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Trends in the U.S. Population and Engineering Workforce

The U.S. population is diversifying over time. By 2050, underrepresented minorities (URMs) will represent more than forty percent of the population, and there will be no majority race[1]. Figure 1 shows a breakdown of the overall population in 2012, compared to the college-aged population (18-24 year olds) and school-aged population (5-17 year olds). URMs represent 30.0 percent of the overall population, 36.4 percent of college-aged students, and 38.0 percent of elementary and secondary school-aged students. The U.S. population is expected to increase by more than twenty-one percent by 2050. Figure 2 shows the growth expected for each racial/ethnic group. Latinos are expected to grow from 53,273,815 in 2012 to 102,029,304 in 2050, a 91.5 percent increase. Conversely, White Americans, who currently represent 63.0 percent of the population (197,762,370), are expected to decrease in number by 2050 (to 183,793,842), when they will represent 48.2 percent of the population.

Figure 1: U.S. Population, 2012[1]

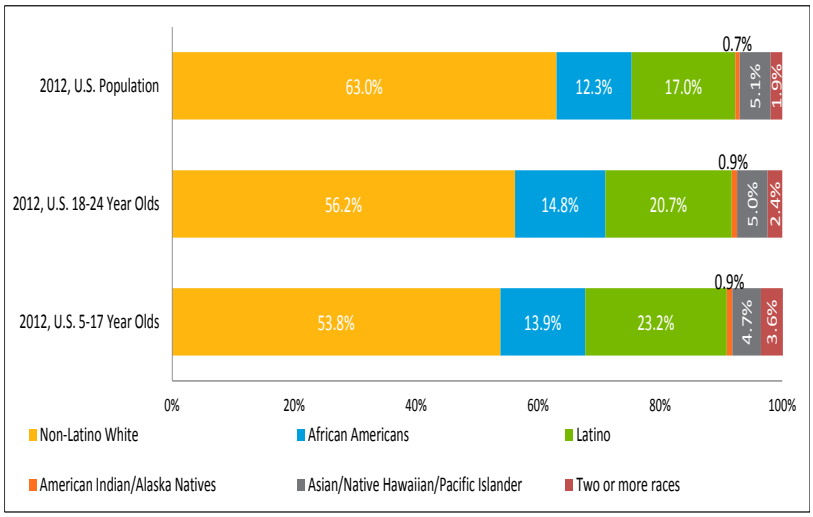
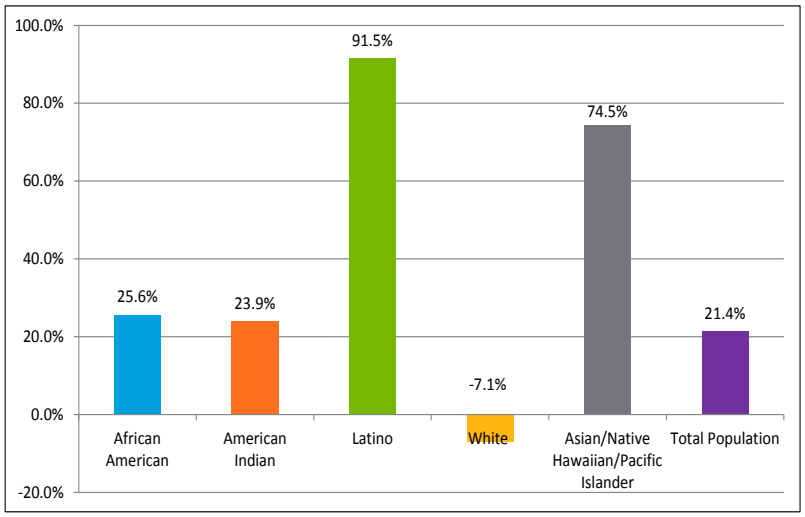


Figure 2: Percent Growth of Number of Individuals in the Population, by Race and Ethnicity, from 2012 to 2050[1]



These population trends will have a great impact on the future science, technology, engineering, and mathematics (STEM) workforce. The demand for qualified STEM professionals is high, and is expected to increase[2], but the supply of individuals who can fill these positions is at risk if underrepresented groups are not engaged in these fields. Currently, the STEM workforce does not look like America, as seen in Figures 3-6. Underrepresented minorities comprised only 10.2 percent of employed engineers in 2010. The numbers are worse in academia, as URMs comprised 4.8 percent of full engineering teaching professors, 7.6 percent of associate engineering teaching professors, and 8.2 percent of assistant engineering teaching professors in 2011.

