

## SECTION III.

### Entry into the Industry

#### Summary

As discussed in Appendix B (Legal Environment for Caltrans DBE Program), federal courts have held that Congress had ample evidence of discrimination in the transportation contracting industry in upholding the constitutionality of the Federal DBE Program (TEA-21), and the federal regulations implementing the program (49 CFR Part 26). Specifically, the federal courts found Congress "spent decades compiling evidence of race discrimination in government highway contracting, of barriers to the formation of minority-owned construction businesses, and of barriers to entry."<sup>1</sup> Congress found that discrimination had impeded the formation of qualified minority business enterprises.

BBC examined whether some of these barriers to entry found for the nation as a whole also appear to occur in California. BBC separately studied barriers to entry for construction and for engineering. Entrance requirements and opportunities for advancement differ for these two branches of the overall transportation contracting industry.

BBC's analysis suggests that barriers to entry into the transportation construction and engineering industry may begin with the education and training and continue through forming a business and gaining access to capital based on preliminary analysis in this Interim Report. Initial results include:

- College education appears to be a barrier for African Americans, Hispanic Americans and Native Americans. Disparities in educational attainment for African Americans and Hispanic Americans appear at the high school level, which may affect college opportunities. These factors may affect entrance of African Americans, Hispanic Americans and Native Americans into the engineering industry.
- There is low representation of women among civil, environmental and geological engineers.

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<sup>1</sup> *Sherbrooke Turf, Inc.*, 345 F.3d at 970, (citing *Adarand Constructors, Inc.*, 228 F.3d at 1167 - 76); *Western States Paving Co. v. Washington State DOT*, 407 F.3d 983 (9th Cir. 2005) at 992.

- African Americans, Asian-Pacific Americans, Hispanic Americans and women working in the engineering industry are less likely to be business owners than others in the industry.
- Representation of African Americans in the construction industry is relatively low compared to other industries in the California, even among entry level jobs. The representation of women in construction as a whole is relatively low, and very few women are in the construction trades involved in transportation construction.
- There appear to be disparities in the advancement of Hispanics to certain construction occupations and first-line supervisor positions. Relatively few African Americans, Hispanic Americans and women working in construction are managers.
- African Americans, Hispanic Americans, Subcontinent Asian Americans and women in construction are less likely than non-Hispanic whites to own construction businesses.

There is evidence that minority-owned firms face disadvantages in accessing capital necessary to start and expand businesses:

- Relatively fewer African Americans, Hispanic Americans and Native Americans in California own homes than non-Hispanic whites, and those who do own homes tend to have lower home values. Home equity is an important source of capital for business start-up and growth.
- African Americans, Asian Americans, Hispanic Americans and Native Americans applying for home mortgages are more likely than non-minorities to have their applications denied.
- African American, Hispanic American and Native American mortgage borrowers are more likely to have subprime loans.
- African American-, Asian American- and Hispanic American-owned businesses have higher denial rates when applying for business loans, and when they receive loans, have lower loan amounts.
- Relatively more African American- and Hispanic American-owned firms that need credit do not apply for loans because they fear being denied the loan.

The Final Report will further explore these issues through additional quantitative analyses and collection and analysis of qualitative information. BBC will also examine initiatives currently in place that strive to create a level playing field for entry into these industries. The Final Report will include recommendations to assist Caltrans in considering any new neutral

or race- and gender-based programs to combat identified barriers for minorities and women.

The balance of Section III examines Interim Report research results in detail, following the outline presented in Figure III-1 on the following page.

### **Education and Training**

The paths to job opportunities, whether they be union programs to learn a trade or four-year college degrees in engineering, are important to understanding whether barriers affect employment opportunities for minorities and women that eventually affect the relative number of minority and female business owners.<sup>2</sup>

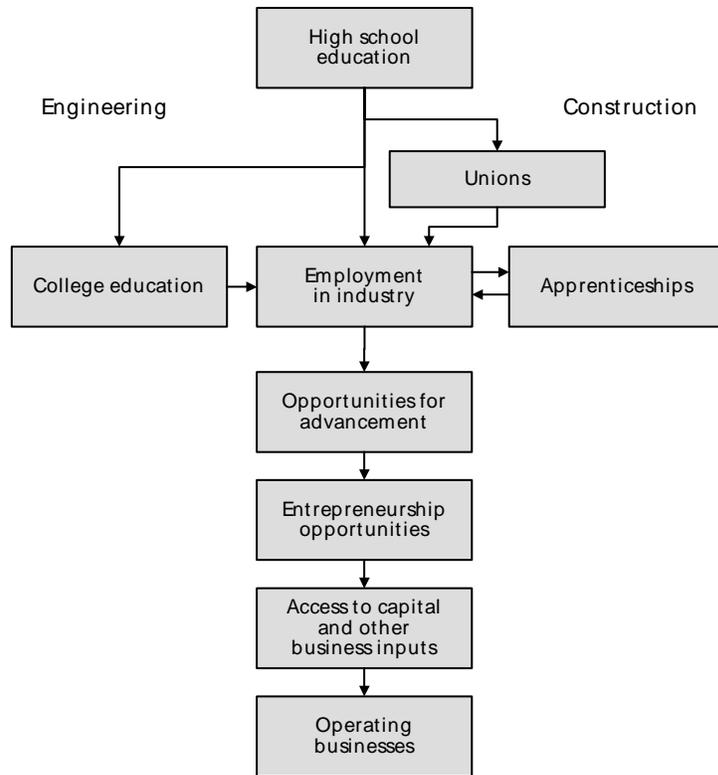
**Construction.** Construction industry employees in California typically have a high school degree with little or no college education. Based on the 2000 Census of Population, 28 percent of workers in construction were just high school graduates and 32 percent had not finished high school. Only 10 percent of people working in construction had a four-year college degree. Formal education beyond high school is not a prerequisite for most construction industry jobs.

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<sup>2</sup> Feagin, Joe R. and Nikitah Imani. 1994. Racial Barriers to African American Entrepreneurship: An Exploratory Study." *Social Problems*. 41 (4): 562-584.

**Figure III-1.  
Model for studying  
the entry into  
industry**

Source:  
BBC Research and Consulting.



Training is largely on-the-job and through trade schools and apprenticeship programs. Entry level jobs for workers out of high school are often laborers, helpers or apprentices. More skilled positions may require additional training through a technical or trade school or through an apprenticeship or other employer-provided training program. Apprenticeship programs can be developed by employers, trade associations, trade unions and other groups. Workers can enter apprenticeship 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.<sup>3</sup>

In the California workforce, African Americans and Hispanic Americans comprise a relatively large share of workers with just a high school education. In 2000, only 21 percent of African American workers 25 and older in California had a college degree, much lower than the 38 percent of non-Hispanic white workers in this age group. About 9 percent of Hispanic American workers and 19 percent of Native American workers in California had college degrees.

<sup>3</sup> Bureau of Labor Statistics, U.S. Department of Labor. 2006-07. "Construction." *Career Guide to Industries*. <http://www.bls.gov/oco/cg/cgs003.htm> (accessed February 15, 2007).

From these data, educational attainment does not appear to be a barrier for entry of minorities in the construction industry. Based on education requirements of entry level jobs and the limited education beyond high school for many African Americans, Hispanic Americans and Native Americans in California, one would expect a relatively high representation of these minority groups in the California construction industry.

However, given high educational levels of Asian-Pacific Americans and Subcontinent Asian Americans (among workers 25 and older, 45 percent and 67 percent of these groups have college degrees, respectively), representation of these groups in construction might be low relative to non-Hispanic whites.

The percentage of women working in California with just a high school diploma is similar to that of men based on 2000 Census of Population data.

**Engineering.** More than half (58 percent) of the individuals working in the engineering industry have at least a four-year college degree. When only examining people who work as engineers, this percentage increases to 82 percent.<sup>4</sup>

The level of education needed to become an engineer is a barrier for African Americans and Hispanic Americans. Very few Hispanic Americans and relatively few African Americans and Native Americans working in the state had a degree from a four-year college in 2000.

Figure III-2 examines the percentage of workers 25 and older who have at least a four-year degree, across all industries. About 39 percent of non-Hispanic whites working in California had at least a four-year college degree in 2000. Relatively fewer Hispanic Americans, African Americans and Native Americans working in the state had college degrees. Relatively more Asian-Pacific Americans and Subcontinent Asian Americans had college degrees than non-Hispanic whites.

About as many women as men, have college degrees in California.

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<sup>4</sup> BBC Research and Consulting from 2000 U.S. Census 5% Public Use Micro-sample data. The raw data extract was obtained through the IPUMS program of the MN Population Center: <http://usa.ipums.org/usa/>.

**Figure III-2.**  
**Percentage of all workers 25 and older with**  
**at least a four-year degree in California and the U.S., 2000**

California	Percentage of workers	United States	Percentage of workers
Race/ethnicity		Race/ethnicity	
African American	20.9 % **	African American	17.2 % **
Asian-Pacific American	44.7 **	Asian-Pacific American	43.5 **
Subcontinent Asian American	67.2 **	Subcontinent Asian American	66.8 **
Hispanic American	9.1 **	Hispanic American	12.1 **
Native American	19.1 **	Native American	15.9 **
Other minority group	32.7 **	Other minority group	29.0 **
All minority groups	21.1 **	All minority groups	20.0 **
Non-Hispanic white	38.5	Non-Hispanic white	31.0
Gender		Gender	
Female	29.8 **	Female	27.6 **
Male	30.6	Male	28.4

Note: \*\* Denotes that the difference in proportions between the minority and non-Hispanic white groups (or female and male gender groups) is statistically significant at the 95% confidence level.

Source: BBC Research and Consulting from 2000 U.S. Census 5% Public Use Micro-sample data. The raw data extract was obtained through the IPUMS program of the MN Population Center: <http://usa.ipums.org/usa/>.

Additional indices of high school educational attainment. Because of the importance of college admission as a step in entering the engineering industry, the study team examined additional information on the educational achievement of minority high school students in California. The California Legislative Black Caucus published a report in early 2007 that included indices of high school achievement for African Americans, Asian Americans, Hispanic Americans and non-Hispanic whites. The study team translated the reported statistics into indices where 100 is the value for non-Hispanic white students. A figure lower than 100 indicates a lower rate for minority students.

As shown in Figure III-3 on the following page, high school achievement indices ranged from 52 to 88 for African American students and from 59 to 88 for Hispanic American students. For example only 25.2 percent of African American students had completed necessary courses for admission to a University of California or California State University school in 2004-2005. This was far below the rate for non-Hispanic white students (40.9 percent). The study team created an "index" for African American student achievement for completion of necessary courses by dividing 25.2 percent into 40.9 percent, yielding "62." Hispanic American students had an achievement index of 59 when compared with non-Hispanic white students completing courses for U.C./C.S.U. entrance.

Other notable indices for African Americans included:

- Passing the high school exit exam for English at a rate roughly one-half that of non-Hispanic white students;
- Passing the high school exit exam for math at less than two-thirds the rate of non-Hispanic white students; and
- Having a high school dropout rate more than twice that of non-Hispanic white students.

The achievement index with the least disparity between African Americans and whites was reading scores from the standardized achievement test administered to students in the 11th grade.

Hispanic American students, on average, exhibited similar disparities in achievement as found for African American students. Hispanic American students were closer to non-Hispanic white students in the rate of passing the high school exit exam for math. High school dropout rates were lower for Hispanic Americans than for African Americans, but still double that of non-Hispanic whites. Overall, the California Legislative Black Caucus report showed educational outcomes for Asian American students to be on par with non-Hispanic whites.

It appears that disparities in educational achievement in high school or in prior grades are important in explaining the relatively low number of African Americans and Hispanic Americans that have college degrees in California. There are many studies throughout the nation that consider whether the causes of the disparities in educational outcomes for African American and Hispanic American high school students are affected by discrimination; these are not reviewed here.

**Figure III-3.**

**Indices of high school achievement for African Americans, Asian Americans, Hispanic Americans and Non-Hispanic whites in California, 2004-2005 (white=100)**

	African American	Asian American	Hispanic American	Non-Hispanic white
Completed courses for U.C./C.S.U. entrance 2004-2005	62	144	59	100
CAT/6 Reading Scores (11th grade)	88	101	88	100
High school exit exam passing rate: English	52	108	64	100
High school exit exam passing rate: Math	62	86	62	100
SAT average score	79	98	83	100
High school dropouts: 1 year rate	275	70	200	100
High school dropouts: 4 year rate	276	70	210	100

Note: Data for completed courses for U.C./C.S.U. entrance were for 2004-2005. Dates not provided in source for other educational statistics.

Source: BBC Research & Consulting from California Legislative Black Caucus. 2007. The State of Black California, Full Report, Sacramento.

