Latinos in Engineering

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We cannot seek achievement for ourselves and forget about progress and prosperity for our community . . . Our ambitions must be broad enough to include the aspirations and needs of others, for their sakes and for our own. Cesar Chavez

Latinos are the fastest-growing ethnic category in the United States: therefore, the future health of U.S. engineering will depend upon the success with which our nation recruits Latinos to the field. U.S. engineering schools produced 1,290 Latino engineers at the bachelor's level in 1977. Only seven mainland institutions produced 25 or more Latino engineers in 1977 with the University of Texas at El Paso leading with 60 bachelor's degrees. Women, were nearly invisible among Latino BSE recipients. Since then, Latino representation among new graduates has increased. In 2009, 20 percent of the 5,577 bachelor's degrees earned by U.S. Latinos were awarded by Puerto Rican institutions.

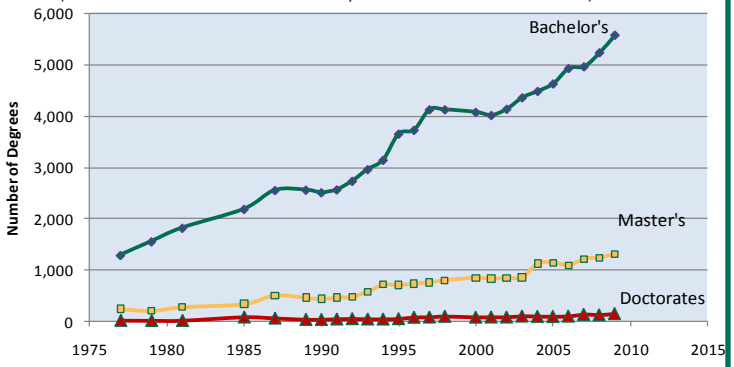
Hispanic Serving Institutions (HSIs) are important in the production of Latino college graduates. But according to a report by *¡Excelencia* in Education!: "Latino college students' choices create HSIs. However, most Latino students enrolled at HSIs did not know their institution was an HSI." This means the institutions that "count" as HSIs change yearly, depending on the percentage of Latino students among enrolled students. There are important differences within the Latino category associated with country of origin: unfortunately, engineering educational data on the important Latino subgroups are not available.

Puerto Rican universities have long been an important producer of Latino engineers, with two schools awarding 392 degrees in 1977, with 5.6 percent earned by women. By 2009, five Puerto Rican institutions conferred 1,160 engineering bachelor's degrees to Latinos, representing 21 percent of the nation's 5,577 engineering bachelor's degrees. For quite some time, too, women have earned a substantial proportion of engineering degrees on the island: by 2009 women earned 40 percent of engineering bachelor's degrees awarded by the flagship public institution—the University of Puerto Rico, Mayaguez.

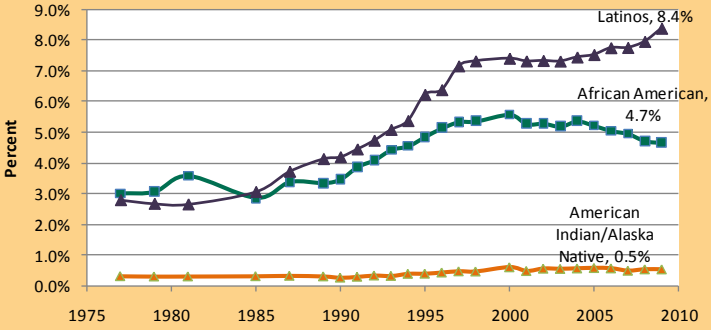
[I]t takes fifteen to twenty-five years for people to rise to top leadership positions in industry. So if industry is getting one percent minority engineers in 1972, that means that in 1990, that's about the proportion that will emerge from the competition to the top leadership positions in industry….(J. Stanford Smith, Vice President, General Electric, Engineering Education Conference, June 25, 1972)

- Latinos earned just over 8 percent of engineering bachelor's degrees in 2009
- Latinos earned 1,317 master's degrees and only 153 doctoral degrees in engineering in 2009
- The percent of engineering bachelor's degrees earned by Latinos has continued to increase while those earned by African Americans reveal a recent decline
- Latinas' share of engineering degrees has not increased at the bachelor's and masters' levels since 2002
- Latinos' inroads into doctoral degrees has been modest since the 1970s

