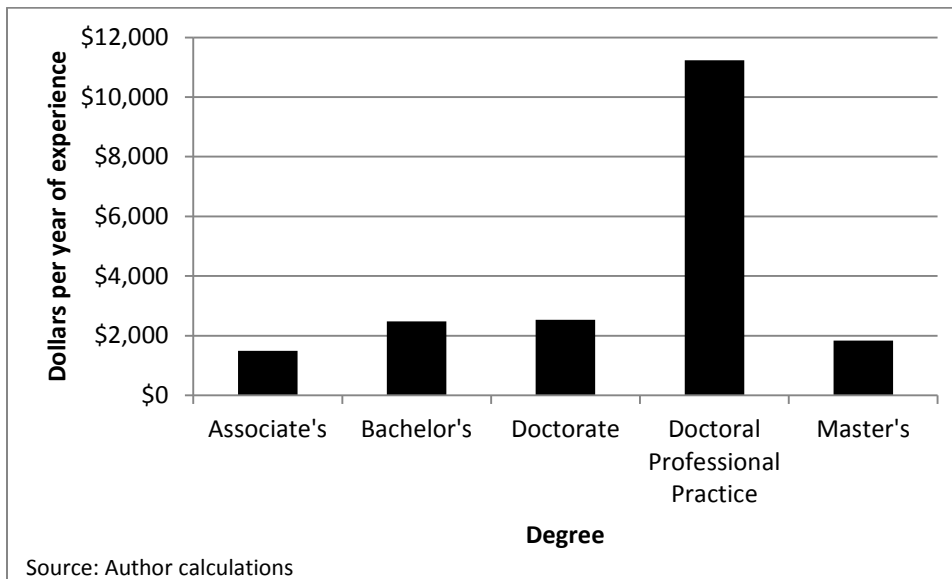
Table 3: Work participation by degree earned

Graduation Year	Associate's	Bachelor's	Master's	Doctoral Professional Practice	Doctorate
2000-2001	58.2	35.0	47.0	41.1	10.3
2001-2002	58.1	36.7	48.8	35.8	12.8
2002-2003	63.1	37.3	48.0	47.3	11.1
2003-2004	60.2	39.3	47.9	43.5	14.5
2004-2005	64.6	42.1	48.2	47.0	13.1
2005-2006	63.2	43.6	49.5	41.8	15.4
2006-2007	67.5	44.5	48.2	43.8	23.0
2007-2008	68.2	45.8	49.9	46.4	18.8
2008-2009	70.4	49.8	52.2	45.5	25.2
2009-2010	73.6	52.0	56.2	45.9	26.0
Total	65.7	43.3	49.7	44.0	17.6

Table 4: Average annual wages by degree earned

Graduation Year	Associate's	Bachelor's	Master's	Doctoral Professional Practice	Doctorate
2000-2001	\$40,369	\$47,122	\$59,915	\$166,232	\$67,172
2001-2002	\$40,248	\$44,403	\$56,032	\$134,268	\$64,428
2002-2003	\$38,040	\$43,634	\$57,946	\$139,107	\$82,100
2003-2004	\$37,572	\$41,297	\$55,156	\$126,688	\$82,408
2004-2005	\$36,596	\$40,187	\$54,679	\$112,591	\$80,786
2005-2006	\$35,579	\$38,415	\$49,721	\$121,524	\$56,736
2006-2007	\$34,758	\$35,521	\$51,493	\$95,107	\$55,289
2007-2008	\$32,486	\$32,752	\$47,685	\$78,073	\$66,603
2008-2009	\$29,984	\$28,931	\$43,478	\$68,606	\$56,344
2009-2010	\$26,908	\$24,790	\$43,348	\$65,120	\$44,390
Total	\$34,147	\$35,956	\$51,329	\$106,322	\$61,934

Figure 1: Increase in average annual wages per year of experience by degree



At \$106,322, the average annual wage was significantly higher for graduates with doctoral professional practice degrees than all other categories. Wages grew rapidly in this group, rising from \$65,120 for the most recent graduates to \$166,231 for those with 10 years of experience. This rapid growth meant that the returns to experience were significantly higher (Figure 1). The average increase in wages was \$11,235, an average annual rate of 11.0 percent.

Master's degree recipients had an average work participation rate of 49.7 percent, which was second only to associate's degrees. The high work participation rate reflects the large majority of master's degree recipients who earned education degrees and most likely remained in the state to teach in primary and secondary schools.

Average annual wages for master's degree graduates was \$51,329. Wages for this group grew the slowest in percentage terms over time. Gains averaged \$1,841 per year of experience, which translates to an average annual rate of 3.7 percent.

Bachelor's degree graduates had among the lowest work participation rates in the data. An average of 43.3 percent of graduates with bachelor's degrees worked in the state in 2011. Average annual wages were \$35,957 for those graduating with bachelor's degrees, just above associate's degrees. However, bachelor's degree recipients gained ground quickly, with each additional year of experience garnering \$2,481.

Area of concentration

The area of study that graduates engaged in played a major role in whether they worked in West Virginia after graduation, and in their wages. Table 5 summarizes the total number of graduates by area of concentration⁴ for each degree level.

Business, management, and marketing was the largest area of concentration among all West Virginia graduates in the past 10 years. In all, 18,434 people graduated with degrees in this category, the majority graduating with bachelor's degrees (12,021). Master's and associate's degrees were also common in this area of concentration.

Health Professions was the second most common degree with 17,828 graduates, followed by education with 17,270. Liberal arts, with 11,541 graduates, and communications and journalism, with 5,204, rounded out the top five. The top five degrees constituted 60.7 percent of all degrees earned in the 10-year time frame of this report.

The level of degree earned varied considerably in different areas of concentration. Health professions dominated the associate's degree category, while business had the largest number of graduates who earned bachelor's degrees. Master's degree graduates were highly concentrated in education, which constituted 38.7 percent of all master's degrees earned. Engineering degrees comprised the largest proportion of doctorates, and doctoral professional practice degrees were primarily in the medical professions.

Many of the skilled trade degrees topped the work participation list (Table 6). Precision production had the highest work participation rate with 75.7 percent, followed by science technologies; mechanic and repair technologies; and personal and culinary services. As shown in Table 5, most of these graduates

⁴ Areas of concentration are defined by two-digit Classification of Instructional Program (CIP) codes that correspond to groups of individual majors.

earned associate's degrees. Education was fifth in work participation, with 60.3 percent of graduates working in the state.

Architecture had the lowest work participation rate of all the areas of concentration, at 14.8 percent. The next four lowest had work participation rates that fell between 27 and 29 percent, and include mathematics and statistics; parks, recreation, leisure, and fitness studies; engineering; and foreign languages, literatures, and linguistics.

Graduates with engineering degrees earned the highest wages during 2011, with an average annual wage of \$68,113 (Table 6). Legal professions were second, earning \$60,422 per year, followed by health professions, engineering technologies, and computer and information sciences. Wages were lowest for personal and culinary services; philosophy and religious studies; library science (wages not disclosed to protect the privacy of the small number of graduates in this concentration); visual and performing arts; and family and consumer sciences.

Table 5: Number of graduates by area of concentration and degree earned

Area of Concentration	Number of Graduates	Associate's	Bachelor's	Doctoral		
				Professional Practice	Doctorate	Master's
Agriculture, agriculture operations, and related sciences	1,239	68	872	0	27	272
Architecture and related services	264	0	264	0	0	0
Biological and biomedical sciences	3,174	0	2,583	0	220	371
Business, management, marketing, and related support services	18,434	2,972	12,021	0	64	3,208
Communications, journalism, and related programs	5,204	82	3,986	0	5	1,131
Communications technologies/technicians and support services	256	87	167	0	0	0
Computer and information sciences and support services	2,050	539	926	0	23	480
Education	17,270	158	7,730	421	0	8,841
Engineering	4,818	22	3,193	0	233	1,370
Engineering technologies and engineering-related fields	2,104	928	1,043	0	0	117
English language and literature/letters	1,622	0	1,197	0	30	395
Family and consumer sciences/human sciences	1,386	168	1,159	0	0	59
Foreign languages, literatures, and linguistics	647	71	272	0	0	295
Health professions and related programs	17,828	6,417	4,678	3,414	65	2,576
History	1,385	0	1,207	0	53	125
Homeland security, law enforcement, firefighting and related protective services	3,484	887	2,235	0	0	255
Legal professions and studies	1,713	284	0	1,363	0	44
Liberal arts and sciences, general studies and humanities	11,541	3,244	8,231	0	0	44
Library science	3	0	0	0	0	0
Mathematics and statistics	541	0	290	0	28	223
Mechanic and repair technologies/technicians	224	211	0	0	0	0
Multi/interdisciplinary studies	2,290	756	1,474	0	0	57
Natural resources and conservation	1,224	87	843	0	77	217
Parks, recreation, leisure, and fitness studies	1,837	0	1,638	0	13	186
Personal and culinary services	187	178	0	0	0	0
Philosophy and religious studies	87	0	87	0	0	0
Physical sciences	1,258	5	913	0	118	222
Precision production	210	181	0	0	0	0
Psychology	3,508	0	2,785	17	167	419
Public administration and social service professions	2,261	136	867	0	0	1,255
Science technologies/technicians	622	405	0	0	0	0
Social sciences	4,357	0	3,928	0	64	365
Transportation and materials moving	2	2	0	0	0	0
Visual and performing arts	2,700	111	2,205	0	54	330
Total	115,730	17,999	66,794	5,215	1,241	22,857

Table 6: Work participation and average annual wages by area of concentration⁵

Area of Concentration	Work Participation	Average Annual Wage
Agriculture, agriculture operations, and related sciences	37.0	\$34,434
Architecture and related services	14.8	\$40,889
Biological and biomedical sciences	36.6	\$34,481
Business, management, marketing, and related support services	47.1	\$41,230
Communications, journalism, and related programs	35.7	\$34,760
Communications technologies/technicians and support services	57.8	\$27,550
Computer and information sciences and support services	46.2	\$46,161
Education	60.3	\$39,681
Engineering	28.8	\$68,113
Engineering technologies and engineering-related fields	57.4	\$52,583
English language and literature/letters	38.4	\$26,829
Family and consumer sciences/human sciences	35.1	\$25,309
Foreign languages, literatures, and linguistics	28.9	\$26,148
Health professions and related programs	58.1	\$56,852
History	38.1	\$25,762
Homeland security, law enforcement, firefighting and related protective services	54.0	\$33,465
Legal professions and studies	55.2	\$60,422
Liberal arts and sciences, general studies and humanities	50.8	\$32,258
Library science	n/d	n/d
Mathematics and statistics	27.0	\$38,147
Mechanic and repair technologies/technicians	71.0	\$44,156
Multi/interdisciplinary studies	45.1	\$31,413
Natural resources and conservation	40.0	\$39,750
Parks, recreation, leisure, and fitness studies	27.1	\$29,871
Personal and culinary services	61.0	\$21,359
Philosophy and religious studies	37.9	\$21,424
Physical sciences	31.5	\$44,346
Precision production	75.7	\$43,523
Psychology	41.8	\$29,120
Public administration and social service professions	51.9	\$33,772
Science technologies/technicians	72.7	\$34,791
Social sciences	35.5	\$29,392
Transportation and materials moving	n/d	n/d
Visual and performing arts	31.4	\$24,086
Total	48.1	\$41,577

n/d: data not disclosed

Table 7 and Table 8 summarize the work participation and wages by graduates' area of concentration and degree earned. For graduates with an associate's degree, work participation rates were highest in the precision production; natural resources and conservation; science technologies; and mechanic and repair technologies fields. All of these had work participation rates above 70 percent. Work participation rates were lowest in engineering, and visual and performing arts, which were both below 50 percent.

