

In March, the Office of the Chief Economist (OCE) released the first in a

Executive Summary

Ву	series of reports updating and expanding our previous work examining the science, technology, engineering, and math (STEM) workforce. That first report, "STEM Jobs: 2017 Update," provided an overview of STEM workers and their earning power. This second report provides a more detailed look at the gender dynamics of the STEM economy.
Ryan Noonan	America's STEM workforce is crucial for generating new ideas, receiving and commercializing patents, and providing the flexibility and critical thinking required in the modern economy. While women continue to make gains across the broader economy, they remain underrepresented in STEM jobs and among STEM degree holders. Crafting policy to tap into the potential of women to contribute further in this vital sector requires an understanding of how gender is currently related to participation and success in STEM jobs.
ESA Issue Brief #06-17	Key findings in this report, which are consistent with previous research, including research done by OCE, are the following.
	• Women filled 47 percent of all U.S. jobs in 2015 but held only 24 percent of STEM jobs. Likewise, women constitute slightly more than half of college educated workers but make up only 25 percent of college educated STEM workers.
November 13, 2017	 Women with STEM jobs earned 35 percent more than comparable women in non-STEM jobs — even higher than the 30 percent STEM premium for men. As a result, the gender wage gap is smaller in STEM jobs than in non-STEM jobs. Women with STEM jobs also earned 40 percent more than men with non-STEM jobs.
	 While nearly as many women hold undergraduate degrees as men overall, they make up only about 30 percent of all STEM degree holders. Women make up a disproportionately low share of degree holders in all STEM fields, particularly engineering.
	 Women with STEM degrees are less likely than their male counterparts to work in a STEM occupation; they are more likely to work in education or healthcare.

What is STEM?

The acronym STEM — science, technology, engineering, and math — is defined more or less broadly depending on the source of the definition. There is a strong consensus that STEM, or science, technology, engineering, and math, workers should be defined to include core occupations in the hard sciences, engineering, and mathematics. However, there is often less consensus about whether to include other positions such as educators, managers, technicians, health-care professionals, or social scientists.

Following our March 2017 report, our definition of STEM includes, in addition to the core occupations, professional and technical support occupations in the fields of computer science and mathematics, engineering, and life and physical sciences, as well as three management occupations with direct connections to STEM.¹ Our STEM list contains 56 specific occupation codes as classified by the Standard Occupational Classification (SOC) (see Appendix Table 1).^{2,3} Because of data limitations, we could not include STEM educators.⁴ We also elected not to include social scientists.⁵

In 2015, there were 8.6 million workers in STEM jobs, or 5.7 percent of the workforce.⁶ To put the 8.6 million STEM workers into context, we divide STEM occupations into four categories: computer and math, engineering and surveying, physical and life sciences, and STEM managerial occupations.⁷ Across all levels of educational attainment, the largest group of STEM jobs is within the computer and math fields, which account for close to half (49 percent) of all STEM employment. Second are engineering and surveying occupations with 30 percent of all STEM employment, while 12 percent are in the physical and life sciences and 9 percent in STEM management jobs.

Women are Underrepresented in STEM Jobs

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Data from the Census Bureau's American Community Survey (ACS) shows that women comprise 47 percent of all workers but just 24 percent of STEM workers.⁸ In other words, a STEM worker is about half as likely to be a woman as a member of the overall workforce (see Figure 1).⁹

¹ These occupations are computer and information systems managers, engineering managers, and natural sciences managers. ² This is an increase from 50 in our 2011 report. With one exception, this increase merely reflects a change in the amount of occupation detail available in our primary data sources. However, we have added actuaries to the list of STEM jobs for this report despite their exclusion in previous work. Their inclusion does not substantially change our findings.

³ The 2010 Standard Occupational Classification (SOC) system is used by Federal statistical agencies to classify workers into occupational categories for the purpose of collecting, calculating, or disseminating data. All workers are classified into one of 840 detailed occupations according to their occupational definition. To facilitate classification, detailed occupations are combined to form 461 broad occupations, 97 minor groups, and 23 major groups. Detailed occupations in the SOC with similar job duties, and in some cases skills, education, and/or training, are grouped together. For more information, see: https://www.bls.gov/soc/.

⁴ Although our principal data source, the 2015 American Community Survey (ACS), collects detailed information on workers' occupations, it does not break out educators by their specific field. As a result, it is not possible to distinguish math and science teachers and professors from other teachers and professors. Data from the Bureau of Labor Statistics' Occupational Employment Statistics program show that there are roughly 200,000 postsecondary teachers in STEM fields, and their exclusion is unlikely to materially affect our results.

⁵ The Census Bureau and the National Science Foundation count social scientists among "science and engineering jobs." Following Xie and Killewald, we have opted to exclude social scientists from the definition of STEM. As the authors point out, undergraduate degrees in social science are not closely linked to careers in social science. Using data from the American

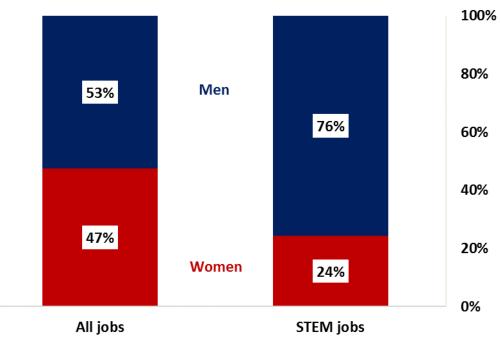


Figure 1. Gender Shares of Total and STEM Jobs, 2015

Source: OCE calculations using American Community Survey public-use microdata. Note: Estimates are for employed persons age 16 and over.

