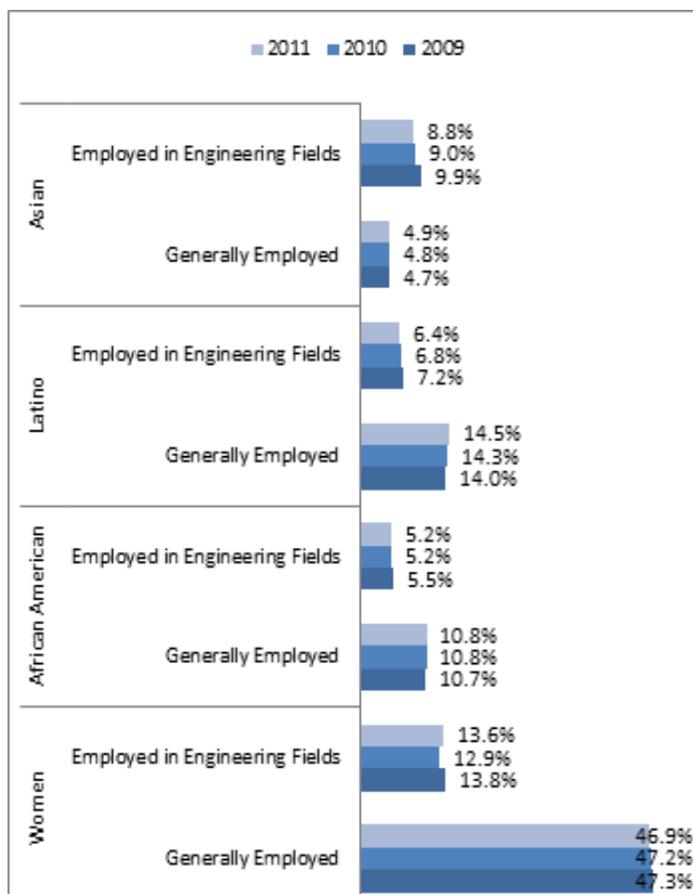


Engineering Salaries

INTRODUCTION

Engineering salaries are known to be among the highest median salaries in the United States. However, what does this particularly mean for the underrepresented minority employed in these fields? Over the last three years, the representation of women and minorities employed in engineering occupations has remained paltry (see Figure 1). Data from the National Science Foundation (NSF) indicate that across all science and engineering (S&E) occupations, more than half of all workers are non-Hispanic white males. In fact, women in S&E occupations were more likely than men to identify as American Indian/Alaska Native, African American, Latino, or of two or more races (*Science and Engineering Indicators, 2012, www.nsf.gov*).

Figure 1. Employment Percentages in Engineering by Sex, Race/Ethnicity



Source: Bureau of Labor Statistics, Current Population Survey Results, 2009, 2010, 2011, Reports on Household Data Averages, by Sex/Race/Ethnicity

Figure 2. Median Salary Averages Compared to Engineering 2009 & 2010

		Median 1-Year Salary Estimates by Group		
		2009	2010	Percent Change
All workers	Male	\$45,485	\$46,500	2.2%
	Female	\$35,549	\$36,551	2.8%
White	Male	\$48,211	\$49,643	2.9%
	Female	\$36,812	\$37,456	1.7%
White, non-Hispanic	Male	\$50,153	\$51,397	2.5%
	Female	\$38,005	\$39,326	3.5%
African American	Male	\$36,171	\$37,392	3.4%
	Female	\$31,639	\$32,299	2.1%
Asian	Male	\$52,348	\$52,154	-0.3%
	Female	\$41,702	\$42,232	1.3%
Hispanic/Latino	Male	\$29,856	\$30,798	3.2%
	Female	\$26,347	\$27,035	2.6%
American Indian/Alaska Native	Male	\$35,680	\$35,780	2.8%
	Female	\$29,110	\$30,196	3.7%
Engineering Fields	Male	\$71,986	\$75,254	4.5%
	Female	\$60,404	\$62,370	3.3%

Source: U.S. Census Bureau, Bureau of Labor Statistics, American Community Survey Household Data Reports for 2009 & 2010

This becomes critical for the discussion of salaries in engineering, as a component of salaries in general. Figure 2 illustrates comparisons in the median one year salary estimates for both 2009 and 2010 for the average American worker, by gender, race, and ethnicity. On average, underrepresented minorities and especially, minority women, earn the lowest wages.

Comparing the average median wages for groups to the median wages in engineering fields presents a critical picture for underrepresented minorities. Both male and female engineers across all levels of education earn, at the median range, more than double their peers. Males employed in engineering in 2010 experienced a 4.5 percent growth in median wages in just one year, the highest group presented in Figure 2. Median wages for women's engineering salaries remain lower, and grow at a slower rate. There are no comparable data for minorities on this scale for 2009 and 2010, but what follows indicates significant patterns for underrepresented minority salaries in engineering, in the next three tables.

