Measuring Minority- and Woman-Owned Construction and Professional Service Firm Availability and Utilization

Final Report

Prepared For:

Santa Clara Valley Transportation Authority

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December 14, 2007

Executive Summary

Introduction

At the request of the Santa Clara Valley Transportation Authority (VTA), CRA International (CRA)[1] conducted a study of the availability and utilization of minority- and woman-owned businesses providing construction and professional services within the San Jose-San Francisco-Oakland Combined Statistical Area (SJ CSA)[2] and relevant adjacent areas. The study was designed to meet the requirements set forth by the United States Court of Appeals for the Ninth Circuit in *Western States Paving v. Washington Department of Transportation*, 407 F.3d 983 (2005). VTA receives US DOT funding affected by the decision in that case and seek to ensure that its contracting programs continue to comport with federal requirements. In this study, we evaluate evidence of discrimination based only on race, color, sex or national origin, as set forth in Title 49 CFR Part 26.

In *Western States Paving*, the Ninth Circuit held that the race- and gender-conscious contracting programs required by the US DOT must be narrowly tailored to evidence race and gender discrimination not only on the national level, as they traditionally have been, but also in the geographic region of the agencies receiving US DOT funding as well. This regional evidence of discrimination should include a statistical analysis that accounts and corrects for several factors, including the relative capacity of firms to undertake contracting work and other non-race or gender factors that may explain observed disparities between White male and minority- or woman-owned firm utilization and availability. The Ninth Circuit also pointed out that utilization measures may be skewed by gender- and race-conscious government programs, and such measures should be interpreted carefully. Further, the Court emphasized the need for anecdotal evidence of discrimination within the subject industries to support or disprove any inference of discrimination suggested by the statistical study.

Summary of Key Findings

We conducted a study that was designed to meet the above criteria as closely as possible. Controlling for the influence of past race-conscious programs, firm size, and non-race or gender factors, such as experience and education, we found in most instances that there is statistically significant evidence of discrimination against construction and professional service firms owned by women, African Americans, Hispanic, and Asian Americans in the construction and professional services industries operating within the relevant local market. Table ES1 summarizes the results of our statistical analyses by race and gender

[1] This study was directed by Dr. Mark Berkman, a CRA vice president, with assistance from Professor Robert Fairlie of U.C. Santa Cruz, and Dr. Matthew Johnson, a CRA senior associate.

[2] The SJ CSA, Sacramento County and San Joaquin County define the boundary of the geographic market drawn on by VTA for contracting services. The SJ CSA includes the following counties: Alameda, Contra Costa, Marin, San Francisco, San Mateo, Santa Clara, Santa Cruz, Sonoma, Napa, San Benito and Solano.

group and industry using several measures of minority and woman owned firm availability.

Anecdotal evidence confirms these findings. Minority- and woman-owned construction and professional service firms consistently reported greater impediments to contracting opportunities, including unfavorable treatment by prime contractors and lending institutions than their White male counterparts. Statistical analysis also indicates that minority-owned firms face higher loan denial rates even controlling for creditworthiness. Finally, many of the minority- and woman-owned firms also reported discrimination by prime contractors with respect to obtaining subcontracts and contract violations in their performance.

Table ES1: Statistical Evidence of Discrimination in SJ CSA and Surrounding Areas

		Do the Following Measures Yield Evidence of Discrimination?				
		Firm Formation Disparity Ratio[1]	**Private Sector Disparity Ratio[2]**	**Disparity Ratio Using SBO Potential Availability[3]**	**Disparity Ratio Using Unadjusted SBO Availability [4]**	**Disparity Ratio Using SBO > $50K Availability [5]**
CONSTRUCTION						
Women	contracts with DBE Requirements	**YES**	**YES**	**YES**	**YES**	**YES**
	contracts with SBE Requirements			**YES**	**YES**	**YES**
African Americans	contracts with DBE Requirements	**YES**		**YES**	**YES**	**NO**
	contracts with SBE Requirements			**YES**	**YES**	**YES**
Asian/Pacific Islander	contracts with DBE Requirements	**NO**	**YES**	**YES**	**YES**	**YES**
	contracts with SBE Requirements			**YES**	**YES**	**YES**
Hispanics	contracts with DBE Requirements	**YES**		**YES**	**NO**	**NO**
	contracts with SBE Requirements			**YES**	**YES**	**NO**
PROFESSIONAL SERVICES						
Women	contracts with DBE Requirements	**YES**	**YES**	**YES**	**YES**	**YES**
	contracts with SBE Requirements			**YES**	**YES**	**YES**
African Americans	contracts with DBE Requirements	**YES**		**YES**	**YES**	**NO**
	contracts with SBE Requirements			**YES**	**NO**	**NO**
Asian/Pacific Islander	contracts with DBE Requirements	**YES**	**YES**	**YES**	**NO**	**NO**
	contracts with SBE Requirements			**NO**	**NO**	**NO**
Hispanics	contracts with DBE Requirements	**YES**		**YES**	**YES**	**NO**
	contracts with SBE Requirements			**YES**	**YES**	**NO**

