

# Work-Life Earnings by Field of Degree and Occupation for People With a Bachelor's Degree: 2011

## *American Community Survey Briefs*

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### INTRODUCTION

Individuals make a variety of choices over the course of their careers that impact their earning potential. These choices include how far to go in school, what to study in school, and what job to take. This brief explores the relationship between how far one goes in school (educational attainment) and how much money one might make over the course of a career (work-life earnings). It goes into further detail for people whose highest degree is a bachelor's by investigating how college major (field of degree) and occupation impact these work-life earnings.

The U.S. Census Bureau has developed an estimate of the amount of money a person might expect to make over the course of a career called the Synthetic Work-Life Earnings (SWE) estimate. This estimate is not intended to be a prediction but an illustrative example of the magnitude of differences in earnings based on factors such as education and occupation added up over a work life. For example, the difference between earning \$125,000 per year and \$150,000 per year might not seem particularly large, but the difference over a 40-year work life is a million dollars. In this way, SWE estimates demonstrate how seemingly small differences add up over a lifetime.

These estimates reflect calculation assumptions that should be noted. Not everyone begins and ends their career at the same age. Some people completely switch career fields several times, while others stay in the same position at the same company for their entire work life. Some occupations such as those in management may be the result of years of working in another occupation at a lower level. Some people go back to school later in life as well, and this continued

### How Synthetic Work-Life Earnings Estimates Are Calculated

1. Find median earnings for each group: Ages 25–29, 30–34, 35–39, 40–44, 45–49, 50–54, 55–59, and 60–64.
2. Multiply the earnings for each group by the number of years in that group—5 to represent the amount of money earned in that stage of life.
3. Add the totals together to represent 40 years of earnings.
4. Repeat for every combination of education level and occupation group.

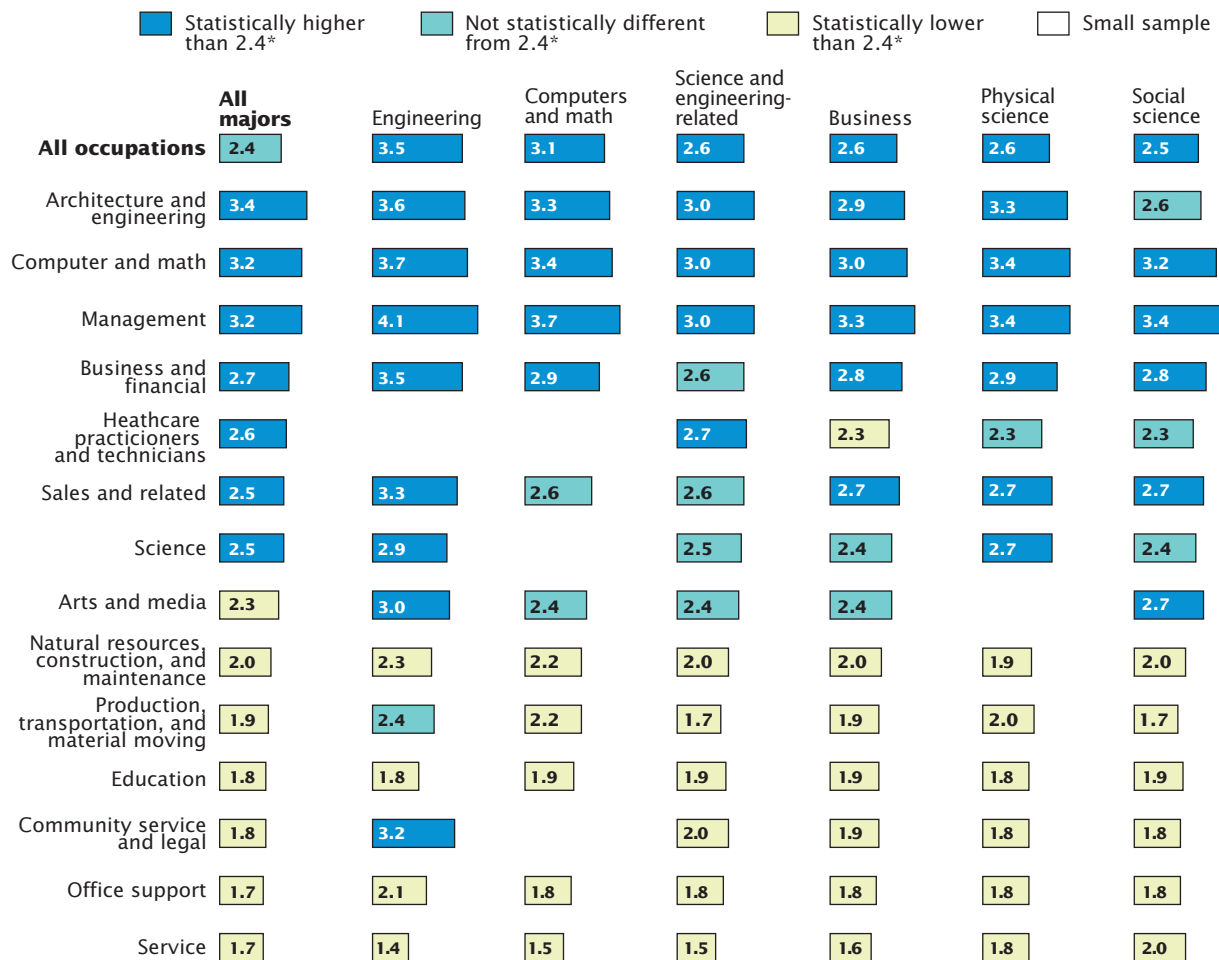
education will not necessarily be in the same field as their degree. These estimates represent a national median. Some people may earn much more than others. No estimate can predict the exact course a career will take over the next 40 years, but these SWE estimates can provide information about the general impact education and occupation might have.

