APPENDIX E.
Entry and Advancement in the Portland Construction and Professional Services Industries

Appendix E examines entry and advancement in the Portland construction and professional services industries. Appendix F explores business formation; Appendix H considers the success of businesses. Related to both of these topics, an examination of access to capital can be found in Appendix G. Together, these appendices present an overview of marketplace conditions in the Portland construction and professional services industries, referred to as "study industries" in this report. Appendix I discusses data sources used in these appendices.

In Appendix E and other marketplace appendices, professional services refer to architectural, engineering and related services.[1] Each reference to "professional services" refers to these types of services.

Introduction

BBC examined whether there were barriers to formation of minority- and women-owned businesses in the Portland Metropolitan Statistical Area (MSA).[2] Business ownership often results from ascending the ranks within a particular industry. Within this process of entry and advancement in the Portland construction and professional services industries, there may be some barriers that limit opportunities for minorities and women. This appendix uses 1980 and 2000 Census data and 2006-2008 American Community Survey (ACS) data to analyze education, employment and workplace advancement — all factors that influence the likelihood of forming a business. Where possible, BBC used these data to examine the construction and professional services industries separately, as entrance requirements and opportunities for advancement often differ across industries.

[1] "Architectural, engineering and related services" was coded under the 1980 and 2000 census industrial classification system as 882 and 729, respectively.

[2] In the marketplace appendices, the Portland MSA comprises the following 7 counties (unless otherwise noted): Clackamas, Clark, Multnomah, Skamania, Washington, Yamhill and Polk. Collectively, these counties are referred to as the Portland MSA, or simply Portland. Appendix I provides further detail on the definition of the MSA.

Representation of minorities among workers and business owners in Portland. As a starting point, the study team examined how business owners in Portland, Oregon and the United States differed from the entire labor force with respect to the representation of racial and ethnic minorities. Based on 2000 and 2006-2008 data, Figure E-1 on the following page shows the demographics of the labor force, business owners in all Portland industries and business owners in study industries. Results for the Portland MSA in 2006-2008 show the following:

- About 9 percent of workers and 5 percent of business owners (including business owners in study industries) were Hispanic Americans;
- Asian-Pacific Americans were about 6 percent of all workers and 7 percent of business owners, but a smaller proportion of business owners in study industries (4%).
- African Americans represented about 3 percent of workers, 2 percent of all business owners, but less than 1 percent of business owners in study industries;
- Native Americans comprised about 1 percent of all workers, all business owners and business owners in study industries.
- Subcontinent Asian Americans and other minority groups represented less than 1 percent of workers and business owners in the Portland MSA.
- Non-Hispanic whites made up about 80 percent of the Portland workforce and 85 percent of all business owners. In study industries, non-Hispanic whites comprised an even larger share of business owners, about 90 percent.

Patterns found in the Portland MSA related to the racial/ethnic composition of workers and business owners were similar to those observed in the state as a whole. The United States also had a similar overall pattern with the following exception: Hispanic Americans made up a greater share of business owners in study industries relative to their representation in the labor force.

Representation of women among workers and business owners in Portland. Figure E-1 also shows the proportion of workers and business owners that were women in the Portland MSA, Oregon and the United States. In 2006-2008, women made up about 46 percent of the Portland labor force and 41 percent of all business owners. However, only about 10 percent of business owners in the study industries were women during these years.

In both Oregon and the United States, women also comprised a very small percentage of business owners in study industries, especially compared to their representation in the entire workforce.

Figure E-1.
Demographic distribution of the workforce and business owners, 2000 and 2006-2008

Portland MSA	Workforce in all industries 2000 (n=46,824)	Workforce in all industries 2006-08 (n=32,139)	Business owners in all industries 2000 (n=5,113)	Business owners in all industries 2006-08 (n=3,822)	Business owners in study industries 2000 (n=908)	Business owners in study industries 2006-08 (n=603)
Race/ethnicity						
African American	2.6 %	2.7 %	1.5 % **	2.3 %	0.8 % **	0.8 % **
Asian-Pacific American	4.7	5.8	3.8	6.5	1.3 **	3.5 **
Subcontinent Asian American	0.5	0.6	0.5	0.4	0.0	0.0
Hispanic American	6.8	9.2	3.1 **	4.9 **	3.7 **	5.3 **
Native American	1.6	1.4	1.4	1.3	1.4	0.8
Other minority group	0.5	0.1	0.6	0.1	0.3	0.0
Total minority	16.7 %	19.8 %	11.0 %	15.5 %	7.5 %	10.4 %
Non-Hispanic white	83.3	80.2	89.0 **	84.5 **	92.5 **	89.6 **
Total	100.0 %	100.0 %	100.0 %	100.0 %	100.0 %	100.0 %
Gender						
Female	45.6 %	45.7 %	39.1 % **	41.3 % **	10.9 % **	10.0 % **
Male	54.4	54.3	60.9 **	58.7 **	89.1 **	90.0 **
Total	100.0 %	100.0 %	100.0 %	100.0 %	100.0 %	100.0 %

Oregon	Workforce in all industries 2000 (n=85,796)	Workforce in all industries 2006-08 (n=55,857)	Business owners in all industries 2000 (n=10,917)	Business owners in all industries 2006-08 (n=7,502)	Business owners in study industries 2000 (n=1,851)	Business owners in study industries 2006-08 (n=1,268)
Race/ethnicity						
African American	1.7 %	1.8 %	0.9 % **	1.4 %	0.4 %	0.5 % **
Asian-Pacific American	3.2	4.0	2.5 **	4.3	1.0 **	2.2 **
Subcontinent Asian American	0.4	0.4	0.4	0.3	0.0	0.0
Hispanic American	7.0	9.7	3.1 **	5.0 **	2.8 **	5.0 **
Native American	2.1	1.9	1.7	1.5 **	1.7	1.1 **
Other minority group	0.4	0.1	0.4	0.1	0.3	0.1
Total minority	14.8 %	18.0 %	9.0 %	12.6 %	6.3 %	8.8 %
Non-Hispanic white	85.2	82.0	91.0 **	87.4 **	93.7 **	91.2 **
Total	100.0 %	100.0 %	100.0 %	100.0 %	100.0 %	100.0 %
Gender						
Female	45.7 %	46.2 %	38.4 % **	40.0 % **	9.3 % **	9.7 % **
Male	54.3	53.8	61.6 **	60.0 **	90.7 **	90.3 **
Total	100.0 %	100.0 %	100.0 %	100.0 %	100.0 %	100.0 %