Notes:
Please see Table ES2 for the specific disparity ratio values.
"YES" indicates a disparity ratio of 80 or less, meaning firms were created or utilized at less than 80% of the level that would be expected in a race and gender neutral marketplace.
Disparity ratios were calculated for two sets of contracts - delineated by whether bidding requirements were race and gender conscious or neutral. The first contract grouping covers contracting when VTA was employing a race and gender conscious disadvantaged business enterprise (DBE) program. Prime contractors who bid on contracts with DBE requirements were required to hire a certain portion of DBE (including minority-owned business enterprises, or MBEs, and woman-owned business enterprises, or WBEs) subcontractors to fulfill contract obligations. The second contract grouping covers contracting when VTA was employing a race and gender neutral small business enterprise (SBE) program. Prime contractors who bid on contracts with SBE requirements are required to hire a certain portion of SBE subcontractors to fulfill contract obligations.
1) The firm formation disparity ratio is calculated as the ratio of actual new firm formation rate to the predicted firm formation rate, mutliplied by 100.
2) The private sector disparity ratio is calculated as the ratio of private sector utilization to SBO availability, multiplied by 100.
3) The SBO potential availability disparity ratio is calculated as the ratio of VTA utilization to the discrimination-adjusted measure of SBO availability. The discrimination-adjusted SBO availability accounts for the difference between actual and predicted availability rates.
4) The Unadjusted SBO availability disparity ratio if calculated as the ratio of VTA utilization to the SBO availability for all firms.
5) The SBO >$50K availability disparity ratio is calculated as the ratio of VTA utilization to the >$50K SBO availability. The SBO >$50K availability excludes firms with less than $50,000 annual revenue.

Methods of Analysis

As directed by *Western States Paving* and prior case law, we conducted both statistical analyses and collected anecdotal evidence of race and gender discrimination. Our methods and findings are described in greater detail below.

Statistical Analysis

The statistical analysis was conducted using several measures of minority and woman owned firm availability. These measures were designed to consider disparities from several perspectives – the market within which VTA operates, the private sector, and VTA's own contracting experience.

Market Level Analysis—Self-Employment Rate Comparison

We tested for statistical evidence of discrimination at the market level by examining whether minorities and women formed firms in the SJ CSA and surrounding areas at a different rate from White men, even when we controlled for non-race and gender-based explanations, such as age—a proxy for experience—and education. Lower firm formation rates, measured here as self employment rates for minorities and women after controlling for these factors, suggest that discrimination plays a role in creating this difference.

We compared the actual and predicted firm formation rates to create a disparity ratio:

$$\frac{\text{Actual Firm Formation Rate}_{ij}}{\text{Predicted Firm Formation Rate}_{ij}} \times 100$$

where *i* represents a particular race or gender group and *j* represents a particular industry. A disparity ratio below 100 indicates that the actual firm formation rate fell below the predicted rate, which already accounts for differences in the non-racial or gender factors that contribute to firm formation.

This ratio gauges the extent to which discrimination hinders minority- and woman-owned contracting and professional services firms from coming into being in the first instance controlling for non race and gender characteristics. But this measure alone does not fully meet all of the requirements established by the Courts to detect discrimination on minority- and women-owned firms in the current marketplace. Accordingly, we supplemented our analysis with several other methods.

Private Sector Analysis—Utilization/Availability Comparison

We examined whether race or gender discrimination exists in the private market for construction and professional services firms in the SJ CSA and relevant surrounding areas by comparing the utilization of minority- and woman-owned firms to their availability in the private sector. This comparison was again calculated as a disparity ratio:

$$\frac{\text{Private Sector Utilization}_{ij}}{\text{Availability}_{ij}} \times 100$$

where *i* represents a particular race or gender group and *j* represents a particular industry. A disparity ratio below 100 indicates that private sector utilization was lower than availability for the particular group in the particular industry.

The private sector generally does not use race- or gender-conscious affirmative action programs, so this statistical measure is a valuable indicator of the level of discrimination that currently exists in the market in the absence of corrective measures. However, these results do not distinguish among different minorities, nor do they test for discrimination at VTA, and nor do they account for competing measures of availability. For these reasons we gathered and analyzed additional data.

Agency Level Analysis—VTA Utilization/Availability Comparison

We tested for statistical evidence of discrimination in contracting at the government level using three measures of availability. Three measures were chosen to address the often controversial subject of how best to measure availability.

First, we measured availability within the relevant market using the Survey of Business Owners (SBO) conducted by the US Department of Census every five years. The most recent survey was completed in 2002 and made available to the public in 2006. These availability measures were adjusted to reflect the level of firm formation one would expect in the absence of discrimination using the firm formation rate analysis referenced above. This is a measure of potential availability absent discrimination. Comparing actual utilization by VTA to this potential availability figure best captures the combined effect of the marketplace—including unfair treatment arising in contracting by participants in both the public and private sectors that may limit contracting opportunities and discourage firm formation and growth.

