

Gender Disparities in Associate's Degrees by Field of Study and Implications for Future Earnings

Research shows postsecondary degree attainment has a number of economic benefits, including higher earnings and lifetime wages.¹ However, these economic benefits vary not only by the level of degree² but also by the field of study.³

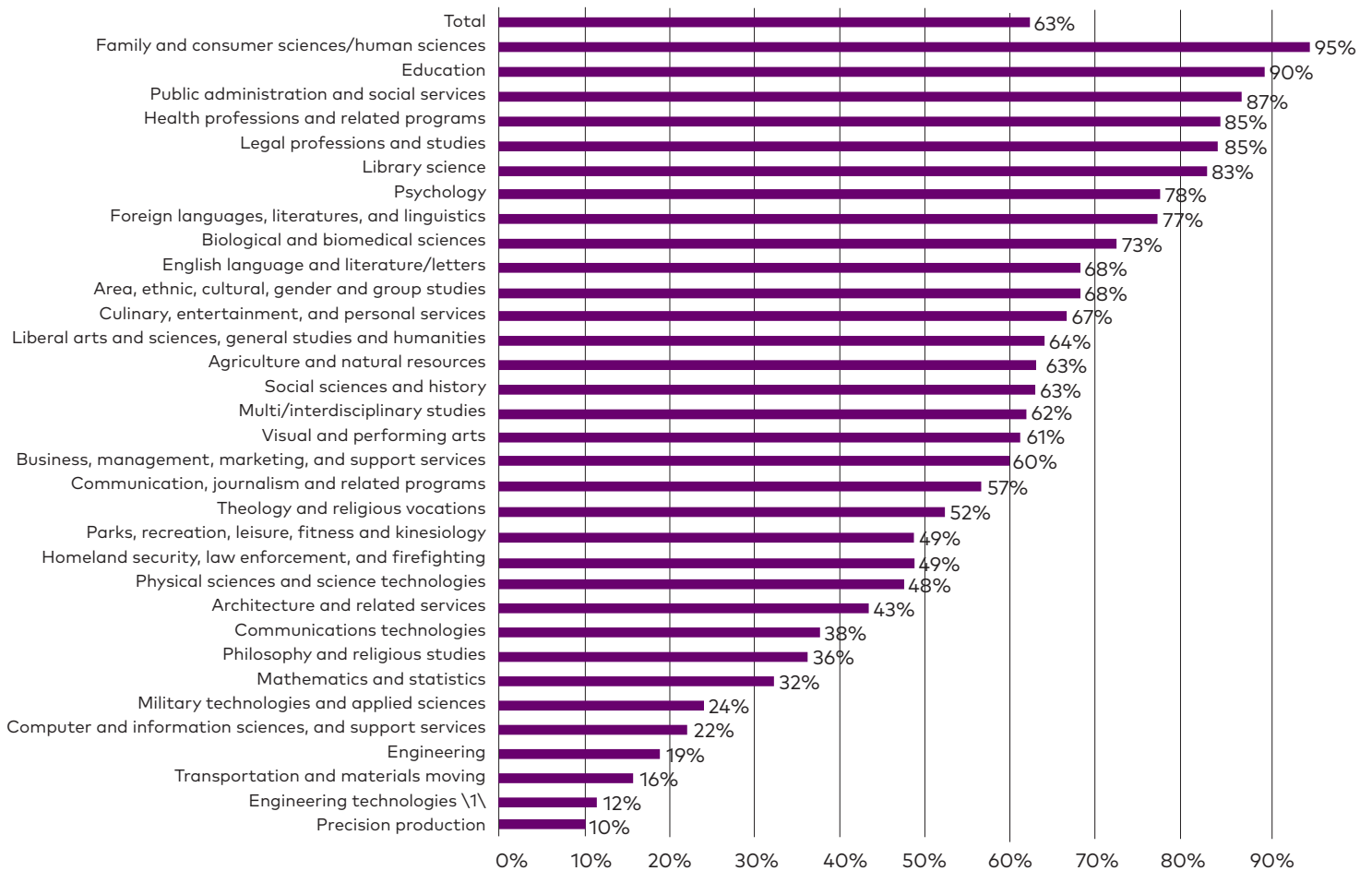
Previous research by the Institute for Women's Policy Research (IWPR) showed that women were more likely to obtain degrees in fields with lower earnings.⁴ This fact sheet updates previous research by IWPR on gender disparities in associate's degrees by field of study using the latest available data from the US Department of Education. Specifically, it provides data on the proportion of associate's degrees earned by women across different fields. In addition, it analyzes occupational growth from 2018 to 2022, the share of women with associate's degrees in related fields, and changes in earnings for women in those occupations.