Additional factors affecting college engineering programs in California. Historically, college engineering programs in the United States were slow to open doors to minorities such as African Americans.<sup>5</sup> Today, California stands out as having low percentages of African American engineering students. Out of the top 26 engineering schools in 2002, four are University of California campuses (UC Berkeley, UC Los Angeles, UC Santa Barbara, and UC San Diego). A recent study identified these four schools as having the lowest percentages of African American engineering students, ranking at 23<sup>rd</sup>, 24<sup>th</sup>, 25<sup>th</sup> and 26<sup>th</sup> respectively:<sup>6</sup>

- In fall 2002, the University of California-Berkeley had 65 African American students among 4,941 full-time engineering students (1.4 percent of the engineering students), similar to the absolute number and relative share of engineering students at UCLA.
- There were 23 African Americans among 2,370 total engineering students at UC-Santa Barbara (1.0 percent).
- UC-San Diego had no African Americans among its 5,264 engineering students in fall 2002.

Because the enrollment statistics for engineering students were for 2002, most of these students enrolled in college after Proposition 209 had gone into effect. Many scholars blame Proposition 209 for the relatively low representation of African American and Hispanic American students at more selective colleges in California.<sup>7,8</sup> Proposition 209 changed the ability of California's public colleges to give preferential treatment to minorities and women in college admissions and financial aid unless part of a federal program. This amendment to the California constitution was passed by voters in 1996 and went into effect in 1998.

To understand the broader patterns of enrollment by race and ethnicity in the four University of California schools with the highest-rated engineering programs, the study team examined African American, Hispanic American and Native American

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<sup>5</sup> Unknown Author. 2003. "Blacks Strive to Build a Bridgehead in Academic Engineering." *The Journal of Blacks in Higher Education*. 41 (Autumn): 98-108, 98.

<sup>6</sup> Unknown Author. 2003. "Blacks Strive to Build a Bridgehead."

<sup>7</sup> Contreras, Frances. 2003. "The Reconstruction of Merit Post-Proposition 209." *Educational Policy*. 19 (2): 371-395.

<sup>8</sup> Karabel, Jerome. 1999. "The Rise and Fall of Affirmative Action at the University of California." *The Journal of Blacks in Higher Education*. 25 (Autumn): 109-112.

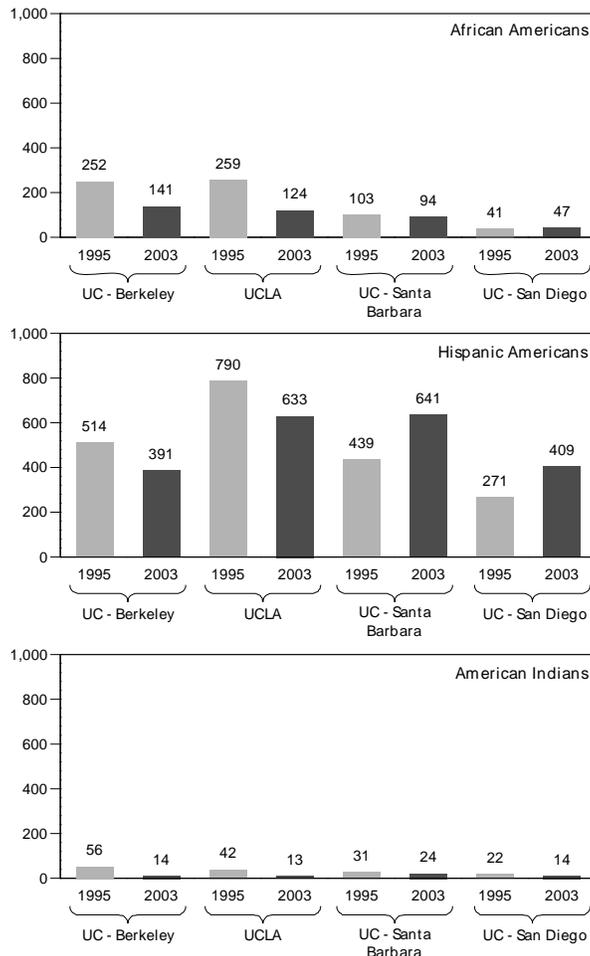
enrollment as freshmen in 1995 and in 2003. As shown in Figure III-4:

- Enrollment of African American students was cut by half for UC-Berkeley and UCLA between 1995 and 2003. There was little overall change for UC-Santa Barbara and UC-San Diego.
- Declines in enrollment of Hispanic Americans also occurred at UC-Berkeley and UCLA. Enrollment of Hispanic Americans increased at UC-Santa Barbara and UC-San Diego.
- Enrollment of Native Americans dropped markedly at each of the four University of California campuses.

Total enrollment at each campus grew over this period, with non-Hispanic white and Asian-Pacific students accounting for most of the increases. The enrollment declines for African American and Hispanic American students between 1995 and 2003 were because of fewer offers of admission from these schools; applications from African American and Hispanic American students actually increased over this period.

**Figure III-4.**  
**Enrollment of**  
**resident California**  
**freshman at selected**  
**University of**  
**California campuses**

Source:  
 UC Office of the President,  
 Student Academic Services,  
 IA&SA, REG004/006 and campus  
 reports, Jan 04  
 f03/flowfrc\_0395.



## Employment

With educational opportunities and attainment for minorities and women as context, the study team examined employment in construction and engineering in California.

**Construction.** Based on 2000 Census of Population data, nearly one-half of people working in the California construction industry in 2000 were minority. Of the people working in construction:

- 37 percent were Hispanic Americans;
- 4 percent were African Americans;
- 4 percent were Asian-Pacific Americans;
- 1.5 percent were Native Americans; and
- 0.2 percent were Subcontinent Asian Americans.

Representation of Hispanic Americans in the construction industry is considerably higher than for all industries as a whole (37 percent in construction and 29 percent in all industries in California). U.S. Census of Population data for 2000 showed that 16 percent of people working in construction in California were Hispanic Americans, about the same as for all industries in the state in that year.

African Americans and Asian-Pacific Americans working in California are relatively less likely to work in construction:

- Asian-Pacific Americans were 4.0 percent of the construction workforce and 11.2 percent of all workers in California in 2000 (a statistically significant difference). The fact that Asian-Pacific Americans are more likely to go to college than other groups may explain part of this difference.
- African Americans were 4.3 percent of the construction workforce and 6.5 percent of all workers in California (a statistically significant difference). Average educational attainment of African Americans is consistent with requirements for construction jobs, so education cannot explain the difference. A number of studies throughout the United States have argued that race discrimination by construction unions have held down employment of African Americans in construction trades.<sup>9</sup>

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<sup>9</sup> Waldinger, Roger and Thomas Bailey. 1991. "The Continuing Significance of Race: Racial Conflict and Racial Discrimination in Construction." *Politics & Society*, 19(3).

- Relative under-representation of African Americans and Asian-Pacific Americans was found in both 1980 and in 2000.<sup>10</sup> For example, 4.0 percent of construction industry workers were African American in 1980 compared with 4.3 percent in 2000.

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<sup>10</sup> Note that Census definitions of race and ethnicity have changed over time, which affects comparability of statistics from one census year to the next. Appendix E (Analysis of U.S. Census of Population Data) discusses how BBC coded data concerning race and ethnicity for each decennial census.

Between 1980 and 2000, the share of construction workers in the United States who are women increased from 8.9 percent to 10.2 percent. In 2000, 9.9 percent of people working in the California construction industry were women, slightly less than in 1980. Figure III-5 compares the composition of the California construction industry with the total California workforce.

**Figure III-5.**  
**Demographics of workers in construction and all industries in California and the US, 1980 and 2000**

California				
	Construction		All industries	
	1980 (n = 39,196)	2000 (n = 60,113)	1980 (n = 679,838)	2000 (n = 966,244)
<b>Race/ethnicity</b>				
African American	4.0 % **	4.3 % **	6.6 %	6.5 %
Asian-Pacific American	1.9 **	4.0 **	5.0	11.2
Subcontinent Asian American	0.1 **	0.2 **	0.2	1.1
Hispanic American	15.6 **	36.9 **	16.7	29.0
Native American	1.3 **	1.5 **	0.9	1.2
Other minority group	<u>0.2</u>	<u>0.9</u>	<u>0.2</u>	<u>0.9</u>
Total minority	23.1 %	47.8 %	29.6 %	49.7 %
Non-Hispanic white	<u>77.0</u> **	<u>52.2</u> **	<u>70.4</u>	<u>50.3</u>
Total	100.0 %	100.0 %	100.0 %	100.0 %
<b>Gender</b>				
Female	10.3 % **	9.9 % **	45.9 %	46.5 %
Male	<u>89.7</u> **	<u>90.1</u> **	<u>54.2</u>	<u>53.5</u>
Total	100.0 %	100.0 %	100.0 %	100.0 %
United States				
	Construction		All industries	
	1980 (n = 391,361)	2000 (n = 579,867)	1980 (n = 6,338,776)	2000 (n = 8,295,671)
<b>Race/ethnicity</b>				
African American	7.7 % **	7.5 % **	9.9 %	11.4 %
Asian-Pacific American	0.6 **	1.3 **	1.4	3.4
Subcontinent Asian American	0.1 **	0.2 **	0.2	0.7
Hispanic American	5.7 **	15.8 **	5.6	11.3
Native American	0.9 **	1.6 **	0.6	1.2
Other minority group	<u>0.1</u>	<u>0.4</u>	<u>0.1</u>	<u>0.4</u>
Total minority	15.1 %	26.8 %	17.7 %	28.4 %
Non-Hispanic white	<u>84.9</u> **	<u>73.2</u> **	<u>82.3</u>	<u>71.6</u>
Total	100.0 %	100.0 %	100.0 %	100.0 %
<b>Gender</b>				
Female	8.9 % **	10.2 % **	46.0 %	47.9 %
Male	<u>91.1</u> **	<u>89.8</u> **	<u>54.0</u>	<u>52.1</u>
Total	100.0 %	100.0 %	100.0 %	100.0 %

Note: \*\* Denotes that the difference in proportions between the construction and all industry groups for the census year is statistically significant at the 95% confidence level.

Source: BBC Research and Consulting from 1980 and 2000 U.S. Census 5% Public Use Micro-sample data. The raw data extract was obtained through the IPUMS program of the MN Population Center: <http://usa.ipums.org/usa/>.

**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.<sup>11</sup> The temporary nature of construction work results in uncertain job prospects, and high turnover of laborers presents a disincentive for construction firms to invest in training. Some scholars have claimed 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.<sup>12</sup> Unable to integrate themselves into traditionally white social networks, African Americans faced long-standing historical barriers to entering the industry.<sup>13</sup>

Construction unions aim to provide a reliable source of labor for employers and 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 inroad for African American and other underrepresented groups into the industry. However, researchers have identified discrimination by trade unions that have historically prevented minorities from obtaining employment in skilled trades.<sup>14</sup>

- Unions have used admissions criteria that adversely affect 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 perpetuate the effects of past discrimination.<sup>15</sup> More recent disparity studies in California reveal that these practices persist: admissions testing requirements for union

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<sup>11</sup> Applebaum, Herbert. 1999. *Construction Workers, U.S.A.* Westport: Greenwood Press.

<sup>12</sup> Waldinger, Roger and Thomas Bailey. 1991. "The Continuing Significance of Race: Racial Conflict and Racial Discrimination in Construction." *Politics & Society*, 19(3).

<sup>13</sup> Feagin, Joe R. and Nikitah Imani. 1994. "Racial Barriers to African American Entrepreneurship: An Exploratory Study." *Social Problems*. 41( 4): 368-370.

<sup>14</sup> U.S. Department of Justice. 1996. Proposed Reforms to Affirmative Action in Federal Procurement. 61 FR 26042.

<sup>15</sup> 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).

membership were still being used that adversely affected minorities,<sup>16</sup> and applicants who were relatives of union members were often waived from admissions requirements.<sup>17</sup>

- Of those minority individuals who are admitted to unions, a disproportionately low number are admitted into apprenticeship programs coordinated by unions. Apprenticeship programs are an important means of producing skilled construction laborers, and the reported exclusion of blacks from these programs has severely limited their access to skilled occupations in the construction industry.<sup>18</sup>

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<sup>16</sup> National Economic Research Association, Inc. 1992. *The Utilization of Minority and Woman-Owned Business Enterprises by Contra Costa County*. 185-186.

<sup>17</sup> BPA Economics, Mason Tillman Associates, and Boasberg and Norton. 1990. *MBE-WBE Disparity Study of the City of San Jose*.

<sup>18</sup> Applebaum. 1999. *Construction Workers, U.S.A.*

- While formal training and apprenticeship programs exist within unions, most training of union members takes place informally through social networking. Nepotism characterizes the unionized sector of construction as it does the non-unionized sector, and this favors a white-dominated status quo.<sup>19</sup>
- Traditionally white unions have been successful in resisting policies designed to increase black participation in training programs. The political strength of unions in resisting affirmative action in construction has hindered the advancement of blacks in the industry.<sup>20</sup>
- Discriminatory practices in employee referral procedures, including apportioning work based on seniority, have precluded minority union members from having the same access to construction work as their white counterparts.<sup>21</sup>
- According to testimony from black union members, even when unions implement meritocratic mechanisms of apportioning employment to laborers, white workers are often allowed to circumvent procedures and receive preference for construction jobs.<sup>22</sup>

However, these historical observations may not be indicative of current dynamics in construction unions. For example, the 2006 Current Population Survey (CPS) provides current data on union membership indicating higher union membership for African Americans in construction.<sup>23</sup> 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 higher (17 percent) than non-Hispanic whites (14 percent) On the other hand, only 7 percent of Hispanic Americans are union members based on these national data.