Second, we measured availability within the relevant market using unadjusted SBO data. Evidence from recent Census Current Population Survey (CPS) data from 2002 through 2006 indicates that the population of minority-owned firms has grown since the last SBO survey in 2002. Therefore, these SBO-based measures are likely to be conservative estimates of minority-owned firm availability.

Third, we separately measured availability by imposing a size restriction on the unadjusted SBO data. Based on our review of firms bidding on VTA contracts, we determined that firms reporting annual revenues of $50,000 or less were unlikely to bid. Consequently, we counted only firms reporting more than $50,000 in annual revenues as available. This method provides the most conservative measure of availability, but does not fully reveal the extent of discrimination, particularly because it does not capture the effect of discriminatory barriers to firm formation nor of similar barriers to growth. In fact, most minority- and woman-owned firms remain comparatively small and are disproportionately excluded from this measure of availability.

Using the three availability measures, we tested for disparity using the ratio of utilization to availability:

$$\frac{\text{Utilization}_{ij}}{\text{Availability}_{ijl}} \times 100$$

where *i* represents a particular race or gender group, *j* represents a particular industry, and *l* represents which availability database is employed (SBO adjusted for potential availability, SBO unadjusted, or SBO restricted to firms with annual revenues greater than $50,000). A disparity ratio below 100 indicates that government-sector utilization was lower than availability for a particular group in a particular industry.

We also tested for disparities during periods when VTA implemented a race and gender conscious disadvantaged business enterprise (DBE) program and when VTA implemented a race and gender neutral small business enterprise (SBE) program. Comparing these results indicates whether a race and gender conscious program is necessary to avoid disparities.

Results

Table ES2 summarizes the results of our statistical analyses by race and gender group and industry by presenting the disparity ratios calculations. In brief, these analyses provide evidence that minority- and woman-owned firms in both construction and related professional services face discrimination in the SJ CSA and relevant surrounding areas. This is the case from several perspectives: the market as a whole, the private sector market, and the contracting opportunities provided by VTA. Similar to the Equal Employment Opportunity Commission's Uniform Guidelines, we consider any ratio at or below 80% to have practical significance. That criterion was met by 45 of the 60 disparity ratios presented here. However, all of those exceeding 80% were influenced by race and gender conscious corrective measures. As a consequence, these ratios may mask evidence of discrimination that would arise absent such measures. In addition, ratios exceeding 100 do not necessarily reflect over-utilization. Only ratios at or above 120 should be considered of practical significance.

A discussion of the results from each perspective by industry and group follows.

Table ES2: Statistical Evidence of Discrimination in SJ CSA and Surrounding Areas

		Firm Formation Disparity Ratio[1]	Private Sector Disparity Ratio[2]	Disparity Ratio Using SBO Potential Availability[3]	Disparity Ratio Using Unadjusted SBO Availability[4]	Disparity Ratio Using SBO > $50K Availability[5]
CONSTRUCTION						
Women	contracts with DBE Requirements	48	56	20	36	46
	contracts with SBE Requirements			26	47	60
African Americans	contracts with DBE Requirements	42	32	25	52	81
	contracts with SBE Requirements			0	0	0
Asian/Pacific Islander	contracts with DBE Requirements	83		9	10	12
	contracts with SBE Requirements			4	4	5
Hispanics	contracts with DBE Requirements	63		63	87	102
	contracts with SBE Requirements			51	70	82
PROFESSIONAL SERVICES						
Women	contracts with DBE Requirements	57	29	14	18	25
	contracts with SBE Requirements			11	14	19
African Americans	contracts with DBE Requirements	37	36	35	70	123
	contracts with SBE Requirements			42	84	148
Asian/Pacific Islander	contracts with DBE Requirements	51		75	107	136
	contracts with SBE Requirements			98	141	179
Hispanics	contracts with DBE Requirements	59		64	78	115
	contracts with SBE Requirements			54	66	97

Notes:
Please see Tables 43, 49, 55 and 59 for additional notes and sources.
Disparity ratios were calculated for two sets of contracts - delineated by whether bidding requirements were race and gender conscious or neutral. The first contract grouping covers contracting when VTA was employing a race and gender conscious disadvantaged business enterprise (DBE) program. Prime contractors who bid on contracts with DBE requirements were required to hire a certain portion of DBE (including minority-owned business enterprises, or MBEs, and woman-owned business enterprises, or WBEs) subcontractors to fulfill contract obligations. The second contract grouping covers contracting when VTA was employing a race and gender neutral small business enterprise (SBE) program. Prime contractors who bid on contracts with SBE requirements are required to hire a certain portion of SBE subcontractors to fulfill contract obligations.
1) The firm formation disparity ratio is calculated as the ratio of actual new firm formation rate to the predicted firm formation rate, mutliplied by 100.
2) The private sector disparity ratio is calculated as the ratio of private sector utilization to SBO availability, multiplied by 100.
3) The SBO potential availability disparity ratio is calculated as the ratio of VTA utilization to the discrimination-adjusted measure of SBO availability. The discrimination-adjusted SBO availability accounts for the difference between actual and predicted availability rates.
4) The Unadjusted SBO availability disparity ratio if calculated as the ratio of VTA utilization to the SBO availability for all firms.
5) The SBO >$50K availability disparity ratio is calculated as the ratio of VTA utilization to the >$50K SBO availability. The SBO >$50K availability excludes firms with less than $50,000 annual revenue.