⁵ For privacy reasons, we do not disclose work participation and wage data for areas of concentration with fewer than 10 graduates.

Similar to work participation, wages were highest among associate's degree holders in the trade fields. Engineering technologies; mechanic and repair technologies; precision production; and science technologies all had wages above \$40,000 per year. The lowest wages were in physical sciences (wages withheld); public administration and social service professions; education; family and consumer sciences; and communications and journalism.

Among bachelor's degree holders, work participation rates were highest for communications technologies; education; health professions; engineering technologies; and public administration and social service professions. All of these had work participation rates above 50 percent. The lowest work participation rates were in architecture and related services; parks, recreation, leisure, and fitness studies; communications and journalism; and family and consumer sciences, which all had rates lower than 30 percent.

Wages for graduates with bachelor's degrees were highest in engineering; engineering technologies; and computer and information sciences, each of which were higher than \$50,000 per year on average. The lowest wages were found in the fields of philosophy and religious studies; visual and performing arts; and English language and literature. Graduates in each of these fields were paid less than \$25,000 per year on average in 2011.

Master's degree graduates who majored in liberal arts and sciences, general studies and humanities; education; and legal professions had work participation rates above 60 percent, the highest among workers in 2011. The lowest rates were found in the fields of foreign languages, literatures, and linguistics; and mathematics and statistics, both of which had work participation rates below 20 percent.

Wages were highest among master's degree holders in the fields of engineering; health professions; business, management, and marketing; and computer and information sciences. Each of these professions had wages above \$70,000 per year. The lowest wages for master's degree holders were found in foreign languages, literatures, and linguistics; visual and performing arts; and English language and literature.

Among doctorate degree holders, work participation rates were highest in the parks, recreation, leisure, and fitness studies; and computer and information sciences fields, which had rates above 30 percent. The lowest work participation rates for doctoral graduates were in mathematics and statistics; business, management, and marketing; and psychology. All of these fields had lower than 10 percent work participation.

For doctoral professional practice graduates, the legal professions had the highest work participation rate at 53.0 percent. The lowest, psychology, was still relatively high at 35.3 percent. Average wages were highest among the health fields, and psychology came in the lowest.

Table 7: Work participation by area of concentration and degree earned

Area of Concentration	Associate's (%)	Bachelor's (%)	Master's (%)	Doctoral Professional Practice (%)	Doctorate (%)
Agriculture, agriculture operations, and related sciences	54.4	36.2	37.1	n/a	14.8
Architecture and related services	n/a	14.8	n/a	n/a	n/a
Biological and biomedical sciences	n/a	39.1	29.1	n/a	20.5
Business, management, marketing, and related support services	64.0	44.7	40.7	n/a	4.7
Communication, journalism, and related programs	57.3	29.6	55.5	n/a	20.0
Communications technologies/technicians and support services	56.3	58.7	n/a	n/a	n/a
Computer and information sciences and support services	63.3	43.3	34.8	n/a	30.4
Education	60.1	57.9	62.7	47.7	n/a
Engineering	36.4	32.2	23.1	n/a	14.6
Engineering technologies and engineering-related fields	65.5	53.5	29.1	n/a	n/a
English language and literature/letters	n/a	39.4	36.5	n/a	20.0
Family and consumer sciences/human sciences	64.9	29.9	50.9	n/a	n/a
Foreign languages, literatures, and linguistics	56.3	32.7	18.3	n/a	n/a
Health professions and related programs	70.0	56.8	53.1	40.0	21.5
History	n/a	37.9	45.6	n/a	26.4
Homeland security, law enforcement, firefighting and related protective services	68.6	49.0	32.2	n/a	n/a
Legal professions and studies	64.1	n/a	61.4	53.0	n/a
Liberal arts and sciences, general studies and humanities	59.6	47.2	72.7	n/a	n/a
Library science	n/a	n/a	n/a	n/a	n/a
Mathematics and statistics	n/a	35.9	18.4	n/a	3.6
Mechanic and repair technologies/technicians	71.6	n/a	n/a	n/a	n/a
Multi/interdisciplinary studies	63.5	35.5	49.1	n/a	n/a
Natural resources and conservation	74.7	40.2	29.5	n/a	27.3
Parks, recreation, leisure, and fitness studies	n/a	26.1	35.0	n/a	46.2
Personal and culinary services	60.7	n/a	n/a	n/a	n/a
Philosophy and religious studies	n/a	37.9	n/a	n/a	n/a
Physical sciences	60.0	32.8	29.3	n/a	24.6
Precision production	78.5	n/a	n/a	n/a	n/a
Psychology	n/a	41.4	58.0	35.3	7.8
Public administration and social service professions	54.4	52.9	51.0	n/a	n/a
Science technologies/technicians	72.4	n/a	n/a	n/a	n/a
Social sciences	n/a	36.2	30.4	n/a	20.3
Transportation and materials moving	n/a	n/a	n/a	n/a	n/a
Visual and performing arts	48.7	30.9	31.8	n/a	13.0
Total	65.7	43.3	49.7	44.0	17.6

n/a: there are no graduates in this degree and area of concentration

Table 8: Average annual wages by area of concentration and degree earned

Area of Concentration	Associate's	Bachelor's	Master's	Doctoral	
				Professional Practice	Doctorate
Agriculture, agriculture operations, and related sciences	\$20,406	\$33,369	\$42,820	n/a	\$36,560
Architecture and related services	n/a	\$40,889	n/a	n/a	n/a
Biological and biomedical sciences	n/a	\$32,230	\$42,650	n/a	\$65,416
Business, management, marketing, and related support services	\$27,721	\$39,258	\$70,780	n/a	\$77,676
Communication, journalism, and related programs	\$18,966	\$28,971	\$46,845	n/a	\$13,532
Communications technologies/technicians and support services	\$25,473	\$28,822	n/a	n/a	n/a
Computer and information sciences and support services	\$29,863	\$51,059	\$70,672	n/a	\$69,524
Education	\$16,855	\$33,137	\$44,096	\$68,943	n/a
Engineering	\$32,960	\$64,573	\$79,916	n/a	\$73,283
Engineering technologies and engineering-related fields	\$49,113	\$56,173	\$56,041	n/a	n/a
English language and literature/letters	n/a	\$24,542	\$33,598	n/a	\$44,218
Family and consumer sciences/human sciences	\$17,350	\$26,290	\$42,875	n/a	n/a
Foreign languages, literatures, and linguistics	\$22,874	\$25,213	\$30,838	n/a	n/a
Health professions and related programs	\$39,859	\$45,706	\$70,914	\$131,354	\$78,074
History	n/a	\$25,119	\$27,273	n/a	\$40,619
Homeland security, law enforcement, firefighting and related protective services	\$32,845	\$32,668	\$37,509	n/a	n/a
Legal professions and studies	\$26,378	n/a	\$54,950	\$69,806	n/a
Liberal arts and sciences, general studies and humanities	\$27,253	\$34,706	\$42,016	n/a	n/a
Library science	n/a	n/a	n/a	n/a	n/a
Mathematics and statistics	n/a	\$35,324	\$44,687	n/a	\$63,539
Mechanic and repair technologies/technicians	\$45,261	n/a	n/a	n/a	n/a
Multi/interdisciplinary studies	\$30,572	\$30,195	\$69,317	n/a	n/a
Natural resources and conservation	\$39,993	\$36,390	\$51,298	n/a	\$58,051
Parks, recreation, leisure, and fitness studies	n/a	\$28,356	\$39,251	n/a	\$36,036
Personal and culinary services	\$21,326	n/a	n/a	n/a	n/a
Philosophy and religious studies	n/a	\$21,424	n/a	n/a	n/a
Physical sciences	\$14,380	\$37,815	\$67,547	n/a	\$62,784
Precision production	\$43,983	n/a	n/a	n/a	n/a
Psychology	n/a	\$25,901	\$37,787	\$59,727	\$68,612
Public administration and social service professions	\$15,748	\$27,999	\$40,046	n/a	n/a
Science technologies/technicians	\$40,006	n/a	n/a	n/a	n/a
Social sciences	n/a	\$28,274	\$40,073	n/a	\$60,505
Transportation and materials moving	n/a	n/a	n/a	n/a	n/a
Visual and performing arts	\$22,974	\$22,772	\$32,309	n/a	\$37,374
Total	\$34,147	\$35,956	\$51,329	\$106,322	\$61,934

n/a: there are no graduates in this degree and area of concentration

Gender

Women represent the majority of public higher education graduates in West Virginia (Table 9). Of the 115,730 graduates in the last five years, 57 percent of them were women, and that number has been

increasing over time. In the most recent set of graduates, women made up 57.4 percent of graduates, up from 56.0 percent ten years ago, an average annual gain of 0.3 percent in ten years. As Table 10 shows, women graduates are also more likely to be found in the West Virginia workforce. The work participation rate for women was 52.6 percent, compared with 42.2 percent for men.

Men and women differ in their chosen fields of study. For men, the top three areas of concentration were business, management, and marketing; liberal arts and sciences, general studies and humanities; and education. Women chose health professions; education; and business, management, and marketing as their top three fields.

Women were more highly concentrated in their top fields. Health professions alone constituted 20.9 percent of the total, and the top three fields garnered 53.1 percent of all women graduates. Men were more spread out among different fields. Their top three fields constituted only 39.3 percent of total graduates. The health professions attracted more than twice as many women than men, and three times as many women graduated with education degrees than men.