United States	Workforce in all industries 2000 (n=6,832,970)	Workforce in all industries 2006-08 (n=4,488,276)	Business owners in all industries 2000 (n=676,804)	Business owners in all industries 2006-08 (n=484,074)	Business owners in study industries 2000 (n=119,227)	Business owners in study industries 2006-08 (n=90,397)
Race/ethnicity						
African American	10.9 %	11.6 %	4.9 % **	5.6 % **	4.0 % **	4.3 % **
Asian-Pacific American	3.4	4.0	3.4	4.0	1.3 **	1.7 **
Subcontinent Asian American	0.7	1.0	0.7	1.0	0.2 **	0.2 **
Hispanic American	10.7	13.9	7.3 **	11.2 **	7.7 **	13.7
Native American	1.1	1.0	1.0 **	0.8 **	1.2	1.0
Other minority group	0.4	0.3	0.5	0.3	0.5	0.2
Total minority	27.3 %	31.8 %	17.7 %	22.9 %	14.9 %	21.3 %
Non-Hispanic white	72.7	68.2	82.3 **	77.1 **	85.1 **	78.7 **
Total	100.0 %	100.0 %	100.0 %	100.0 %	100.0 %	100.0 %
Gender						
Female	46.5 %	46.5 %	33.6 % **	34.1 % **	7.9 % **	7.8 % **
Male	53.5	53.5	66.4 **	65.9 **	92.1 **	92.2 **
Total	100.0 %	100.0 %	100.0 %	100.0 %	100.0 %	100.0 %

Note: ** Denotes that the difference in proportions between all workers and business owners (or business owners in study industries) for the given race/ethnicity/gender group is statistically significant at the 95% confidence level.

Source: BBC Research & Consulting from 2000 U.S. Census 5% sample and 2006-2008 ACS Public Use Micro-sample data. The raw data extracts were obtained through the IPUMS program of the MN Population Center: http://usa.ipums.org/usa/.

Construction Industry

BBC first examined the construction industry and how education, training, employment and advancement may affect the number of businesses owned by different race/ethnicity and gender groups in the Portland MSA.

Education. Formal education beyond high school is not a prerequisite for most construction jobs. For this reason, the construction industry often attracts individuals who have lower levels of educational attainment.

Most construction industry employees in the Portland MSA do not have a four-year college degree. Based on the 2000 Census, 34 percent of workers in construction were high school graduates with no post-secondary education, and 17 percent had not finished high school. Only 12 percent of those in the construction industry had a four-year college degree or higher, compared to nearly 30 percent of all workers.

Hispanic Americans represented an especially large pool of Portland area workers with no post-secondary education. In 2000, seven in ten Hispanic American workers had no formal education beyond high school, compared with less than one-third of non-Hispanic whites. Based on minimal educational requirements for entry-level jobs and the relatively limited education for many Hispanic Americans in the Portland MSA, one would expect high representation of Hispanics in the construction industry. The percentage of African American (43%) and Native American (45%) workers with no formal education beyond high school was also greater than that of non-Hispanic whites.

Among workers age 25 or older in the Portland MSA, 38 percent of Asian-Pacific Americans and 75 percent of Subcontinent Asian Americans had at least a four-year college degree in 2000. By comparison, about 35 percent of non-Hispanic whites and only 14 percent of Hispanic Americans had a bachelor's degree or higher. Given their relatively high educational attainment, Asian-Pacific Americans and Subcontinent Asian Americans may have lower representation in construction relative to other minority groups.

In Portland, female workers were as likely as men to have an education beyond high school. Among workers 25 years or older in 2000, 34 percent of men and 33 percent of women had at least a bachelor's degree.

Training in the construction industry is largely on-the-job or through trade schools and apprenticeship programs. Entry-level jobs for workers out of high school include laborers, helpers or apprentices. Higher-skilled positions in the construction industry may require additional training through a technical or trade school or through an apprenticeship or other employer-provided training program. Such apprenticeship programs can be developed by employers, trade associations, trade unions and other groups. Workers often enter these programs from high school or a trade school. Apprenticeships have traditionally been three- to five-year programs that combine on-the-job training with classroom instruction.[3] Opportunities for these programs across race/ethnicity are discussed later in this appendix.

[3] Bureau of Labor Statistics, U.S. Department of Labor. 20010-11. "Construction." C*areer Guide to Industries.* http://www.bls.gov/oco/cg/cgs003.htm (accessed May 24, 2010).

Employment. With educational attainment among minorities and women as a context, the study team examined employment in the Portland construction industry. Based on data from 1980, 2000 and 2006-2008, Figure E-2 compares the demographic composition of workers in the construction industry with that of the entire labor force in the Portland MSA, Oregon and the United States.

As a single group, minorities represented a larger percentage of construction workers in 2006-2008 than 2000. One in five individuals working in the Portland construction industry in these later years was a minority. This change was largely due to an increase in the number of Hispanic construction workers, as representation of other minority groups did not change substantially over this time.

Of the people working in the Portland construction industry in 2006-2008:

- 14 percent were Hispanic Americans;
- About 2 percent were African Americans;
- Less than 2 percent were Asian-Pacific Americans; and
- Less than 2 percent were Native Americans.

According to the 2006-2008 ACS data, there were very few Subcontinent Asian Americans or other race minorities in the Portland construction industry.

In the Portland MSA, Hispanic Americans made up a greater share of workers in construction than the whole labor force in 2006-2008. About 14 percent of construction workers were Hispanic Americans, compared to 9 percent of all workers. On average, Hispanic Americans had less education than all workers in the Portland MSA, which could explain the relatively large number of Hispanics in construction.

In contrast, representation of Asian-Pacific Americans in construction was lower than for the Portland workforce as a whole. Asian-Pacific Americans made up only 2 percent of the construction workforce but about 6 percent of all Portland MSA workers in 2006-2008. Average educational attainment among Asian-Pacific Americans, especially compared to other minority groups, may partially explain this difference.

In 2000, African Americans made up a smaller proportion of construction workers than all workers (a statistically significant difference). Representation of African Americans in construction was also lower compared to all industries in 2006-2008, although the difference was not statistically significant. Educational requirements for construction jobs did not exceed the average educational attainment for African Americans in 2000, so other factors may be behind the relatively low number of African American workers in this industry. A number of studies throughout the United States have argued that racial discrimination by construction unions has held down employment of African Americans in construction trades.[4]

[4] See, for example, Waldinger, Roger and Thomas Bailey. 1991. "The Continuing Significance of Race: Racial Conflict and Racial Discrimination in Construction." *Politics & Society*, 19(3).