The proportion of associate's degrees women earn varies by field of study.

Women make up a greater proportion of undergraduate certificate or degree recipients than men.⁵ Nationwide, women (25 years and older) constitute 55.2 percent of all people with associate's degrees.⁶ In the 2021–2022 academic year, women held 63.0 percent of all associate's degrees earned that year.⁷ However, the share of women among associate's degree completers is not evenly distributed across fields of study. Women make up more than 80 percent of graduates in the fields of family and consumer sciences/human services, public administration and social services, education and health professions, library science, and legal studies, whereas men make up more than 80 percent of the graduates in the fields of engineering, transportation and materials moving, engineering technologies, and precision production trades. In addition, men comprised 78.0 percent of graduates in computer and information sciences (Figure 1).

Figure 1. Proportion of Women Earning Associate's Degrees by Field of Study



Source: U.S. Department of Education, National Center for Education Statistics, Integrated Postsecondary Education Data System (IPEDS), Completions component, fall 2022, released in September 2023, accessed in August 2024, https://nces.ed.gov/programs/digest/d23/tables/dt23_321.10.asp.

Notes: Data represent the 50 states and the District of Columbia. Data are for postsecondary institutions participating in Title IV federal financial aid programs and U.S. service academies. Degree counts are limited to degree-granting institutions as classified in the fall following the reported data year. Data in this figure are based on the 2020 Classification of Instructional Programs.

\1\Includes engineering technologies and engineering-related fields; construction trades; and mechanic and repair.

In addition to the underrepresentation of women in high-earning fields, pay inequities remain across the occupations common for women and men. In fact, in the 134 occupations large enough to estimate earnings for women and men, in all but one occupation, women were paid less than men.⁸ For example, as Table 1 shows, female dental hygienists earned only 65.5 percent of their male counterparts' earnings, despite women comprising 85.0 percent of associate's degree earners in the related field of study, while female aircraft mechanics and service technicians earned 74.8 percent, while only 12.0 percent of associate's degrees in the related field of study were earned by women. **In other words, even when women earn degrees related to higher-paying occupations, they are still paid less in those occupations.**



Table 1. Median Annual Earnings in Selected Gender-Segregated Occupations and the Share of Women Earning an Associate's Degree in a Related Field of Study, 2022

	Median annual earnings for women	Median annual earnings for men	*Related field of study	Proportion of women earning associate's degrees
Occupations in fields with predominantly female degree holders				
Child care workers	\$26,820	\$36,302	Family and consumer sciences	95%
Agricultural and food science technicians	\$48,415	\$55,667	Family and consumer sciences	95%
Teaching assistants	\$26,511	\$33,387	Education	90%
Social and human services assistants	\$43,698	\$47,519	Public administration and social services	87%
Licensed practical and vocational nurses	\$50,039	\$54,220	Health professions and related sciences	85%
Paralegals and legal assistants	\$57,420	\$55,722	Legal professions and studies	85%
Dental hygienists	\$68,169	\$104,097	Health professions and related sciences	85%
Occupations in fields with predominantly male degree holders				
Computer support specialists	\$63,051	\$66,881	Computer and information science and support services	22%
Aircraft mechanics and service technicians	\$54,569	\$72,940	Mechanics and repairers	12%
Electric motor, power tool, and related repairers	\$29,200	\$53,667	Mechanics and repairers	12%
Other engineering technologists and technicians, except drafters	\$52,072	\$66,660	Engineering technologies	12%
Electricians	\$50,310	\$60,671	Construction trades	12%
Construction managers	\$75,350	\$84,670	Construction trades	12%
Machinists	\$36,639	\$54,838	Precision production	10%

Source: Women's and men's median annual earnings based on IWPR analysis of 2022 ACS 1-Year Data, Tables B24123 (<https://data.census.gov/table/ACS1Y2022.B24123?q=B24123>) and B24122 (<https://data.census.gov/table/ACS1Y2022.B24122?q=B24122>). The share of women is from Figure 1.