It is unclear from past studies whether unions help or hinder equal opportunity in construction today, and whether effects in California are different from other parts of the country. Also,

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<sup>19</sup> Ibid. 299. The high percentage of skilled workers reported having a father or relative in the same trade. However, the author suggests this may not be indicative of current trends.

<sup>20</sup> Waldinger and Bailey. 1991. "The Continuing Significance of Race: Racial Conflict and Racial Discrimination in Construction."

<sup>21</sup> U.S. Department of Justice. 1996. Proposed Reforms to Affirmative Action in Federal Procurement. 61 FR 26042. See *United Steelworkers of America v. Weber* (1979) and *Taylor v. United States Department of Labor* (1982).

<sup>22</sup> Feagin and Imani. 1994. "Racial Barriers to African American Entrepreneurship: An Exploratory Study."

<sup>23</sup> 2006 Current Population Survey (CPS), U.S. Census Bureau and Bureau of Labor Statistics.

Hispanic American representation in the national construction industry has seen great advances despite relatively few Hispanics being union members. There are no definitive results in this Interim Report on the role of unions in disparities in African American or Asian-Pacific American employment in construction. This will be a topic of further research in the Final Report.

**Engineering industry.** The study team also examined race and ethnic composition of the engineering industry in California. Two-thirds of people working in the engineering industry in 2000 were non-Hispanic whites, which is greater than non-Hispanic whites' overall representation across all industries in the state. Asian-Pacific Americans and Subcontinent Asians were also more likely to be employed in the engineering industry than indicated from their representation among all workers in California. These patterns are found in 1980 as well (and for the United States for both 1980 and 2000). Native Americans comprise a small share of engineering industry employees, consistent with Native Americans' share of all California employment.

As shown in Figure III-6 on the following page, African Americans and Hispanic Americans had relatively low representation in the engineering industry:

- African Americans made up a relatively small share of engineering industry workers relative to African Americans' share of employment in other industries in 2000 (3.6 percent compared with 6.5 percent). This was also true in 1980.
- Hispanic Americans were 11.5 percent of engineering industry workers in 2000, less than one-half of Hispanics' representation in the overall California workforce (29.0 percent).

In 2000, women represented 28 percent of engineering industry workers, up from 25 percent in 1980.

Employment patterns seen for California's engineering industry are generally consistent with the nation as a whole.

**Figure III-6.**  
**Demographics of workers in the engineering and all**  
**industries in California and the U.S., 1980 and 2000**

California				
	Engineering		All industries	
	1980 (n = 4,457)	2000 (n = 9,248)	1980 (n = 679,838)	2000 (n = 966,244)
<b>Race/ethnicity</b>				
African American	2.3 % **	3.6 % **	6.6 %	6.5 %
Asian-Pacific American	7.3 **	14.5 **	5.0	11.2
Subcontinent Asian American	0.9 **	1.5 **	0.2	1.1
Hispanic American	7.0 **	11.5 **	16.7	29.0
Native American	0.5 **	1.1	0.9	1.2
Other minority group	<u>0.2</u>	<u>1.0</u>	<u>0.2</u>	<u>0.9</u>
Total minority	18.2 %	33.1 %	29.6 %	49.7 %
Non-Hispanic white	<u>81.8</u> **	<u>66.9</u>	<u>70.4</u>	<u>50.3</u>
Total	100.0 %	100.0 %	100.0 %	100.0 %
<b>Gender</b>				
Female	25.0 % **	28.5 %	45.9 %	46.5 %
Male	<u>75.0</u> **	<u>71.5</u>	<u>54.2</u>	<u>53.5</u>
Total	100.0 %	100.0 %	100.0 %	100.0 %
United States				
	Engineering		All industries	
	1980 (n = 391,361)	2000 (n = 579,867)	1980 (n = 6,338,776)	2000 (n = 8,295,671)
<b>Race/ethnicity</b>				
African American	3.1 % **	4.3 % **	9.9 %	11.4 %
Asian-Pacific American	2.7 **	4.7 **	1.4	3.4
Subcontinent Asian American	1.0 **	1.3 **	0.2	0.7
Hispanic American	3.5 **	5.7 **	5.6	11.3
Native American	0.4 **	0.8 **	0.6	1.2
Other minority group	<u>0.1</u>	<u>0.4</u>	<u>0.1</u>	<u>0.4</u>
Total minority	10.9 %	17.2 %	17.7 %	28.4 %
Non-Hispanic white	<u>89.2</u> **	<u>82.8</u> **	<u>82.3</u>	<u>71.6</u>
Total	100.0 %	100.0 %	100.0 %	100.0 %
<b>Gender</b>				
Female	23.2 % **	27.1 % **	46.0 %	47.9 %
Male	<u>76.8</u> **	<u>72.9</u> **	<u>54.0</u>	<u>52.1</u>
Total	100.0 %	100.0 %	100.0 %	100.0 %

Note: \*\* Denotes that the difference in proportions between the construction and all industry groups for the census year is statistically significant at the 95% confidence level.

The engineering industry sector in 2000 is "architectural, engineering and related services," and in 1980 is "engineering, architectural and surveying services." Though closely related, the groups are not exactly comparable.

Source: BBC Research and Consulting from 1980 and 2000 U.S. Census 5% Public Use Micro-sample data. The raw data extract was obtained through the IPUMS program of the MN Population Center: <http://usa.ipums.org/usa/>.

The study team also examined the relative number of minorities and women among civil, environmental and mining and geological engineers in California in 2000. Except for Asian-Pacific Americans, the relative number of engineers by race and ethnicity was consistent with each group's representation among all Californians with college degrees. However, 16 percent of people with college degrees in California in 2000 were Asian-Pacific Americans, and Asian-Pacific Americans were 20 percent of engineers in California.

About 14 percent of engineers in California are women, far less than women's share of people with college degrees. Figure III-7 presents these results.

**Figure III-7.**  
**Demographics of engineers and workers 25 and older**  
**with a college degree in California and the U.S., 2000**

California	Engineers (n = 2,482)	Workers 25+ with a college degree (n = 242,421)	United States	Engineers (n = 16,342)	Workers 25+ with a college degree (n = 1,846,629)
<b>Race/ethnicity</b>			<b>Race/ethnicity</b>		
African-American	3.6 % **	4.5 %	African-American	3.9 % **	6.8 %
Asian-Pacific American	19.7 % **	16.6	Asian-Pacific American	6.3 % **	5.3
Subcontinent Asian American	3.0	2.5	Subcontinent Asian American	2.6 % **	1.7
Hispanic American	8.0	8.0	Hispanic	4.3	4.5
Native American	0.8	0.7	Native American	0.7	0.7
Other minority group	0.8	0.9	Other minority group	0.4	0.4
Non-Hispanic white	64.1	66.8	Non-Hispanic white	81.7 % **	80.6
Total	100.0 %	100.0 %	Total	100.0 %	100.0 %
<b>Gender</b>			<b>Gender</b>		
Female	13.6 % **	45.9 %	Female	11.8 % **	47.1 %
Male	86.4 % **	54.2	Male	88.2 % **	52.9
Total	100.0 %	100.0 %	Total	100.0 %	100.0 %

Note: \*\* Denotes that the difference in proportions between engineers and workers 25+ with a college degree is statistically significant at the 95% confidence level.

Source: BBC Research and Consulting from 2000 U.S. Census 5% Public Use Micro-sample data. The raw data extract was obtained through the IPUMS program of the MN Population Center: <http://usa.ipums.org/usa/>.

### Advancement in Construction

To research opportunities for advancement, the study team examined a number of specific occupations in construction related to transportation construction. Relevant construction trades include:

- Cement masons, concrete finishers, segmental pavers and terrazzo workers, who smooth and finish poured concrete surfaces and work with cement to create sidewalks, curbs, roadways or other surfaces;
- Paving, surfacing and tamping equipment operators, who operate equipment used for applying concrete, asphalt, or other

materials to road beds, parking lots, or airport runways and taxiways, or equipment used for tamping gravel and dirt;

- Miscellaneous construction equipment operators, who operate motor graders, bulldozers, scrapers, compressors, pumps, derricks, shovels, tractors, or front-end loaders to excavate, move, and grade earth, erect structures, or pour concrete or other hard surface pavement;
- Electricians, who install, connect, test and maintain building electrical systems, which also can include lighting, climate control, security and communications;
- Structural and reinforcing iron and metal workers, who place and install iron or steel girders, columns and other structural members to form completed structures or frameworks of buildings, bridges and other structures; and
- Construction laborers, who perform a wide range of physically demanding tasks at building and highway construction sites, such as tunnel and shaft excavation, hazardous waste removal, environmental remediation and demolition.

The above definitions are from the U.S. Bureau of Labor Statistics.<sup>24</sup> The U.S. Bureau of Labor Statistics also describes other trades involved in construction, several of which apply directly to transportation construction:

- Truck drivers;
- Crane and tower operators; and
- Dredge, excavating and loading machine and dragline operators.

Finally, the U.S. Bureau of Labor Statistics analyzes first-line supervisors and managers of construction trades and extraction workers.

Management personnel are the most likely of any construction occupation to require a college degree.

**Race and ethnic composition of construction trades.** There are large differences in the racial and ethnic makeup of workers in different trades related to highway construction based on the 2000 U.S. Census of Population. Figure III-8 on the following page shows the proportion of occupations for people who work in construction in California for 2000. Overall, 48 percent of the construction workforce were minorities (36.9 percent Hispanic

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<sup>24</sup> Bureau of Labor Statistics, U.S. Department of Labor. 2001. "Standard Occupational Classification Major Groups." [http://www.bls.gov/soc/soc\\_majo.htm](http://www.bls.gov/soc/soc_majo.htm) (accessed February 15, 2007).

Americans and 10.9 percent other minorities). Minorities comprised a relatively large share of the California construction workforce for:

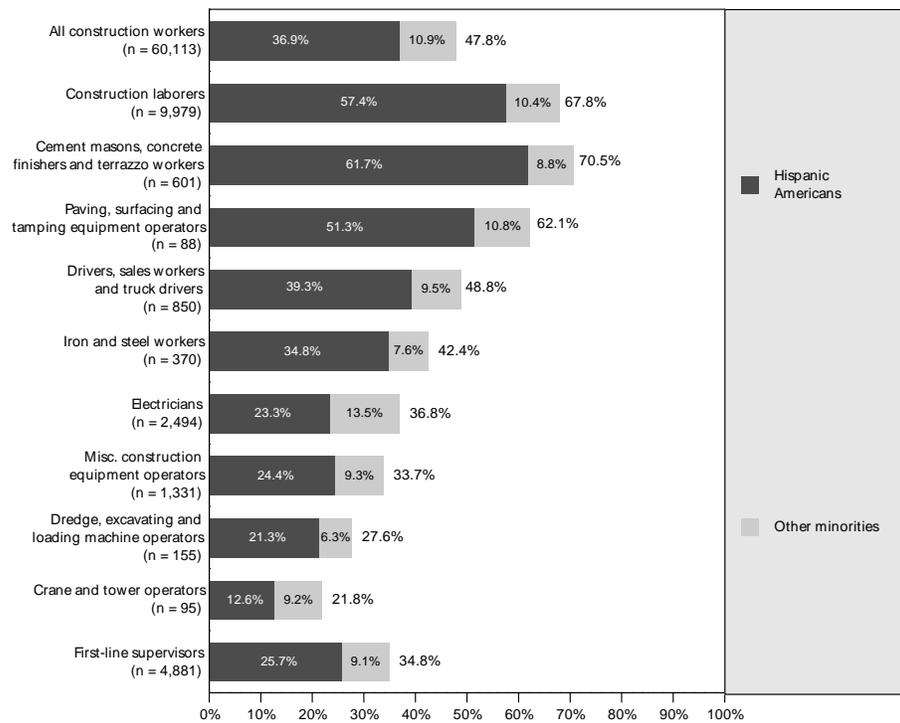
- Construction laborers (68 percent);
- Cement masons, concrete finishers and terrazzo workers (71 percent); and
- Paving, surfacing and tamping equipment operators (62 percent).

A number of occupations had relatively low representation of minorities:

- Crane and tower operators (22 percent);
- Dredge, excavating and loading machine operators (28 percent);
- Miscellaneous construction equipment operators, (34 percent);
- Electricians (37 percent); and
- Iron and steel workers (42 percent).

About 35 percent of first-line supervisors of construction workers were minorities, less than minorities' share of all occupations in construction. Figure III-8 examines these statistics.