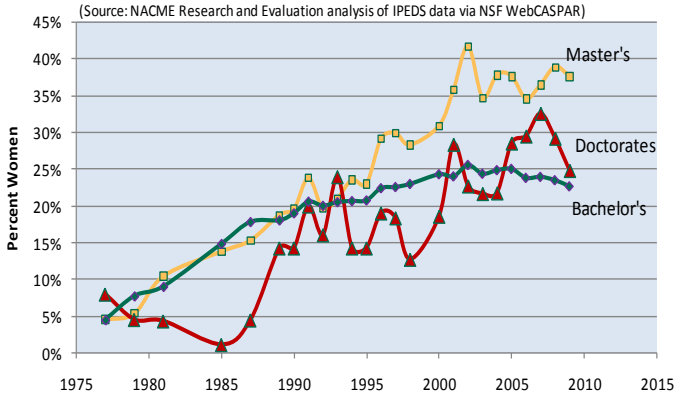
Number of Degrees Earned by Latinos by Degree Level, 1977-2009
(Source: NACME Research and Evaluation analysis of IPEDS data via NSF WebCASPAR)



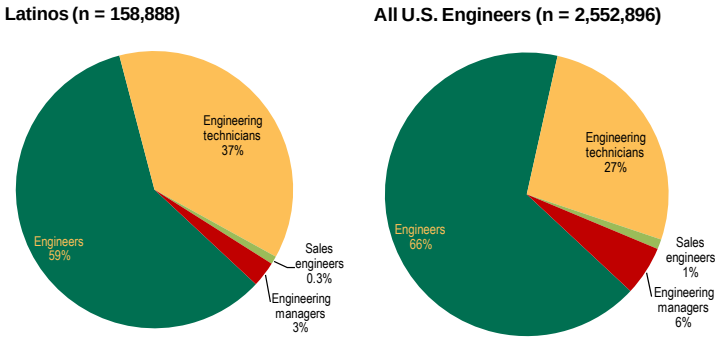
Percent of U.S. Citizen and Permanent Resident Bachelor's Degrees in Engineering Earned by Latinos, African Americans, and American Indians 1977-2009, Selected Years
(Source: NACME Research, Evaluation and Policy analysis of IPEDS data accessed via NSF Web



Latinas as a Percent of Engineering Degrees Earned by Latinos by Degree Level, 1977-2009
(Source: NACME Research and Evaluation analysis of IPEDS data via NSF WebCASPAR)

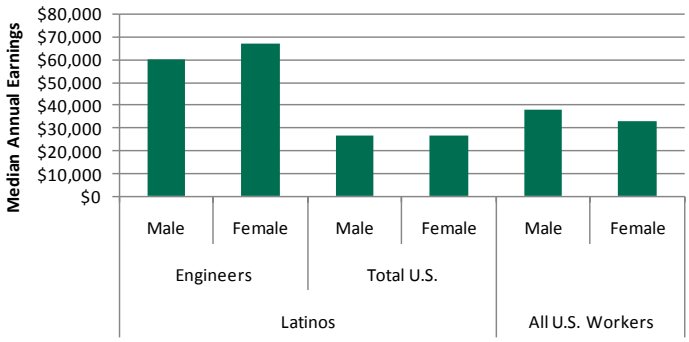


"HSIs are generally less expensive than other institutions, are located in large Latino communities, and tend to be more accessible compared to other institutions." (Santiago, D. A. 2007. "Choosing Hispanic Serving Institutions: A Closer Look at Latino Students' College Choices, ¡*Excelencia* in Education!.