Notes: Median annual earnings are given by occupation, not credential. The earnings listed for each occupation might reflect the earnings of workers who have little or no postsecondary education, as well as workers who have higher educational credentials than an associate's degree. Occupations were chosen that had related fields of study with high percentages of gender segregation.

*Some occupations may not have a degree requirement in a specific field of study.

Growth happened in occupations linked to fields of study where predominantly women earn degrees, yet gender wage gaps remain.

New this year, IWPR explored which occupations grew over time between 2018 and 2022. To have meaningful estimates, the research focused only on occupations with at least 10,000 workers in 2018. Among them, we selected the occupations with at least a 50 percent growth by 2022. We then estimated the share of associate's degrees earned by women in related fields of study. The result was a list of 25 occupations with their related fields of study (Table 2).

Table 2. Employment Growth in Selected Occupations from 2018 to 2022

Occupations	Employed N 2018	Employed N 2022	Percentage growth 2018-2022	*Related field of study	Share of women
Other mathematical science occupations	110,226	383,094	248%	Mathematics and statistics	32%
Mental health and substance abuse social workers	14,511	40,624	180%	Psychology	78%
Medical secretaries and administrative assistants	56,890	131,292	131%	Medical and other health assisting	81%
Urban and regional planners	20,255	42,425	109%	Social sciences	63%
Human resources assistants, except payroll and timekeeping	49,989	97,987	96%	Public administration and social services	87%
Natural sciences managers	24,899	46,301	86%	Biological and biomedical sciences	73%
Public relations and fundraising managers	64,069	116,320	82%	Business and management, other	60%
Information security analysts	108,623	194,356	79%	Computer and information sciences and support services	22%
Other financial specialists	58,813	103,834	77%	Business	60%
Astronomers and physicists	10,912	19,263	77%	Physical sciences and science technologies	48%
Secondary school teachers	747,483	1,311,403	75%	Education	90%
Psychiatric technicians	71,624	121,384	69%	Psychology	78%
Special education teachers	247,999	416,143	68%	Education	90%
Mental health counselors	106,854	179,170	68%	Psychology	78%
Interviewers, except eligibility and loan	120,981	201,493	67%	Communication, journalism, and related programs	57%
Nurse anesthetists	29,174	47,478	63%	Nursing, registered nurse, or other	87%
Financial and investment analysts	221,314	353,691	60%	Business	60%
Financial examiners	14,403	22,364	55%	Business	60%
Agricultural and food scientists	23,830	36,927	55%	Agricultural, animal, plant, veterinary services, and related fields	63%
Construction managers	720,832	1,114,994	55%	Engineering	19%
Archivists, curators, and museum technicians	54,789	84,702	55%	Library science	83%
Software developers	1,363,394	2,070,480	52%	Computer and information sciences and support services	22%
Radiologists	15,235	23,093	52%	Health professions and related programs	85%
Television, video, and film camera operators and editors	72,014	108,895	51%	Visual and performing arts	61%
Conservation scientists and foresters	19,877	29,818	50%	Natural resources and conservation	41%

Source: IWPR analysis of ACS 2018 and 2022 1-Year data of employed population, Table B24114, <https://data.census.gov/table/ACSDT1Y2022.B24114?q=B24114>.

Notes: Occupations with at least 10,000 workers in 2018 and at least a 50 percent growth from 2018 to 2022 were chosen. The share of women is from Figure 1.

*Some occupations may not have a degree requirement in a specific field of study.