Figure E-2.
Demographics of workers in construction and all industries, 1980, 2000 and 2006-2008

Portland MSA	Construction			All industries		
	1980 (n=2,197)	2000 (n=3,380)	2006-08 (n=2,190)	1980 (n=33,289)	2000 (n=46,824)	2006-08 (n=32,139)
Race/ethnicity						
African American	1.2 % **	1.6 % **	2.1 %	2.1 %	2.6 %	2.7 %
Asian-Pacific American	1.0 **	1.7 **	1.8 **	1.9	4.7	5.8
Subcontinent Asian American	0.0	0.1	0.0	0.1	0.5	0.6
Hispanic American	1.3	8.4	14.4 **	1.8	6.8	9.2
Native American	1.0	1.5	1.5	0.7	1.6	1.4
Other minority group	0.0	0.3	0.0	0.1	0.5	0.1
Total minority	4.4 %	13.7 %	19.7 %	6.7 %	16.7 %	19.8 %
Non-Hispanic white	95.6 **	86.3 **	80.3	93.3	83.3	80.2
Total	100.0 %	100.0 %	100.0 %	100.0 %	100.0 %	100.0 %
Gender						
Female	9.3 % **	12.3 % **	10.8 % **	42.5	45.6	45.7
Male	90.7 **	87.7 **	89.2 **	57.5	54.4	54.3
Total	100.0 %	100.0 %	100.0 %	100.0	100.0	100.0

Oregon	Construction			All industries		
	1980 (n=4,203)	2000 (n=6,205)	2006-08 (n=4,080)	1980 (n=62,099)	2000 (n=85,796)	2006-08 (n=55,857)
Race/ethnicity						
African American	0.7 % **	0.9 % **	1.1 % **	1.2 %	1.7 %	1.8 %
Asian-Pacific American	0.7 **	1.3 **	1.3 **	1.4	3.2	4.0
Subcontinent Asian American	0.0	0.0	0.0	0.1	0.4	0.4
Hispanic American	1.8 **	6.6	13.6 **	2.3	7.0	9.7
Native American	0.9	2.1	1.9	0.9	2.1	1.9
Other minority group	0.0 **	0.5	0.1 **	0.1	0.4	0.1
Total minority	4.1 %	11.5 %	18.0 %	6.0 %	14.8 %	18.0 %
Non-Hispanic white	95.9 **	88.5 **	82.0	94.0	85.2	82.0
Total	100.0 %	100.0 %	100.0 %	100.0 %	100.0 %	100.0 %
Gender						
Female	8.5 % **	11.6 % **	10.2 % **	41.5	45.7	46.2
Male	91.5 **	88.4 **	89.8 **	58.5	54.3	53.8
Total	100.0 %	100.0 %	100.0 %	100.0	100.0	100.0

United States	Construction			All industries		
	1980 (n=330,464)	2000 (n=480,280)	2006-08 (n=325,848)	1980 (n=5,287,471)	2000 (n=6,832,970)	2006-08 (n=4,488,276)
Race/ethnicity						
African American	7.4 % **	6.2 % **	5.9 % **	10.1 %	10.9 %	11.6 %
Asian-Pacific American	0.7 **	1.3 **	1.5 **	1.5	3.4	4.0
Subcontinent Asian American	0.1 **	0.2 **	0.2 **	0.2	0.7	1.0
Hispanic American	5.9 **	15.0 **	23.4 **	5.7	10.7	13.9
Native American	0.8 **	1.5 **	1.2 **	0.5	1.1	1.0
Other minority group	0.1	0.4	0.3	0.1	0.4	0.3
Total minority	14.9 %	24.5 %	32.6 %	18.1 %	27.3 %	31.8 %
Non-Hispanic white	85.1 **	75.5 **	67.4 **	81.9	72.7	68.2
Total	100.0 %	100.0 %	100.0 %	100.0 %	100.0 %	100.0 %
Gender						
Female	7.9 % **	9.9 % **	9.2 % **	42.2	46.5	46.5
Male	92.1 **	90.1 **	90.8 **	57.8	53.5	53.5
Total	100.0 %	100.0 %	100.0 %	100.0 %	100.0 %	100.0 %

Note: ** Denotes that the difference in proportions between workers in the construction industry and all industries for the given Census/ACS year is statistically significant at the 95% confidence level.

Source: BBC Research & Consulting from 1980 and 2000 U.S. Census 5% sample and 2006-2008 ACS Public Use Microdata samples. The raw data extracts were obtained through the IPUMS program of the MN Population Center: http://usa.ipums.org/usa/.

Considering their representation in the entire Portland labor force, relatively few women work in the Portland construction industry. Women represented about 46 percent of the labor force in 2006-2008 but only about one-tenth of construction workers during this period (see Figure E-2).

Many of the patterns seen in the Portland construction industry in 2000 and 2006-2008 were also evident in Oregon and the United States during these years.

Importance of unions in entering the construction industry. Labor scholars characterize construction as a historically volatile industry sensitive to business cycles, making the presence of labor unions important for stability and job security within the industry.[5] The temporary nature of construction work often results in uncertain job prospects, and the high turnover of laborers presents a disincentive for construction companies to invest in training. Some scholars claim that constant turnover has lent itself to informal recruitment practices and nepotism, compelling laborers to tap social networks for training and work. They credit the importance of social networks with the high degree of ethnic segmentation in the construction industry.[6] Unable to integrate themselves into traditionally white social networks, African Americans face long-standing historical barriers preventing entry into the industry.[7]

Construction unions aim to provide a reliable source of labor for employers and to preserve job opportunities for workers by formalizing the recruitment process, coordinating training and apprenticeships, enforcing standards of work, and mitigating wage competition. The unionized sector of construction would seemingly be the best path for African American and other under-represented groups into the industry. However, the role of unions in the advancement of minorities and women in the construction industry has been mixed. While recent studies provide evidence of unions playing a positive role in supporting and training minority and female workers, earlier research has shown how trade unions historically prevented minorities from obtaining employment in skilled trades.[8]

Several studies provide evidence of historical discrimination by trade unions. For example:

- A Department of Justice report in 1996 found that unions had used admissions criteria that adversely affected minorities. Federal courts ruled in the 1970s that standardized testing requirements unfairly disadvantaged minority applicants who had less exposure to testing, and that requirements that new union members have relatives in the union perpetuated the effects of past discrimination. The same report identified discriminatory practices in employee referral procedures that precluded minorities from having the same access to construction work as their white counterparts.[9]

- In 1999, a national study by Herbert Applebaum reported that, of those minority individuals who had been admitted to unions, a disproportionately low number were

[5] Applebaum, Herbert. 1999. *Construction Workers, U.S.A*. Westport: Greenwood Press.

[6] Waldinger, Roger and Thomas Bailey. 1991. "The Continuing Significance of Race: Racial Conflict and Racial Discrimination in Construction." *Politics & Society*, 19(3).

[7] Feagin, Joe R. and Nikitah Imani. 1994. "Racial Barriers to African American Entrepreneurship: An Exploratory Study." *Social Problems*. 41(4): 562-584.

[8] U.S. Department of Justice. 1996. Proposed Reforms to Affirmative Action in Federal Procurement. 61 FR 26042.