The proportions of women in the overall workforce and in the STEM workforce are little changed from our previous report on women in STEM.¹⁰ As shown in Table 1, the share of women in the overall workforce has fallen from 48 percent to 47 percent, while the share of women in the STEM workforce has held constant. In addition, women now make up a slight majority of workers with at least a

Community Survey, we find that, in 2015, over 97 percent of workers with social science degrees worked in non-social science jobs, compared to 65 percent of workers with STEM degrees working in non-STEM jobs. In addition, recipients of such degrees are less likely to pursue graduate education in science (including social science), and universities produce a very large number of social science degrees that skew any analysis of STEM education or the STEM workforce. For more on this topic, see Xie, Yu, and Alexandra Killewald. *Is American Science in Decline?* Cambridge, MA: Harvard University Press, 2012.

⁶ For purposes of this report, we use the primary job identified by respondents to the American Community Survey to determine whether a worker is in a STEM field. In order to produce better time series analysis, our previous report used data from the Current Population Survey, which showed that there were 9.0 million STEM workers in 2015, accounting for 6.1 percent of the overall workforce.

⁷ The distinction between "scientists" and "science occupations" is more than just semantic. "Science occupations" covers not just scientists but also science technicians. Likewise, engineering and surveying occupations include engineering technicians and drafters, and computer occupations range from computer support specialists to computer software engineers.

⁸ For more information about the American Community Survey, see: https://www.census.gov/programs-surveys/acs/.
⁹ Note that in this section we are focusing on persons with STEM *jobs*; while there is a lot of overlap between persons with STEM jobs and persons with STEM undergraduate majors, the two sets are not identical. Later we talk about persons with STEM degrees and the jobs they hold.

¹⁰ For our previous report, "Women in STEM: A Gender Gap to Innovation," see: http://esa.doc.gov/reports/women-stem-gender-gap-innovation.

bachelor's degree; their share in the college-educated STEM workforce has ticked up slightly, from 24 percent to 25 percent.

	Male		Female		Percent Female	
	2009	2015	2009	2015	2009	2015
All workers	73,580	79,067	67,058	71,506	48%	47%
College-educated	22,167	24,991	21,433	25,431	49%	50%
STEM workers	5,640	6,520	1,790	2,100	24%	24%
College-educated	3,259	4,469	1,199	1,497	24%	25%

 Table 1. Total and STEM Employment by Gender and Educational Attainment, 2009 and 2015

 (thousands of workers)

Source: OCE calculations from Census 2009 and 2015 American Community Survey public-use microdata. Note: Estimates are for employed persons age 16 and over. College-educated workers are those with at least a bachelor's degree.

However, as shown in Table 2, the concentration of women varies across the types of STEM occupations. The largest share of women is in the physical and life sciences and this share rose from 40 percent to 43 percent. For computer science and math jobs, the share of women decreased slightly from 27 percent in 2009 to 26 percent in 2015. The share of women in engineering (at 14 percent) and STEM management jobs (at 25 percent) held steady over this period.

Table 2. Employment in STEM Occupations, 2009 and 2015

(thousands of workers)

	Male		Female		Percent Female	
	2009	2015	2009	2015	2009	2015
STEM total	5,640	6,520	1,790	2,100	24%	24%
Computer science and math	2,534	3,162	929	1,101	27%	26%
Engineering	2,079	2,195	330	364	14%	14%
Physical and life sciences	553	595	374	448	40%	43%
STEM managers	474	568	157	187	25%	25%

Source: OCE calculations from Census 2009 and 2015 American Community Survey public-use microdata. Note: Estimates are for employed persons age 16 and over.

Higher levels of educational attainment are associated with higher likelihood of having a STEM job for both men and women, but Figure 2 shows that women are less likely than men to have a STEM job across all levels of attainment. While the gap lessens somewhat at the doctoral level, women with PhD degrees remain about half as likely as men with similar levels of educational attainment to hold a STEM job.¹¹

¹¹ Few persons with professional degrees work in STEM jobs because such persons typically have jobs that we do not characterize as STEM (e.g., dentists, physicians, and lawyers).

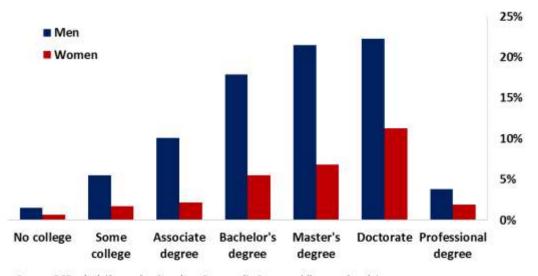


Figure 2. Share of Workers in STEM Jobs by Gender and Educational Attainment, 2015

Source: OCE calculations using American Community Survey public-use microdata. Note: Professional degrees include medical, dental, veterinary, and law degrees. Estimates are for employed persons age 16 and over.