A previous report based on American Community Survey (ACS) data demonstrated that educational attainment is by far the most important social characteristic for predicting earnings.<sup>1</sup> This report uses 2011 ACS data to create the SWE estimates. Table 1 shows how earnings increase as educational attainment increases. SWE estimates based on educational attainment alone range from less than \$1 million for

<sup>1</sup> Julian, Tiffany, and Robert Kominski, "Education and Synthetic Work-Life Earnings Estimates," American Community Survey, U.S. Census Bureau, September 2011, available at <[www.census.gov/prod/2011pubs/acs-14.pdf](http://www.census.gov/prod/2011pubs/acs-14.pdf)>.

Figure 1.  
**Synthetic Work-Life Earnings by Field of Bachelor's Degree and Occupation Group for Full-Time, Year-Round Workers Whose Highest Attainment is a Bachelor's Degree**

(In millions of dollars. Data based on sample. For information on confidentiality protection, sampling error, nonsampling error, and definitions, see [www.census.gov/acs/www/](http://www.census.gov/acs/www/).)



See notes and source at end of figure.

those with the lowest education to about \$4 million for those with a professional degree. The difference in work-life earnings between workers with a high school diploma and those with a college degree is about \$1 million and the difference between the estimate for workers with a college degree and the estimate for those with a doctorate is another \$1 million.

### COLLEGE MAJOR AND OCCUPATION

Table 1 shows that a bachelor's degree holder can expect to earn about \$2.4 million over his or her work life. There is a great deal of diversity among the 20 million full-time, year-round workers whose highest degree is a bachelor's.<sup>2</sup> They studied many different

subjects and work in many different jobs.