[9] Ibid. See United States v. Iron Workers Local 86 (1971), Sims v. Sheet Metal Workers International Association (1973), and United States v. International Association of Bridge, Structural and Ornamental Iron Workers (1971).

admitted into apprenticeship programs coordinated by unions. Apprenticeship programs are important means of producing skilled construction laborers, and the reported exclusion of African Americans from these programs may have severely limited their access to skilled occupations in the construction industry in the past.[10]

- According to testimony from African American union members reported in a 1994 study, even when unions implemented meritocratic mechanisms of apportioning employment to laborers, white workers were often allowed to circumvent procedures and received preference for construction jobs.[11]

However, more recent research suggests that the relationship between minorities and unions has been changing. As a result, these historical observations may not be indicative of current dynamics in construction unions. Recent studies focusing on the role of unions in apprenticeship programs have compared minority and female participation and graduation rates for apprenticeships in joint programs (organized by unions and employers together) with rates in employer-only programs. Many of these studies conclude that the impact of union involvement is generally positive or neutral for minorities and women, compared to non-Hispanic white males:

- In a 2005 study, Robert Glover and Cihan Bilginsoy analyzed apprenticeship programs in the U.S. construction industry during the period 1996-2003. Their dataset covered about 65 percent of apprenticeships during that time. The authors found that joint programs had "much higher enrolments and participation of women and ethnic/racial minorities" and exhibited "markedly better performance for all groups on rates of attrition and completion" compared to programs run only by employers.[12]

- In a similar analysis focusing on women apprentices, Bilginsoy and Berik found that women were most likely to become members of highly-skilled construction professions as a result of enrolment in joint programs, as opposed to employer-only programs. Moreover, the positive effect of union involvement in apprenticeship training was higher for African American women than for white women.[13]

- A recent study on the presence of African Americans and Hispanic Americans in apprenticeship programs found that African Americans were 8 percent more likely to be enrolled in a joint program than in an employer program. However, Hispanic Americans were less likely to be in a joint program than in a employer-only program.[14] These data suggest that Hispanic Americans may be more likely than African Americans to enter the construction industry without the support of a union.

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[10] Applebaum, Herbert. 1999. *Construction Workers, U.S.A.* Westport: Greenwood Press.

[11] Feagin and Imani. 1994. "Racial Barriers to African American Entrepreneurship: An Exploratory Study." *Social Problems*. 41(4): 562-584.

[12] Glover, Robert and Bilginsoy, Cihan. 2005. "Registered Apprenticeship Training in the U.S. Construction Industry." *Education & Training*, Vol. 47, 4/5, p 337.

[13] Günseli Berik, Cihan Bilginsoy. 2006. "Still a wedge in the door: women training for the construction trades in the USA", *International Journal of Manpower*, Vol. 27 Iss: 4, pp.321 - 341

[14] Bilginsoy, Cihan. 2005. "How Unions Affect Minority Representation in Building Trades Apprenticeship Programs." *Journal of Labor Research, 57(1).*

Two studies also provide evidence for the positive effect of unions in the success of minority and women apprentices in Oregon:

- A 2008 study by Berik, Bilginsoy and Williams used microdata to track the professional activity of Oregon construction workers who began apprenticeship programs between 1991 and 2003. Workers were followed up to 2007. The study found that not only were apprentices more likely to benefit from joint union-employer programs overall, but that "white women and minority men benefited disproportionally more from training in union programs."[15]

- A 2009 report by the University of Oregon found that women enrolled in construction apprenticeship programs in Oregon had a consistently higher graduation rate than women enrolled in non-union programs. The graduation rate for minorities in union and non-union programs was similar.[16]

Other data also indicate a more positive relationship between construction unions and minority workers than that which may have prevailed in the past. For example, 2007 Current Population Survey (CPS) data indicate that union membership rates for African Americans are similar to those of non-Hispanic whites.[17] The CPS asked participants "Are you a member of a labor union or of an employee association similar to a union?" CPS data show union membership for African Americans in construction to be 11 percent and non-Hispanic whites to be 12 percent — not a statistically significant difference. On the other hand, based on these national data, only 7 percent of Hispanic Americans are union members.

[15] Gunseli Berik, Cihan Bilginsoy and Larry Williams. 2008. Gender and Racial Training Gaps in Oregon Apprenticeship Programs.University of Utah Department of Economics Working Paper 20008-15.

[16] Byrd, Barbara. 2009. *Construction Apprenticeship in Oregon: An Analysis of Data on Union and Non-union Apprenticeship Programs.* University of Oregon Labor Education and Research Center. (Prepared for the Oregon State Building and Construction Trades Council.)

[17] 2006 Current Population Survey (CPS), U.S. Census Bureau and Bureau of Labor Statistics.

Advancement in the Portland construction industry. To research opportunities for advancement in the construction industry, the study team examined the representation of minorities and women in different construction occupations, as defined by the U.S. Bureau of Labor Statistics.[18]

Race and ethnic composition of construction occupations. Figure E-3 shows the demographics of construction workers and those of particular construction occupations in 2000. The study team examined specific occupations to measure minority and female representation among workers in entry-level positions (e.g., construction laborers), specific skilled occupations (e.g., carpenters and electricians) and higher-ranking occupations (e.g., first-line supervisors). Similar statistics are not presented for later years as the 2006-2008 ACS data had considerably smaller sample sizes.

As a single group, minorities comprised about 14 percent of the Portland construction workforce in 2000. There were large differences in the demographic composition of workers in different construction occupations. For example, about 29 percent of construction laborers in the Portland MSA were minorities (a statistically significant difference compared to minority representation among all construction workers).

Compared to the Portland construction industry as a whole, a number of occupations had lower minority representation:

- Carpenters (11%);
- Electricians (12%);
- Pipelayers, plumbers, pipefitters and steamfitters (6%);
- Miscellaneous equipment operators (8%); and
- First-line supervisors (11%).

Minorities represented a larger proportion of workers in other construction occupations. For example, minorities comprised approximately 24 percent of painters; 33 percent of drywall installers, ceiling tile installers and tapers; and 37 percent of roofers.

[18] Bureau of Labor Statistics, U.S. Department of Labor. 2001. "Standard Occupational Classification Major Groups." http://www.bls.gov/soc/soc_majo.htm (accessed May 20, 2010).

Figure E-3.
Demographics of all construction workers and selected occupations in Portland, 2000

Portland MSA	All construction occupations (n=3,380)	Construction laborers (n=338)	Carpenters (n=534)	Electricians (n=158)	Pipelayers, plumbers, pipefitters and steamfitters (n=156)	Painters (n=146)	Drywall installers, ceiling tile installers and tapers (n=86)	Roofers (n=86)	Miscellaneous equipment operators (n=70)	First-line supervisors (n=300)
Race/ethnicity										
African American	1.6 %	2.9 %	0.7 %	2.8 %	0.0 %	2.3 %	0.0 %	0.0	1.4 %	2.9 %
Hispanic American	8.4	21.5 **	6.3	5.4	3.4	15.3	32.4 **	34.7 **	0.0	3.6 **
Other minority group	3.6	4.1	4.3	4.1	2.9	6.0	0.4	2.0	6.7	4.0
Total minority	13.7 %	28.5 %	11.3 %	12.4 %	6.3 %	23.6 %	32.8 %	36.8	8.1 %	10.5 %
Non-Hispanic white	86.3	71.5 **	88.7	87.6	93.7	76.4	67.2	63.2 **	91.9	89.5
Total	100.0 %	100.0 %	100.0 %	100.0 %	100.0 %	100.0 %	100.0 %	100.0	100.0 %	100.0 %
Gender										
Female	12.3 %	6.8 %	2.8 % **	1.3 % **	2.9 % **	12.6 %	0.0 % **	0.7 **	0.4 % **	3.5 % **
Male	87.7	93.2	97.2 **	98.7 **	97.1 **	87.4	100.0 **	99.3 **	99.6 **	96.5 **
Total	100.0 %	100.0 %	100.0 %	100.0 %	100.0 %	100.0 %	100.0 %	100.0	100.0 %	100.0 %

Note: ** Denotes that the difference in proportions between all workers in the construction industry and those in specific occupations is statistically significant at the 95% confidence level.