STEM Worker Earnings and Gender

There is robust evidence across the economic literature of a gender wage gap—women earn less than men, even after controlling for a wide range of characteristics such as education and age. In our recent report, "STEM Jobs: 2017 Update," we showed that STEM workers earn a significant premium over their non-STEM counterparts.¹² Figure 3 illustrates the intersection of these two findings by showing the average hourly earnings of full-time, year-round workers in STEM and non-STEM jobs. On average, men and women earn \$37.69 and \$31.59 per hour, respectively, in STEM jobs—higher than the \$22.56 and \$18.17 that they earn, on average, in non-STEM occupations. For every dollar earned by a man in STEM, a woman in STEM earns 84 cents, a gender wage gap of 16 percent, slightly larger than the 14 percent wage gap we found using 2009 data but smaller than the 19 percent gender wage gap in non-STEM jobs. This STEM/non-STEM difference has narrowed from 7 percentage points in 2009 to 3 percentage points in 2015 because, while the gender gap in STEM jobs grew, the gender gap in non-STEM jobs shrank from 21 percent to 19 percent.

This simple comparison of average earnings can disguise other factors that affect worker earnings, especially age and educational attainment. We use a regression analysis to control for several demographic and geographic characteristics and attempt to get a more precise measure of the gender

¹² For our previous report, see: http://esa.doc.gov/reports/stem-jobs-2017-update.

earnings gap in STEM.¹³ The results from these regressions clarify the magnitude of both the STEM earnings premium and the gender earnings gap (see Appendix Table 3).¹⁴

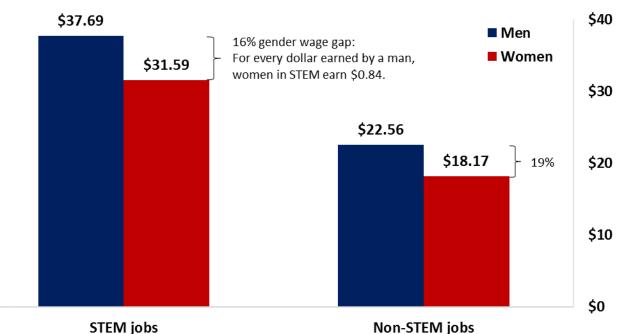


Figure 3. Average Hourly Earnings by Gender and Type of Occupation, 2015

We find that, all else being equal, women in STEM earn 35 percent more than their female peers in non-STEM jobs, while the STEM premium for men is 30 percent. Both of these premiums are larger than those we found in 2009 (33 percent for women and 25 percent for men), suggesting a growing wage gap between STEM and non-STEM earnings.

Given that the STEM premium for women is higher than for men, we would expect women in STEM to face a smaller gender earnings gap than women in non-STEM occupations, consistent with the data in Figure 2. However, because the difference between the female and male STEM premiums has declined

Source: OCE calculations using American Community Survey public-use microdata. Note: Estimates are for full-time, year-round wage and salary workers age 16 and over.

¹³ The earnings regressions measure the natural log of wages as a function of age (up to a fourth degree polynomial of age), gender, marital status, race and Hispanic origin, nativity and citizenship, education, veteran status, region, major industry, and whether a worker is in a STEM occupation. This specification was run for the overall population of private sector full-time year-round wage and salary workers age 16 and over as well as for men and women separately. Additionally, the specification was run for college-educated workers age 25 and over in each of the four major STEM occupational groups. The exponential function was used to convert the results for presentation. Additionally, a second set of regressions was run to estimate the impact of having children at home on the gender wage gap, but it did not affect the overall results of the regressions shown here.

¹⁴ Because these regressions use American Community Survey microdata, they are not strictly comparable to the results in our previous report, which used Current Population Survey microdata.

since 2009, we would also expect the gender earnings gap has become more similar across STEM and non-STEM occupations, which is also consistent with our findings. At the same time that STEM jobs have become higher-paying with respect to non-STEM jobs, the gender earnings gap has become more consistent across both kinds of jobs.

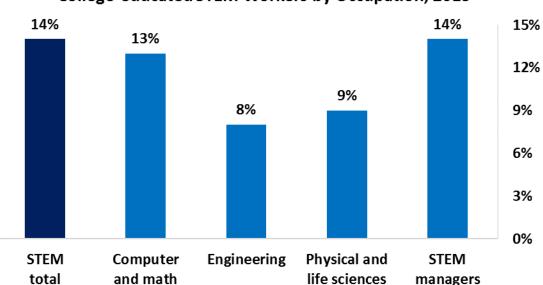


Figure 4. Regression-adjusted Gender Wage Gap of College-educated STEM Workers by Occupation, 2015

Source: OCE calculations using American Community Survey public-use microdata. Note: Estimates are for full-time, year-round private wage and salary workers age 25 and over.

Looking at more specific groups of STEM workers allows us to make more precise comparisons of male and female wages within the sector (see Appendix Table 4). Among college-educated STEM workers, the gender wage gap shrinks to 14 percent (compared to 12 percent in 2009), and it is even smaller within some of the major STEM categories (see Figure 4). The most male-dominated STEM occupational group — engineers— has the smallest gender earnings gap (8 percent), while the most gender-balanced group — physical and life sciences — has the second smallest (9 percent). Across all groups, the gender earnings gap has increased at least somewhat since 2009, though STEM managers have seen a much larger increase, from 9 percent to 14 percent.