Men's work participation rates were highest in the fields of precision production; mechanic and repair technologies; and science technologies. These areas of concentration had work participation rates above 60 percent. Architecture and related services had the lowest work participation among men at 15.0 percent. Parks, recreation, leisure, and fitness studies; foreign languages, literatures, and linguistics; mathematics and statistics; physical sciences; and engineering all had work participation rates below 30 percent.

For women work participation rates were highest in the mechanic and repair technologies; science technologies; education; personal and culinary services; and health professions fields, which were all above 60 percent. Work participation in architecture and related services; engineering; and mathematics and statistics were the lowest, and all below 30 percent.

Male graduates working in West Virginia had significantly higher wages than their female counterparts, as Figure 2 shows. Men earned an average of \$11,507 more than women in 2011, a wage gap of 30.9 percent. The wage gap held true to varying degrees in nearly every area of concentration.

The science technologies field stands out as the area of concentration with the largest wage gap. Men earned 90.0 percent more than women in that field. Health professions; philosophy and religious studies; and communications technologies had wage gaps above 60 percent. Women earned more than men only in the mechanic and repair technologies field, though the women's wages have been withheld for privacy reasons. Other fields with low wage gaps include communications and journalism; English language and literature; history; and education, all of which had wage gaps less than 10 percent.

Wages for men were highest in the health professions, averaging \$88,027. Men also had high salaries in the legal professions, and engineering. The lowest wages for men were in personal and culinary services; philosophy and religious studies; history; visual and performing arts; and English language and literature. All of these were below \$30,000 per year on average.

For women, the highest paying field was engineering, which paid \$61,458 on average per year. Other high paying jobs for women were in mechanic and repair technologies; and legal professions. The lowest paying jobs for women were in philosophy and religious studies; personal and culinary services; and communications technologies, all of which paid less than \$20,000 per year on average.

Table 9: Number and percent of graduates by sex

Graduation Year	Female		Male	
	Number of Graduates	Percent of Total	Number of Graduates	Percent of Total
2000-2001	5,450	56.0	4,284	44.0
2001-2002	5,423	55.7	4,310	44.3
2002-2003	5,735	56.6	4,394	43.4
2003-2004	6,067	58.0	4,398	42.0
2004-2005	6,338	57.1	4,764	42.9
2005-2006	6,697	58.0	4,848	42.0
2006-2007	6,981	56.9	5,279	43.1
2007-2008	7,469	57.3	5,570	42.7
2008-2009	7,711	57.0	5,824	43.0
2009-2010	8,139	57.4	6,049	42.6
Total	66,010	57.0	49,720	43.0

Figure 2: Male-female wage gap

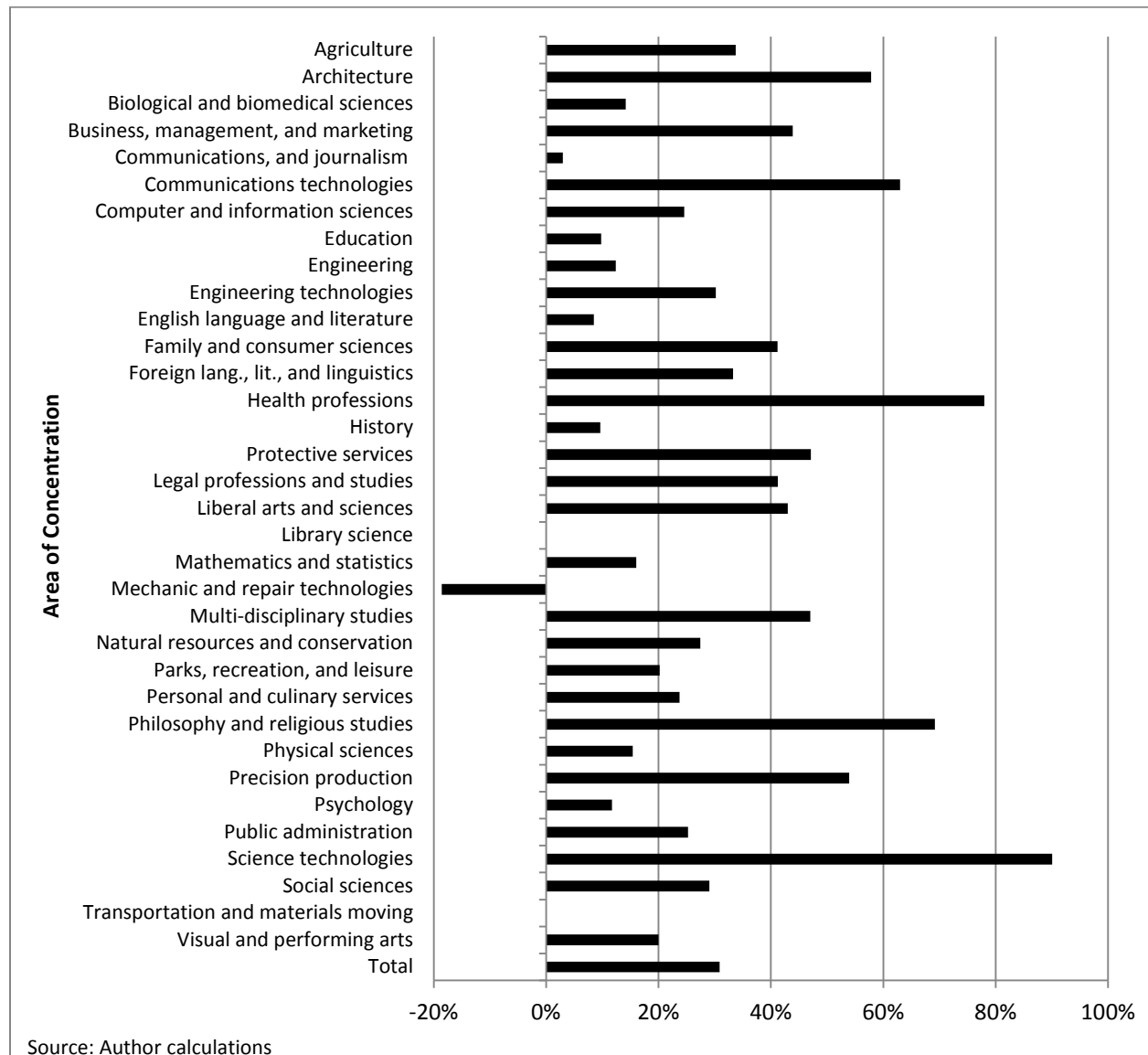


Table 10: Work participation and average annual wages by area of concentration and sex

Area of Concentration	Female			Male		
	Number of graduates	Work Participation (%)	Average Annual Wage	Number of Graduates	Work Participation (%)	Average Annual Wage
Agriculture, agriculture operations, and related sciences	646	34.7	\$29,373	593	39.5	\$39,279
Architecture and related services	57	14.0	\$28,011	207	15.0	\$44,212
Biological and biomedical sciences	1,779	37.6	\$32,521	1,395	35.4	\$37,136
Business, management, marketing, and related support services	8,993	52.4	\$34,334	9,441	42.1	\$49,395
Communication, journalism, and related programs	3,206	38.2	\$34,409	1,998	31.6	\$35,442
Communications technologies/technicians and support services	106	55.7	\$19,980	150	59.3	\$32,569
Computer and information sciences and support services	466	42.7	\$38,656	1,584	47.2	\$48,158
Education	12,237	64.1	\$38,749	5,033	50.8	\$42,538
Engineering	737	24.0	\$61,458	4,081	29.6	\$69,088
Engineering technologies and engineering-related fields	231	48.9	\$41,276	1,873	58.5	\$53,750
English language and literature/letters	1,068	38.3	\$26,071	554	38.5	\$28,284
Family and consumer sciences/human sciences	1,325	34.9	\$24,825	61	37.7	\$35,047
Foreign languages, literatures, and linguistics	480	30.0	\$24,289	167	25.8	\$32,374
Health professions and related programs	13,808	60.6	\$49,459	4,020	49.4	\$88,027
History	462	39.6	\$24,233	923	37.4	\$26,574
Homeland security, law enforcement, firefighting and related protective services	1,658	52.4	\$26,699	1,826	55.4	\$39,276
Legal professions and studies	917	57.8	\$51,162	796	52.1	\$72,248
Liberal arts and sciences, general studies and humanities	6,473	55.8	\$27,685	5,068	44.5	\$39,587
Library science	n/d	n/d	n/d	n/d	n/d	n/d
Mathematics and statistics	247	24.3	\$34,856	294	29.3	\$40,442
Mechanic and repair technologies/technicians	n/d	n/d	n/d	219	70.3	\$43,842
Multi/interdisciplinary studies	1,142	53.9	\$26,391	1,148	36.4	\$38,801
Natural resources and conservation	269	30.1	\$32,350	955	42.7	\$41,219
Parks, recreation, leisure, and fitness studies	669	30.0	\$26,655	1,168	25.4	\$32,047
Personal and culinary services	103	63.1	\$19,382	84	58.3	\$23,981
Philosophy and religious studies	26	42.3	\$14,664	61	36.1	\$24,804
Physical sciences	467	34.9	\$40,660	791	29.5	\$46,925
Precision production	7	42.9	\$28,461	203	76.9	\$43,812
Psychology	2,626	42.7	\$28,337	882	39.2	\$31,659
Public administration and social service professions	1,839	52.9	\$32,372	422	47.6	\$40,550
Science technologies/technicians	343	75.8	\$25,166	279	68.8	\$47,825
Social sciences	2,021	40.7	\$25,876	2,336	31.0	\$33,394
Transportation and materials moving	n/d	n/d	n/d	n/d	n/d	n/d
Visual and performing arts	1,594	32.2	\$22,325	1,106	30.3	\$26,784
Total	66,010	52.6	\$37,242	49,720	42.2	\$48,749

n/d: data not disclosed

Race

Almost 90 percent of graduates from West Virginia’s public higher education institutions in the last 10 years were white, as Table 11 shows. Black graduates made up the next largest share of the graduates with 3.8 percent of the total, followed by non-resident aliens, which made up 3.6 percent. Asian graduates constituted 1.7 percent of the total, and Hispanic graduates were approximately 0.9 percent.

White graduates also had the highest work participation rates among all of the graduates working in the state in 2011, with 50.8 percent. Next were multi-racial graduates with a work participation rate of 46.6 percent, followed by Native-Americans with a work participation rate of 45.5 percent. Black graduates had a relatively low work participation rate of 35.7 percent, as did Hispanic graduates, which had a work participation rate of 30.2 percent. The lowest work participation rates were from non-resident aliens, which had a work participation rate of 7.5 percent.