As shown in Table 2, in 19 out of 25 fields of study, the share of associate's degrees earned by women was at least 50 percent, including 10 fields of study where the share was at least 75 percent. This is an encouraging trend as it shows significant growth in occupations linked to fields of study where predominantly women earn degrees. However, despite this occupational growth, earnings did not keep pace in many of these occupations. For example, the number of natural sciences managers

increased by 86.0 percent between 2018 and 2022, yet earnings (Table 2) grew by 4.5 percent for women and 7.0 percent for men, resulting in a persistent gender wage gap (Table 3). Notably, 73.0 percent of the degrees awarded in the related field of study—biological and biomedical sciences—were earned by women. This suggests that despite women’s increasing educational attainment and participation in key industries, systemic issues such as discrimination, unequal opportunities, or barriers to advancement may still hinder equitable wage growth.

Table 3. Changes in Earnings for Women and Men in Selected Occupations from 2018 to 2022

Occupations	Women's earnings 2018	Women's earnings 2022	Women's earnings growth	Men's earnings 2018	Men's earnings 2022	Men's earnings growth
Other mathematical science occupations	\$69,731	\$81,337	16.6%	\$83,199	\$100,182	20.4%
Mental health and substance abuse social workers	\$55,216	\$63,399	14.8%	\$60,880	\$66,049	8.5%
Medical secretaries and administrative assistants	\$35,130	\$40,972	16.6%	\$40,464	\$41,143	1.7%
Urban and regional planners	\$72,352	\$75,641	4.5%	\$77,247	\$89,119	15.4%
Human resources assistants, except payroll and timekeeping	\$41,057	\$56,287	37.1%	\$45,924	\$71,021	54.6%
Natural sciences managers	\$74,241	\$77,602	4.5%	\$83,988	\$89,828	7.0%
Public relations and fundraising managers	\$76,334	\$80,813	5.9%	\$82,433	\$97,298	18.0%
Information security analysts	\$87,200	\$106,640	22.3%	\$101,256	\$115,110	13.7%
Other financial specialists	\$55,664	\$67,224	20.8%	\$90,593	\$104,766	15.6%
Astronomers and physicists	\$75,622	\$102,606	35.7%	\$115,227	\$128,655	11.7%
Secondary school teachers	\$53,942	\$61,448	13.9%	\$58,925	\$66,453	12.8%
Psychiatric technicians	\$32,442	\$36,858	13.6%	\$35,620	\$42,302	18.8%
Special education teachers	\$50,105	\$58,527	16.8%	\$52,821	\$61,105	15.7%
Mental health counselors	\$47,002	\$56,376	19.9%	\$50,632	\$59,080	16.7%
Interviewers, except eligibility and loan	\$33,767	\$37,468	11.0%	\$39,085	\$38,935	-0.4%
Nurse anesthetists	\$160,778	\$197,523	22.9%	\$192,647	\$208,895	8.4%
Financial and investment analysts	\$78,760	\$86,475	9.8%	\$91,136	\$102,368	12.3%
Financial examiners	\$74,235	\$63,210	-14.9%	\$92,952	\$96,265	3.6%
Agricultural and food scientists	\$60,177	\$74,307	23.5%	\$73,055	\$86,371	18.2%
Construction managers	\$65,147	\$75,350	15.7%	\$76,882	\$84,670	10.1%
Archivists, curators, and museum technicians	\$51,708	\$60,163	16.4%	\$58,441	\$66,255	13.4%
Software developers	\$98,497	\$115,495	17.3%	\$110,968	\$129,101	16.3%
Radiologists	\$226,554	\$250,000	10.3%	\$250,000	\$250,000	0.0%
Television, video, and film camera operators and editors	\$54,474	\$64,202	17.9%	\$52,009	\$61,917	19.1%
Conservation scientists and foresters	\$61,698	\$59,710	-3.2%	\$57,121	\$70,267	23.0%

Source: Women’s and men’s median annual earnings based on IWPR analysis of 2022 and 2018 ACS 1-Year Data, Tables B24123 (<https://data.census.gov/table/ACSDT1Y2022.B24123?q=B24123>) and B24122 (<https://data.census.gov/table/ACSDT1Y2022.B24122?q=B24122>). The share of women was previously calculated in Figure 1.

Notes: Median annual earnings are given by occupation, not credential. The earnings listed for each occupation might reflect the earnings of workers who have little or no postsecondary education, as well as workers who have higher educational credentials than an associate’s degree. Selected occupations are the same occupations described in Table 2.