STEM Degrees and Fields of Study by Gender

Parallel to our list of STEM occupations, we also identify a set of STEM undergraduate degree fields that span computer science and mathematics, engineering, and life and physical sciences (see Appendix Table 2). We define STEM degree holders as persons whose primary or secondary undergraduate major was in a STEM field. Following similar logic to that used in our occupation selection, we exclude business, healthcare, and social science majors.

Because STEM degrees are a common path to a STEM job, and because policy conversations around STEM often focus on education, it is useful to examine the educational choices made by women and

men in STEM. In our March 2017 report, we found that there are 6.0 million STEM workers with at least a four-year college degree, and 69 percent of these workers have a degree in a STEM field (though often not the same field as their job).

Data from the 2015 ACS shows that women now make up half of all employed college graduates age 25 and over; there were 25.0 million women and 25.0 million men who were employed and had bachelor's degrees. However, in 2015, there were 3.4 million college educated working women with STEM degrees, about 30 percent of all working STEM-degree holders, and 7.9 million men.

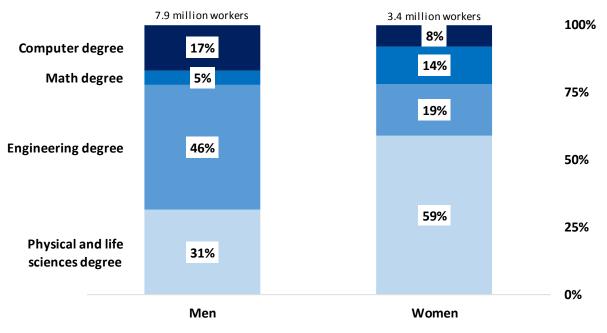


Figure 5. College-educated Workers with a STEM Degree by Gender and STEM Degree Field, 2015

Source: OCE calculations using American Community Survey public-use microdata.

Note: Estimates are for employed persons age 25 and over. The shares for men do not add to 100% due to rounding.

Among STEM majors, the distribution of men and women differs significantly. As shown in Figure 5, more than half (59 percent) of all women who major in STEM fields choose a degree in the physical and life sciences, compared to less than one-third (31 percent) of men. Women are also more likely than men (14 percent versus 5 percent) to choose a math major. Engineering is the most popular STEM field of study for working men (46 percent), more than double the share of STEM working women with engineering degrees. Computer science, which had roughly equal shares of men and women in 2009 (15 percent and 14 percent, respectively), has become far more male-dominated over the past six years, with employed men more than twice as likely as women to have computer degrees.

STEM Degrees and Careers by Gender

We have seen that college educated women are much less likely than men to major in STEM fields, but even women who choose such majors have very different career paths from their male counterparts.

Overall, women with STEM degrees make up about 20 percent of all STEM-degree holders working in STEM jobs. About 40 percent (3.1 million) of men with STEM degrees work in STEM jobs, whereas only 23 percent (0.8 million) of women with STEM degrees work in STEM fields (see Figure 6). While the share of such men has held steady since 2009, the share of women with STEM degrees who choose STEM occupations has fallen from 26 percent.

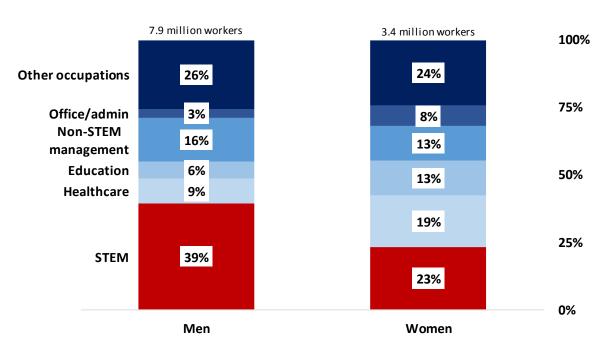


Figure 6. College-educated Workers with a STEM Degree by Gender and STEM Occupation, 2015

Source: OCE calculations using American Community Survey public-use microdata.

Note: Estimates are for employed persons age 25 and over. The shares for men do not add to 100% due to rounding.

Men with STEM degrees are somewhat more likely to have non-STEM management jobs than women, 16 percent versus 13 percent. This represents a narrowing of the gap we found in 2009, when only 11 percent of women with STEM degrees were in such occupations. By contrast, STEM-educated women are substantially more likely than STEM-educated men to work in healthcare or education. Nearly one in five (19 percent) women with STEM degrees works in healthcare, compared to about one in ten (9 percent) men. Likewise, 13 percent of female STEM majors and 6 percent of male STEM majors work in education.

STEM Degree Premiums and Gender

We have already seen that workers in STEM jobs enjoy an earnings premium over workers in non-STEM jobs, regardless of gender. Figure 7 shows the results of extending that analysis to understand the

earnings premium enjoyed by men and women of having either a STEM job, a STEM degree, or both (see Appendix Table 5).