Asian, Pacific Islander, or Native Hawaiian graduates had the highest annual wages, with an average annual wage of \$44,971. White graduates had an average annual wage of \$41,899, which was significantly higher than that of black and Hispanic graduates, who had wages of \$31,501 and \$37,938 respectively.

Table 11: Work participation and average annual wages by race

Race	Number of Graduates	Work Participation (%)	Average Annual Wage
White	103,476	50.8	\$41,899
Black	4,376	35.7	\$31,501
Hispanic	1,080	30.2	\$37,938
Asian, Pacific Islander, or Native Hawaiian	1,909	30.1	\$44,971
American Indian or Alaska Native	369	45.5	\$42,272
Multi-Racial	131	46.6	\$26,968
Non-Resident Alien	4,106	7.5	\$41,437
Unknown	283	47.4	\$32,933
Total	115,730	48.1	\$41,577

Academic achievement

Achievement in the academic realm can lead to higher achievement post-graduation, but it also may indicate graduates are likely to leave the state to pursue economic opportunities elsewhere. This section examines the work participation and wages for graduates broken down by their incoming ACT score and their college GPA. The ACT is a common standardized test taken for entry into college, while the GPA measures the cumulative academic performance of a graduate while in college.

Overall, work participation rates were mixed as academic achievement increased (see Table 12 and Table 13). Increasing college GPA was associated with a rise in work participation rates. Graduates with a GPA greater than 3.5 worked in the state at a rate of 48.9 percent, while those with GPAs below 3.0 had a work participation rate of 47.0 percent. The trend was the opposite for ACT scores, however. Graduates in the highest ACT category, above 22, worked in the state at a rate of 55.5 percent, while those with scores below 19 had a work participation rate of 63.8 percent. Wages showed a consistent trend upward with academic achievement. Higher ACT scores and GPA were associated with higher wages overall.

Table 12 summarizes work participation and wages for the 48,757 graduates who submitted ACT scores to the school they attended. It breaks down the data by degree, sex, race, residency, and year of graduation.

As mentioned above, work participation rates tended to fall with higher ACT scores. This trend was consistent for most of the degree levels, with the exception of associate's degree. Work participation rates for graduates with associate's degrees rose from 71.8 percent for the lowest group of ACT scores to 73.2 percent for the highest group.

Work participation rates fell with higher ACT scores for both men and women, as well as residents and non-residents. This trend held for all years of graduation as well. Most racial groups had a similar trend, with work participation falling as ACT score rose. However, for black graduates, the trend was reversed; work participation rates for black graduates with the lowest ACT scores was 49.5 percent, while the highest group was 49.8 percent.

The data show wages tended to rise with higher ACT scores. Annual average wages rose from \$34,034 for graduates with the lowest ACT scores to \$40,302 for the highest group, a gain of 18.4 percent. The only subgroup where the trend was different was with doctoral professional practice. For these graduates, wages for the lowest group were \$115,442 vs. \$94,004 for those with the highest ACT scores.

Table 13 summarizes work participation and wages for the 97,292 graduates for which their GPA was available by degree, sex, race, residency, and year of graduation. On average, students with higher GPAs tended to work in the state at higher rates. Average work participation rates rose as GPA increased, moving from 47.0 percent for GPAs less than 3.0, to 47.8 for GPAs between 3.0 and 3.49, and 48.9 percent for graduates with GPAs higher than 3.5.

This general trend did not hold true for all degree categories. Graduates with associate's degrees were less likely to work in West Virginia if they had higher educational performance, with work participation rates falling from 67.0 percent for GPAs below 3.0 to 64.5 percent for GPAs 3.5 and higher. Work participation for graduates with bachelor's degrees rose for the middle group then fell back again for the highest GPAs. The trend was the opposite for master's degree graduates; work participation fell between the lower group and the middle group, and then rose again in the higher group. Higher GPAs were correlated with higher work participation for graduates with doctoral professional practice degrees.

Work participation generally increased with GPA for most race categories as well. For white graduates, work participation for GPAs below 3.0 was 49.3 percent, rising to 52.5 percent for GPAs 3.5 and higher. GPAs for black graduates fluctuated somewhat, with work participation rates highest for graduates with GPAs between 3.0 and 3.49. Hispanic graduates' work participation rose significantly with GPA.

Men and women had different trends in work participation. Women with higher GPAs tended to work in state more than their counterparts with lower GPAs, while the opposite was true for men. Both in-state and out-of-state graduates had higher work participation when they earned a higher GPA.

More recent graduates bucked the trend in work participation. Graduates in the last three years were less likely to work in the state as their GPA increased. Those who graduated in the 2006-2007 academic year and earlier were more likely to work in the state as their GPA increased.

Average annual wages rose with GPA in almost all cases. For all graduates, average annual wages rose from \$36,017 for those with GPAs less than 3.0, to \$46,626 for those with GPAs of 3.5 and higher. The trend held true for both men and women, and all races, residency and year of graduation. The only category for which average wages fell with GPA was for associate's degree holders.

Table 12: Work participation and average annual wages by ACT score

	Work Participation (%)				Average Annual Wage			
	Total	ACT below 19	ACT 19-21	ACT 22+	Total	ACT below 19	ACT 19-21	ACT 22+
Degree								
Undergraduate Certificate	74.1	73.8	75.4	73.2	\$23,364	\$22,883	\$25,290	\$22,076
Associate's	72.0	71.8	71.5	73.2	\$33,027	\$31,232	\$34,837	\$33,851
Bachelor's	55.4	59.7	57.7	51.8	\$35,027	\$34,734	\$34,914	\$35,279
Master's	62.4	63.9	64.2	60.8	\$45,094	\$42,188	\$44,168	\$46,635
Post-Master's Certificate	65.0	80.0	61.1	58.3	\$43,656	\$39,905	\$48,800	\$39,859
Doctorate	34.9	n/a	60.0	31.6	\$48,882	n/a	\$39,682	\$51,182
Doctoral Professional Practice	58.4	59.4	59.4	58.3	\$94,328	\$115,442	\$92,756	\$94,004
Gender								
Female	60.9	65.5	62.6	57.1	\$33,585	\$29,345	\$32,895	\$36,977
Male	57.1	61.4	59.1	53.3	\$43,357	\$41,109	\$42,761	\$45,281
Race								
White	59.9	65.3	61.7	55.8	\$37,746	\$34,492	\$36,898	\$40,454
Black	49.6	49.5	49.7	49.8	\$28,106	\$27,054	\$29,000	\$30,898
Hispanic	51.5	56.6	48.8	50.0	\$34,065	\$34,407	\$29,610	\$37,208
Asian, Pacific Islander, or Native Hawaiian	47.0	50.0	54.7	41.6	\$34,903	\$30,902	\$31,520	\$39,809
American Indian or Alaskan Native	59.4	67.5	61.5	53.2	\$33,939	\$31,631	\$38,533	\$33,600
Multi-Racial	50.0	46.2	61.5	46.2	\$30,944	\$34,950	\$30,509	\$29,232
Unknown	69.9	68.4	75.0	68.2	\$30,399	\$20,270	\$33,248	\$33,364
Non-Resident Alien	13.0	9.5	8.3	26.7	\$40,347	\$45,709	\$16,104	\$41,045
Residency								
In-State	62.8	67.7	64.9	58.7	\$37,545	\$34,140	\$36,738	\$40,429
Out-of-State	15.3	16.2	15.0	15.0	\$32,838	\$29,017	\$32,700	\$35,507
Other	34.3	36.6	37.6	30.5	\$34,550	\$32,260	\$34,565	\$36,278
Year								
2000	48.5	52.8	50.5	43.0	\$46,102	\$42,050	\$45,640	\$50,867
2001	49.1	54.0	50.7	43.9	\$45,221	\$41,099	\$43,364	\$50,996
2002	52.5	55.8	52.2	50.2	\$46,754	\$40,487	\$41,763	\$55,857
2003	52.7	55.8	54.0	49.6	\$43,654	\$37,621	\$43,434	\$48,698
2004	56.6	62.4	56.5	52.7	\$42,610	\$36,553	\$42,654	\$47,531
2005	57.8	63.0	60.1	52.9	\$40,492	\$37,243	\$38,539	\$44,511
2006	59.3	66.9	62.0	53.7	\$38,655	\$34,492	\$37,308	\$42,311
2007	62.7	68.9	66.2	57.6	\$34,798	\$30,686	\$34,728	\$37,225
2008	66.8	72.6	71.2	61.6	\$30,821	\$28,324	\$30,278	\$32,584
2009	70.0	75.2	72.8	66.2	\$27,740	\$24,973	\$27,403	\$29,316
Total	59.4	63.8	61.2	55.5	\$37,433	\$34,034	\$36,647	\$40,302