**Figure III-8.**  
**Minorities as a percentage of construction workers in selected occupations in California, 2000**



Source: BBC Research and Consulting from 2000 U.S. Census 5% Public Use Micro-sample data. The raw data extract was obtained through the IPUMS program of the MN Population Center: <http://usa.ipums.org/usa/>.

Most of the differences for minorities, overall, reflect differences in Hispanic Americans' representation in these occupations. There were some notable exceptions, however.

African Americans were a relatively large share of construction laborers (5.4 percent) and a relatively small share of first-line supervisors (3.4 percent). These are statistically significant differences from the overall representation of African Americans in the construction industry as a whole (4.3 percent). Even with the higher representation of African Americans in construction laborer jobs, the share of these jobs going to African Americans still falls short of African Americans' representation in the California workforce.

Asian-Pacific Americans were a relatively small share of construction laborers (2.9 percent), cement masons, concrete finishers and terrazzo workers (1.2 percent), truck drivers (2.0 percent), iron and steel workers (2.0 percent), and first-line supervisors (3.0 percent) compared with the share of all construction workers who were Asian-Pacific Americans (4.0 percent). Each difference noted is statistically significant.

Age, length of time in the construction industry, education and ability to speak English may explain some of the differences in occupational composition. The study team will explore these and other reasons for differences in occupational outcomes for minorities in the Final Report.

**Women in construction trades.** About 10 percent of workers in the California construction industry in 2000 were women. In occupations most closely related to the highway construction industry, however, few workers were women. As shown in Figure III-9:

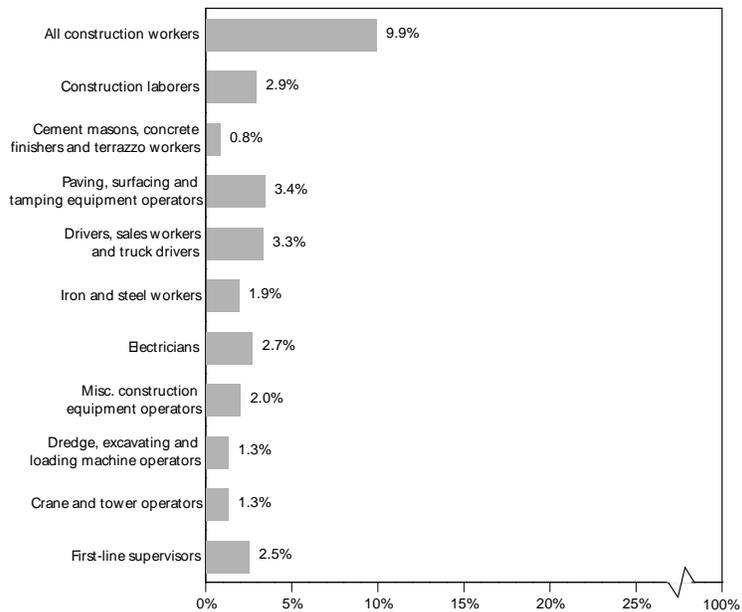
- Among cement masons, concrete finishers and terrazzo workers, fewer than one in 100 workers were women.
- About 1 percent of dredge, excavating and loading machine operators and crane and tower operators were women.
- Two percent of miscellaneous construction equipment operators were women, about the same as women's representation among iron and steel workers.
- Three percent of construction laborers, paving, surfacing and tamping equipment operators, drivers and electricians were women.
- Women were 2.5 percent of first-line supervisors.

Women were a slightly smaller share of workers in construction in 2000 than they were in 1980. The study team will explore possible reasons behind the low representation of women in these construction trades in the Final Report.

**Figure III-9.**  
**Women as a percentage**  
**of construction**  
**workers in selected**  
**occupations in**  
**California, 2000**

Source:

BBC Research and Consulting from 2000 U.S. Census 5% Public Use Micro-sample data. The raw data extract was obtained through the IPUMS program of the MN Population Center:  
<http://usa.ipums.org/usa/>.



**Relative share of minorities and women in construction who are managers.** Figures III-8 and III-9 showed the representation of minorities and women among first-line supervisor positions in the California construction industry. The study team also reviewed employment of minorities and women as managers in the industry, a higher position than first-line supervisors. Construction managers, on

average, have more education than first-line supervisors (27 percent have at least a bachelor's degree in California compared with 10 percent of first-line supervisors). Figure III-10 shows the proportion of workers in the construction industry in each group that report a "manager" occupation.

In 2000, 10 percent of non-Hispanic whites working in the California construction industry were managers. A similar percentage of Subcontinent Asian Americans were managers. Nearly 9 percent of Asian-Pacific Americans were managers (not a substantial difference from the rate for non-Hispanic whites).

In contrast, only 2 percent of Hispanic Americans and 4 percent of African Americans working in construction in 2000 were managers (statistically significant differences from non-Hispanic whites). About 8 percent of Native Americans working in construction were managers.

Relatively fewer women working in construction were managers than men (4.7 percent versus 7.1 percent).

Except for the large number of Native American managers in California, the results described above are consistent with the relative share of construction workers who are managers across the United States. The study team will explore possible causes for these disparities in the Final Report.

**Figure III-10.**

**Percentage of construction workers who work as a manager in California and the U.S., 1980 and 2000**

California	1980	2000	United States	1980	2000
Race/ethnicity			Race/ethnicity		
African American	1.3 % **	4.1 % **	African American	1.4 % **	2.9 % **
Asian-Pacific American	4.0 *	8.9 **	Asian-Pacific American	4.2	7.0
Subcontinent Asian American	3.6	9.9	Subcontinent Asian American	5.1	10.3 **
Hispanic American	2.0 **	2.3 **	Hispanic American	1.9 **	2.4 **
Native American	4.6	7.7 **	Native American	2.2 **	4.2 **
Other minority group	6.3	8.3	Other minority group	4.7	5.8 **
Non-Hispanic white	5.6	10.2	Non-Hispanic white	4.6	7.1
Gender			Gender		
Female	6.6 **	4.7 **	Female	5.1 **	3.9 **
Male	4.6	7.1	Male	4.1	6.2
All	4.8 %	6.9 %	All	4.2 %	6.0 %

Note: \*, \*\* Denote that the difference in proportions between the minority and non-Hispanic white groups (or female and male gender groups) is statistically significant at the 90% and 95% confidence levels, respectively.

Source: BBC Research and Consulting from 1980 and 2000 U.S. Census 5% Public Use Micro-sample data. The raw data extract was obtained through the IPUMS program of the MN Population Center: <http://usa.ipums.org/usa/>.

### **Business Ownership**

Many studies have explored differences in rates of business ownership between minorities and non-minorities in the United

States. Though self-employment rates have increased for minorities and women, studies by Waldinger and Aldrich (1990), Fairlie and Meyer (1996), and Fairlie and Robb (2006) indicate that different opportunities for entrepreneurship exist based on gender, ethnicity and race.<sup>25</sup> One study found that the explanatory power of race and ethnicity in self-employment is almost greater in the presence of other factors that also affect self-employment.<sup>26</sup>

Disparities in the rates of business ownership have been one type of evidence used by courts in finding the Federal DBE Program to be valid. Any disparities in business ownership rates may also be important when considering step 2 adjustments in the annual DBE goal. For example, research developed for the Illinois Department of Transportation considered disparities in business ownership rates as a factor in adjusting the base figure for the IDOT annual DBE goal.<sup>27</sup>

**California construction industry.** The 5% Public Use Micro-sample Data from the U.S. Census of Population can be utilized to study rates of self-employment in California.

Business ownership rates in 2000. Figure III-11 on the following page shows the percentage of different groups working in the construction industry that were self-employed in 2000 and in 1980.

In 2000, 26 percent of non-Hispanic whites working in the construction industry in California were self-employed (in incorporated or unincorporated businesses), about the same as the rate for the United States for that year. The rate of business ownership among Asian-Pacific Americans working in the California construction industry was similar to non-Hispanic whites.

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<sup>25</sup> See Waldinger, Roger and Howard E. Aldrich. 1990. *Ethnicity and Entrepreneurship*. Annual Review of Sociology. 111-135.; Fairlie, Robert W. and Bruce D. Meyer. 1996. *Ethnic and Racial Self-Employment Differences and Possible Explanations*. The Journal of Human Resources, Volume 31, Issue 4, 757-793.; Fairlie, Robert W. and Alicia M. Robb. 2006. *Why are Black-Owned Businesses Less Successful than White-Owned Businesses? The Role of Families, Inheritances, and Business Human Capital*. Forthcoming Journal of Labor Economics.; and Fairlie, Robert W. and Alicia M. Robb. 2006. *Race, Families and Business Success: A Comparison of African-American-, Asian-, and White-Owned Businesses*. Russell Sage Foundation.

<sup>26</sup> Fairlie, Robert W. and Bruce D. Meyer. 1996. *Ethnic and Racial Self-Employment Differences and Possible Explanations*. The Journal of Human Resources, Volume 31, Issue 4, 757-793.

<sup>27</sup> National Economic Research Associates, Inc. 2004. *Disadvantaged Business Enterprise Availability Study*. Prepared for the Illinois Department of Transportation.

Rates of business ownership among other minority groups working in the construction industry were lower than non-Hispanic whites in 2000:

- African Americans and Hispanic Americans working in the California construction industry owned businesses at one-half the rate of non-Hispanic whites. These differences are statistically significant at the 95 percent confidence level.
- About 15 percent of Subcontinent Asian Americans, working in construction in California, owned their own businesses in 2000. This difference is statistically significant.
- The rate of self-employment for Native Americans working in the construction industry in California, 22 percent, is relatively close to the rate of self-employment for non-Hispanic whites.

In 2000, 15 percent of women working in the California construction industry were self-employed, substantially lower than the rate for men (21 percent). This difference is statistically significant.

In sum, there were statistically significant disparities in the rates of business ownership in 2000 among people working in construction in California for African Americans, Hispanic Americans, Subcontinent Asian Americans and Native Americans compared to non-Hispanic whites. For each of these groups except Native Americans, the differences in self-employment rates compared with non-Hispanic whites were substantial. Women working in construction in 2000 had substantially lower rates of business ownership than men, and the difference is statistically significant. (Note that only 15 percent of people who owned construction businesses had at least a bachelor's degree.)

The patterns found for business ownership for these race/ethnic and gender groups in the California construction industry in 2000 are similar to those for construction in the United States as a whole. The only notable exception was business ownership rates for Asian-Pacific Americans, which were considerably higher in the California industry than the United States.

**Figure III-11.**

**Percentage of self-employed workers in the construction industry in California and the U.S., 1980 and 2000**

California	1980	2000	United States	1980	2000
Race/ethnicity			Race/ethnicity		
African American	11.7 % **	13.1 % **	African American	9.0 % **	15.7 % **
Asian-Pacific American	14.9 **	25.6	Asian-Pacific American	11.2 **	21.4 **
Subcontinent Asian American	3.6	15.4 **	Subcontinent Asian American	5.9 **	19.6 **
Hispanic American	9.7 **	11.8 **	Hispanic American	10.5 **	12.6 **
Native American	13.9 **	21.6 **	Native American	9.5 **	19.0 **
Other minority group	22.2	25.4	Other minority group	14.8 *	23.7
Non-Hispanic white	21.4	26.0	Non-Hispanic white	19.1	25.2
Gender			Gender		
Female	10.0 **	14.6 **	Female	9.5 **	17.1 **
Male	20.0	20.7	Male	18.5	22.9
All individuals	18.9 %	20.1 %	All individuals	17.7 %	22.3 %

Note: \*, \*\* Denote that the difference in proportions between the minority and non-Hispanic white groups (or female and male gender groups) is statistically significant at the 90% and 95% confidence levels, respectively.

Source: BBC Research and Consulting from 1980 and 2000 U.S. Census 5% Public Use Micro-sample data. The raw data extract was obtained through the IPUMS program of the MN Population Center: <http://usa.ipums.org/usa/>.

Changes in business ownership rates in California since 1980. In 1980, 21 percent of non-Hispanic whites working in the construction industry in California were self-employed. The rate of self-employment in this group increased from 21 percent to reach 26 percent in 2000. Increases were also found for:

- Asian-Pacific Americans, which showed a more dramatic increase in self-employment in construction since 1980 (15 percent in 1980 and 26 percent in 2000);
- Native Americans, which increased from 14 percent self-employment rate in 1980 to 22 percent in 2000); and
- Subcontinent Asian Americans, which may have increased from 4 percent in 1980 to 15 percent in 2000 (note that statistics for 1980 for Subcontinent Asian Americans are based on only 56 responses in the 1980 Census of Population).

This growth in rates of business ownership is not evident for African Americans and Hispanics:

- Although business ownership rates in construction increased since 1980 for African Americans for the nation as a whole, there was little change in the rate for African Americans working in the California construction industry.
- The rate of business ownership increased among Hispanic Americans working in construction in California by two percentage points, about the same as the United States.

The differences in business ownership rates between men and women working in construction in California narrowed between 1980 and

2000. Although the rate of self-employment increased by only one percentage point for men over this time frame, the rate for women increased by 5 percentage points (still remaining below the rate for men).