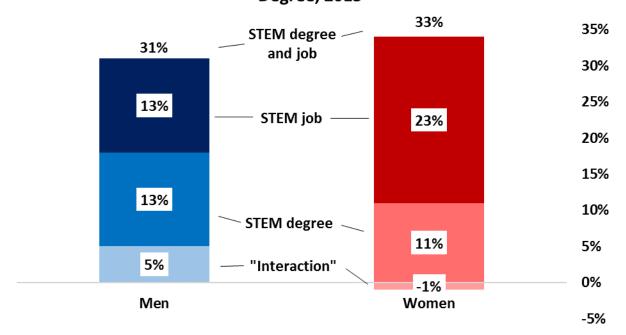


Figure 7. Earnings Premium from Having a STEM Job and/or Degree, 2015

Source: OCE calculations using American Community Survey public-use microdata. Note: Estimates are for full-time, year-round private wage and salary workers with at least a bachelor's degree who are age 25 and over.

Specifically, when we control for whether or not women have STEM degrees, we find that collegeeducated women (regardless of choice of undergraduate major) earn 23 percent more in STEM jobs than elsewhere. This is nearly double the 13 percent premium that college-educated men realize working in STEM. On the other hand, female STEM degree holders earn 11 percent more than women with other degrees, regardless of job, while the STEM degree premium for men is slightly larger at 13 percent.

The largest STEM-related earnings premiums go to men and women who both major in a STEM field and choose a STEM job. A notable finding of our analysis is that men receive an additional 5 percent premium for having both a STEM degree and a STEM job, while women see a small but slightly negative "interaction" effect.¹⁵ Despite the lack of an "interaction" benefit, the STEM degree/STEM job career

¹⁵ The wage premium benefits associated with having either a STEM job or a STEM degree are statistically significant at the 99 percent confidence level for both men and women. The interaction effect significant for men at the 99 percent level, though it is only significant at the 90 percent level for women.

path nets women 34 percent higher hourly earnings, on average, than those who have neither a STEM degree nor a STEM job, a few points higher than the corresponding 31 percent premium for men.

Conclusion

This report demonstrates that women are underrepresented both in STEM jobs and among those with undergraduate STEM degrees. Moreover, we find that there has been little overall change in this underrepresentation since our last report using 2009 data. The relatively few women who receive STEM degrees are concentrated in the physical and life sciences, while men with STEM degrees are concentrated in engineering. Perhaps reflecting this difference in concentration, women who receive STEM degrees are less likely than their male counterparts to work in STEM jobs, instead opting for more careers in the healthcare and education sectors. For those women who do work in STEM, we find a somewhat smaller gender earnings gap than for the overall labor force.

While this report does not — and cannot — explain why gender differences in STEM exist, its aim is to provide data and insight to help guide more informed policymaking. STEM jobs are crucial to the competitiveness, innovation, and flexibility of the modern economy. The findings of this report provide clear evidence that there is an opportunity to expand the number of women in STEM, even as the gender balance of the overall labor force nears equality.

Occupation	SOC code	Occupation	SOC code
Со	mputer and math	occupations	
 Computer scientists and systems analysts 	15-10XX	 Network systems and data communications analysts 	15-1081
 Computer programmers 	15-1021	Actuaries	15-2011
 Computer software engineers 	15-1030	Mathematicians	15-2021
Computer support specialists	15-1041	 Operations research analysts 	15-2031
 Database administrators 	15-1061	Statisticians	15-2041
 Network and computer systems administrators 	15-1071	 Miscellaneous mathematical science occupations 	15-2090
Engin	eering and survey	ving occupations	
 Surveyors, cartographers, and 			
photogrammetrists	17-1020	 Materials engineers 	17-2131
 Aerospace engineers 	17-2011	 Mechanical engineers 	17-2141
		 Mining and geological engineers, 	17-2151
 Agricultural engineers 	17-2021	including mining safety engineers	
 Biomedical engineers 	17-2031	 Nuclear engineers 	17-2161
 Chemical engineers 	17-2041	 Petroleum engineers 	17-2172
 Civil engineers 	17-2051	 Engineers, all other 	17-2199
 Computer hardware engineers 	17-2061	Drafters	17-3010
		 Engineering technicians, except 	
 Electrical and electronic engineers 	17-2070	drafters	17-3020
 Environmental engineers 	17-2081	 Surveying and mapping technicians 	17-3032
 Industrial engineers, including health and 			
safety	17-2110	 Sales engineers 	41-9033
 Marine engineers and naval architects 	17-2121		
Physi	ical and life sciend	ces occupations	
 Agricultural and food scientists 	19-1010	 Physical scientists, all other 	19-2099
		 Agricultural and food science 	
 Biological scientists 	19-1020	technicians	19-4013
 Conservation scientists and foresters 	19-1030	 Biological technicians 	19-4022
 Medical scientists 	19-1040	 Chemical technicians 	19-403
 Astronomers and physicists 	19-2010	 Geological and petroleum technicians 	19-4042
 Atmospheric and space scientists 	19-2021	 Nuclear technicians 	19-405
		 Other life, physical, and social science 	
 Chemists and materials scientists 	19-2030	technicians	19-40X)
 Environmental scientists and geoscientists 	19-2040		
S	TEM managerial	occupations	
 Computer and information systems 			
managers	11-3021	 Natural sciences managers 	11-9122
managers			