n/a: data not available for this degree

Table 13: Work participation and average annual wages by GPA

	Work Participation (%)				Average Annual Wage			
	Total	GPA < 3.0	GPA 3.0-3.49	GPA 3.5+	Total	GPA < 3.0	GPA 3.0-3.49	GPA 3.5+
Degree								
Undergraduate Certificate	62.3	59.3	63.4	66.4	\$22,421	\$20,851	\$22,931	\$24,392
Associate's	66.6	67.0	67.7	64.5	\$33,875	\$34,046	\$33,860	\$33,591
Bachelor's	43.4	42.7	44.7	42.8	\$35,623	\$35,020	\$35,946	\$36,230
Master's	50.3	44.7	39.9	52.4	\$51,577	\$37,326	\$51,245	\$51,712
Post-Master's Certificate	60.7	n/a	75.0	60.3	\$54,453	n/a	\$43,154	\$54,883
Doctorate	17.1	n/a	19.3	16.8	\$62,275	n/a	\$55,246	\$63,379
Doctoral Professional Practice	50.5	49.2	50.8	51.4	\$94,026	\$75,568	\$101,850	\$101,073
Gender								
Female	52.4	51.9	51.8	53.2	\$37,478	\$30,975	\$35,532	\$42,827
Male	41.9	42.7	42.0	40.6	\$47,423	\$41,469	\$47,037	\$56,278
Race								
White	50.6	49.3	49.9	52.5	\$41,457	\$36,365	\$39,978	\$46,785
Black	35.0	33.5	38.5	35.4	\$31,803	\$29,043	\$30,857	\$42,056
Hispanic	29.5	26.1	27.7	35.5	\$38,070	\$35,850	\$32,005	\$44,966
Asian, Pacific Islander, or Native Hawaiian	31.3	30.5	31.4	32.1	\$39,968	\$37,534	\$36,616	\$44,815
American Indian or Alaskan Native	44.6	43.3	41.1	47.9	\$41,685	\$42,105	\$37,997	\$43,294
Multi-Racial	42.9	37.8	48.7	42.1	\$28,670	\$32,170	\$22,332	\$32,738
Non-Resident Alien	7.4	5.2	8.3	7.4	\$42,432	\$30,131	\$41,822	\$44,456
Unknown	52.3	41.1	60.9	53.6	\$31,168	\$26,622	\$33,329	\$31,843
Residency								
In-State	61.8	61.7	61.2	62.3	\$41,435	\$36,329	\$39,870	\$46,979
Out-of-State	9.6	8.1	10.0	10.6	\$37,346	\$31,108	\$37,667	\$41,526
Other	25.6	26.5	26.1	24.1	\$36,400	\$32,198	\$35,592	\$42,046
Year								
2000	41.3	39.7	38.2	45.4	\$51,370	\$45,305	\$50,166	\$57,671
2001	42.2	39.9	42.5	44.3	\$49,431	\$44,594	\$48,404	\$54,796
2002	42.1	40.7	41.0	44.4	\$51,134	\$44,243	\$52,142	\$56,362
2003	43.8	41.6	42.4	46.9	\$47,982	\$40,305	\$47,605	\$54,177
2004	47.2	46.8	46.1	48.7	\$45,147	\$39,628	\$44,614	\$50,673
2005	47.4	46.7	47.0	48.5	\$42,408	\$38,143	\$41,608	\$46,531
2006	48.6	48.0	49.0	48.8	\$40,512	\$34,738	\$39,127	\$46,345
2007	49.9	50.6	49.4	49.8	\$37,426	\$32,560	\$36,051	\$42,330
2008	53.6	55.5	54.0	51.8	\$33,109	\$28,292	\$32,078	\$38,025
2009	56.7	57.2	57.5	55.7	\$30,168	\$24,823	\$28,514	\$35,939
Total	48.0	47.0	47.8	48.9	\$41,143	\$36,017	\$39,668	\$46,626

n/a: data not available for this degree

Tuition assistance

Among the goals of the state's tuition assistance programs is to entice graduates to remain in the state after graduation. Table 14 outlines work participation and average annual wages for those receiving the PROMISE scholarship, and the state's Higher Education Grant Program (HEGP) scholarship. During the 10-year period of this report, the merit-based PROMISE scholarship paid full tuition and fees for in-state students who met the program's academic requirements.⁶ The first students with PROMISE scholarships began graduating in 2003. HEGP grants are based on need and may not cover a student's entire bill.

As the table shows, the work participation rate for PROMISE graduates was 60.5 percent. That was well above the rate for all graduates, which include both in-state and out-of-state graduates. Since previous results above have shown that in-state graduates are more likely to work in state, it's not surprising that PROMISE scholarship holders would also work in state at higher rates.

PROMISE scholarship graduates were less likely to work in the state than those receiving HEGP grants. HEGP graduates, which also must be in-state students, had a work participation rate of 65.1 percent. PROMISE scholarship graduates with associate's or master's degrees were more likely than their HEGP counterparts to work in West Virginia, but the opposite was true for bachelor's degree, and doctoral professional practice graduates. Work participation rates were higher among HEGP graduates for both sexes, and for most races.

Annual wages for PROMISE graduates tended to be lower than for HEGP graduates. On average PROMISE graduates earned \$32,871 per year, while HEGP graduates earned \$37,441. The lower wages may reflect the fact that PROMISE scholarship recipients were in general younger and less experienced than HEGP graduates. Another reason wages for PROMISE graduates may be lower is that they may be more likely to pursue graduate school, and thus would be more likely to be working part-time. Examining the wages by year indicates that PROMISE and HEGP recipients with similar levels of experience earn about the same wages. However, both of the scholarship recipients earned lower wages than the average for all graduates.

⁶ Beginning January 1, 2010, new PROMISE recipients received a block grant of \$4,750, or full tuition and fees, whichever was less.

Table 14: Work participation and average annual wages for graduates receiving PROMISE and HEGP scholarship assistance

	PROMISE Recipient		HEGP Recipient		Total	
	Work Participation (%)	Average Annual Wage	Work Participation (%)	Average Annual Wage	Work Participation (%)	Average Annual Wage
Degree						
Associate's	77.3	\$31,691	71.4	\$30,852	65.7	\$34,147
Bachelor's	57.1	\$30,129	61.7	\$34,127	43.3	\$35,956
Doctoral						
Professional Practice	67.1	\$79,608	60.0	\$100,259	44.0	\$106,322
Doctorate	n/a	n/a	37.5	\$74,839	17.6	\$61,934
Master's	66.8	\$38,726	70.7	\$48,777	49.7	\$51,329
Post-Master's Certificate	100.0	\$36,430	66.1	\$51,909	55.6	\$54,097
Undergraduate Certificate	81.2	\$22,267	72.5	\$21,637	66.8	\$25,422
Gender						
Female	62.9	\$30,998	67.6	\$34,390	52.6	\$37,242
Male	57.0	\$35,855	60.7	\$43,583	42.2	\$48,749
Race						
White	61.0	\$32,958	65.7	\$37,778	50.8	\$41,899
Black	50.0	\$26,951	57.2	\$29,495	35.7	\$31,501
Hispanic	58.3	\$36,631	55.9	\$35,596	30.2	\$37,938
Asian, Pacific Islander, or Native Hawaiian	44.1	\$31,113	52.9	\$37,269	30.1	\$44,971
American Indian or Alaskan Native	54.6	\$28,318	60.5	\$37,585	45.5	\$42,272
Multi-Racial	51.6	\$26,535	55.1	\$25,361	46.6	\$26,968
Non-Resident Alien	n/a	n/a	50.0	\$20,331	7.5	\$41,437
Unknown	64.7	\$30,956	66.2	\$29,825	47.4	\$32,933
Residency						
In-State	60.5	\$32,907	65.4	\$37,454	61.6	\$41,831
Other	76.9	\$25,845	44.8	\$37,893	25.1	\$37,134
Out-of-State	44.4	\$24,759	39.6	\$33,961	9.6	\$38,472
Year						
2000	n/a	n/a	53.6	\$48,978	41.1	\$54,555
2001	n/a	n/a	56.4	\$44,499	41.8	\$49,797
2002	n/a	n/a	57.8	\$45,136	43.5	\$50,907
2003	75.0	\$43,061	61.2	\$42,712	44.5	\$47,739
2004	65.9	\$34,320	63.0	\$41,670	47.2	\$45,365
2005	53.6	\$38,153	64.5	\$39,417	47.6	\$43,324
2006	52.8	\$36,058	65.7	\$37,667	49.0	\$40,826
2007	57.9	\$35,838	69.6	\$34,516	50.2	\$37,298
2008	62.4	\$31,200	72.6	\$30,322	53.7	\$33,243
2009	67.3	\$29,283	74.5	\$27,831	56.3	\$30,105
Total	60.5	\$32,871	65.1	\$37,441	48.1	\$41,577

n/a: data not available

Industry⁷

Graduates from West Virginia's public higher education institutions worked in all major sectors in 2011. Table 15 shows graduate employment and average annual wages broken down by two-digit NAICS industry.⁸

Among all graduates of the state's public higher education institutions, more than half were employed in just two industries: health care and social assistance, and educational services. In all, 27.1 percent of graduates were employed in health care, and another 23.4 percent were employed in education. Other sectors that attracted large number of graduates include retail trade, professional and technical services, and public administration, which together accounted for 21.1 percent of jobs held by graduates.

Agriculture, forestry, fishing and hunting; management of companies and enterprises; utilities; transportation and warehousing; and real estate and rental and leasing attracted the fewest graduates. Each of these industries employed less than 1 percent of graduates in 2011.

Table 15: Employment and average annual wages by industry⁹

NAICS	Sector	Number of Graduates	Percentage of Total (%)	Average Annual Wage	State Industry Share (%)
72	Accommodation and food services	3,747	5.1	\$11,456	9.7
56	Administrative and waste services	3,068	4.2	\$22,938	4.8
11	Agriculture, forestry, fishing and hunting	75	0.1	\$29,338	0.2
71	Arts, entertainment, and recreation	773	1.1	\$9,744	1.1
23	Construction	1,291	1.8	\$32,624	5.5
61	Educational services	17,119	23.4	\$32,707	9.8
52	Finance and insurance	2,328	3.2	\$34,068	2.8
62	Health care and social assistance	19,858	27.1	\$37,883	18.4
51	Information	1,171	1.6	\$33,050	1.7
55	Management of companies and enterprises	329	0.5	\$52,943	0.8
31-33	Manufacturing	2,299	3.1	\$52,112	7.3
21	Mining	1,115	1.5	\$65,793	4.9
81	Other services, except public administration	1,322	1.8	\$21,378	3.1
54	Professional and technical services	4,999	6.8	\$43,047	3.7
92	Public Administration	4,568	6.2	\$32,978	5.2
53	Real estate and rental and leasing	589	0.8	\$31,017	1.0
44-45	Retail Trade	5,896	8.1	\$22,496	12.9
48-49	Transportation and warehousing	534	0.7	\$38,866	2.5
99	Unclassified establishments	219	0.3	\$33,554	0.1
22	Utilities	470	0.6	\$63,833	1.1
42	Wholesale trade	1,498	2.0	\$51,876	3.4
	Total	73,268	100.0	\$33,941	100.0

⁷ The data in this section reflect the number of jobs in each category, not the number of graduates. See the Appendix for more information.

⁸ The North American Industry Classification System (NAICS) classifies jobs into 21 major sectors by work type.

⁹ The number of jobs in this table exceeds the number of graduates employed in West Virginia in 2011. This is because graduates who worked in more than one industry were counted for each industry in which they worked.