Figure 3: Employed Engineers, 2010[3]

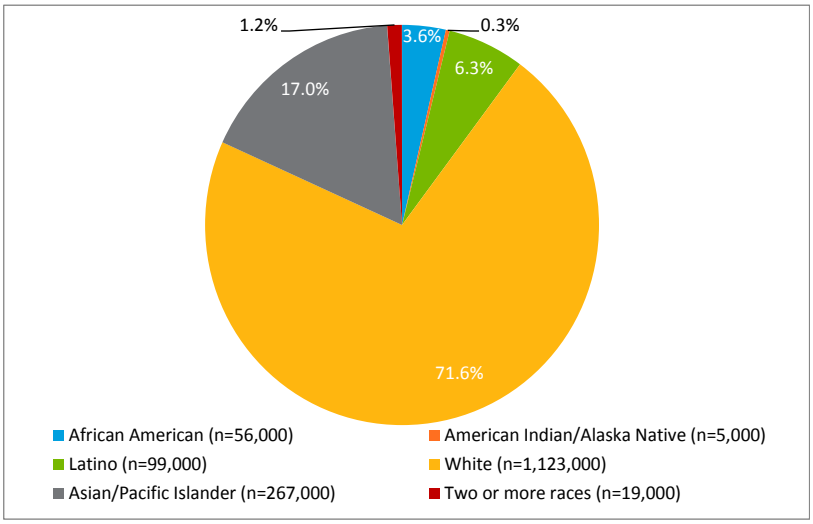


Figure 4: Percent of Full Engineering Teaching Professors, 2011[4]

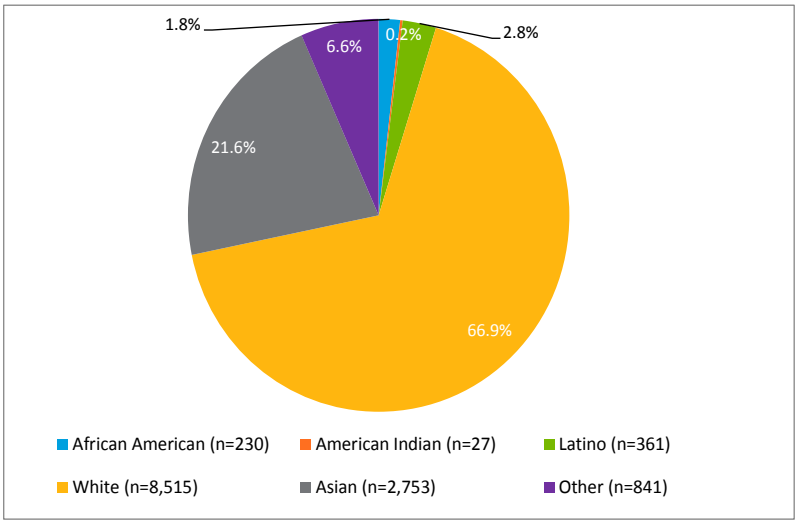


Figure 5: Percent of Associate Engineering Teaching Professors, 2011[4]