Conclusion

Despite women earning the majority of associate's degrees, they remain underrepresented in a number of relatively high-earning fields, which exacerbates existing occupational segregation and pay inequities in the labor market. Moreover, while occupations linked to fields where predominantly women earn degrees have seen growth over time, the earnings gap between women and men remains.

Although lifetime earnings with a postsecondary degree are higher than those with only a high school diploma, women would benefit more economically from postsecondary education if they were better represented in high-earning fields. However, this alone will not close the wage gap between women and men. Closing the gender wage gap requires a number of policies,⁹ including addressing discrimination at every stage of employment, from recruitment and retention to career advancement. It also involves improving women's access to and retention in higher-paying jobs traditionally dominated by men, as well as enhancing wages and job quality in undervalued sectors that predominantly employ women.

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ENDNOTES

- ¹ Katie Zaback, Andy Carlson, and Matt Crellin, *The Economic Benefit of Postsecondary Degrees: A State and National Level Analysis*, (State Higher Education Executive Officers, 2012), <https://eric.ed.gov/?id=ED540267>.
- ² See Clive R. Belfield and Thomas Bailey, "The Benefits of Attending Community College: A Review of the Evidence," *Community College Review*, 2011, 39(1): 46–68; Clive R. Belfield and Thomas Bailey, "The Labor Market Returns to Sub-Baccalaureate College: A Review," CAPSEE Working Paper (New York, NY: Center for Analysis of Postsecondary Education and Employment, 2017), <https://ccrc.tc.columbia.edu/media/k2/attachments/labor-market-returns-sub-baccalaureate-college-review.pdf>.
- ³ See Changhwan Kim and Christopher R. Tamborini, "Are They Still Worth It? The Long-Run Earnings Benefits of an Associate Degree, Vocational Diploma or Certificate, and Some College," *The Russell Sage Foundation Journal of the Social Sciences*, March 2019, Vol. 5, No. 3, Using Administrative Data for Science and Policy (March 2019), pp. 64-85, <https://www.rsjournal.org/content/5/3/64.abstract>; Anthony P. Carnevale, Tanya I. Garcia, Neil Ridley, and Michael C. Quinn, *The Overlooked Value of Certificates and Associate's Degrees: What Students Need to Know Before They Go to College* (Washington, DC: Georgetown University Center on Education and the Workforce, 2020), <https://cew.georgetown.edu/wp-content/uploads/CEW-SubBA.pdf>.
- ⁴ Layla Moughari, Rhiana Gunn-Wright, and Barbara Gault, *Gender Segregation in Fields of Study at Community Colleges and Implications for Future Earnings*, Fact Sheet, IWPR #C395 (Washington, DC: Institute for Women's Policy Research, 2012), <https://iwpr.org/gender-segregation-in-fields-of-study-at-community-colleges-and-implications-for-future-earnings/>.
- ⁵ Benjamin Berg, Matthew Holsapple, Ramadan Ibrahim, Beatrix Randolph, and Douglas Shapiro, *Undergraduate Degree Earners: Academic Year 2022-23* (Herndon, VA: National Student Clearinghouse Research Center, April 2024), <https://nscresearchcenter.org/undergraduate-degree-earners/>.
- ⁶ U.S. Census Bureau, *Educational Attainment of the Population 25 Years and Over, by Selected Characteristics: 2022* (Washington DC: U.S. Census Bureau, 2023), <https://www.census.gov/data/tables/2022/demo/educational-attainment/cps-detailed-tables.html>.
- ⁷ U.S. Department of Education, National Center for Education Statistics, Integrated Postsecondary Education Data System (IPEDS), Completions component, Fall 2022, released in September 2023, accessed in August 2024, https://nces.ed.gov/programs/digest/d23/tables/dt23_321.10.asp.
- ⁸ Ariane Hegewisch and Hannah Gartner, "Women Earn Less than Men Whether They Work in the Same or Different Occupations," Fact Sheet, IWPR #C521 (Washington, DC: Institute for Women's Policy Research, 2024), <https://iwpr.org/equal-pay-day-2024/>.
- ⁹ Ariane Hegewisch and Hannah Gartner, "Women Earn Less than Men."