Figure 3: Graduate employment share difference

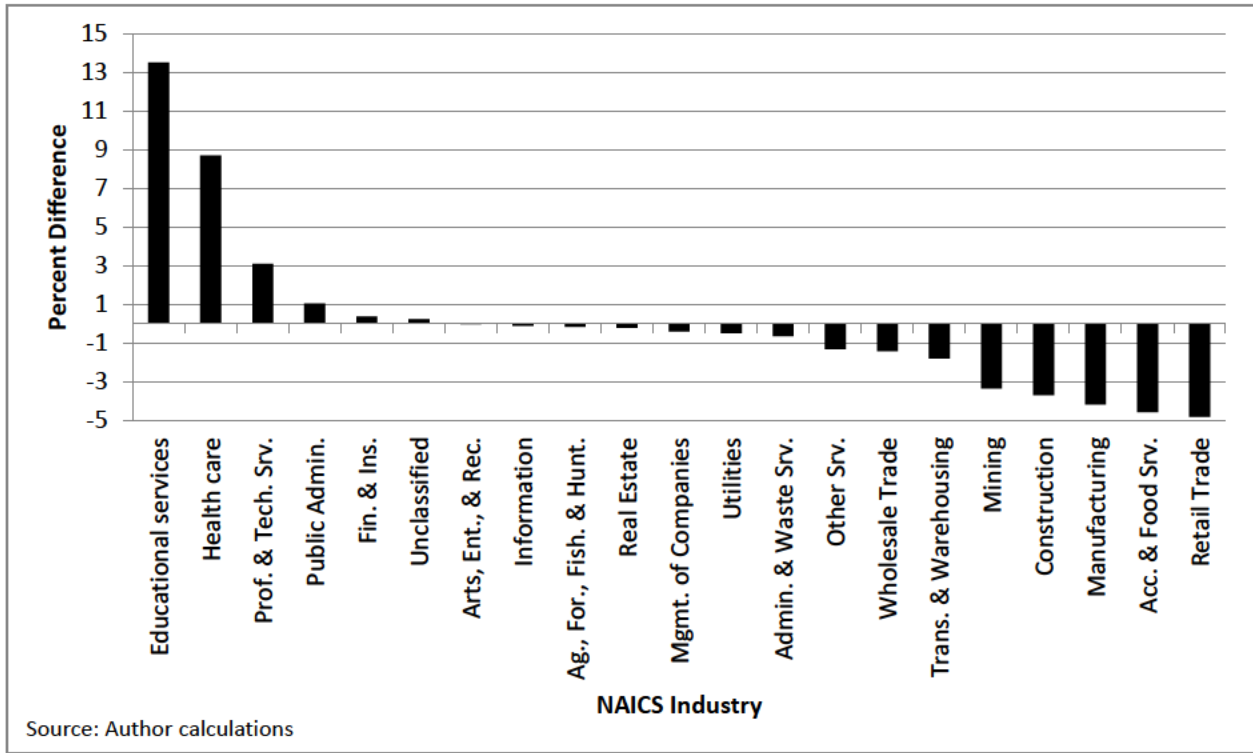


Figure 4: Graduate industry share by degree

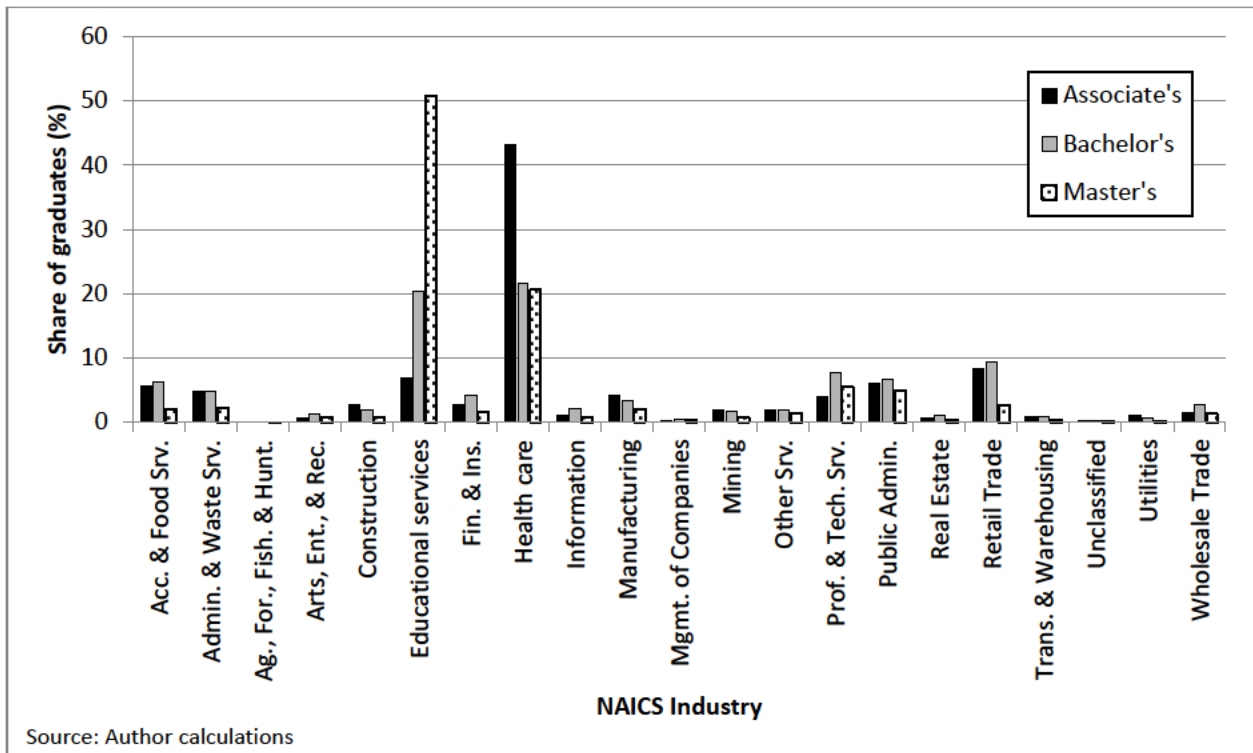


Figure 3 shows the difference between the industry share for public higher education graduates and state workers as a whole. As the figure indicates, graduates are far more likely to be employed in education and health care services than workers overall. The professional and technical services; public administration; and finance and insurance industries also attracted a greater share of educated workers than the economy as a whole.

Graduates were less likely to be employed in retail trade; accommodations and food services; manufacturing; construction; and mining. This reflects the lower educational requirements of these industries.

The degree graduates earned had a great deal of influence over what industries in which they worked. As Figure 4 shows, associate's degree graduates were clustered heavily in the health care fields. Overall 43.1 percent of associate's degree graduates worked in this one field. Associate's degree graduates also worked in retail trade, educational services and public administration.

Bachelor's degree graduates were more spread out among the different industries in the state. While health care services was still the top industry, only 21.7 percent of graduates with bachelor's degrees worked in that industry. Other major industries for bachelor's degree graduates were educational services; retail trade; professional and technical services; public administration; and accommodations and food services, all of which had more than 5 percent of all bachelor's degree graduates.

Educational services was by far the top industry for graduates with a master's degree. More than half of all graduates with a master's worked in education. Health care was a distant second with 20.7 percent of graduates, followed by professional and technical services, and public administration, both of which had more than 5 percent. Graduates with these higher education degrees were least likely to work in agricultural fields, and also management of companies employed few graduates.

Men and women tended to work in different industries in 2011 (Figure 5). More than 80 percent of health care workers were women, while an even greater proportion of mining workers were men. Women worked disproportionately in educational services (72.4 percent); finance and insurance (60.4 percent); and accommodations and food services (60.1 percent). Male graduates made up 77.9 percent of workers in construction; 77.7 percent in utilities; and 71.2 percent in transportation and warehousing.

As Figure 6 shows, average annual wages varied significantly by industry in 2011. Graduates working in mining earned the highest wages, averaging \$65,793 per year. Utilities; manufacturing; management of companies; and wholesale trade rounded out the top five wage earners.

The lowest paid industries included administration and waste services; retail trade; other services; accommodation and food services; and arts, entertainment and recreation.

Figure 5: Industry composition by sex

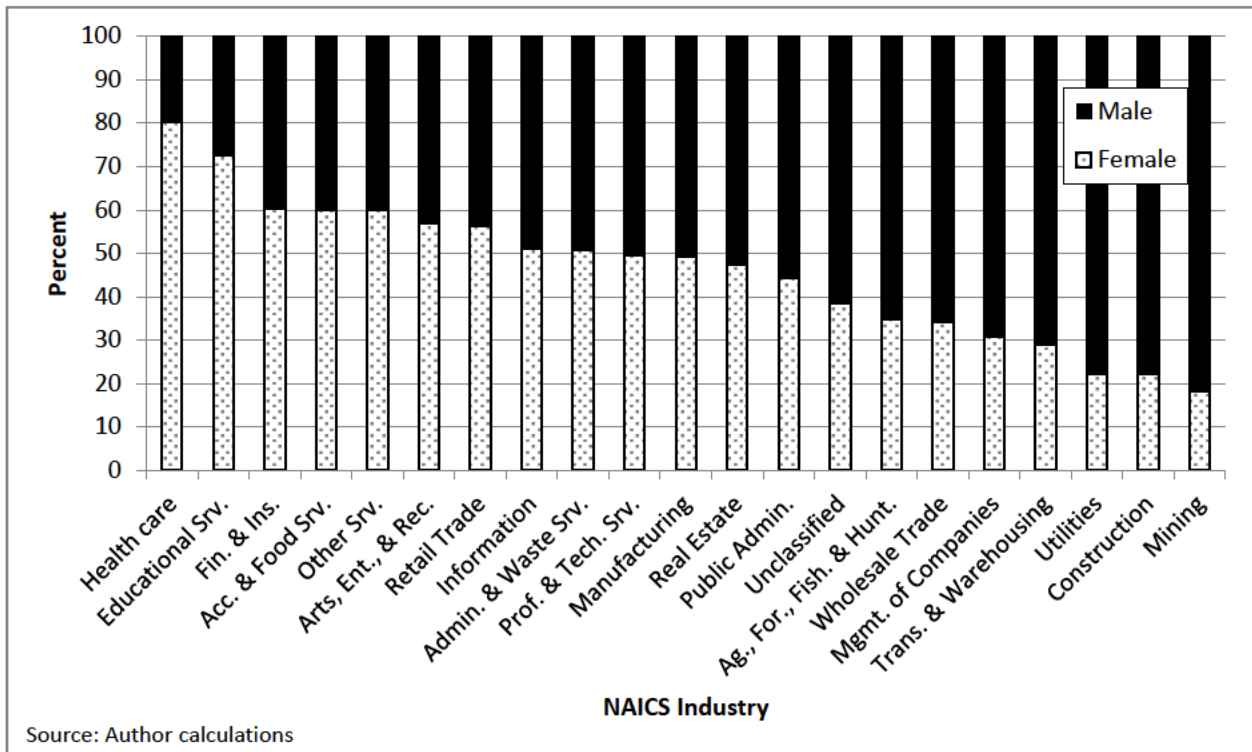
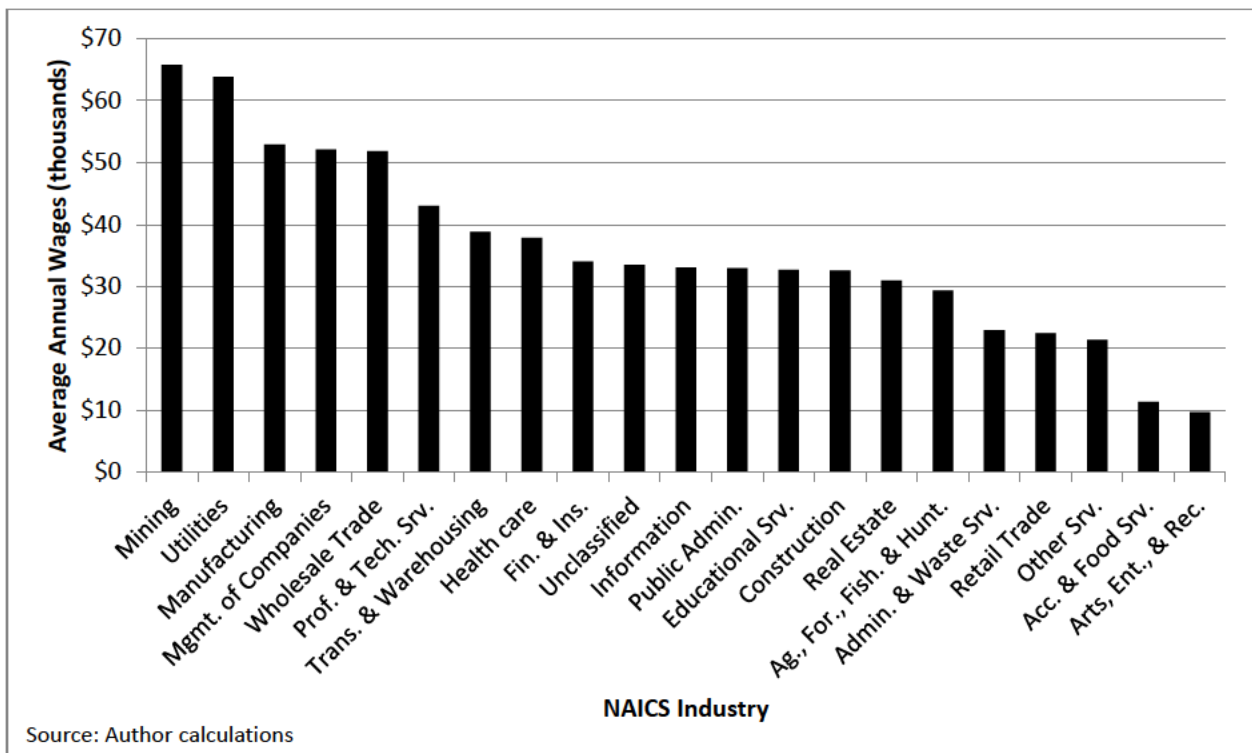