**California engineering industry.** The study team also compared self-employment rates among groups for the California engineering industry.

Business ownership rates in 2000. Among non-Hispanic whites working in the California engineering industry in 2000, 19 percent owned their own businesses. Except for Native Americans, minorities working in the industry in 2000 had substantially lower rates of self-employment:

- Only 10 percent of Hispanics working in the engineering industry in California were self-employed.
- Only 11 percent of Asian-Pacific Americans owned their own engineering businesses.
- About 12 percent of African Americans in the engineering industry owned businesses.
- About 14 percent of Subcontinent Asian Americans owned their own business (not a statistically significant difference due to relatively small sample size for Subcontinent Asians working in engineering in California).

There was little difference in rates of business ownership between Native Americans and non-Hispanic whites in 2000, as shown in Figure III-12 on the following page. In California, men were about twice as likely as women working in the engineering industry to be self-employed.

Except for Native Americans, each minority group had higher rates of business ownership in California than found for the nation. Non-Hispanic whites working in the engineering industry also had a higher rate of self-employment in California.

The study team also examined business ownership rates among civil, environmental and geological engineers in California. Results are not presented here due to relatively small sample sizes. In general, disparities in rates of business ownership mirrored those for the industry as a whole.

Changes in business ownership rates in California since 1980. Business ownership rates in the engineering industry increased markedly from 1980 to 2000 for African Americans, Native Americans and

women. The overall rate of engineering business ownership fell in California over this period.

**Figure III-12.**

**Percentage of self-employed workers in the engineering industry in California and the U.S., 1980 and 2000**

California	1980	2000	United States	1980	2000
Race/ethnicity			Race/ethnicity		
African American	7.8 % **	12.2 % **	African American	5.0 % **	6.4 % **
Asian-Pacific American	11.1 **	10.7 **	Asian-Pacific American	8.2 **	8.7 **
Subcontinent Asian American	14.6	13.7	Subcontinent Asian American	6.0 **	6.2 **
Hispanic American	8.7 **	10.0 **	Hispanic American	8.7 **	9.5 **
Native American	9.5	20.3	Native American	9.5	11.6 *
Other minority group	10.0	23.0	Other minority group	7.1	11.8
Non-Hispanic white	20.4	19.1	Non-Hispanic white	15.4	14.7
Gender			Gender		
Female	6.5 **	9.7 **	Female	4.2 **	7.8 **
Male	22.4	19.3	Male	17.6	15.8
All individuals	18.4 %	16.6 %	All individuals	14.5 %	13.6 %

Note: \*, \*\* Denote that the difference in proportions between the minority and non-Hispanic white groups (or female and male gender groups) is statistically significant at the 90% and 95% confidence levels, respectively.

Source: BBC Research and Consulting from 1980 and 2000 U.S. Census 5% Public Use Micro-sample data. The raw data extract was obtained through the IPUMS program of the MN Population Center: <http://usa.ipums.org/usa/>.

**Potential causes of differences in business ownership rates.** Researchers have examined whether there are disparities in business ownership rates after considering factors such as education and age. A number of studies have found that disparities in business ownership still exist in the presence of such factors:

- Several studies have found that access to financial capital is a strong determinant of business ownership. One consistent finding is the positive relationship between startup capital and business formation, expansion and survival.<sup>28</sup> One study found that housing appreciation measured at the MSA-level is a positive determinant of entry into self-employment.<sup>29</sup> However, unexplained differences still exist when controlling for these factors.<sup>30</sup>
- Education has positive effects on the probability of business ownership in most industries. However, findings from multiple studies indicate that minorities are still less likely to own

<sup>28</sup> See Lofstrom, Magnus and Chunbei Wang. 2006. *Hispanic Self-Employment: A Dynamic Analysis of Business Ownership*. Working paper, Forschungsinstitut zur Zukunft der Arbeit Institute for the Study of Labor.; and Fairlie, Robert W. and Alicia M. Robb. 2006. *Race, Families and Business Success: A Comparison of African-American-, Asian-, and White-Owned Businesses*. Russell Sage Foundation.

<sup>29</sup> Fairlie, Robert W. and Harry A. Krashinsky. 2006. *Liquidity Constraints, Household Wealth and Entrepreneurship Revisited*.

<sup>30</sup> Lofstrom, Magnus and Chunbei Wang. 2006. *Hispanic Self-Employment: A Dynamic Analysis of Business Ownership*. Working paper, Forschungsinstitut zur Zukunft der Arbeit Institute for the Study of Labor.

a business than their non-minority counterparts with the same levels of education.<sup>31</sup>

- Intergenerational links contribute to the likelihood of self-employment. One study found that experience working for a self-employed family member increases the likelihood of self-employment for minority groups.<sup>32</sup>
- Studies have found that time since immigration, or assimilation to American Society, are important determinants of self-employment. However, unexplained differences in minority-business ownership still exist when controlling for these factors.<sup>33</sup>

In the Final Report, the study team will develop statistical models to explore whether factors such as age and education can explain the differences in business ownership rates found for the construction and engineering industries in California. These analyses will draw upon past business ownership research conducted for the nation.

#### **Homeownership and Mortgage Lending**

One of the factors researchers examine when studying business formation and success is access to capital. Discrimination in capital markets can prevent minorities and women from acquiring the capital necessary to start or expand a business.<sup>34</sup> BBC begins by studying homeownership and mortgage lending, as home equity is an important source of capital to start and expand businesses. The final portion of Section III examines access to business loans.

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<sup>31</sup> See Fairlie, Robert W. and Bruce D. Meyer. 1996. *Ethnic and Racial Self-Employment Differences and Possible Explanations*. The Journal of Human Resources, Volume 31, Issue 4, 757-793; and Butler, John Sibley and Cedric Herring. 1991. *Ethnicity and Entrepreneurship in America: Toward an Explanation of Racial and Ethnic Group Variations in Self-Employment*. Sociological Perspectives. 79-94.

<sup>32</sup> See Fairlie, Robert W. and Alicia M. Robb. 2006. *Race, Families and Business Success: A Comparison of African-American-, Asian-, and White-Owned Businesses*. Russell Sage Foundation; and Fairlie, Robert W. and Alicia M. Robb. 2006. *Why are Black-Owned Businesses Less Successful than White-Owned Businesses? The Role of Families, Inheritances, and Business Human Capital*. Forthcoming Journal of Labor Economics.

<sup>33</sup> See Fairlie, Robert W. and Bruce D. Meyer. 1996. *Ethnic and Racial Self-Employment Differences and Possible Explanations*. The Journal of Human Resources, Volume 31, Issue 4, 757-793; and Butler, John Sibley and Cedric Herring. 1991. *Ethnicity and Entrepreneurship in America: Toward an Explanation of Racial and Ethnic Group Variations in Self-Employment*. Sociological Perspectives. 79-94.

<sup>34</sup> For an example, see: Coleman, Susan. *Small Firm Sources of Debt Capital: A Comparison by Gender, Race and Ethnicity*. University of Hartford.

**Homeownership.** Wealth created through homeownership can be an important source of capital to start or expand a business. Any barriers to homeownership and home equity growth for minorities or women can affect business opportunities for these groups. Similarly, any barriers to accessing the equity in a home through home mortgages can also affect the capital available for new or expanding businesses. In sum:

- A home is a tangible asset that provides borrowing power;<sup>35</sup>
- Wealth that accrues from housing equity and tax savings from home ownership contribute to capital formation;<sup>36</sup>
- Mortgage loans have traditionally been the second largest loan type for small businesses behind lines of credit;<sup>37</sup> and
- Homeownership is associated with an estimated 30 percent reduction in predicted probability of loan denial for small businesses.<sup>38</sup>

Home equity as a source of business capital is especially important in California where past home price appreciation has caused home ownership to be a substantial portion of many households' wealth.<sup>39</sup>

The study team first considered homeownership rates in California and home prices before turning to data on the home mortgage market.

Homeownership rates. Homeownership is the first step toward building home equity that can be tapped for other purposes.

Many studies document past discrimination in the housing markets in the United States. For example, the United States has a history of restrictive real estate covenants and property laws

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<sup>35</sup> Nevin, Allen. 2006. "Homeownership in California: A CBIA Economic Treatise." *California Building Industry Association*. 2.

<sup>36</sup> Jackman, Mary R. and Robert W. Jackman 1980. "Racial Inequalities in Home Ownership." *Social Forces*. 58. 1221-1234.

<sup>37</sup> Berger, Allen N. and Gregory F. Udell. 1998. "The Economics of Small Business Finance: The Roles of Private Equity and Debt Markets in the Financial Growth Cycle." *Journal of Banking and Finance*. 22.

<sup>38</sup> Cavalluzzo, Ken and John Wolken. 2005. "Small Business Loan Turndowns, Personal Wealth and Discrimination." *Journal of Business*. 78:2153-2178.

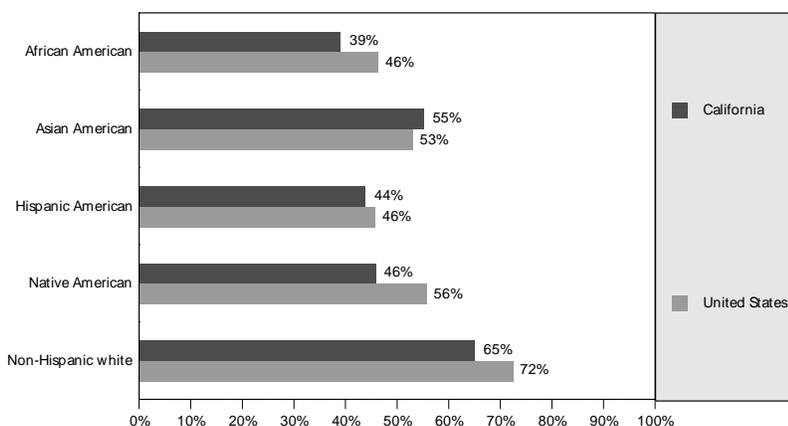
<sup>39</sup> Myers, Dowell and Xin Gao. 2004. "Trajectories of Homeownership in California, 1980 to 2000, and 2000 to 2030." *California Housing Futures research program*. Fannie Mae Foundation.

affecting the ownership rights of minorities and women.<sup>40</sup> In the past, a woman's participation in home ownership was ancillary to that of her husband and parents.<sup>41</sup>

Figure III-13 illustrates disparities in homeownership between minority groups and non-Hispanic whites in California and the nation in 2000. About 39 percent of African American households were homeowners compared with 65 percent of non-Hispanic whites in the state. Homeownership rates were also particularly low for Hispanic Americans and Native Americans in California. Overall rates of homeownership were lower in California than the nation, in part due to the historically high price of homes in the state.<sup>42</sup>

**Figure III-13.**  
**Homeownership**  
**rates, 2000**

Source:  
U.S. Census Bureau,  
KnowledgePlex  
Calculations, an online  
resource maintained by  
the Fannie Mae  
Foundation.



BBC also examined homeownership rates for heads of household who worked in the construction industry and engineering industry. Disparities in homeownership rates found for all California households were also identified for households in which the head of household worked in the construction industry. Differences in homeownership rates also persist for African Americans and Hispanic Americans working in the engineering industry.

Different rates of homeownership in part reflect lower incomes for minorities. This may be self-reinforcing, as low wealth puts individuals at a disadvantage in becoming homeowners, which is an effective path to building wealth. One study found statistically significant results indicating that the probability of homeownership is considerably lower for African Americans than it

<sup>40</sup> Ladd, Helen F. 1982. "Equal Credit Opportunity: Women and Mortgage Credit." *The American Economic Review*. 72:166-170.

<sup>41</sup> Card, Emily. 1980. "Women, Housing Access, and Mortgage Credit." *Signs*. 5:215-219.

<sup>42</sup> Quigley, John M. and Steven Raphael. 2004. "Regulation and the High Cost of Housing in California." *University of California, Berkeley*.

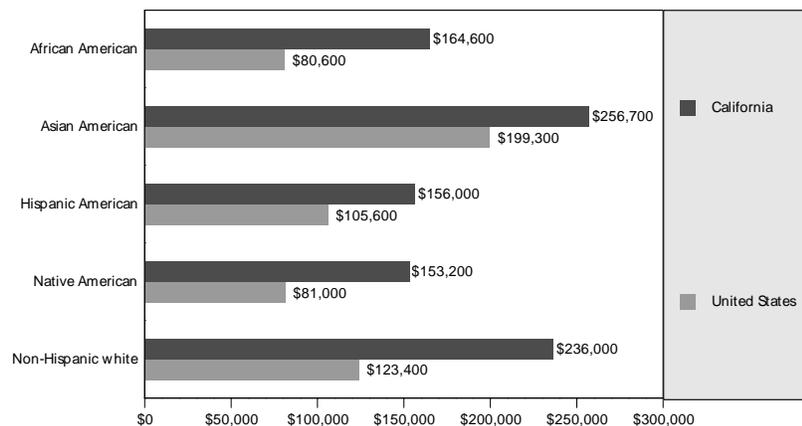
is for comparable non-Hispanic whites throughout the U.S.<sup>43</sup> A study in Los Angeles found different results. Controls for types of income indicated that probabilities of homeownership for African American households in South-Central Los Angeles and San Bernardino County were identical to white households.<sup>44</sup>

Home values. Homeownership and the value of the home is a direct indicator of capital available to form or expand businesses. For example, using microdata from matched Current Population Surveys (1993-2004), one study found that differences in housing appreciation between metropolitan areas affected entry into self-employment. The study indicated that a 10 percent annual increase in housing equity increases the mean probability of entrepreneurship by approximately 20 percent.<sup>45</sup>

U.S. Bureau of the Census data on home values in 2000 allow comparisons of median home values by race and ethnicity. The median home value of non-Hispanic whites in 2000 was \$236,000 in California, substantially above the median value of homes owned by minorities.