Source: BBC Research & Consulting from 2000 U.S. Census 5% sample Public Use Microdata samples. The raw data extracts were obtained through the IPUMS program of the MN Population Center: http://usa.ipums.org/usa/.

Most minorities working in the Portland construction industry in 2000 were Hispanic Americans, who also represented the largest share of minorities in each of the construction occupations examined, with the exception of miscellaneous equipment operators and first-line supervisors. Representation of Hispanic Americans was greater among construction laborers than among all construction workers. In the Portland MSA in 2000, Hispanics made up about 22 percent of construction laborers but only 8 percent of all construction workers and 4 percent of first-line supervisors.

Women in construction trades. Figure E-3 also compares the representation of women in the construction workforce with their representation in specific construction occupations. Overall, about 12 percent of workers in the Portland construction industry were women in 2000.

Considering their representation in the full construction workforce, women comprised a small percentage of workers in each construction occupation, except for painters. For example, women comprised only 7 percent of construction laborers and 4 percent of first-line supervisors in 2000. Women working in the industry were highly concentrated in administrative or support roles: about 50 percent of all women working in the Portland construction industry in 2000 were in office and administrative support occupations; women represented approximately 90 percent of workers in those occupations.[19]

Percentage of minorities and women in construction who are managers. To further assess advancement opportunities for minorities and women, the study team examined differences between demographic groups in the proportion of construction workers that were managers.

Figure E-4 shows the percentage of construction workers that reported being a construction manager in 2000 and 2006-2008.

[19] Workers in "office and administrative support occupations" include those with an IPUMS occupation code (OCC) between 500 and 593. More information regarding occupations can be found on IPUMS website: http://usa.ipums.org/usa/

Figure E-4.
Percentage of construction workers who worked as a manager, 2000 and 2006-2008

Note:

** Denotes that the difference in proportions between the minority group and non-Hispanic whites (or between females and males) for the given Census/ACS year is statistically significant at the 95% confidence level.

Source:

BBC Research & Consulting from the 2000 U.S. Census 5% sample and 2006-2008 ACS Public Use Microdata samples. The raw data extracts were obtained through the IPUMS program of the MN Population Center: http://usa.ipums.org/usa/.

Portland MSA	2000		2006-08		Sample size 2000	Sample size 2006-08
Race/ethnicity						
African American	1.8 %	**	4.1 %	**	50	36
Asian-Pacific American	8.4		12.3		60	44
Hispanic American	4.8		2.9	**	278	230
Native American	2.1		8.8		59	43
Non-Hispanic white	9.4		11.9		2,916	1,837
Gender						
Female	4.3 %	**	6.3 %	**	413	278
Male	9.3		10.9		2,967	1,912

Oregon	2000		2006-08		Sample size 2000	Sample size 2006-08
Race/ethnicity						
African American	2.0 %		3.4 %	**	49	34
Asian-Pacific American	9.1		17.8		80	57
Hispanic American	5.1		2.4	**	374	410
Native American	5.1		10.7		147	93
Non-Hispanic white	8.7		10.4		5,519	3,482
Gender						
Female	3.9 %	**	5.8 %	**	722	472
Male	8.9		9.8		5,485	3,608

United States	2000		2006-08		Sample size 2000	Sample size 2006-08
Race/ethnicity						
African American	3.1 %	**	4.7 %	**	26,752	15,372
Asian-Pacific American	7.4		9.4		5,746	4,829
Hispanic American	2.5	**	3.0	**	66,531	58,547
Native American	4.6	**	6.3	**	7,640	4,463
Non-Hispanic white	7.5		9.9		371,152	241,237
Gender						
Female	4.1 %	**	5.9 %	**	46,791	33,461
Male	6.7		8.1		433,678	292,387

In 2000, about 9 percent of non-Hispanic whites in the Portland construction industry were managers. A smaller proportion of minorities than non-Hispanic whites were managers:

- About 2 percent of African Americans and Native Americans working in the Portland construction industry were managers;
- Five percent of Hispanic Americans were managers; and
- About 8 percent of Asian-Pacific Americans were managers.

In 2006-2008, the percentage of African Americans, Hispanic Americans and Native Americans who were construction managers in Portland remained below that of non-Hispanic whites.

- About 3 percent of Hispanic Americans working in the construction industry were managers, compared to 12 percent of non-Hispanic whites. (a statistically significant difference).

- Nine percent of Native Americans were construction managers.

- Four percent of African Americans were managers (also a statistically significant difference compared to the rate for non-Hispanic whites).

For African Americans, Asian-Pacific Americans and Native Americans, the proportion of construction workers that were managers increased between 2000 and 2006-2008. Fewer Hispanic Americans working in the construction industry were managers in the later years.

Construction managers working in the Portland MSA had, on average, more education than other workers in the construction industry. About one-quarter of managers but only one-eighth of all construction workers had at least a bachelor's degree. Disparities in college education for African Americans and Hispanic Americans compared to non-Hispanic whites may explain some of the differences in advancement to manager level for these groups.

Female construction workers were also less likely than their male counterparts to be managers in 2000 and 2006-2008 (a statistically significant difference in both years). About 6 percent of women in the Portland construction industry were managers compared to 11 percent of men in 2006-2008.

Professional Services Industry

BBC next examined how education and employment may influence ownership opportunities for different race/ethnicity and gender groups in the professional services industry.

Education. In contrast to the construction industry, lack of educational attainment may preclude workers' entry into the professional services industry, as many occupations require at least a four-year college degree. Based on Census data for 2000, 65 percent of individuals working in the professional services industry in the Portland MSA had at least a four-year college degree. Barriers to such education, therefore, can restrict employment opportunities, advancement and ultimately business ownership. Disparities in business ownership rates in professional services may have resulted from lack of sufficient education across race, ethnicity and gender groups.[20]

Based on 2000 Census data and 2006-2008 ACS data, Figure E-5 presents the percentage of workers, age 25 and older, with at least a four-year degree in the Portland MSA, Oregon and the United States. The level of education necessary to work in the professional services industry may partially restrict employment opportunities for African Americans, Hispanic Americans and Native Americans. For each of these groups, the percentage of workers age 25 or older with a bachelor's degree or higher was substantially lower than that of non-Hispanic whites in both years examined.