Figure 6: Average annual wages by industry



County statistics¹⁰

Graduates of West Virginia public higher education institutions worked in every county in the state in 2011. Table 16 shows the number of graduates and average annual wages for graduates in all of West Virginia's 55 counties. It also includes the distribution of employment and population for all residents of the state.

As Figure 7 shows, graduates were highly concentrated in Kanawha, Monongalia, and Cabell counties. Indeed, 38 percent of the graduates were working in these three counties in 2011, with 16.5 percent in Kanawha, 11.6 percent in Monongalia, and 9.9 percent in Cabell. Harrison and Wood counties rounded out the top five, with 4.3 and 4.1 percent respectively. The counties with the lowest number of graduates were Wirt, Pendleton, and Doddridge, with 0.2 percent; and Tucker and Tyler counties with 0.3 percent.

Counties with larger shares of total employment and population attracted larger numbers of graduates (Figure 7). Graduates were over-represented in counties with larger metropolitan areas and institutions of higher education. While Kanawha County had 15.4 percent of total state employment, it had 16.5 percent of graduates working there. This makes sense given that larger urban areas have a more diverse job market with more jobs that require additional education.

Similar patterns were found in Monongalia and Cabell counties, which are home to West Virginia University and Marshall University. Monongalia County had the largest differential between its share of overall employment and graduate employment, employing 11.6 percent of graduates, but only 7.6 percent of workers overall.

Annual average wages for graduates were more evenly distributed across the state than workers (Figure 8). The majority of wages were spread between \$25,000 and \$35,000 per year. Graduates were paid exceptionally high wages in Boone and Clay counties, which had average annual wages of \$48,219 and \$40,599 respectively. Mingo, Kanawha, McDowell, and Webster counties all had average annual wages above \$36,000.

The lowest wages were found in Tucker County, where average annual wages were \$22,956. Pocahontas, Hardy, and Wirt counties all had wages below \$26,000 per year.

¹⁰ The data in this section reflect the number of jobs in each category, not the number of graduates. See the Appendix for more information.

Table 16: Employment and average annual wages by county of work

County of Work	Number of Graduates	County Share of Graduates (%)	Average Annual Wage	County Share of State Population (%)	County Share of State Employment (%)
Barbour County	188	0.4	\$33,532	0.9	0.5
Berkeley County	1,746	3.9	\$34,135	5.7	4.2
Boone County	506	1.1	\$48,219	1.3	1.3
Braxton County	205	0.5	\$28,621	0.8	0.6
Brooke County	429	1.0	\$29,634	1.3	1.1
Cabell County	4,426	9.9	\$34,258	5.2	7.5
Calhoun County	152	0.3	\$34,049	0.4	0.2
Clay County	163	0.4	\$40,599	0.5	0.3
Doddridge County	95	0.2	\$30,607	0.4	0.2
Fayette County	825	1.8	\$29,579	2.5	1.8
Gilmer County	237	0.5	\$27,226	0.5	0.3
Grant County	217	0.5	\$32,467	0.6	0.6
Greenbrier County	812	1.8	\$30,071	1.9	2.0
Hampshire County	238	0.5	\$26,973	1.3	0.6
Hancock County	428	1.0	\$27,903	1.6	1.6
Hardy County	295	0.7	\$25,445	0.7	0.9
Harrison County	1,936	4.3	\$33,025	3.7	5.0
Jackson County	570	1.3	\$33,152	1.6	1.1
Jefferson County	1,027	2.3	\$29,915	2.9	2.2
Kanawha County	7,391	16.5	\$36,897	10.4	15.4
Lewis County	417	0.9	\$30,088	0.9	1.0
Lincoln County	272	0.6	\$35,427	1.2	0.5
Logan County	799	1.8	\$32,185	2.0	1.8
Marion County	1,713	3.8	\$32,461	3.0	3.0
Marshall County	560	1.3	\$34,978	1.8	1.6
Mason County	400	0.9	\$35,075	1.5	0.9
McDowell County	251	0.6	\$36,424	1.2	0.9
Mercer County	1,340	3.0	\$32,858	3.4	3.1
Mineral County	392	0.9	\$32,169	1.5	1.1
Mingo County	446	1.0	\$36,922	1.4	1.2
Monongalia County	5,182	11.6	\$34,904	5.3	7.6
Monroe County	177	0.4	\$31,679	0.7	0.3
Morgan County	146	0.3	\$32,257	0.9	0.4
Nicholas County	506	1.1	\$32,633	1.4	1.3
Ohio County	1,552	3.5	\$28,215	2.4	4.3
Pendleton County	88	0.2	\$30,507	0.4	0.2
Pleasants County	152	0.3	\$32,529	0.4	0.4
Pocahontas County	182	0.4	\$24,930	0.5	0.4
Preston County	402	0.9	\$31,929	1.8	1.0
Putnam County	1,260	2.8	\$34,918	3.0	2.8
Raleigh County	1,660	3.7	\$35,107	4.3	4.9
Randolph County	458	1.0	\$34,904	1.6	1.7
Ritchie County	162	0.4	\$31,319	0.6	0.4
Roane County	267	0.6	\$29,562	0.8	0.4
Summers County	133	0.3	\$26,123	0.7	0.3
Taylor County	183	0.4	\$28,178	0.9	0.4
Tucker County	114	0.3	\$22,956	0.4	0.4
Tyler County	118	0.3	\$27,248	0.5	0.3
Upshur County	505	1.1	\$32,375	1.3	1.2
Wayne County	502	1.1	\$33,111	2.3	1.3
Webster County	143	0.3	\$36,243	0.5	0.3
Wetzel County	285	0.6	\$28,430	0.9	0.6
Wirt County	71	0.2	\$25,989	0.3	0.1
Wood County	1,830	4.1	\$32,006	4.7	5.6
Wyoming County	281	0.6	\$35,211	1.3	0.8
Total	44,835	100.0	\$33,630	100.0	100.0