Appendix Table 1. Detailed STEM occupations and Standard Occupational Classification (SOC) codes

Appendix Table 2. Detailed STEM undergraduate majors

Computer majors

- Computer and information systems
- Computer programming and data processing
- Mathematics
- Applied mathematics
- General engineering
- Aerospace engineering
- Biological engineering
- Architectural engineering
- Biomedical engineering
- Chemical engineering
- Civil engineering
- Computer engineering
- Electrical engineering
- Engineering mechanics physics and science
- Animal sciences
- Food science
- Plant science and agronomy
- Soil science
- Environmental science
- Biology
- Biochemical sciences
- Botany
- Molecular biology
- Ecology

- Information sciences
- Statistics and decision science

Math majors

Engineering majors

- Environmental engineering
- Geological and geophysical engineering
- Industrial and manufacturing engineering
- Materials engineering and materials science
- Mechanical engineering
- Metallurgical engineering
- Mining and mineral engineering
- Naval architecture and marine engineering
- Nuclear engineering

- Computer administration management and security
- Computer networking and telecommunications
- Mathematics and computer science
- Petroleum engineering
- Miscellaneous engineering
- Engineering technologies
- Engineering and industrial management
- Electrical engineering technology
- Industrial production technologies
- Mechanical engineering related technologies
- Miscellaneous engineering technologies
- Military technologies

Physical and life sciences majors

- Genetics
- Microbiology
- Pharmacology
- Physiology
- Zoology
- Miscellaneous biology
- Nutrition sciences
- Neuroscience
- Cognitive science and biopsychology

- Physical sciences
- Astronomy and astrophysics
- Atmospheric sciences and meteorology
- Chemistry
- Geology and earth science
- Geosciences
- Oceanography
- Physics
- Nuclear, industrial radiology, and biological technologies

Computer science

VARIABLES	Description	All Workers In_hourly_earnings	Women Only In_hourly_earnings	Men Only In_hourly_earnings
1.stem_job	STEM job	0.310***	0.303***	0.262***
1.Stem_Job		(0.00276)	(0.00543)	(0.00331)
AGEP	Age	0.0960***	0.154***	0.0514***
AGLF	Age	(0.00537)	(0.00815)	(0.00722)
c.AGEP#c.AGEP	Age (squared)	-0.00144***	-0.00336***	(0.00722) 7.40e-05
LAGEF#C.AGEF	Age (squareu)	(0.000183)	(0.000278)	(0.000247)
c.AGEP#c.AGEP	Age (cubed)	(0.000183) 6.52e-06**	(0.000278) 3.27e-05***	-1.42e-05***
#c.AGEP	Age (cubeu)	(2.65e-06)	(4.02e-06)	(3.58e-06)
c.AGEP#c.AGEP	Age (4 th power)	(2.03e-00) 2.11e-09	-1.21e-07***	9.99e-08***
#c.AGEP#c.AGEP	Age (4 power)	(1.38e-08)	(2.10e-08)	(1.88e-08)
	Married	0.156***	0.0896***	0.184***
1.married	Married			
1	Dlack non Hispania	(0.00174)	(0.00244)	(0.00245)
1.race_eth	Black non-Hispanic	-0.147***	-0.0972***	-0.181***
2		(0.00288)	(0.00385)	(0.00428)
2.race_eth	Asian non-Hispanic	-0.0378***	0.0204***	-0.0675***
a		(0.00440)	(0.00636)	(0.00600)
3.race_eth	Other race non-Hispanic	-0.0819***	-0.0571***	-0.0947***
		(0.00561)	(0.00814)	(0.00762)
4.race_eth	Hispanic	-0.130***	-0.103***	-0.150***
		(0.00279)	(0.00405)	(0.00376)
1.foreignborn	Foreign-born citizen	-0.0363***	-0.0426***	-0.0364***
		(0.00353)	(0.00497)	(0.00487)
2.foreignborn	Non-citizen	-0.160***	-0.186***	-0.163***
		(0.00363)	(0.00578)	(0.00464)
1.educ	High school diploma	0.159***	0.178***	0.166***
		(0.00330)	(0.00547)	(0.00407)
2.educ	Some college	0.305***	0.362***	0.303***
		(0.00333)	(0.00543)	(0.00418)
3.educ	Bachelor's degree	0.663***	0.705***	0.668***
		(0.00364)	(0.00575)	(0.00471)
4.educ	Graduate degree	0.930***	0.945***	0.952***
		(0.00417)	(0.00635)	(0.00552)
1.veteran	Veteran	0.0371***	-0.0173*	-0.0258***
		(0.00337)	(0.00969)	(0.00369)
2.DIVISION	Middle Atlantic	-0.0211***	-0.0244***	-0.0216***
		(0.00414)	(0.00581)	(0.00568)
3.DIVISION	East North Central	-0.134***	-0.152***	-0.119***
		(0.00397)	(0.00562)	(0.00542)
4.DIVISION	West North Central	-0.163***	-0.177***	-0.145***
		(0.00459)	(0.00645)	(0.00629)
5.DIVISION	South Atlantic	-0.125***	-0.131***	-0.119***
		(0.00391)	(0.00550)	(0.00537)
6.DIVISION	East South Central	-0.222***	-0.241***	-0.205***
		(0.00481)	(0.00679)	(0.00656)
7.DIVISION	West South Central	-0.102***	-0.144***	-0.0718***
		(0.00425)	(0.00601)	(0.00579)
		(0.00+20)	-0.113***	-0.101***