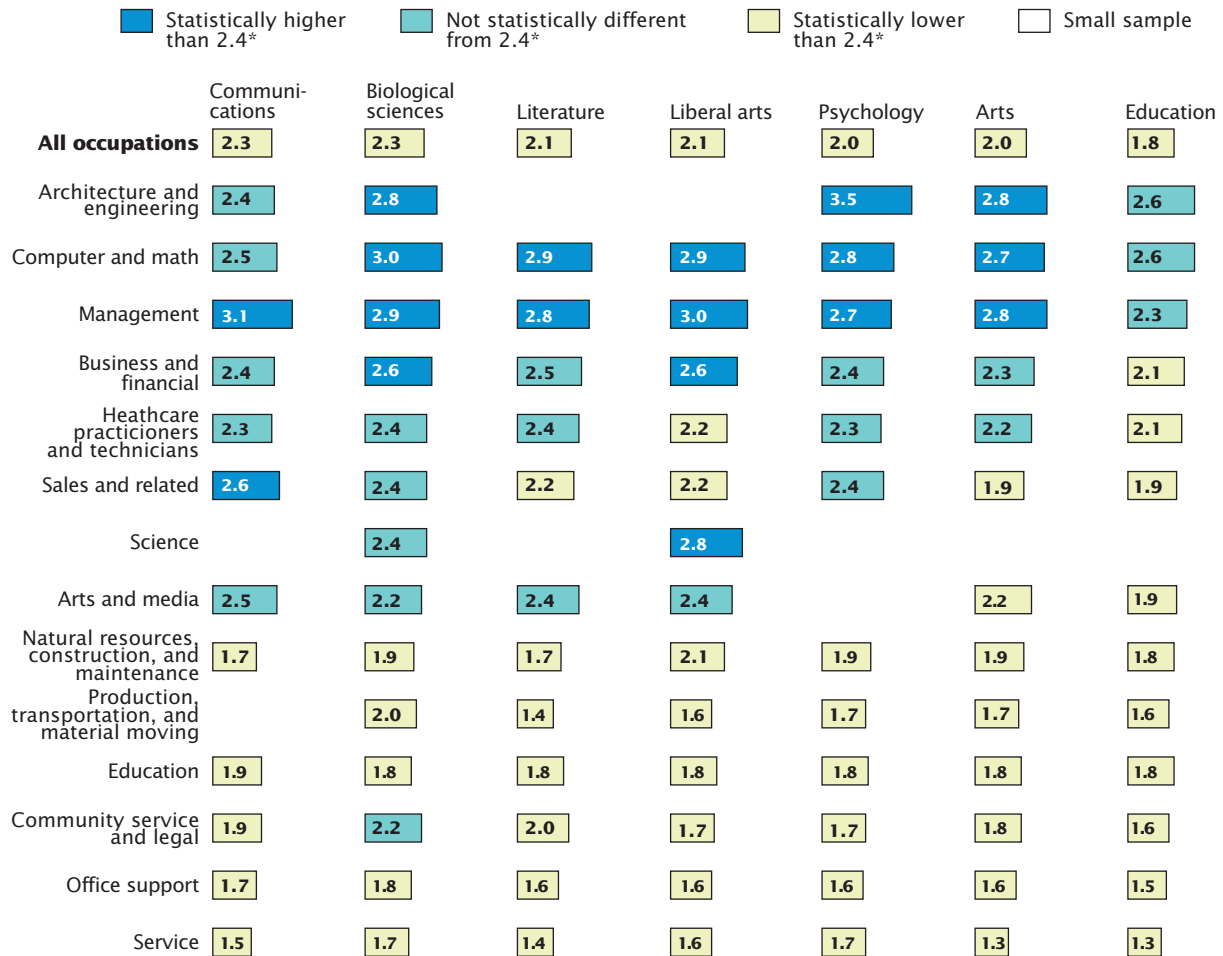
Figure 1 demonstrates variation in SWE estimates for people whose highest degree was a bachelor's. Darker colors represent higher than average work-life earnings while light colors represent lower than average work-life earnings. People working in architecture and engineering, computers and

<sup>2</sup> Population aged 25–64.

Figure 1.

### Synthetic Work-Life Earnings by Field of Bachelor's Degree and Occupation Group for Full-Time, Year-Round Workers Whose Highest Attainment is a Bachelor's Degree—Con.

(In millions of dollars. Data based on sample. For information on confidentiality protection, sampling error, nonsampling error, and definitions, see [www.census.gov/acs/www/](http://www.census.gov/acs/www/))



\*Colors represent statistical difference from the average for all bachelor's degree holders—2.4 million.

Notes: Synthetic work-life earnings represent expected earnings over a 40-year time period for the population aged 25–64 who maintain full-time, year-round employment the entire time. Calculations are based on median annual earnings from a single point in time for eight 5-year age groups multiplied by five. Not all fields of degree and occupations are shown here. Please see Appendixes A and B at [www.census.gov/prod/2012pubs/acsbr11-04a.pdf](http://www.census.gov/prod/2012pubs/acsbr11-04a.pdf) for more details on the creation of these categories.

Source: U.S. Census Bureau, 2011 American Community Survey.

math, management, business and financial, healthcare practitioners and technicians, sales, and science all earn more than the average of \$2.4 million earned in a work life. People who majored in engineering, computers and math, science and engineering-related fields, business, physical science, or social science also earn more than the average.

Variations in earnings can be compared across occupations for a single field of degree or compared across fields of degree for single occupations. For example, the average liberal arts major earns \$2.1 million in their work life but those working in office support jobs can expect to earn \$1.6 million, while those working in computers and math can expect to earn \$2.9 million. Engineering majors make the

most, at \$3.5 million, but this estimate varies widely between service workers (\$1.4 million) and managers (\$4.1 million). Education majors make the least, at \$1.8 million, and no occupation for education majors provides higher earnings than the average for bachelor's degree holders. In fact, education majors working in service jobs earn less than people whose highest attainment is a high school diploma.

Table 1.