**Figure III-14.**  
**Median home value,**  
**2000**

Source:  
U.S. Census Bureau, Census  
2000 and BBC Research and  
Consulting.



Steering by real estate agents. A number of researchers have found that discrimination by real estate agents contributes to residential segregation of minorities.<sup>46</sup> One such practice is

<sup>43</sup> Jackman. 1980. "Racial Inequalities in Home Ownership."

<sup>44</sup> Gabriel, Stuart and Gary Painter. 2001. "Pathways to Homeownership: An Analysis of the Residential Location and Homeownership Choices of Black Households in Los Angeles." *USC Finance & Business Econ.* Working Paper No. 01-22.

<sup>45</sup> Fairlie, Robert W. and Harry A. Krashinky. 2006. "Liquidity Constraints, Household Wealth, and Entrepreneurship Revisited." *IZA Discussion Paper.* No. 2201.

<sup>46</sup> Galster, George and Erin Godfrey. 2005. "Racial Steering by Real Estate Agents in the U.S. in 2000." *Journal of the American Planning Association.* 71:251-268.

"steering" of prospective homebuyers toward particular neighborhoods and away from others because of their race or ethnicity (a practice that has been prohibited by law for many decades). A recent study found such practices in Los Angeles and other cities throughout the country.

**Mortgage lending.** Minorities may be denied opportunities to own homes, to purchase more expensive homes or to access equity in their homes if they are discriminated against when applying for home mortgages. BBC explored this issue.

The best source of information concerning mortgage lending discrimination is Home Mortgage Disclosure Act (HMDA) data. HMDA data pertain to information about mortgage loan applications for financial institutions, savings banks, credit unions and some mortgage companies.<sup>47</sup> The data contain information about the location, dollar amount, and types of loans made, as well as racial and ethnic information, income, and credit characteristics of all loan applicants. The data are available for home purchases, loan refinances, and home improvement loans.

The study team's analysis uses statistics provided by KnowledgePlex on loan denial rates of high-income borrowers. High-income borrowers include households with 120 percent or more of the U.S. Department of Housing and Urban Development (HUD) area median family income.<sup>48</sup> Conventional loans are loans not insured by a government program. Loan denial rates are calculated as a share of mortgage loan applications that have either been denied or originated (this excludes terminations of the application process by the potential borrower).

Data on loan denial rates for mortgages in California show higher denial rates for minority than for non-Hispanic white high-income households. Figure III-15 on the following page reports loan denial rates for the state for 2005. Among high-income households applying for mortgages, 28 percent of African American applicants

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<sup>47</sup> Financial institutions are required to report HMDA data if they have assets of more than \$32 million, have a branch office in a metropolitan area, and originated at least one home purchase or refinance loan in the reporting calendar year. Mortgage companies are required to report HMDA if they are for-profit institutions, had home purchase loan originations exceeding 10 percent of all loan obligations in the past year, are located in an Metropolitan Statistical Area (or originated five or more home purchase loans in an MSA) and either had more than \$10 million in assets or made at least 100 home purchase or refinance loans in the calendar year.

<sup>48</sup> 2005 median family income is \$58,000 for the United States and \$62,500 for California. Based on 2000 census data on family incomes. Data are updated to 2005 using Census P-60 median family income data, Census American Community Survey data on changes in state median family incomes and local Bureau of Labor Statistics Wage data.

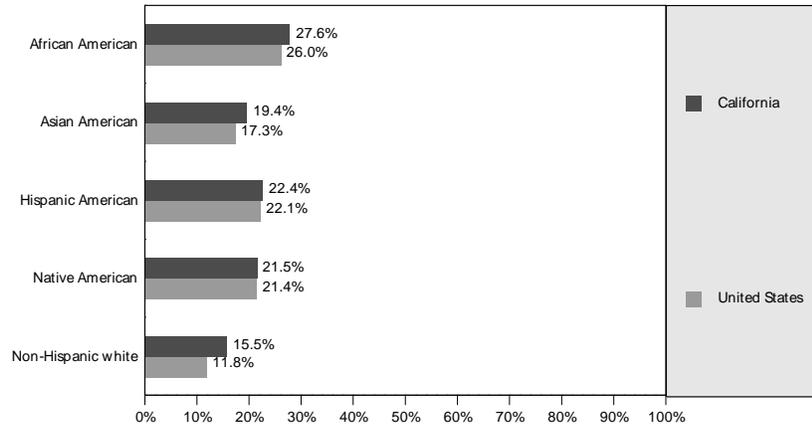
had their applications denied compared with 16 percent of non-Hispanic white households. Loan denial rates were also higher for Native Americans, Hispanic Americans and Asian Americans.

The patterns of loan denial rates by race and ethnicity in California mirror those of the United States as a whole for 2005, although California loan denial rates were higher than national rates for both minorities and non-minorities.

**Figure III-15.**  
**Denial rates of**  
**conventional**  
**purchase loans to**  
**high-income**  
**households, 2005**

Note:  
 High-income borrowers include households with 120% or more than the HUD area median family income (MFI).

Source:  
 FFIEC HMDA data 2005 and KnowledgePlex, an online resource maintained by the Fannie Mae Foundation.



A number of national studies have examined disparities in loan denial rates and loan amounts for minorities in the presence of other influences. Examples include the following:

- The Boston Fed Study is one of the most famous studies of mortgage lending discrimination.<sup>49</sup> It was conducted using the most comprehensive set of credit characteristics ever assembled for a study on mortgage discrimination.<sup>50</sup> The study provided persuasive evidence that lenders in the Boston area discriminated against minorities in 1990.<sup>51</sup>
- Using the Federal Reserve Board's 1983 Survey of Consumer Finances and the 1980 Census of Population and Housing data, logit statistical analysis revealed that minority households were one-third as likely to receive conventional loans as non-

<sup>49</sup> Munnell, Alicia H., Geoffrey Tootell, Lynn Browne and James McEneaney. 1996. "Mortgage Lending in Boston: Interpreting HMDA Data." *The American Economic Review*. 86: 25-53.

<sup>50</sup> Ladd, Helen F. 1998. "Evidence on Discrimination in Mortgage Lending." *The Journal of Economic Perspectives*. 12:41-62.

<sup>51</sup> Yinger, John. 1995. *Closed Doors, Opportunities Lost: The Continuing Costs of Housing Discrimination*. New York: Russell Sage Foundation, 71.

Hispanic white households after taking into account financial and demographic controls.<sup>52</sup>

- Findings from a Midwest study indicate a significant relationship between race and both the number and amount of mortgage loans. Data matched on socioeconomic characteristics revealed that African American borrowers across 13 census tracts received significantly less of both compared to their white counterparts.<sup>53</sup>

On the other hand, other studies have found that differences in preferences for FHA versus conventional loans among racial and ethnic groups may partly explain disparities found in conventional loan approvals between minorities and non-minorities.<sup>54</sup> Several studies have found that minority borrowers are far more likely to receive FHA loans than comparable non-Hispanic white borrowers at all income and wealth levels. FHA loans are insured by the government thus protecting the lender, but the borrower can be hurt by higher costs.<sup>55</sup>

Relevant studies are more limited in California.

- Home Mortgage Disclosure Act (HMDA) data revealed disparities in prime and subprime lending for African American, Hispanic American and Native American applicants. Differences extended across all Metropolitan Statistical Areas.<sup>56</sup>
- An older study using HMDA data and a stepwise regression model accounting for socioeconomic status revealed that measures of ethnicity contribute little explanation to mortgage lending in Sacramento.<sup>57</sup>
- A recent paired testing approach revealed adverse treatment of African Americans and Hispanics in Los Angeles. In some cases, the overall pattern of treatment observed did not differ

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<sup>52</sup> Canner, Glenn B., Stuart A. Gabriel and J. Michael Woolley. 1991. "Race, Default Risk and Mortgage Lending: A Study of the FHA and Conventional Loan Markets." *Southern Economic Journal*. 58:249-262.

<sup>53</sup> Leahy, Peter J. 1985. "Are Racial Factors Important for the Allocation of Mortgage Money?: A Quasi-Experimental Approach to an Aspect of Discrimination." *American Journal of Economics and Sociology*. 44:185-196.

<sup>54</sup> Canner. 1991. "Race, Default Risk and Mortgage Lending: A Study of the FHA and Conventional Loan Markets."

<sup>55</sup> Yinger. 1995. *Closed Doors, Opportunities Lost: The Continuing Costs of Housing Discrimination*. 80.

<sup>56</sup> Gee, Peter. 2004. *The Price of Credit: Prime and Subprime Lending in California 2004*. The Greenlining Institute.

<sup>57</sup> Dingemans, Dennis. 1979. "Redlining and Mortgage Lending in Sacramento." *Annals of the Association of American Geographers*. 69:225-239.

statistically from equal treatment. Multivariate analysis found almost no evidence of systemic variation in the treatment of African American testers in Los Angeles other than encouragement for FHA loans.<sup>58</sup>

Higher fees and interest rates. Denial of loans is only one way that minorities could be discriminated against in the home mortgage market; mortgage-lending discrimination can also reveal itself through high fees and interest rates. The housing market provides a unique atmosphere for this type of discrimination through fees associated with various loan types.

One of the fastest growing segments of the home mortgage industry is subprime lending. From 1994 through 2003, subprime mortgage activity grew by 25 percent per year and accounted for \$330 billion of U.S. mortgages in 2003, up from \$35 billion a decade earlier. Subprime loans are marketed and sold to customers with blemished or limited credit histories that would typically not qualify for prime loans.

Minorities are more likely to receive a subprime loan, which charge higher interest fees than conventional loans. Financial institutions have been accused of taking advantage of minorities by charging unnecessarily high rates and imposing costs that endanger home ownership. One study found many users of the subprime market are qualified for prime loans.<sup>59</sup>

In California, African American, Native American and Hispanic American borrowers are much more likely to have a subprime loan than non-Hispanic whites. For example, 36 percent of the conventional refinancing loans received by African Americans were from subprime lenders compared with only 16 percent of refinancing loans received by non-Hispanic whites. On the other hand, Asian Americans are less likely than non-Hispanic whites to obtain a mortgage from the subprime market.

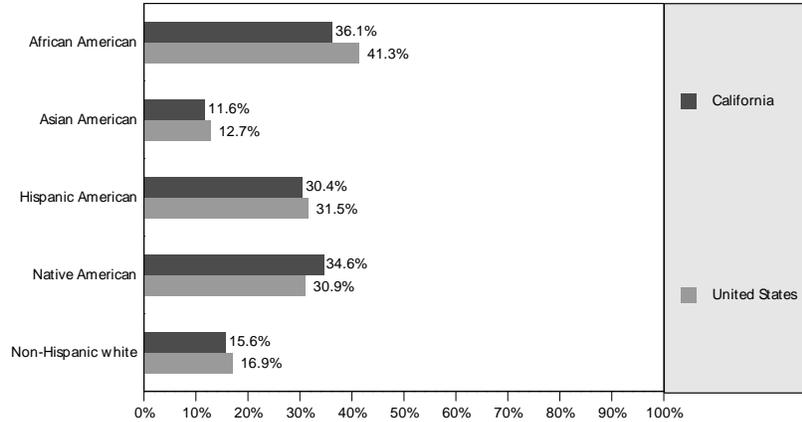
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<sup>58</sup> Ross, Stephen, Margery Austin Turner, Erin Godfrey and Robin R. Smith. 2005. "Mortgage Lending in Chicago and Los Angeles: A Paired Testing Study of the Pre-Application Process." *University of Connecticut Department of Economics*. Working Paper Series.

<sup>59</sup> Freddie Mac. 1996, September. "Automated Underwriting: Making Mortgage Lending Simpler and Fairer for America's Families." *Freddie Mac*. (accessed February 5, 2007).

**Figure III-16.  
Percent of  
conventional  
refinancing loans  
from subprime  
lenders, 2004**

Source:  
FFIEC HMDA data 2004 and  
KnowledgePlex, an online  
resource maintained by the  
Fannie Mae Foundation.



Historically, differences in types of loans awarded to minorities have been attributed to steering by real estate agents, who serve as an information filter between buyers and sellers.<sup>60</sup> Some studies claim that real estate brokers provide different levels of assistance and different information on loans to minorities and non-minorities.<sup>61</sup> This "steering" can shape the perceived availability of loans to minority borrowers.