Appendix Table 3. Regression Results (Overall)

		(0.00460)	(0.00651)	(0.00627)
9.DIVISION	Pacific	0.0121***	0.00919	0.0101*
		(0.00407)	(0.00579)	(0.00553)
1.secnum	Agriculture, mining,	0.185***	0.105***	0.125***
	and construction	(0.00287)	(0.00709)	(0.00325)
2.secnum	Manufacturing	0.111***	0.0750***	0.0756***
		(0.00208)	(0.00358)	(0.00257)
Constant		0.704***	0.0234	1.212***
		(0.0562)	(0.0853)	(0.0754)
Observations		738,167	317,837	420,330
R-squared		0.373	0.351	0.396

Robust standard errors in parentheses

*** p<0.01, ** p<0.05, * p<0.1

Appendix Table 4. Regression Results (Occupation-specific)

			Computer and		Physical and life	
		All STEM workers	math	Engineering	sciences	STEM managerial
VARIABLES	Description	In_hourly_earnings	In_hourly_earnings	In_hourly_earnings	In_hourly_earnings	In_hourly_earnings
1.female	Female	-0.147***	-0.139***	-0.0812***	-0.0978***	-0.148***
		(0.00689)	(0.00955)	(0.0136)	(0.0188)	(0.0200)
AGEP	Age	0.0633*	0.0921	-0.0418	0.195	0.264***
		(0.0333)	(0.0749)	(0.0479)	(0.131)	(0.0946)
c.AGEP#c.AGEP	Age (squared)	-0.000350	-0.00132	0.00252*	-0.00452	-0.00592**
		(0.00107)	(0.00255)	(0.00152)	(0.00433)	(0.00282)
c.AGEP#c.AGEP	Age (cubed)	-6.24e-06	6.22e-06	-4.04e-05**	5.44e-05	6.19e-05*
#c.AGEP		(1.47e-05)	(3.75e-05)	(2.06e-05)	(6.17e-05)	(3.60e-05)
c.AGEP#c.AGEP	Age (fourth	4.81e-08	-7.90e-09	2.00e-07**	-2.75e-07	-2.67e-07
#c.AGEP#c.AGEP	power)	(7.35e-08)	(2.01e-07)	(1.01e-07)	(3.20e-07)	(1.65e-07)
1.married	Married	0.110***	0.0862***	0.121***	0.0818***	0.109***
		(0.00680)	(0.00947)	(0.0119)	(0.0212)	(0.0219)
1.race_eth	Black non-	-0.127***	-0.152***	-0.120***	0.0205	-0.189***
	Hispanic	(0.0163)	(0.0208)	(0.0339)	(0.0534)	(0.0468)
2.race_eth	Asian non-	0.0146	0.000548	0.00132	0.0429	-0.0508
	Hispanic	(0.0101)	(0.0140)	(0.0177)	(0.0285)	(0.0336)
3.race_eth	Other race	-0.0524***	-0.0733**	-0.0177	-0.0282	-0.103
	non-Hispanic	(0.0203)	(0.0287)	(0.0318)	(0.0571)	(0.0725)
4.race_eth	Hispanic	-0.123***	-0.141***	-0.0790***	-0.156***	-0.116***
		(0.0136)	(0.0201)	(0.0206)	(0.0482)	(0.0338)
1.foreignborn	Foreign-born	0.0247**	0.0578***	-0.0220	-0.0101	0.102***
	citizen	(0.0104)	(0.0144)	(0.0189)	(0.0315)	(0.0299)
2.foreignborn	Non-citizen	0.0238**	0.0779***	0.00128	-0.179***	0.0681*
		(0.0115)	(0.0156)	(0.0215)	(0.0321)	(0.0376)
1.grad_degree	Graduate	0.122***	0.126***	0.150***	0.230***	0.110***
	degree	(0.00600)	(0.00868)	(0.0101)	(0.0201)	(0.0163)
1.veteran	Veteran	-0.0558***	-0.0638***	-0.0582***	0.0193	-0.0357
		(0.0122)	(0.0176)	(0.0197)	(0.0651)	(0.0312)
2.DIVISION	Middle	0.00282	-0.0229	-0.0146	0.0301	0.0110
	Atlantic	(0.0130)	(0.0183)	(0.0231)	(0.0348)	(0.0401)
3.DIVISION		-0.103***	-0.124***	-0.0924***	-0.0900**	-0.108***