Figure 7: Share of WV graduates by county

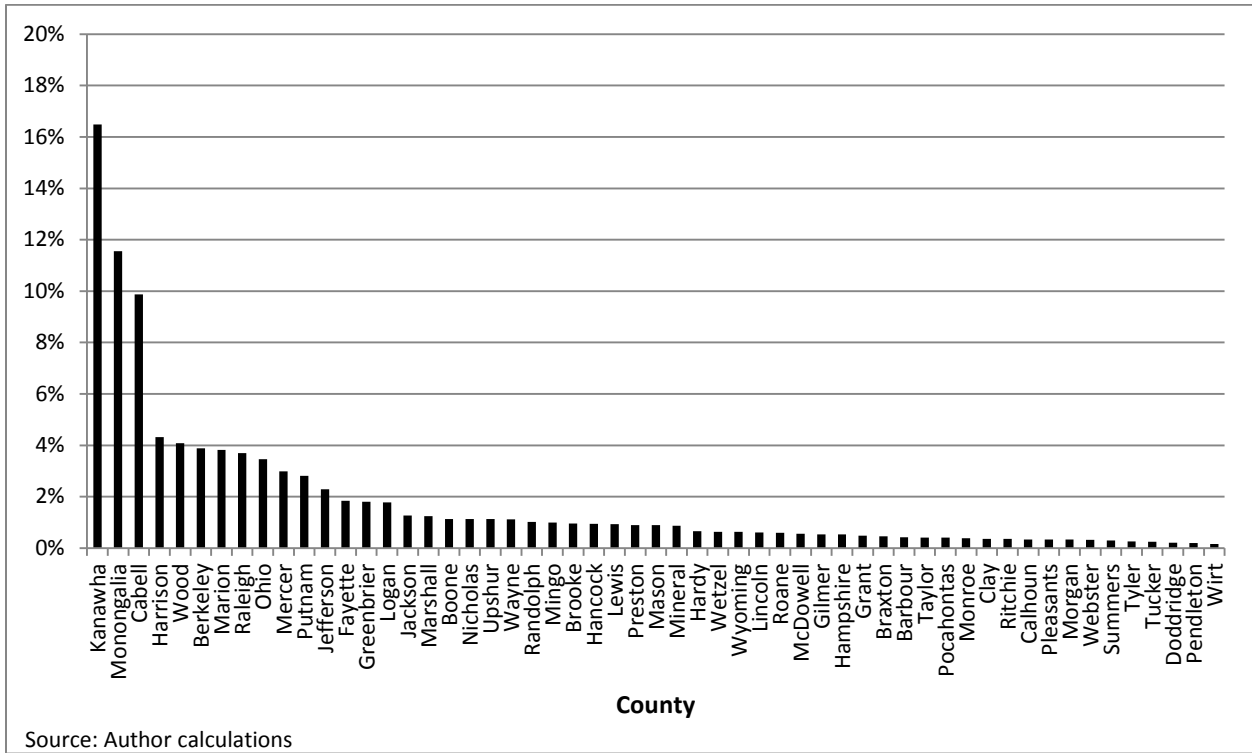
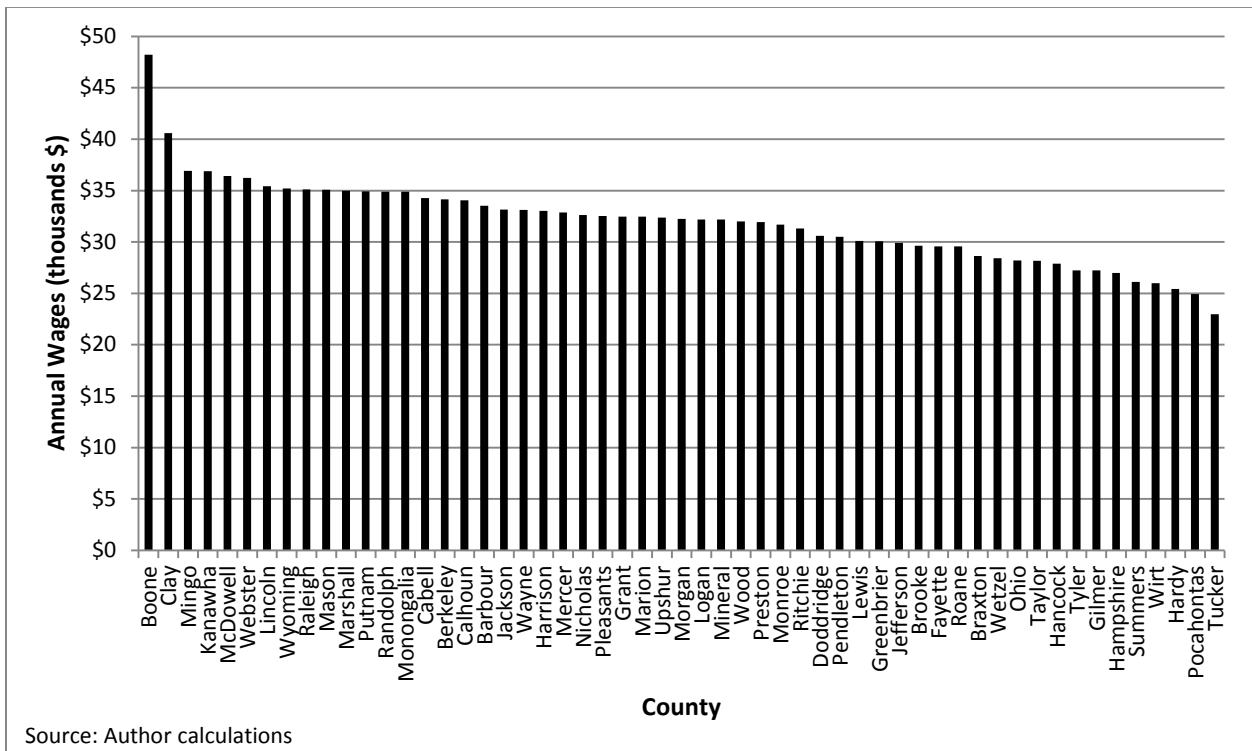


Figure 8: Average annual wages for WV graduates by county



Metropolitan area statistics¹¹

As Table 17 shows, metropolitan counties attracted the largest numbers of graduates and had higher wages overall than non-metropolitan counties. Of the graduates employed in the state in 2011, 64 percent worked in counties that were part of a Metropolitan Statistical Area (MSA), compared with 60.9 percent of all state workers. The metropolitan area with the largest number of graduates was the Charleston MSA with 21.4 percent of graduates employed in the state. The Morgantown MSA was next with 12.5 percent of graduates, followed by Huntington-Ashland MSA with 11.0 percent. Hagerstown-Martinsburg MSA had the lowest percentage of graduates at 0.3 percent, followed by Winchester MSA at 0.5 percent.

Micropolitan counties accounted for 18.2 percent of all graduate employment in 2011. The Clarksburg micro-SA had the largest share of graduates in this category, with 4.9 percent of all graduates. The next largest micro-SAs were Fairmont and Beckley, with 3.8 percent and 3.7 percent respectively. Non-metropolitan areas employed 17.9 percent of graduates.

Average annual wages in metropolitan counties were also higher than in other parts of the state. The average annual wage for metropolitan areas was \$34,412, compared with \$32,918 for micropolitan counties, and \$31,552 for non-metropolitan counties.

The Charleston MSA had the highest average annual wages, at \$37,256. Wages in the Beckley micro SA were next at \$35,107; followed by Point Pleasant Micro SA, at \$35,075. The metropolitan areas with the next highest wages were Morgantown MSA, at \$34,690, and Huntington MSA, at \$34,142.

Table 17: Employment and average annual wages by metropolitan area¹²

	Number of Graduates	Percentage of Total (%)*	Average Annual Wage	Percentage of State Employment (%)	Percentage of State Population (%)
Metropolitan Counties	28,675	64.0	\$34,412	60.9	55.8
Charleston MSA	9,592	21.4	\$37,256	20.2	16.4
Cumberland MSA	2,138	4.8	\$33,774	5.4	7.2
Hagerstown-Martinsburg MSA	146	0.3	\$32,257	0.4	0.9
Huntington-Ashland MSA	4,928	11.0	\$34,142	8.9	7.5
Morgantown MSA	5,584	12.5	\$34,690	8.6	7.1
Parkersburg-Marietta MSA	2,053	4.6	\$31,837	6.1	5.4
Steubenville-Weirton MSA	857	1.9	\$28,769	2.7	2.9
Washington MSA	1,027	2.3	\$29,915	2.2	2.9
Wheeling MSA	2,112	4.7	\$30,009	5.9	4.2
Winchester MSA	238	0.5	\$26,973	0.6	1.3
Micropolitan Counties	8,152	18.2	\$32,918	19.3	19.7
Beckley MicroSA	1,660	3.7	\$35,107	4.9	4.3
Bluefield MicroSA	1,340	3.0	\$32,858	3.1	3.4
Clarksburg MicroSA	2,214	4.9	\$32,520	5.6	5.1
Fairmont MicroSA	1,713	3.8	\$32,461	3.0	3.0
Oak Hill MicroSA	825	1.8	\$29,579	1.8	2.5
Point Pleasant MicroSA	400	0.9	\$35,075	0.9	1.5
Nonmetropolitan	8,008	17.9	\$31,552	19.8	24.4
Total	44,835	100.0	\$33,630	100.0	100.0

* Percentages add to more than 100 percent due to rounding errors

¹¹ The data in this section reflect the number of jobs in each category, not the number of graduates. See the Appendix for more information.

¹² The table includes only the West Virginia portion of each metropolitan or micropolitan statistical area.

Conclusions and direction for future research

This report has examined work participation rates and wages for graduates of West Virginia's public higher education institutions. Overall, this research shows that graduates make a large contribution to the economic vitality of the state. In all 55,675 people who graduated in the last 10 years worked in the state in 2011. They earned a total of \$2.3 billion in wages, and worked in all industries and counties in the state.

As in previous reports of this kind, the results presented here show that the work participation rate for graduates tends to fall as time since graduation increases. There are a variety of possible reasons for this trend. One of the most concerning for policy makers is the possibility that graduates move to other states to pursue better economic opportunities.

An important next step for this research would be to examine the reasons why some graduates move out of the local workforce. It would be useful to look at individual graduates' decisions over time as they gain experience, and possibly additional education, to determine what characteristics are consistent with work participation in the state of West Virginia.

Appendix: Detailed description of the data in this report

The West Virginia data analyzed in this study come from the matching of demographic information on graduates from West Virginia public institutions of higher education (compiled by the HEPC) with employment records maintained by Workforce West Virginia.¹³

Education data is gathered from the HEPC records of graduates from the state's public higher education institutions. The data reflect graduates' highest degree earned at the time of measurement. Graduation years follow a July to June educational year, which means that graduates in the last six months of a year and the first six months of the next are counted together as one graduating class.

The employment data used is gathered from West Virginia unemployment compensation records. This is a well-known dataset that measures employment by place of work. It covers jobs and wages reported by firms participating in the West Virginia Unemployment Compensation system and is often referred to as covered employment. As a general rule, any firm which employs one or more workers for some part of a day in at least 20 different weeks of a calendar year is required to contribute to the state's unemployment insurance system. Major exceptions are railroad companies and the federal government, which contribute to separate systems. The self-employed, student workers, most church workers, and unpaid family workers are also generally not covered. Additional state and county employment data comes from WorkForce West Virginia.

For this report, we do not include civilian federal government employment and wages due to recent administrative problems with the FEDES match. Unlike previous reports, we do not include results from a match of West Virginia graduates with covered employment (including federal employment) at establishments located in five nearby states (and the District of Columbia). These include Maryland, New Jersey, Ohio, Pennsylvania, Virginia, and the District of Columbia. We were unable to secure the data for these states.

The data in the industry, county, and metropolitan area sections reflect the number of jobs in each category, not the number of graduates. Graduates who work at multiple jobs in different locations will be counted twice. This has the effect of lowering the average annual wage, because the wages are spread across multiple jobs and divided by a larger number of people.

Finally, the county of employment could not be identified for a significant number of employed graduates. This can occur due to the administrative nature of the data. For instance, for a firm with multiple establishments located in multiple states, the unemployment insurance contact information (and thus the geographic identifier) is sometimes only available for a centralized payroll processing center that happens to be located out of the state. Thus, for some graduates, we know they are employed in the state, but we cannot narrow the location down any further. These graduates are not included in the statistics presented here.

¹³ We would like to thank Angie Bell and Larry Ponder of the WVHEPC for providing the majority of the data used in this study, and for their help in the analysis.