Figure 3. Median Salary Averages in S&E Occupations by Race/Ethnicity

Median Salaries of Employed Scientists and Engineers In S&E Occupations 2006 & 2008			
	2006	2008	Percent Increase
All groups	\$75,000	\$81,000	8.0%
White	\$75,000	\$82,000	9.3%
Asian	\$75,000	\$85,000	13.3%
African American	\$68,000	\$75,000	10.2%
Latino	\$65,000	\$72,000	10.8%
American Indian/Alaska Native	\$60,000	\$67,000	11.7%

Source: National Science Foundation, Division of Science Resource Statistics, Scientists and Engineers Statistical Data System (SESTAT), 2006 & 2008, (data updated for the Science and Engineering Indicator 2012 report)

Figure 3 presents the median salaries of science and engineering employment by race and ethnicity for the years 2006 and 2008, as collected and reported by the NSF. Comparing the median average for all groups in 2008, Asian S&E salaries grew at the fastest rate, and remained the highest median average. American Indian/Alaska Native (AI/AN) salaries increased at an astounding 11.7 percent rate—far beyond the average salary growth rate for engineers or their peer group (as referenced in Figure 2). However, the AI/AN salaries remained a full 17.3 percent below the median salary of \$81,000 for all groups. Latino and African American salaries grew faster than their White peers, but remained respectively 11 percent, and 7 percent, lower than the median of \$81,000.

Figure 4. Median Salary Averages in Engineering by Race/Ethnicity

Median Salaries of Employed Scientists and Engineers in Engineering 2006 & 2008			
	2006	2008	Percent Increase
All groups	\$80,000	\$87,000	8.8%
White	\$80,000	\$85,000	6.3%
Asian	\$78,000	\$86,000	10.3%
African American	\$72,000	\$83,000	15.3%
Latino	\$70,000	\$80,000	14.3%
American Indian/Alaska Native	\$69,000	\$85,000	23.2%

Source: National Science Foundation, Division of Science Resource Statistics, Scientists and Engineers Statistical Data System (SESTAT), 2006 & 2008, (data updated for the Science and Engineering Indicator 2012 report)

The picture from within engineering specifically, however, is the most inspiring. From 2006 to 2008, underrepresented minorities experienced significant salary increases above their peers (Figure 4). While American Indian/Alaska Native representation in engineering remains less than 1 percent, the median engineering salary for this group experienced a 23 percent growth rate in the space of two years, placing this underrepresented minority group in the highest median salary bracket below Asians. This growth, and that for African Americans and Latinos, is occurring in part because representation of minority groups and women in the more highly technical areas of engineering is increasing.

Figure 5 illustrates employment fields in engineering, median salaries, and the percent representation of each group employed in each. The highest representation for underrepresented minori-

ties still remains in those fields with lower median salaries. The slightly higher representation of American Indian/Alaska Native members in aerospace engineering may be an indicator for the reported increases in median salary for 2008.

Figure 5. Salary Averages and Group Representation in Engineering, 2008

Engineering Field	Salary Averages	White	Asian	African American	Latino	American Indian/Alaska Native
Bio-engineering/Biomedical	\$69,000	75.5%	10.9%	3.2%	7.3%	0.2%
Post-secondary teachers-Engineering	\$82,000	67.0%	21.1%	6.1%	4.4%	s
Chemical engineers	\$94,000	63.6%	25.2%	3.4%	5.3%	0.1%
Aerospace or Astronautical Engineering	\$100,000	76.7%	9.9%	2.6%	6.6%	0.6%
Other S&E Field						
Computer and Information Scientists	\$85,000	66.7%	22.0%	4.8%	4.2%	0.2%
Biological and medical scientists	\$60,000	68.4%	20.3%	2.8%	5.8%	0.7%
Biological scientists	\$52,000	75.7%	11.5%	2.4%	6.7%	1.3%
Sociologists and anthropologists	\$58,000	77.5%	2.9%	5.8%	10.0%	s

Source: National Science Foundation, Science and Engineering Indicators 2012, Division of Science Resource Statistics, Scientists and Engineers Statistical Data System (SESTAT), 2008, 's' denotes data suppressed for reasons of confidentiality and/or reliability

POLICY CONSIDERATIONS

Increasing the representation of minorities within the ranks of scientists and engineers employed in the United States is a critical factor to address here. While the picture within the engineering fields, especially in terms of median salaries for engineers, is promising, this is dampened by the low actual numbers of underrepresented minorities working in these fields.

African Americans, Latinos, and American Indian/Alaska Native scientists are still more concentrated in the less-technical STEM fields, such as the biological and social sciences. Increasing representation of American Indian/Alaska Native, Latino, and African American scientists and engineers extends beyond the fiscal health of each group into the general health of a productive nation — bringing higher levels of equanimity across culture, education, and occupation.

To do so, we encourage policymakers, educators, and business and industry leaders to pursue the following policies and practices:

1. **K-12 EDUCATION.** Increase the access to STEM directed education, science, mathematics, and computer learning support at the K-12 level.
2. **HIGHER EDUCATION.** Provide attractive and supported opportunities to explore degree options within the technically advanced areas of science and engineering.
3. **GOVERNMENT.** Provide adequate scholarship funding to see promising minority students through two-year, four-year, and graduate level education.
4. **BUSINESS.** Provide internships and opportunities for underrepresented minority STEM candidates beginning at the high school level and continuing through degree completion.