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	East North					
	Central	(0.0124)	(0.0172)	(0.0225)	(0.0362)	(0.0382)
4.DIVISION	West North	-0.113***	-0.131***	-0.0947***	-0.158***	-0.0904**
	Central	(0.0152)	(0.0210)	(0.0268)	(0.0474)	(0.0440)
5.DIVISION	South Atlantic	-0.0327***	-0.0352**	-0.0521**	-0.0276	-0.0934**
		(0.0124)	(0.0169)	(0.0229)	(0.0352)	(0.0383)
6.DIVISION	East South	-0.184***	-0.233***	-0.109***	-0.239***	-0.249***
	Central	(0.0178)	(0.0268)	(0.0295)	(0.0474)	(0.0541)
7.DIVISION	West South	0.0337**	-0.0891***	0.149***	0.0747	0.0401
	Central	(0.0142)	(0.0196)	(0.0248)	(0.0469)	(0.0412)
8.DIVISION	Mountain	-0.0298**	-0.0589***	-0.0121	0.0236	-0.0736
		(0.0142)	(0.0198)	(0.0251)	(0.0450)	(0.0452)
9.DIVISION	Pacific	0.129***	0.133***	0.120***	0.103***	0.0788**
		(0.0123)	(0.0172)	(0.0220)	(0.0326)	(0.0398)
1.secnum	Agriculture,	0.0899***	0.0524**	0.0562***	0.315***	0.0888*
	mining, and					
	construction	(0.0141)	(0.0233)	(0.0193)	(0.0459)	(0.0461)
2.secnum	Manufacturing	0.0397***	0.0538***	0.00311	0.206***	0.0631***
		(0.00601)	(0.0111)	(0.0101)	(0.0199)	(0.0177)
Constant		1.925***	1.703**	3.290***	-0.0107	-0.567
		(0.374)	(0.797)	(0.540)	(1.428)	(1.143)
Observations		40,874	19,714	12,154	4,330	4,676
R-squared		0.211	0.195	0.221	0.352	0.205

Robust standard errors in parentheses

*** p<0.01, ** p<0.05, * p<0.1

		Women Only	Men Only
/ARIABLES	Description	, In_hourly_earnings	In_hourly_earnings
stem_job	STEM job	0.206***	0.126***
2	-	(0.00929)	(0.00724)
.stem_degree	STEM degree	0.107***	0.119***
_ 0	C C	(0.00714)	(0.00612)
.stem_interaction	STEM job and STEM degree	-0.0248*	0.0262***
-	, ,	(0.0140)	(0.00964)
AGEP	Age	0.179***	-0.000884
	C C	(0.0224)	(0.0251)
AGEP#c.AGEP	Age (squared)	-0.00365***	0.00233***
		(0.000720)	(0.000810)
AGEP#c.AGEP#	Age (cubed)	3.16e-05***	-4.95e-05***
.AGEP	0-()	(9.91e-06)	(1.12e-05)
.AGEP#c.AGEP#	Age (fourth power)	-1.05e-07**	2.82e-07***
AGEP#c.AGEP	0- (p)	(4.94e-08)	(5.65e-08)
.married	Married	0.111***	0.225***
		(0.00439)	(0.00513)
.race_eth	Black non-Hispanic	-0.125***	-0.277***
		(0.00779)	(0.0105)
.race eth	Asian non-Hispanic	0.0459***	-0.0414***
etti		(0.00937)	(0.00920)
race_eth	Other race non-Hispanic	-0.0724***	-0.131***
Sindee_eth		(0.0150)	(0.0156)
race_eth	Hispanic	-0.156***	-0.218***
luce_ctil	insparite	(0.00840)	(0.00924)
foreignborn	Foreign-born citizen	-0.0564***	-0.0582***
TOT CIGILIDOTTI	i oreign born entzen	(0.00850)	(0.00904)
foreignborn	Non-citizen	-0.188***	-0.131***
Toreignborn		(0.0115)	(0.0104)
grad_degree	Graduate degree	0.219***	0.241***
grau_uegree		(0.00445)	(0.00466)
veteran	Veteran	-0.0508***	-0.0721***
veteran	veteran	(0.0172)	(0.00784)
DIVISION	Middle Atlantic	0.0207**	0.0177*
		(0.00918)	(0.00958)
DIVISION	East North Central	-0.140***	-0.134***
	Last North Central	(0.00907)	(0.00934)
.DIVISION	West North Central	-0.175***	-0.164***
	west worth central	(0.0108)	(0.0110)
.DIVISION	South Atlantic	-0.104***	-0.0860***
		(0.00883)	(0.00905)
DIVISION	East South Central	-0.236***	-0.234***
	Last South Central		
.DIVISION	West South Central	(0.0125) -0.102***	(0.0125) -0.0403***
אוטוכויזים.	west south Central		
DIVISION	Mountain	(0.0102) -0.135***	(0.0103) -0.141***
	wouldan		
		(0.0110)	(0.0110)

Appendix Table 5. Regression Results (STEM Jo	b and Degree Interaction Effects)
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9.DIVISION	Pacific	0.0468***	0.0484***
		(0.00923)	(0.00928)
1.secnum	Agriculture, mining,	0.0843***	0.0102
	and construction	(0.0134)	(0.00896)
2.secnum	Manufacturing	0.141***	0.0428***
		(0.00723)	(0.00523)
Constant		0.197	2.158***
		(0.250)	(0.281)
Observations		113,659	140,002
R-squared		0.164	0.202
Debust standard arror	a in naranthacad		

Robust standard errors in parentheses

*** p<0.01, ** p<0.05,* p<0.1

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