[20] Feagin, Joe R. and Nikitah Imani. 1994. "Racial Barriers to African American Entrepreneurship: An Exploratory Study." *Social Problems*. 42 (4): 562-584.

In the Portland MSA, about 35 percent of non-Hispanic white workers age 25 and older had at least a four-year degree in 2000. For other racial and ethnic groups, 2000 Census data for Portland indicate the following:

- About 23 percent of African Americans had at least a four-year college degree;
- Only 14 percent of Hispanic Americans were college graduates; and
- Eighteen percent of Native Americans had reached this level of educational attainment.

Some minority groups in the Portland MSA were more likely than non-Hispanic whites to be college graduates in 2000. Approximately 38 percent of Asian-Pacific Americans and 75 percent of Subcontinent Asian Americans had at least a bachelor's degree.

In Portland, most race/ethnicity groups showed an increase between 2000 and 2006-2008 in the proportion of workers with a bachelor's degree. However, the percentage of African American and Hispanic American workers with this level of education did not change substantially during this time. As in 2000, a smaller proportion of Hispanic Americans, Native Americans and African Americans than non-Hispanic whites were four-year college graduates in 2006-2008. In contrast, a larger percentage of Asian-Pacific Americans and Subcontinent Asian Americans had at least a bachelor's degree in these years.

In the Portland MSA in 2000, about 33 percent of women and 34 percent of men were four-year college graduates. In 2006-2008, a larger percentage of women (37%) had a bachelor's degree than men (36%).

Figure E-5.
Percentage of labor force 25 and older with at least a four-year degree, 2000 and 2006-2008

Note:

** Denotes that the difference in proportions between the minority and non-Hispanic white groups (or female and male gender groups) for the given Census/ACS year is statistically significant at the 95% confidence level.

Source:

BBC Research & Consulting from 2000 U.S. Census 5% sample and 2006-2008 ACS Public Use Microdata samples. The raw data extracts were obtained through the IPUMS program of the MN Population Center: http://usa.ipums.org/usa/.

Portland MSA	2000	2006-08	Sample size 2000	Sample size 2006-08
Race/ethnicity				
African American	22.5 % **	22.1 % **	982	580
Asian-Pacific American	37.6	41.9	1,795	1,589
Subcontinent Asian American	75.3 **	83.8 **	202	184
Hispanic American	14.3 **	13.4 **	2,275	1,804
Native American	17.9 **	24.1 **	621	412
Other minority group	29.4	32.6	186	35
Non-Hispanic white	34.6	38.7	33,732	23,572
Gender				
Female	32.7 %	36.7 %	18,057	13,203
Male	33.5	36.1	21,736	14,973

Oregon	2000	2006-08	Sample size 2000	Sample size 2006-08
Race/ethnicity				
African American	22.5 % **	23.9 % **	1,034	617
Asian-Pacific American	36.5 **	43.0 **	2,103	1,802
Subcontinent Asian American	72.9 **	84.1 **	236	196
Hispanic American	11.1 **	11.4 **	4,415	3,366
Native American	15.1 **	18.8 **	1,661	955
Other minority group	26.1	27.8	301	66
Non-Hispanic white	30.3	33.5	62,990	41,845
Gender				
Female	28.8 %	32.4 % **	33,191	23,001
Male	29.2	31.1	39,549	25,846

United States	2000	2006-08	Sample size 2000	Sample size 2006-08
Race/ethnicity				
African American	19.1 % **	21.9 % **	552,397	345,957
Asian-Pacific American	44.9 **	48.5 **	186,333	151,247
Subcontinent Asian American	68.4 **	73.2 **	37,269	37,158
Hispanic American	13.4 **	14.7 **	533,419	414,103
Native American	17.1 **	19.2 **	67,363	41,253
Other minority group	30.0 **	30.9 **	22,382	7,655
Non-Hispanic white	32.5	35.7	4,369,746	2,881,324
Gender				
Female	29.3 % **	32.8 % **	2,680,687	1,837,374
Male	30.2	31.4	3,088,222	2,041,323

Additional indices of educational attainment. Because attending college generally precedes employment in the professional services industry, the study team examined additional information on the educational achievement of minority high school students. Universities evaluate prospective students based on a number of factors, including high school achievement and standardized test scores. One such test, the American College Testing (ACT) assessment, measures educational attainment in four subject areas: English, Mathematics, Reading, and Science.

The same organization that administers the ACT also measures "college readiness" using a benchmark score — the minimum score needed in each subject area to indicate a 50 percent chance of obtaining a "B" or higher or a 75 percent chance of obtaining a "C" or higher in corresponding college-level courses. Each year, ACT publishes its findings in state-specific reports, which include the percent of students that met the college readiness benchmark score by race and ethnicity. The study team presents additional measures of high school educational attainment for Oregon rather than Portland, as ACT does not publish reports for individual MSAs.

Using data from the 2006 report, BBC created an attainment index for minority students by measuring college readiness rates for each group against those of non-Hispanic white students. For example, about 7 percent of African American students in Oregon met the ACT benchmark score for Science, compared to about 39 percent of non-Hispanic white students. BBC created an "index" for African American college readiness by dividing 7 by 39 percent, and then multiplying by 100, yielding an index value of 18. This score indicates that African Americans met the college readiness benchmark score for science at approximately 18 percent of the rate observed for non-Hispanic white students. Hispanic American students in Oregon had a college readiness index of 28 when measured against non-Hispanic white students in this subject area.

As shown in Figure E-6, 2006 high school attainment indices in different subject areas ranged from 18 to 44 for African American students in Oregon. Indices for Hispanic American students ranged from 24 to 52.

Figure E-6.
Indices of high school achievement for African Americans, Asian Americans, Hispanic Americans and non-Hispanic whites in Oregon, 2005-2006 (white=100)

Oregon	African American	Asian American	Hispanic American	Native American	Non-Hispanic white
ACT college readiness benchmark index for:					
English	44	90	52	53	100
Math	38	105	38	36	100
Reading	38	84	48	52	100
Science	18	79	28	31	100
All four	15	79	24	33	100
ACT composite score	75	95	79	79	100
Average freshman graduation rate	82	122	92	78	100

Note: Data for college readiness are from the graduating class of 2006, and data for graduation rates and dropout rates are from 2005-2006. The average freshman graduation rate (AFGR) is an estimate of the percentage of the entering high school freshman class graduating in four years. For a more detailed explanation, visit the United States Department of Education website.

Source: BBC Research & Consulting from ACT. *ACT High School Profile Report*. Oregon, 2006 & U.S. Department of Education, Common Core of Data. *Public School Graduates and Dropouts from the Common Core of Data; School Year 2005-2006.*

In addition to subject indices, Figure E-6 shows indices based on ACT composite scores, which are calculated from raw scores received on the test to ensure comparability in scores across years. Using the same indexing method, Figure E-6 also presents average freshman graduation rates for different racial and ethnic groups among high school students in Oregon.