Home value appraisal is another means of discrimination in mortgage lending. Differences in appraisal values can change the loan-to-value ratio, an indicator of risk for lending institutions. Findings suggest that minorities and women have been subject to the under-appraisal of home values. One study suggests that appraisers lower appraisal values for minorities.<sup>62</sup> Another study found that minorities have higher loan-to-value ratios.<sup>63</sup>

Other potential forms of discrimination by lenders are more difficult to analyze and document.<sup>64</sup> Areas include outreach and application procedures (i.e. helping non-minority applications look stronger), loan terms determined by the lender (interest rates, maturity, loan-to-value ratio and loan types), underwriting standards that may disproportionately affect minorities and women, and default and foreclosure options.

<sup>60</sup> Kantor, Amy C. and John D. Nystuen. 1982. "De Facto Redlining a Geographic View." *Economic Geography*. 4:309-328.

<sup>61</sup> Yinger. 1995. *Closed Doors, Opportunities Lost: The Continuing Costs of Housing Discrimination*. 78-79.

<sup>62</sup> Yinger. 1995. *Closed Doors, Opportunities Lost: The Continuing Costs of Housing Discrimination*. 82.

<sup>63</sup> Tootell, Geoffrey M. B. 1996. "Redlining in Boston: Do Mortgage Lenders Discriminate Against Neighborhoods?" *The Quarterly Journal of Economics*. 111:1049-1079.

<sup>64</sup> Yinger. 1995. *Closed Doors, Opportunities Lost: The Continuing Costs of Housing Discrimination*. 78-81.

Anecdotal evidence suggests that African American home seekers generally must expend more time, effort and resources than non-Hispanic whites for the same end.<sup>65</sup> Minorities and women may also believe they are required to produce greater levels of equity and hard collateral in order to secure debt than their non-minority male counterparts and have fewer options for investment capital.<sup>66</sup>

Redlining. Redlining is the term for mortgage lending discrimination to geographic areas associated with high lender risk. These areas are often racially determined, such as African American and mixed race neighborhoods.<sup>67</sup> This practice can perpetuate problems in already poor neighborhoods.<sup>68</sup>

For example, the City of East Palo Alto sued a California lender for redlining and having loan practices that discriminated against people in low income or minority communities. Evidence included loan officers telling applicants that the bank simply did not lend in East Palo Alto or in specific minority neighborhoods.<sup>69</sup> The bank provided cash and a revolving loan fund in order to settle the lawsuit.

Most quantitative studies have failed to find strong evidence in support of geographic dimensions of lender decisions. Studies in Columbus, Ohio; Boston, Massachusetts; and Houston, Texas found that the racial differences in loan denial had little to do with racial composition of the neighborhood, but rather the individual characteristics of the borrower.<sup>70</sup> Some studies found race of the applicant to be a factor in loan denials, not the racial makeup of the neighborhood.

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<sup>65</sup> Bullard, Robert D. 1990. "Housing Barriers: Trends in the Nation's Fourth-Largest City." *Journal of Black Studies*. 21:4-14.

<sup>66</sup> Darryl E. Greene & Associates, P.C., and Triaxial Management Services, Inc., a Joint Venture. 1994. *DBE/MBE/WBE Predicate Study: Preliminary*. Los Angeles County Metropolitan Transportation Authority.

<sup>67</sup> Holloway, Steven R. 1998. "Exploring the Neighborhood Contingency of Race Discrimination in Mortgage Lending in Columbus, Ohio." *Annals of the Association of American Geographers*. 88:252-276.

<sup>68</sup> Ladd, Helen F. 1998. "Evidence on Discrimination in Mortgage Lending." *The Journal of Economic Perspectives*. 12:41-62.

<sup>69</sup> "California bank pays \$206,000 and establishes \$7 million credit line for city to settle redlining suit." *National Fair Housing Advocate Online*. [http://www.fairhousing.com/index.cfm?method=page.display&pagename=advocate\\_october02\\_page5](http://www.fairhousing.com/index.cfm?method=page.display&pagename=advocate_october02_page5) (accessed February 8, 2007).

<sup>70</sup> See Holloway.1998. "Exploring the Neighborhood Contingency of Race Discrimination in Mortgage Lending in Columbus, Ohio."; Tootell. 1996. "Redlining in Boston: Do Mortgage Lenders Discriminate Against Neighborhoods?"; and Holmes, Andrew and Paul Horvitz. 1994. "Mortgage Redlining: Race, Risk, and Demand." *The Journal of Finance*. 49:81-99.

Studies of redlining have primarily focused on the geographic aspect of lender decisions; however, redlining can also include the practice of restricting credit flows to minority neighborhoods through procedures that are not observable in actual loan decisions. Examples include branch placement, advertising and other pre-application procedures.<sup>71</sup> These practices can deter minorities from starting businesses. Locations of financial institutions are important to small business start up because local banking sectors often finance local business.<sup>72</sup> Redlining practices would deny this capital resource to minorities.

Gender discrimination in mortgage lending. Relatively little information is available on sex-based discrimination in mortgage lending markets. Historically, lending practices overtly discriminated against women by requiring information on marital and childbearing status. Risk associated with women of childbearing age and unmarried women resulted in "income discounting," limiting the availability of loans to women.<sup>73</sup>

The Equal Credit Opportunity Act (ECOA) in 1973 suspended these discriminatory lending practices. A study in California explored discrimination against married and single women in 16 metropolitan areas from 1977 to 1978. Regression analysis revealed little evidence of sex discrimination in California. Barriers have continued after 1973, however. For example, there is some evidence that lenders under-appraise property for female borrowers.<sup>74</sup>

#### **Access to Business Capital**

Barriers to capital markets can have significant outcomes for small business formation and expansion. "Discrimination in obtaining loans due to race and gender," was identified as an issue for businesses during Caltrans public hearings held in spring 2006.<sup>75</sup> In addition, several studies have found evidence

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<sup>71</sup> Yinger, John. 1995. "Closed Doors, Opportunities Lost: The Continuing Costs of Housing Discrimination." Russell Sage Foundation. New York. 78-79.

<sup>72</sup> Holloway. 1998. "Exploring the Neighborhood Contingency of Race Discrimination in Mortgage Lending in Columbus, Ohio."

<sup>73</sup> Card. 1980. "Women, Housing Access, and Mortgage Credit."

<sup>74</sup> Ladd, Helen F. 1982. "Equal Credit Opportunity: Women and Mortgage Credit." *The American Economic Review*. 72:166-170.

<sup>75</sup> Caltrans Public Hearing Testimony and Related Documents. Examined and summarized by GCAP Services.

that start-up capital is important for business profits, longevity and other outcomes.<sup>76</sup>

- The amount of start-up capital is positively associated with small business sales and other outcomes.<sup>77</sup>
- Limited access to capital has limited the size of African American-owned businesses.<sup>78</sup>
- Weak financial capital was identified as a significant reason that more African American-owned firms than non-Hispanic white-owned firms closed over a four-year period.<sup>79</sup>

Bank loans are one of the largest sources of debt capital for small businesses.<sup>80</sup> Discrimination in the application and approval processes of these loans and other credit resources could be detrimental to the success of minority- and women-owned businesses.

Previous studies have addressed race, ethnic and gender discrimination in capital markets by evaluating:

- Loan denial rates;
- Loan values;
- Interest rates;
- Individual assumptions that loan applications will be rejected;
- Sources of capital; and
- The relationship between start-up capital and business survival.

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<sup>76</sup> For examples see Fairlie. 2006. "Liquidity Constraints, Household Wealth, and Entrepreneurship Revisited;" and Grown, Caren and Timothy Bates. 1991. "Commercial Bank Lending Practices and the Development of Black-Owned Construction Companies." Center for Economic Studies, U.S. Bureau of the Census.

<sup>77</sup> See Fairlie, Robert W. and Harry A. Krashinsky. 2006. "Liquidity Constraints, Household Wealth, and Entrepreneurship Revisited"; and Grown. 1991. "Commercial Bank Lending Practices and the Development of Black-Owned Construction Companies."

<sup>78</sup> Grown. 1991. "Commercial Bank Lending Practices and the Development of Black-Owned Construction Companies."

<sup>79</sup> Grown. 1991. "Commercial Bank Lending Practices and the Development of Black-Owned Construction Companies."

<sup>80</sup> Data from the 1998 SSBF indicates that 70 percent of loans to small business are from commercial banks. This result is present across all gender, race and ethnic groups with the exception of African Americans, whose rate of lending from commercial banks is even greater than other minorities. See Blanchard, Lloyd, Bo Zhao and John Yinger. 2005. "Do Credit Market Barriers Exist for Minority and Woman Entrepreneurs." *Center for Policy Research, Syracuse University*.

To examine these questions, the study team analyzed data from the Federal Reserve Board's 1998 Survey of Small Business Finances (SSBF) conducted by the Board of Governors. It is the most comprehensive national source of credit characteristics of firms with fewer than 500 employees. Sample weights are applied to provide representative estimates.<sup>81</sup> The survey contains information on loan denial and interest rates, as well as anecdotal information from firms. The sample contains records for 3,521 firms nationally.

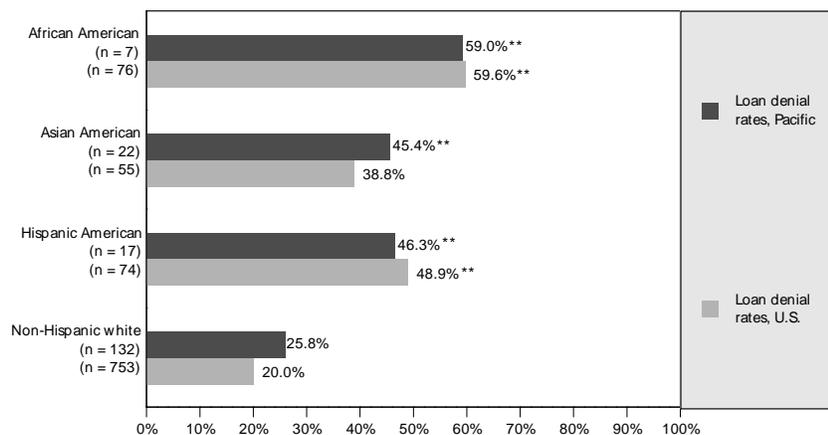
The SSBF records the geographic location of the firm by census division, not city or state. The Pacific Census Division contains California.<sup>82</sup>

**Loan denial rates.** Figure III-17 shows loan denial rates from the 1998 SSBF for the Pacific region. African American-owned businesses experienced higher rates of denial (59 percent) than all other groups in the Pacific region, consistent with nationwide results. Hispanic American-owned firms had a 46 percent rate of loan denials, nearly twice as high as non-Hispanic whites. Asian American-owned firms also had relatively high rates of loan denial.

**Figure III-17.**  
**Business loan denial rates, 1998**

Note:  
\*\* Denotes that the difference in proportions from non-Hispanic whites are statistically significant at the 95% confidence level.

Source:  
BBC Research and Consulting from 1998 Survey of Small Business Finances.



<sup>81</sup> Ethnicity and race were analyzed using the following methodology: A non-Hispanic white firm is a firm that is not Hispanic and not minority; an African American firm is black/African American and not Hispanic; Hispanic American is all firms that identify as Hispanic; and Asian-Pacific American is either Asian, Native American or Native Hawaiian and not Hispanic. Firms that claimed "sometimes approved/sometimes denied" were given half weights to the loan denial rate. Weighted rates and means were computed. The sample size is unweighted.

<sup>82</sup> The Pacific Census Division includes Alaska, California, Hawaii, Oregon and Washington.

A number of studies have developed regression models to isolate the effects of race and ethnicity from other factors that affect loan approvals. Findings from these studies include:

- Commercial banks are less likely to loan to African American-owned firms than non-Hispanic white-owned firms after controlling for other factors.<sup>83</sup>
- African American, Hispanic American and Asian American men are more likely to be denied for a loan than non-Hispanic white men. However, African American borrowers are more likely to apply for a loan.<sup>84</sup>
- There are substantial unexplained differences in credit applications, loan denials and interest rates between non-Hispanic white- and African American-owned firms. Competitiveness of lender markets helps to explain these disparities.<sup>85</sup>
- The probability of loan denial decreases with greater personal wealth. However, controlling for personal wealth does not resolve the large differences in denial rates across African American-, Hispanic American-, Asian American-, and non-Hispanic white-owned firms. Specifically, information on personal wealth explained some differences for Hispanic- and Asian American-owned firms compared to non-Hispanic whites, but almost none for African Americans.<sup>86</sup>
- Loan denial rates are significantly higher for African American-owned firms than non-Hispanic white-owned firms in the presence of several other factors such as creditworthiness and other characteristics. This result is largely insensitive to econometric specification. Consistent evidence on loan denial rates and other indicators of discrimination in credit markets was not found for other minorities and women.<sup>87</sup>

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<sup>83</sup> Cavalluzzo, Ken, Linda Cavalluzzo and John Wolken. 2000. "Competition, Small Business Financing and Discrimination: Evidence from a New Survey." *FEDS Working Paper No. 99-25*

<sup>84</sup> Coleman, Susan. 2002. "Characteristics and Borrowing Behavior of Small, Women-owned Firms: Evidence from the 1998 National Survey of Small Business Finances." *The Journal of Business and Entrepreneurship*. 151-166.