Construction

Woman-Owned Firms

The statistical analyses taken together provide evidence that woman-owned firms face discrimination in the SJ CSA and surrounding areas construction market. Firm formation is only 48% of what is predicted in a gender-neutral environment, and firms operating in private sector of the market within the SJ CSA and surrounding areas are significantly underutilized relative to available woman-owned construction firms (56%). Using either SBO-based potential availability or actual availability with or without a firm size restriction, woman-owned construction firms have been significantly underutilized. Disparity ratios do not exceed 60%. Disparity ratios are also low whether or not a race and gender conscious affirmative action program is in place. Ratios are higher when they are based on VTA contracts that employ a race and gender conscious disadvantaged business enterprise (DBE) program compared with when they employ a race and gender neutral small business enterprise (SBE) program, but still remain well below the 80% threshold.

Woman-owned firms account for only 5.6% of firms operating in the relevant market according to SBO data and only 4.3% of those reporting annual income greater than $50,000. This low availability is consistent with our finding of low woman-owned firm formation rates. Taken as a whole, our data strongly support the conclusion that woman-owned construction firms suffer discrimination in the private and public contracting market in the SJ CSA and relevant surrounding areas.

African American-Owned Firms

The combined statistical measures provide evidence that African American-owned construction firms also face discrimination in the SJ CSA and relevant surrounding areas. These firms suffer from low firm formation, which is only 42% of what is predicted in a race-neutral environment. Minority firms including African American-owned firms operating in the private sector of the market within the SJ CSA and surrounding areas are also significantly underutilized (32%) relative to the availability of minority-owned firms. Importantly, disparity ratios for African American firms decline notably when analysis of VTA contracting is based on contracts employing a race and gender neutral SBE program rather than a race and gender conscious DBE program. This is the case regardless of the availability measure used. Even using the most restrictive availability measure – SBO firms with revenues in excess of $50,000—the disparity ratio falls from 81% to zero.

African American-owned firms of any size account for only 2.0% of firms operating in the market according to SBO data. African American firms with annual revenues in excess of $50,000 account for only 1.3% of the market. These statistics are consistent with our finding of low firm formation among African Americans. Thus, overall, the evidence indicates that African American-owned construction firms face discrimination in the local private and public markets, and that remarkably few of them even exist.

Asian American-Owned Firms

Taken together, the statistical analyses also indicate that Asian American-owned construction firms face discrimination in the construction market with the SJ CSA and relevant surrounding areas. Firm formation is 83% of what would be expected in a race-neutral environment. Minority-owned firms including Asian American-owned firms operating in the private sector are significantly underutilized (32%) relative to their availability in the market. Asian American-owned construction firms were underutilized on VTA construction contracts using all three availability measures. Calculating availability using SBO-based potential availability revealed a disparity ratio of 9%; SBO-based availability restricted by firm size shows a disparity ratio of 12%; and SBO-based availability regardless of firm size shows a disparity ratio of only 10% when contracting employed a DBE program. These values all decline to between 4% and 5% when VTA contracts employ an SBE program. These results strongly suggest that Asian American-owned construction firms face discrimination in the private and public markets within the SJ CSA and relevant surrounding areas.

Hispanic-Owned Firms

Hispanic-owned firms also appear to face discrimination in the SJ CSA and surrounding areas construction market. Firm formation is only 63% of what is predicted for a race-neutral market. Moreover, private-sector utilization of minority-owned firms represents only 32% of their share of available firms. Even when VTA contracts employ a DBE program, Hispanic-owned firms are underutilized (63%) relative to SBO-based potential availability measures. These firms do not appear underutilized compared with SBO-based availability restricted by firm size (102%), or SBO based availability unrestricted by firm size (87%) under a DBE program. However, when VTA contracts instead employ an SBE program, Hispanic-owned firms are largely underutilized. Disparity ratios fall to 51% based on potential availability, 70% based on SBO availability unconstrained by firm size and to 82% based on SBO availability restricted to firms reporting revenue above $50,000.

Professional Services

The results of our study of the professional services market in the SJ CSA and relevant surrounding areas yield similar patterns of evidence supporting a finding of discrimination for some groups.

Woman-Owned Firms

Woman-owned professional service firm disparity ratios were below 80% using all five disparity measurements. Woman-owned firms were determined to be at 57% of their expected firm formation rate in a gender-neutral marketplace. Their private sector contracting disparity ratio stands at only 29%. Disparity ratios based on VTA contracting were at or below 25% regardless of the availability measure used. Disparity ratios are found even lower when analysis focuses on VTA contracts employing a gender-neutral SBE program rather than a gender conscious DBE program. Disparity ratios based on contracts awarded under an SBE program fall to between 11% and 19%.