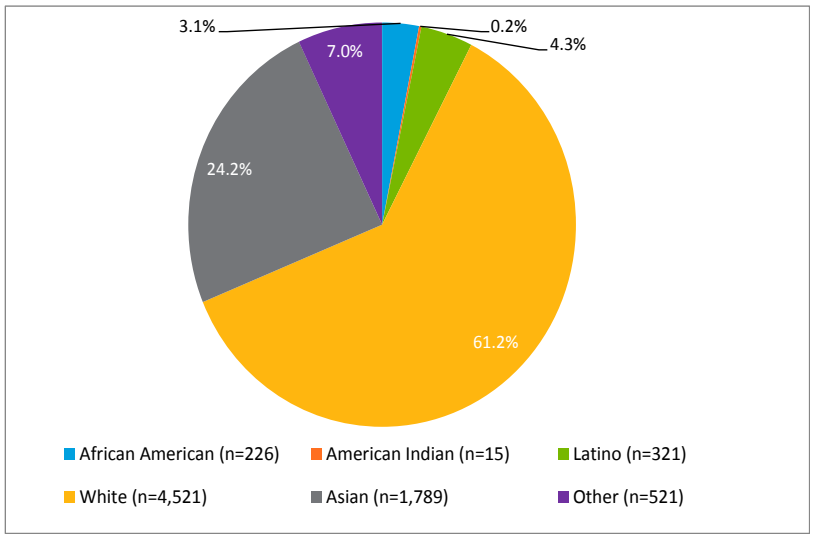
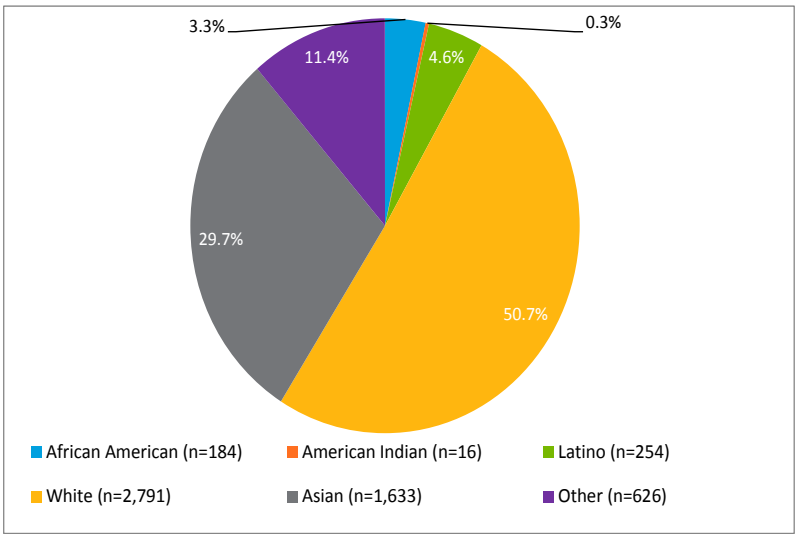


Figure 6: Percent of Assistant Engineering Teaching Professors, 2011[4]



POLICY CONSIDERATIONS

To help advance American competitiveness in STEM, underrepresented minorities must be recruited into these fields. Legislation such as S.288: Women and Minorities in STEM Booster Act of 2013 must be considered to recruit diverse candidates into these fields. This Act is designed to increase the participation of underrepresented groups in STEM by awarding competitive grants to entities that provide online workshops, mentoring programs, internships, or outreach programs to women and URMs[5]. For more information on how to contact Congress in support of this Bill, go to https://www.govtrack.us/congress/bills/113/s288#overview.

This brief was written by Christopher Smith, Director of Research and Program Evaluation at NACME, Inc. For more data on URMs in engineering, visit nacme.org/research-publications.

ENDNOTES

[1] NACME Analysis of Population Projections from U.S. Census, 2012.
[2] Langdon, D., McKittrick, G., Beede, D., Khan, B., & Doms. M. (2011). STEM: Good jobs now and for the future. ESA Issue Brief 03-11, Washington, D.C.: U.S. Department of Commerce, ESA; retrieved from www.esa.doc.gov/sites/default/files/reports/documents/stemfinalyjuly14_1.pdf.
[3] Finamore, J., Foley, D.J., Lan, F., Milan, L.M., Proudfoot, S.L., Rivers, E.B., & Selfa, L. (2013). Employment and Educational Characteristics of Scientists and Engineers. National Center for Science and Engineering Statistics, NSF 13-311.
[4] Yoder, B. L. (2011). *Engineering by the Numbers*. Accessed online at www.asee.org in August, 2013.
[5] S.288--113th Congress: Women and Minorities in STEM Booster Act of 2013. (2013). In www.GovTrack.us. Retrieved December 13, 2013, from http://www.govtrack.us/congress/bills/113/s288.