Notable indices for African Americans students in Oregon included:

- Meeting the ACT college readiness benchmark score for Math at 38 percent of the rate for non-Hispanic white students;
- Meeting the ACT college readiness benchmark score in all four subject areas at 15 percent of the rate for non-Hispanic white students; and
- Having an average freshman graduation rate that was 82 percent of that found for non-Hispanic white students.

In terms of the college readiness benchmark score, the smallest disparity between African Americans and non-Hispanic whites was in English (index score of 44).

There were also disparities in college readiness and high school achievement for Hispanic American students in Oregon when measuring their scores against those of non-Hispanic white students. As shown in Figure E-6, Hispanic American students met the college readiness benchmark scores in Math and Science at about 38 percent and 28 percent, respectively, of the non-Hispanic white rate. For those in the graduating class of 2006, Hispanic Americans had an average freshman graduation rate that was 92 percent of that found for non-Hispanic whites.

Native American students in Oregon also met the college readiness benchmark scores at lower rates than non-Hispanic whites. On the English and Reading sections of the ACT, one-half as many Native American students met the college readiness benchmark score as non-Hispanic white students. On the Math and Science sections, Native Americans met the ACT college readiness benchmark scores at 36 percent and 31 percent, respectively, of the non-Hispanic white rate. Native Americans also had the lowest freshman graduation rate among minority groups in Oregon (index score of 78).

Compared to other minority groups, Asian Americans generally performed better on each section of the ACT. High school attainment indices in different subject areas ranged from 79 to 105 for Asian American students in Oregon. A disparity index of 105 indicates that Asian Americans were more likely than non-Hispanic whites to meet the college readiness benchmark score on the Math section of the exam. Asian Americans also had an average freshman graduation rate that was 122 percent of that found for non-Hispanic whites.

In addition to achievement indices being lower, high school dropout rates were generally higher for most minority groups than non-Hispanic whites in Oregon. According to the Oregon Department of Education, non-Hispanic whites had a high school dropout rate of about 11 percent in 2009. Among those who attended high school, about 21 percent of African Americans and 20 percent of Hispanic Americans dropped out in 2009. For Native Americans, the high school dropout rate was approximately 15 percent.

Disparities in high school educational attainment are important for explaining the relatively low number of African Americans, Native Americans and Hispanic Americans with college degrees in Oregon.

In addition to attending college in fewer numbers, Hispanic Americans and African Americans who attended college in the state were less likely to graduate compared to non-Hispanic whites. Whereas the graduation rate for non-Hispanic whites was about 58 percent in 2009, only about 51 percent of

Hispanic Americans and 41 percent of African Americans graduated from a four-year college after attending.[21] National studies consider the extent to which large disparities in the quality of education may have caused these differences in educational outcomes for minority high school students, but these studies are not reviewed here.

For a more in-depth picture of educational opportunities and outcomes in the state, the study team examined enrollment and graduation statistics by demographic group at three institutions in the Oregon University System. Figure E-7 shows the racial and ethnic composition of enrolled students and graduates at the University of Oregon (UO), Oregon State University (OSU) and Portland State University (PSU) in 2000, 2004 and 2008.

Minorities as a whole represented a smaller proportion of graduates than students in each year — a pattern also evident when examining individual racial and ethnicity groups. For example, about 16 percent of enrollees but only 12 percent of graduates at OSU in 2008 were minorities. In 2004, minorities represented about 14 percent of enrollees and 12 percent of graduates.

Patterns were similar at other universities in the state. In 2008, 11 percent of OU graduates and 13 percent of enrolled students were minorities. In the same years, minorities represented 18 percent of students and 15 percent of graduates at PSU.

These results are consistent with the lower graduation rates for different race/ethnicity groups in the state as whole, compared to non-Hispanic whites.

Figure E-7.
Demographics of enrollees and graduates at the UO, OSU and PSU, 2000, 2004 and 2008

	Enrollment			Degrees awarded		
University of Oregon	**2000**	**2004**	**2008**	**2000**	**2004**	**2008**
Race/ethnicity						
African American	1.5 %	1.6 %	1.7 %	1.2 %	1.0 %	1.3 %
Asian American	6.0	5.8	6.1	5.6	5.0	5.1
Hispanic American	2.8	3.0	3.7	2.5	2.5	3.3
Native American	1.1	1.1	1.1	1.2	1.0	1.0
Total minority	11.4 %	11.5 %	12.6 %	10.5 %	9.5 %	10.7 %
	Enrollment			**Degrees awarded**		
Oregon State University	**2000**	**2004**	**2008**	**2000**	**2004**	**2008**
Race/ethnicity						
African American	1.2 %	1.4 %	1.6 %	1.0 %	0.9 %	0.9 %
Asian American	7.5	7.7	8.4	5.9	6.7	6.5
Hispanic American	3.0	3.3	4.5	2.4	3.4	3.7
Native American	1.1	1.2	1.3	1.2	0.9	1.1
Total minority	12.8 %	13.6 %	15.8 %	10.5 %	11.8 %	12.1 %
	Enrollment			**Degrees awarded**		
Portland State University	**2000**	**2004**	**2008**	**2000**	**2004**	**2008**
Race/ethnicity						
African American	2.7 %	2.9 %	2.8 %	2.6 %	2.5 %	2.5 %
Asian American	8.7	9.1	8.5	6.1	7.7	7.1
Hispanic American	3.6	4.1	5.0	3.4	3.4	4.0
Native American	1.1	1.2	1.3	0.9	0.8	1.3
Total minority	16.0 %	17.3 %	17.6 %	13.0 %	14.4 %	14.8 %

Note: Enrollment data for Oregon State University are reported for separate campuses in 2004 and 2008. Thus, the statistics presented above for OSU in 2004 and 2006 (but not 2000) are for enrollment at OSU-Corvallis. Data from the OUS Factbooks represent the entirety of enrollments and graduates at each educational institution; these data are not a sample.

Source: BBC Research & Consulting from Oregon University System Factbooks: 2000, 2004 and 2008. Available online at http://www.ous.edu/.

[21] Complete College America. "The Alliance of States: Oregon." 2009. www.completecollege.org (accessed June 11, 2010).

Employment. After consideration of educational opportunities and attainment for minorities and women, the study team examined the race/ethnicity and gender composition of the professional services industry in the Portland MSA, Oregon and the United States.

Figure E-8 compares the demographic composition of professional services to that of workers age 25 and older with a college degree. Results are presented for 1980, 2000 and 2006-2008.

In 2006-2008, about 9 percent of workers in the Portland professional services industry were minorities. In contrast to the construction industry, in which minority representation increased over time, minorities made up a smaller share of workers in the professional services industry in 2006-2008 compared to 2000.