African American Owned Firms

African American-owned firm contracting disparity ratios were below 80% based on contracts award under a DBE program relative to both the SBO-based potential availability measure and the SBO based availability measure reflecting firms regardless of size. While the disparity ratio was over 100% when the SBO based availability measure is restricted to firms with revenues in excess of $50,000, African American-owned professional services firms meeting the size cutoff account for only 1.4% of such firms operating in the SJ CSA and relevant surrounding areas according to SBO data. This low availability is consistent with our finding of low African American-owned firm formation rates (37%). Disparity ratios do not fall, however, when analysis switches to VTA contracts awarded under and SBE program rather than a DBE program. This may simply reflect that these firms continued to benefit as SBE firms.

Asian American-Owned Firms

Asian American-owned professional services firms also appear to suffer from discrimination in the SJ CSA and surrounding areas under some measures. They face significant disparities in firm formation (51%), in the private sector (36%) along with other minority groups, and when their utilization on VTA contracts is compared with their potential availability in a race-neutral marketplace (75%). The disparity ratio measures using SBO availability with or without size restrictions show no disparity (107% and 136%). The disparity ratios do not fall when the analysis focuses on contracts awarded under an SBE program rather than a DBE program.

Hispanic-Owned Firms

Hispanic-owned professional service firms were found substantially underutilized under most measures. They face large disparities in firm formation (59%) and in the private sector together with other minorities (36%). Disparity ratios for Hispanic-owned firms in VTA contracting are found even when contracts are awarded under a DBE program. These ratios were under 80% using either SBO based potential availability and SBO without firm size restriction availability. The disparity ratio exceeded 100% when SBO size restricted availability is used. However, when VTA contracts employ a race neutral SBE program, the disparity ratios fall under all availability measures. The disparity ratio using the SBO size restricted availability measure fell 18 percentage points, but was still above 80%.

Anecdotal Analyses

We relied on four sources for our review of anecdotal evidence. First, we conducted a survey of construction and professional service firms operating in the SJ CSA and relevant surrounding areas. The survey sample included firms that have bid on VTA contracts as well as those that have not and firms owned by all minority and gender groups considered in this study. Second, we interviewed a subset of surveyed firms regarding their discrimination claims. Third, we collected and reviewed several public hearing and interview transcripts from other recent discrimination studies conducted in the SJ CSA. Finally, we reviewed the results of previous disparity studies conducted in the SJ CSA. All three sources provided information to support the statistical findings of discrimination.

Survey Results

We conducted a telephone survey of 626 construction and professional service firms operating within the SJ CSA and surrounding areas. (The survey respondents included 202 bidders on VTA contracts and 424 other construction and professional service firms operating in the SJ CSA and surrounding areas selected from Dun & Bradstreet data.) This survey asked, among other things, about several commonly identified obstacles to minority firms, including access to capital, insurance, and bonding as well as treatment by prime contractors. Our findings, with respect to bidders on VTA contracts, are

summarized in Table ES3. The survey showed, for example, that minority-owned firms report funding as an impediment to contracting nearly three times as often as White male-owned firms. Approximately 8% of minority-owned firms that were surveyed reported difficulties obtaining loans from banks because of race (see Table ES4).

Woman-owned firms report funding as an impediment twice as often as White male-owned firms. Minority- and woman-owned firms also report difficultly accessing important prime contractor networks. Minority- and woman-owned firms working as subcontractors report problems with gaining experience with prime contractors almost twice as often as their White male counterparts.

Both minority and woman owned firms reported experience requirements as an impediment twice as often as their white male counterparts. Similar differences were observed for bid costs and project size.

Table ES3: Relative Frequency of Reporting Impediments to Contracting, Bidder List Survey Respondents

	Non-Minority Male-Owned Firms	Minority-Owned Firms		Woman-Owned Firms	
	% Reported	% Reported	Relative Frequency(3)	% Reported	Relative Frequency(4)
	[1]	[2]	[3] = [2]/[1]	[4]	[5] = [4]/[1]
Not being able to get sufficient sources of funding	9.3%	25.4%	2.7	21.2%	2.3
Bonding requirements	15.7%	15.9%	1.0	17.3%	1.1
Insurance requirements	23.1%	25.4%	1.1	26.9%	1.2
Requirements concerning prior experience	12.0%	27.0%	2.2	23.1%	1.9
Bid or proposal costs	14.8%	31.7%	2.1	30.8%	2.1
Projects are too large	19.4%	42.9%	2.2	40.4%	2.1
Price of supplies or materials	22.2%	11.1%	0.5	17.3%	0.8
Prime contractors don't give you enough time to bid	29.6%	33.3%	1.1	36.5%	1.2
Not having enough experience working for the company, agency or prime contractor to have a chance to work	13.9%	28.6%	2.1	21.2%	1.5

Notes:
1) The respondents were asked whether they have experienced the above impediments in the past five years. This was not a free response question.
2) Tabulations cover respondents identified as bidding on VTA construction or professional service contracts.
3) Minority-owned firm frequency relative to non-minority male-owned firm frequency.
4) Woman-owned firm frequency relative to non-minority male-owned firm frequency.