<sup>85</sup> See Cavalluzzo, 2000. "Competition, Small Business Financing and Discrimination: Evidence from a New Survey."

<sup>86</sup> Cavalluzzo, Ken and John Wolken. 2002. "Small Business Turndowns, Personal Wealth and Discrimination." *FEDS Working Paper No. 2002-35*.

<sup>87</sup> Blanchflower, David G., Phillip B. Levine and David J. Zimmerman. 2003. "Discrimination in the Small Business Credit Market." *The Review of Economics and Statistics*. 85:930-943.

Using data from the 1998 SSBF and controlling for other variables, women are no less likely to apply for or be approved for loans.<sup>88</sup>

**Loan values.** Beyond loan denial rates, the study team considered the loan values for firms receiving loans. Results from the 1998 SSBF for the most recent loan values awarded by ethnicity, race and gender are given in Figure III-18.

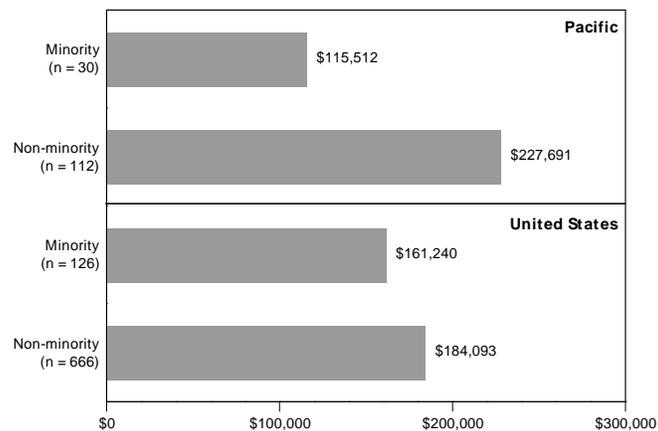
In the Pacific, the average loan amount for non-Hispanic whites was \$227,691. Minority-owned firms had lower loan amounts:

- Minority-owned firms received loan amounts that averaged half of the loan amounts awarded to non-Hispanic white-owned firms.
- A similar trend exists for minority-owned firms on a national level, but the difference is much smaller than in the Pacific region.

The differences for minority firms reflected lower loan amounts requested.

**Figure III-18.**  
**Approved business**  
**loan values, 1998**

Source:  
BBC Research and Consulting from  
1998 Survey of Small Business  
Finances.



Previous national studies have found that African American-owned firms receive substantially lower loan amounts than their non-Hispanic white counterparts with similar characteristics. Examination of construction companies in the United States revealed that African American-owned firms received smaller loans than firms with otherwise identical traits. This increases the likelihood of firm closure.<sup>89</sup>

**Interest rates.** Figure III-19 on the following page presents average interest rates on commercial loans from the 1998 SSBF.

<sup>88</sup> Coleman. 2002. "Characteristics and Borrowing Behavior of Small, Women-owned Firms: Evidence from the 1998 National Survey of Small Business Finances."

<sup>89</sup> Grown. 1991. "Commercial Bank Lending Practices and the Development of Black-Owned Construction Companies."

The mean interest rates for African American-owned firms, Asian-Pacific American-owned firms and Hispanic-owned firms in the Pacific region are similar to the mean interest rate for non-Hispanic whites of 9.4 percent.

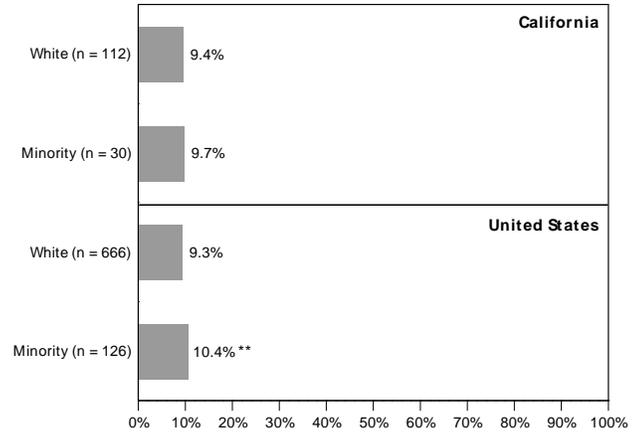
**Figure III-19.**  
**Mean interest rate for**  
**business loans, 1998**

Note:

\*\* Denotes that the difference in proportions from non-Hispanic whites are statistically significant at the 95% confidence level.

Source:

BBC Research and Consulting from 1998 Survey of Small Business Finances.



The results above are similar to some studies of interest rates charged for commercial loans that controlled for factors such as individual credit history, firm credit history, and Dun and Bradstreet credit scores.<sup>90</sup> Differences were found in some studies:

- Hispanic-owned firms had significantly higher interest rates in places with less credit market competition.<sup>91</sup>
- Among a sample of firms with no past credit problems, African American-owned firms paid significantly higher interest rates on approved loans.<sup>92</sup>

**Individual assumptions that loan applications will be rejected.** Fear of loan denial is a barrier to capital markets because it prevents small businesses from applying for loans and thus can help explain differences in business outcomes. In addition, it provides insight into minority business owners' perceptions of the small business lending market. Figure III-20 on the following page shows results from the 1998 SSBF on firms that reported needing credit but did not apply because they feared denial. African American-owned firms had higher rates than all other groups in the Pacific region, consistent with national results. Hispanic American-owned firms also had higher rates than non-Hispanic white-owned firms, with larger differences in the Pacific region compared to national rates.

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<sup>90</sup> Cavalluzzo. 2000. "Competition, Small Business Financing and Discrimination: Evidence from a New Survey."

<sup>91</sup> Cavalluzzo. 2000. "Competition, Small Business Financing and Discrimination: Evidence from a New Survey."

<sup>92</sup> Blanchflower. 2003. "Discrimination in the Small Business Credit Market."

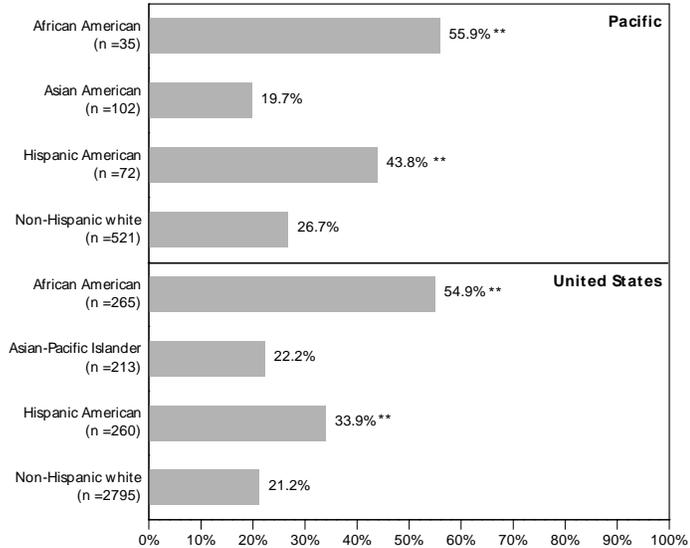
**Figure III-20.**  
**Firms that needed loans**  
**but did not apply due to**  
**fear of denial, 1998**

Note:

\*\* Denotes that the difference in proportions from non-Hispanic whites are statistically significant at the 95% confidence level.

Source:

BBC Research and Consulting from 1998 Survey of Small Business Finances.



The body of literature identifies multiple factors that influence the decision to apply for a loan, such as firm size, firm age, owner age and educational attainment. Controlling for these factors can help to determine whether race and ethnicity explain fear of loan denial. Findings indicate:

- African American- and Hispanic American-owners are significantly less likely to apply for loans.<sup>93</sup>
- After controlling for educational attainment, there were no significant differences in loan application rates between non-Hispanic white, African American, Hispanic and Asian American men.<sup>94</sup>
- African American-owned firms are more likely than other firms to report being seriously concerned with credit markets and are less likely to apply for credit in fear of denial.<sup>95</sup>

**Comments concerning access to capital from firms interviewed in the 2006 Availability Survey.** Near the conclusion of the interviews with business owners and managers in the transportation construction and engineering industry, the 2006 Availability Survey included the following open-ended question:

*Finally, we are giving business owners and managers an opportunity to offer general insights on your industry,*

<sup>93</sup> Cavalluzzo, 2000. "Competition, Small Business Financing and Discrimination: Evidence from a New Survey."

<sup>94</sup> Coleman, Susan. 2004. "Access to Debt Capital for Small Women- and Minority-Owned Firms: Does Educational Attainment Have an Impact?" *Journal of Developmental Entrepreneurship*. 9:127-144.

<sup>95</sup> Blanchflower et al., 2003. *Discrimination in the Small Business Credit Market*.

*including how difficult it is to start or expand your business and to [bid / propose] on and win work. As you are thinking, be sure to consider any issues related to Caltrans and local government projects in California. What thoughts do you have to offer on these topics?*

The questions asked were open-ended by design, which affects the number of comments concerning each potential barrier. If the study team had specifically asked about each potential barrier, more firms would have identified the issue as a barrier for their firm. The strength of this methodology is that respondents identified areas of problems unprompted by the interviewers. It shows the degree to which certain barriers were "top of mind" for business owners and managers. BBC coded multiple responses.<sup>96</sup>

Some transportation construction firms mentioned access to capital as a difficulty in starting or expanding their businesses or in working with Caltrans. Unprompted, about 1 percent of firms brought up this issue. Four percent of African American-owned firms responding to the survey mentioned access to capital as a barrier, a greater rate than other firms.

Very few transportation engineering firms identified access to capital as a barrier in the 2006 Availability Survey, although 2 percent of African American-owned businesses mentioned this issue.

**Other factors affecting capital markets.** Strength in the ethnic banking sector influences credit accessibility in ethnic communities in Los Angeles. A strong Asian American bank sector helped Asian American communities transition to successful business environments, and a lack of strong banking sectors in African American communities could hinder development of African American businesses.<sup>97</sup>

**Avenues for further research.** The BBC study team will further analyze 1998 SSBF data as well as recently released 2003 SSBF data to explore differences in outcomes for minorities in access to credit after controlling for factors such as measures of creditworthiness.

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<sup>96</sup> For example, if a firm owner responded to the first question by indicating that slow payment and contract specifications were barriers, BBC tracked both responses. If the firm owner answered the second question with further elaboration on slow payment, and then added a comment about difficulty finding information about contract opportunities, the information on bidding comment was added to the combined responses for that firm.

<sup>97</sup> Dymski, Gary and Lisa Mohanty. 1999. "Credit and Banking Structure: Asian and African-American Experience in Los Angeles." *The American Economic Review*. 89:362-366.

## **Bonding**

Although little quantitative information exists regarding MBEs and WBEs and access to surety bonds for public construction projects, there is anecdotal evidence that suggests such problems persist.<sup>98</sup> For example, in spring 2006 Caltrans public hearings, one concern among minority, women and small business owners was high insurance and bonding requirements.<sup>99</sup>

Access to bonding and bonding requirements were brought up by a few transportation construction or engineering industry firms when discussing barriers to entry and business success in the 2006 Availability Survey. Two percent of African American-owned firms interviewed mentioned bonding as a barrier, which was more than other firms. Most comments related to bonding were focused on general difficulties in obtaining bonds, particularly for small businesses. Some firms specifically cited Caltrans' bonding requirements as a barrier to obtaining work. For example, one respondent stated, "Caltrans' requirements are pretty stringent in regards to bonding." Another said, "I think Caltrans is looking for big projects from big firms. We are a small firm and can do the job but bonding is the biggest issue."

The study team will be conducting further research into this issue in the Final Report.

## **Additional Analysis in the Final Report**

The BBC study team will be collecting and analyzing additional qualitative and quantitative information concerning any barriers to entry into the transportation construction and engineering industry in California. Study team members will conduct in-depth interviews with minority-, women- and majority-owned firms in this industry as well as trade associations active in the industry. Caltrans plans to hold public hearings in spring 2007 which may solicit testimony that shed more light on these issues.

BBC will also be conducting additional quantitative analyses, including further exploration of whether neutral factors can explain any disparities suggesting barriers to entry identified in the Interim Report.

The results of these additional analyses will be included in the Final Report for the Availability and Disparity Study.

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<sup>98</sup> Enchautegui, Maria E. et al. 1997. "Do Minority-Owned Businesses Get a Fair Share of Government Contracts?" *The Urban Institute*: 1-117, p. 56.

<sup>99</sup> Caltrans Public Hearing Testimony and Related Documents. Examined and summarized by GCAP Services.