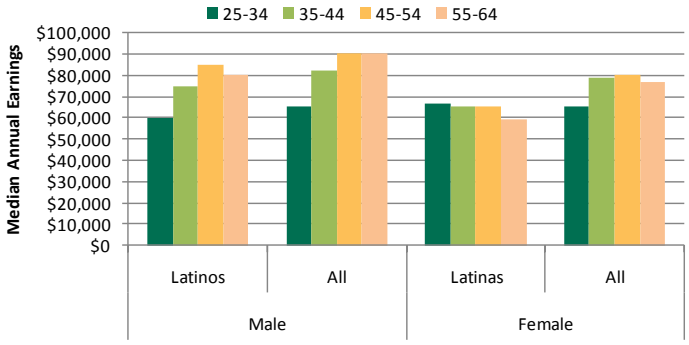


- There were 158,888 Latinos in four types of engineering jobs in 2009
- Latinos represent 6 percent of the U.S. engineering workforce … but account for 14 percent of the overall U.S. workforce
- Latinos in the U.S. engineering workforce are more likely to be technicians and less likely to be managers
- Salaries of Latino engineers, regardless of sex, are far higher than those for Latino workers, in general
- The average Latino (male) engineer aged 25-34 earned $60,000 annually
- The average Latina engineer aged 25-34 earned $67,000 annually
- Of the nation's 24,369 tenured/tenure track engineering faculty, 3.5 percent were Latino in 2009 (ASEE 2010)
- About two-thirds of Latinos live in five states (see chart, below) but the percent of Latinos among 2009 BSEs lags population between 4 percent (Fla.) and 25 percent (Calif.)

Median Annual Earnings, 25-34 Year Old Latinos and U.S. Workers, 2009
(Full-time, year-round workers only)
Source: NACME Research, Evaluation and Policy analysis of American Community Survey Public Use Microdata, 2010.



Median Annual Earnings, Engineers by Age-Group, 2009
(Full-time, year-round workers only)
Source: NACME Research, Evaluation and Policy analysis of American Community Survey Public Use Microdata, 2010.



	Latino Population (1)		BSE Degrees, 2009 (2)			Gap
	% of U.S.	% of State	All	Latinos	% Latino	(Pop-BSE)
California	27.8%	37.6%	7,782	988	12.7%	-24.9%
Texas	18.7%	37.6%	4,527	806	17.8%	-19.8%
Florida	8.4%	22.5%	3,420	624	18.2%	-4.3%
New York	6.8%	17.6%	4,503	223	5.0%	-12.6%
Illinois	4.0%	15.8%	2,420	100	4.1%	-11.7%

Sources: (1) Ennis, S.R., Rios-Vargas, M. & Albert, N. G. 2011. "The Hispanic Population: 2010" U.S. Census Bureau C2010BR-04. (2) NACME Research, Evaluation, and Policy analysis of Integrated Postsecondary Education Data Survey (IPEDS) data accessed via the National Science Foundation's WebCASPAR database system.

NACME's vision:
An engineering workforce that looks like America.

About the National Action Council for Minorities in Engineering, Inc. (NACME)

Since its founding 37 years ago, NACME has stayed true to its mission: To insure American resilience in a flat world by leading the national effort to expand U.S. capability via better engagement of African American, American Indian and Latino women and men in science, technology, engineering and mathematics (STEM) education and careers. NACME Alumni hold leadership positions in industry, medicine, law, education and government. With funding from corporate and individual donors, NACME has supported over 22,000 students with more than $124 million in scholarships and other support. Currently, NACME provides scholarship support to more than 1,300 college engineering students through a national network of 50 partner universities. NACME has also been engaged in a middle school through community college strategy to increase the number of underrepresented minority students in STEM disciplines. engineering. http://www.nacme.org.

NACME Block Grant Universities	
California State Univ., Los Angeles (HSI)	Prairie View A&M Univ.
California State Univ., Sacramento	Purdue Univ.
CUNY City College (HSI)	Rochester Inst. of Tech.
Drexel Univ.	Tuskegee Univ.
Florida International Univ. (HSI)	Univ. of California, San Diego
Georgia Inst. of Tech.	Univ. of Central Florida
Kansas State Univ.	Univ. of Colorado at Boulder
Kettering Univ.	**Univ. of Houston (HSI)**
Missouri Univ. of Science and Tech.	**Univ. of Texas at El Paso (HSI)**
New Jersey Inst. of Tech.	**Univ. of Texas at San Antonio (HSI)**
North Carolina A&T State Univ.	Univ. of Washington
Northern Arizona Univ.	Virginia Polytechnic Inst. and State Univ.
Polytechnic Inst. of New York Univ.	***HSI = Hispanic Serving Institution***

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