Source:
Survey conducted by The Henne Group and QSA Research & Strategy, July through August 2007.

Table ES4: Discrimination in Contracting Reported by Bidder List Respondents

	Minority-Owned Firms	Woman-Owned Firms
Getting business loans from a bank	7.9%	3.8%
Getting local, state, or federal government contract	14.3%	13.5%
Getting contracts from private businesses	14.3%	11.5%
Attracting customers generally	12.7%	15.4%
Being bonded	4.8%	1.9%
Trying to join trade or professional associations	0.0%	0.0%
Getting subcontracts from prime contractors	22.2%	19.2%
Getting paid on time by prime contractors	12.7%	9.6%
Getting the agreed upon share of project work from prime contractors	22.2%	7.7%

Note:
1) The respondents were asked whether they have experienced discrimination based on their race or gender in the above situations in the past five years. This was not a free response question.
2) Tabulations cover respondents identified as bidding on VTAconstruction or professional service contracts.

Source:
Survey conducted by The Henne Group and QSA Research & Strategy, July through August 2007.

Other Anecdotal Evidence

In addition to the survey we conducted, we reviewed anecdotal evidence from surveys, interviews, and public hearings conducted within the Bay Area over the past several years, including a Regional Transit Coordinating Council (RTCC) Disadvantaged Business Enterprise (DBE) program survey, a survey conducted by San Francisco State University researchers on behalf of Asian Inc. and disparity studies for the City and County of San Francisco and Caltrans. These efforts provide further anecdotal evidence of discrimination.

In addition, a review of disparity studies conducted in the relevant market over the past 15 years also demonstrates persistent disparities between minority- and woman-owned business utilization and availability in construction and professional services. A recently completed study for the California Department of Transportation that was designed to meet the requirements imposed by the *Western States Paving* decision provided results consistent with this study. This California study reported a disparity ratio of 59% for minority and woman-owned firms absent a race conscious affirmative action program. Statistical evidence regarding firm formation and earnings was also similar to the evidence developed here. This study also provided supporting anecdotal evidence in the

form of testimony at public hearings. Finally, recent analyses of national data and academic studies indicate that the continued presence of discrimination in the relevant market is likely. A detailed discussion of these findings and their statistical or anecdotal basis follows in the body of our report.

Implications for a Race Neutral Program

This study also suggests that certain race neutral actions might contribute to a reduction in the observed disparities. These actions include: 1) changes in the vendor selection process to reduce the weight given to prior experience; 2) improved education to disadvantaged firms regarding access to capital; and 3) efforts to incubate new firms through mentor-protégé, joint venture, and similar programs.

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I. Introduction and Summary

At the request of the Santa Clara Valley Transportation Authority (VTA), CRA International (CRA) conducted a study of the availability and utilization of minority- and woman-owned businesses providing construction and professional services within the San Jose-San Francisco-Oakland Combined Statistical Area (SJ CSA) and the neighboring counties of Sacramento and San Joaquin, the geographic market drawn on by VTA for contracting services in the construction and professional services industries. The study was designed to meet the requirements imposed by the Ninth Circuit Court of Appeals in *Western States Paving v. Washington Department of Transportation* governing race conscious affirmative action programs for construction projects funded by the US Department of Transportation (US DOT). VTA receives US DOT funding and seeks to ensure that their contracting programs continue to comport with federal requirements. In this study, we evaluate evidence of discrimination based only on race, color, sex or national origin, as set forth in Title 49 CFR Part 26.

The Ninth Circuit held that race-conscious contracting programs must be narrowly tailored to the evidence of race and gender discrimination on a regional as well as national level. This evidence should include statistical evidence that accounts for several factors, including the relative capacity of firms to undertake contracting work and other non race or gender factors that may explain observed disparities between White male and minority- or woman-owned firm utilization and availability. The Ninth Circuit also pointed out that measures of utilization of minority- and woman-owned firms must be free of the influence of race-conscious government programs. The Court also emphasized the need for anecdotal evidence of discrimination within the industries seeking contracts. We conducted a study designed to meet these criteria.

A. Review of Main Findings

In brief, we found that there is statistically significant as well as practically significant evidence of discrimination in the construction and professional services in the Bay Area marketplace where VTA acts as a participant. Evidence of disparities in earnings and firm formation tied to gender and race persists even when controlling for the influence of non race or gender factors such as experience and education. Further, evidence of underutilization of firms owned by women and several minority groups is apparent in construction and professional service contracting despite the continuing influence of past race- and gender-conscious policies. These findings hold even when available woman- and minority-owned construction firms are screened by firm size – a proxy for contracting capacity. The same is true when available woman-owned professional service firms are screened for firm size. We also observe that disparities between utilization and availability of minority- and woman-owned firms are in general greater when contracts are awarded based on race and gender neutral policies as opposed to those that take race and gender into account. Our findings draw from consistent evidence across the marketplace, both in private sector contracting, and at the level of VTA contracting.