Of those working in the Portland professional services industry in 2006-2008:

- 1 percent were African Americans;
- 5 percent were Asian-Pacific Americans; and
- 2 percent were Hispanic Americans;

Native Americans comprised less than 1 percent of professional services workers in 2006-2008. An even smaller percentage of workers were Subcontinent Asian American and other race minorities.

In 2006-2008, minorities as a single group comprised a smaller share of workers in professional services than all workers age 25 or older with a college degree. In particular, less than 2 percent of workers in professional services but about 3 percent of college graduates (at least 25 years old) were Hispanic Americans (a statistically significant difference).

Compared to their representation among all workers age 25 or older with a college degree, relatively few women work in the professional services industry. In 2006-2008, women represented 27 percent of professional services workers in Portland but about 46 percent of college graduates.

Due to the limited number of professional services workers in the sample, the study team did not examine specific occupations in the industry.

Figure E-8.
Demographic distribution of architecture, engineering and related services workers and workers age 25 and older with a four-year college degree in all industries, 1980, 2000 and 2006-2008

Portland MSA	Professional Services			Workers 25+ with college degree		
	1980 (n=239)	2000 (n=533)	2006-08 (n=464)	1980 (n=6,538)	2000 (n=12,973)	2006-08 (n=11,204)
Race/ethnicity						
African American	0.4 %	1.3 %	1.4 %	1.2 %	1.7 %	1.5 %
Asian-Pacific American	0.8 **	4.7	4.9	2.5	5.2	6.7
Subcontinent Asian American	0.8	1.2	0.0	0.1	1.2	1.6
Hispanic American	2.1	3.2	1.6 **	1.0	2.5	3.2
Native American	0.0 **	0.7	0.6	0.3	0.8	0.8
Other minority group	0.4	0.5	0.0	0.1	0.4	0.1
Total minority	4.6 %	11.5 %	8.5 %	5.2 %	11.9 %	13.9 %
Non-Hispanic white	95.4	88.5	91.5 **	94.8	88.1	86.1
Total	100.0 %	100.0 %	100.0 %	100.0 %	100.0 %	100.0 %
Gender						
Female	22.2 % **	28.0 % **	27.2 % **	33.4 %	44.4 %	45.6 %
Male	77.8 **	72.0 **	72.8 **	66.6	55.6	54.4
Total	100.0 %	100.0 %	100.0 %	100.0 %	100.0 %	100.0 %

Oregon	Professional Services			Workers 25+ with college degree		
	1980 (n=414)	2000 (n=753)	2006-08 (n=618)	1980 (n=11,049)	2000 (n=20,149)	2006-08 (n=16,392)
Race/ethnicity						
African American	0.5 %	0.9 %	1.3 %	0.8 %	1.2 %	1.2 %
Asian-Pacific American	1.4	3.9	3.6 **	2.1	4.0	5.4
Subcontinent Asian American	0.5	1.0	0.7	0.1	0.9	1.2
Hispanic American	1.7	2.7	2.5	1.1	2.3	3.3
Native American	0.5	1.1	1.0	0.3	1.0	1.0
Other minority group	0.0 **	0.5	0.0	0.1	0.4	0.1
Total minority	4.6 %	10.1 %	9.1 %	4.5 %	9.9 %	12.3 %
Non-Hispanic white	95.4	89.9	90.9 **	95.5	90.1	87.7
Total	100.0 %	100.0 %	100.0 %	100.0 %	100.0 %	100.0 %
Gender						
Female	23.4 % **	27.9 % **	28.8 % **	33.2 %	44.9 %	46.7 %
Male	76.6 **	72.1 **	71.2 **	66.8	55.1	53.3
Total	100.0 %	100.0 %	100.0 %	100.0 %	100.0 %	100.0 %

United States	Professional Services			Workers 25+ with college degree		
	1980 (n=28,869)	2000 (n=58,221)	2006-08 (n=49,480)	1980 (n=858,511)	2000 (n=1,631,919)	2006-08 (n=1,306,052)
Race/ethnicity						
African American	3.1 % **	4.2 % **	5.0 % **	5.3 %	6.8 %	7.7 %
Asian-Pacific American	2.8	4.6 **	5.1 **	2.7	5.2	6.2
Subcontinent Asian American	1.1 **	1.3 **	1.6 **	0.6	1.7	2.4
Hispanic American	3.5 **	5.5 **	6.8 **	2.5	4.4	6.1
Native American	0.3 **	0.7	0.7	0.2	0.6	0.6
Other minority group	0.1	0.4	0.2	0.1	0.4	0.2
Total minority	11.1 %	16.7 %	19.3 %	11.4 %	19.1 %	23.2 %
Non-Hispanic white	88.9	83.3 **	80.7 **	88.6	80.9	76.8
Total	100.0 %	100.0 %	100.0 %	100.0 %	100.0 %	100.0 %
Gender						
Female	21.1 % **	26.0 % **	26.1 % **	34.7 %	45.6 %	47.3 %
Male	78.9 **	74.0 **	73.9 **	65.3	54.4	52.7
Total	100.0 %	100.0 %	100.0 %	100.0 %	100.0 %	100.0 %

Note: ** Denotes that the difference in proportions between professional service workers and workers age 25 or older with a four-year degree in all industry groups for the given Census/ACS year is statistically significant at the 95% confidence level.

Source: BBC Research & Consulting from 1980 and 2000 U.S. Census 5% sample and 2006-2008 ACS Public Use Microdata samples. The raw data extracts were obtained through the IPUMS program of the MN Population Center: http://usa.ipums.org/usa/

Summary of Entry and Advancement in the Construction and Professional Services Industries

BBC's analysis suggests that barriers to entry into the construction and professional services industries in Portland may help explain the relatively low number of businesses owned by certain minority groups and women.

- In 2000, relatively fewer African Americans worked in the Portland construction industry compared to all industries.

- In 2000 and 2006-2008, women were represented in the Portland construction industry in particularly low numbers considering their representation among all workers.

- Lack of education appears to be a barrier to entry into the Portland architecture, engineering and related services industry for African Americans, Hispanic Americans and Native Americans. In 2000 and 2006-2008, workers in each of these groups were less likely to have a bachelor's degree compared to non-Hispanic whites. For each of these minority groups, disparities in educational attainment appear at the high school level, which may affect college opportunities.

- In 2000 and 2006-2008, there were fewer women than men in the architecture, engineering and relates services industry in the Portland MSA, despite the fact that women had comparable levels of educational attainment.

Barriers to advancement in the construction industry may also be an important reason for the relatively low number of minority and female business owners. In 2000:

- Minorities comprised a relatively small proportion of certain occupations in the construction industry. Hispanic Americans were a significantly smaller proportion of first-line supervisors than all workers.

- Compared to non-Hispanic whites in the construction industry, African Americans, Hispanic Americans and Native Americans were less likely to be managers (a statistically significant difference for African Americans).

- Women were also less likely than men to be managers in the construction industry.