## Synthetic Work-Life Earnings by Educational Attainment

(In dollars. For information on confidentiality protection, sampling error, nonsampling error, and definitions, see [www.census.gov/acs/www](http://www.census.gov/acs/www))

Educational attainment	Synthetic work-life earnings	Margin of error <sup>1</sup>
None to 8th grade . . . . .	936,000	7,000
9th to 12th grade . . . . .	1,099,000	7,000
High school graduate . . . . .	1,371,000	3,000
Some college . . . . .	1,632,000	5,000
Associate's degree . . . . .	1,813,000	9,000
Bachelor's degree . . . . .	2,422,000	8,000
Master's degree . . . . .	2,834,000	13,000
Professional degree . . . . .	4,159,000	33,000
Doctorate degree . . . . .	3,525,000	29,000

Note: Synthetic work-life earnings represent expected earnings over a 40-year time period for the population aged 25–64 who maintain full-time, year-round employment the entire time. Calculations are based on median annual earnings from a single point in time for eight 5-year age groups and multiplied by five.

<sup>1</sup> The margin of error can be interpreted roughly as providing a 90 percent probability that the interval defined by the estimate minus the margin of error and the estimate plus the margin of error (the lower and upper confidence bounds) contains the true value.

Source: U.S. Census Bureau, 2011 American Community Survey.

### What Is the American Community Survey?

The American Community Survey (ACS) is a nationwide survey designed to provide communities with reliable and timely demographic, social, economic, and housing data for the nation, states, congressional districts, counties, places, and other localities every year. It has an annual sample size of about 3.3 million addresses across the United States and Puerto Rico and includes both housing units and group quarters (e.g., nursing facilities and prisons). The ACS is conducted in every county throughout the nation, and every municipio in Puerto Rico, where it is called the Puerto Rico Community Survey. Beginning in 2006, ACS data for 2005 were released for geographic areas with populations of 65,000 and greater. For information on the ACS sample design and other topics, visit [www.census.gov/acs/www](http://www.census.gov/acs/www).

Not everyone working in the same occupational category with the same level of education earns the same amount. For example, sales workers who majored in engineering make an estimated \$3.3 million in their work life, while arts majors make \$1.9 million in the same type of work. Service workers who majored in social science earn \$2.0 million, compared with \$1.3 million for education majors. For more information on fields of degree and occupations, see Appendixes A and B on the Census Bureau's Web site at [www.census.gov/prod/2012pubs/acsbr11-04a.pdf](http://www.census.gov/prod/2012pubs/acsbr11-04a.pdf).

### CONCLUSION

Many factors affect the amount of money a person earns during his or her career. This brief has used data from the American Community Survey (ACS) to demonstrate that educational attainment, college major, and occupation all affect work-life earnings. How far one goes in school can mean a difference of about \$3.2 million.<sup>3</sup> Even within one level of attainment—the bachelor's degree—what one chooses to study in college and the careers

<sup>3</sup> Workers with none through eighth grade earn \$936,000 compared with \$4,159,000 for workers with a professional degree.

pursued after college can also mean a difference of \$2.8 million.<sup>4</sup>

### SOURCE AND ACCURACY

The data presented in this report are based on the ACS sample interviewed in 2011. The estimates based on this sample approximate the actual values and represent the entire household and group quarters population. Sampling error is the difference between an estimate based in a sample and the corresponding value that would be obtained if the estimate were based on the entire population (as from a census). Measures of the sampling errors are provided in the form of margins of error for all estimates included in this report. All comparative statements in this report have undergone statistical testing, and comparisons are significant at the 90 percent level unless otherwise noted. In addition to sampling error, nonsampling error may be introduced during any of the operations used to collect and process survey data such as editing, reviewing, or keying data from questionnaires. For more information on sampling and estimation methods, confidentiality protection, and sampling and nonsampling errors, please see the 2011 ACS Accuracy of the Data document located at [www.census.gov/acs/www/Downloads/data\\_documentation/Accuracy\\_of\\_ACS\\_Accuracy\\_of\\_Data\\_2011.pdf](http://www.census.gov/acs/www/Downloads/data_documentation/Accuracy_of_ACS_Accuracy_of_Data_2011.pdf).

Additional information about Synthetic Work-Life Earnings estimates and educational attainment are available on the Census Bureau's Web site at [www.census.gov/hhes/socdemo/education/](http://www.census.gov/hhes/socdemo/education/).

<sup>4</sup> Arts and education majors working in service earn about \$1.3 million compared with engineering majors working in management \$4.1 million.