Finally, the statistical findings are buttressed by anecdotal evidence. Minority- and woman-owned construction and professional service firms reported greater impediments to contracting opportunities, including unfavorable treatment by prime contractors and lending institutions than their White male-owned counterparts. Many of the minority- and woman-owned firms also reported discrimination by prime contractors with respect to obtaining subcontracts.

B. Report Organization

This report is organized in 10 sections. Section II presents the study team. Section III provides the background on the requirements imposed by the Ninth Circuit in *Western States Paving.* Section IV explains the methodology employed in this study. Section V presents our determination of the relevant geographic and product (industry) market and our determination of minority- and woman-owned firm availability in that market. Section VI describes our analysis of minority- and woman-owned firm discrimination in the relevant geographic market as a whole. Section VII presents our analysis of minority- and woman-owned firm discrimination in the private sector of the relevant market. Section VIII presents our analysis of minority- and woman-owned firm discrimination within the market for VTA contracts. Section IX presents our findings regarding anecdotal evidence. Section X presents our conclusions. There are two appendices. Appendix A provides references. Appendix B provides the industry group definitions we employ.

II. Study Team

This study was directed by Dr. Mark Berkman, a CRA vice president, assisted by Professor Robert Fairlie of the University of California, Santa Cruz, and CRA senior associate Dr. Matthew Johnson. Swetha Doraiswamy, Kyle Bernhard, and Fontane Ma of CRA provided research assistance. The study team also included Dr. Rebecca Quarles of QSA and Jeffrey Henne of THG. Dr. Quarles helped design our telephone survey instrument and supervised the survey. The survey was conducted under the direction of Mr. Henne. Ms. Angela Berry-Roberson, Esq., of the Berry Business Development Group also conducted interviews to collect anecdotal evidence from firms bidding on VTA contracts. The study team greatly benefited from the assistance of Andy Flores, Franceen Weisert, Hayden Lee, Pam Sarabia, and Beth Felix at VTA.

III. Requirements Imposed by Western States Paving

The United States Court of Appeals for the Ninth Circuit decision in *Western States Paving Co. Inc. v. Washington State Department of Transportation, et al.* reasserted that the US Department of Transportation's DBE program operating under 49 CFR Part 26 was Constitutional because it was narrowly tailored based on an adequate evaluation of

discrimination at the national level.[3] However, the Ninth Circuit found that state and local governments receiving USDOT funds must provide evidence sufficient to meet "strict scrutiny" demonstrating the need for race conscious programs and the need to narrowly tailor such programs.[4] Following this decision, the USDOT general counsel issued guidance to state and local recipients of Federal Highway Administration, Federal Transit Administration, and Federal Aviation Administration funding within the Ninth Circuit's jurisdiction regarding how to evaluate the need for race conscious programs.[5] This guidance includes seven points that state and local agencies should consider:

1. Statistical evidence of discrimination and its effects separately for each group presumed to be disadvantaged;
2. Collection and assessment of anecdotal and complaint evidence of discrimination;
3. Evidence of barriers to firm formation and earnings of disadvantaged groups in the form of bonding, financing, and insurance and other requirements;
4. Rigorous statistical analysis to control for factors other than discrimination that may explain disparities between availability and utilization;
5. Quantification of differences between DBE availability and utilization in race conscious and race neutral contracts;
6. Control for the influence of broadly defined race conscious programs on availability;
7. Methods employed by consultants in studies cited in previous Federal court proceedings, especially *Sherbrooke Turf v. Minnesota Department of Transportation* and *Northern Contracting Inc., v State of Illinois, et al*.[6]

The two cases cited by the USDOT General Counsel provide specific guidance regarding appropriate evidence gathering and analysis. The Courts make clear that narrowly tailored evidence includes statistical analysis of the availability and utilization of minority- and woman-owned firms in a properly defined local market. The decisions also make clear that utilization measures must account for the influence of any existing race-conscious programs and that availability measures can be adjusted to account for the effects of prior discrimination. For example, in *Northern Contractin*g, the United States

[3] *Western States Paving Co. Inc., v Washington State Department of Transportation, et al.* No. 03-35783 (Ninth Circuit, May 2005).
[4] According to *Sherbrooke*, strict scrutiny refers to a "strong basis in the evidence" that race conscious programs are necessary. According to *Northern Contracting*, an affirmative action program is narrowly tailored if "it discriminates against Whites as little as possible consistent with effective remediation."
[5] The General Counsel of the U.S. Department of Transportation, "Questions and Answers Concerning Response to Western States Paving Company v. Washington State Department of Transportation". No date. The states under the Ninth Circuit's jurisdiction are: California, Oregon, Washington, Alaska, Arizona, Idaho, Montana, Nevada, and Hawaii.
[6] *Sherbrooke Turf Inc. v. Minnesota Department of Transportation, et.al.*, No. 02-3016 (Eighth Circuit, October 2003), and *Northern Contracting v. State of Illinois Department of Transportation*, No. 05-3981. (Seventh Circuit, January 2007).

District Court acknowledged the adjustments made to availability by consultants to the Illinois Department of Transportation using statistical evidence from firm formation studies.

IV. Study Method

A. Overview

We investigated the presence of discrimination in contracting in construction and related professional services in the geographic area from which VTA draws most of their contractors and subcontractors and applied well recognized statistical methods supplemented with anecdotal evidence. Thus, the first step in our analysis was to establish the geographic boundaries of the relevant market. As discussed below, the area defined by the perimeter of the San Jose-San Francisco-Oakland (SJ CSA)[7] and the counties of Sacramento and San Joaquin was determined to be the relevant geographic area for our analyses.[8]

We conducted our statistical investigation within this region by collecting and reviewing evidence at three levels: 1) the market overall; 2) the private sector; and 3) VTA contracting. We employed variants of disparity testing—the most commonly used measure generally recognized by the courts to infer race and/or gender discrimination in contracting. We also employed econometric techniques that enabled us to compare minority- and woman-owned firm formation and earnings with White male-owned firms, controlling for experience and education.

This approach was designed to meet the Ninth Circuit's requirements regarding: 1) the need for rigorous statistical analysis to control for factors other than discrimination that may explain disparities between availability and utilization of minority- and woman-owned firms; 2) the need to account for the influence of recent race- and gender-conscious corrective measures; and 3) the need to consider willing and able firms in measures of minority- and woman-owned firm availability. This approach is consistent with methods employed in *Sherbrooke Turf* and *Northern Contracting*. Also consistent with *Western States Paving*, we collected and reviewed anecdotal evidence of discrimination in construction and professional services in the relevant local Bay Area market.

[7] The SJ CSA is comprised of 11 Bay Area counties: Alameda, Contra Costa, Marin, San Francisco, San Mateo, Santa Clara, Santa Cruz, Sonoma, Napa, San Benito and Solano. It is similar in scope to the San Francisco-Oakland-San Jose CMSA, which excludes San Benito County.

[8] We define and analyze different areas when analysis is industry-specific. The relevant professional service market does not include San Joaquin County.

B. Statistical Evidence of Discrimination

Market Level Analysis—Self-Employment Rate Comparison

We tested for statistical evidence of discrimination at the market level by examining whether minorities and women formed firms in the SJ CSA and surrounding areas at a different rate than did White men, even when we controlled for non-race and gender-based explanations such as age—a proxy for experience—and education. We completed this examination using econometric techniques. These techniques also provided the basis to estimate minority- and woman-owned firm formation rates relative to White male firms.

We compared the actual and predicted firm formation rates to create a disparity ratio:

$$\frac{\text{Actual Firm Formation Rate}_{ij}}{\text{Predicted Firm Formation Rate}_{ij}} \times 100$$

where *i* represents a particular race or gender group and *j* represents a particular industry. A disparity ratio below 100 indicates that the actual firm formation rate fell below the predicted rate, which already accounts for differences in the non-racial or gender factors that contribute to firm formation.

This ratio gauges the extent to which discrimination may hinder minority- and woman-owned contracting and professional services firms from coming into being in the first instance. While this measure enables us to control for non race and gender characteristics, such as qualifications of individuals in the current marketplace, it does not enable us to address the impact of race conscious corrective measures on the utilization of minority- and woman-owned firms or to directly address alternative measures of firm availability. Accordingly, we supplemented our analysis with several other methods.

Private Sector Analysis—Utilization/Availability Comparison

We tested for evidence of discrimination for contracting and professional services firms in the private SJ CSA and surrounding areas market by comparing the utilization of minority- and woman-owned firms to their availability in the private sector. This comparison was again calculated as a disparity ratio:

$$\frac{\text{Private Sector Utilization}_{ij}}{\text{Availability}_{ij}} \times 100$$

where *i* represents a particular race or gender group and *j* represents a particular industry. A disparity ratio below 100 indicates that private sector utilization was lower than availability for the particular group in the particular industry.

Since the private sector generally does not use race- or gender-conscious affirmative action programs, this statistical measure is a valuable indicator of the level of discrimination that currently exists in the market in the absence of corrective measures. However, this method does not distinguish among different racial minorities, nor does it test for discrimination by participants bidding and performing on contracts at the subject agencies. We were also unable to account for alternative measures of availability. For these reasons, we gathered and analyzed additional data.

Government Sector Analysis—VTA Utilization/Availability Comparison

We tested for statistical evidence of discrimination in contracting at the government level using three measures of availability. Three measures were chosen to address the often controversial subject of how best to measure availability.

First, we measured availability within the relevant market using the Survey of Business Owners (SBO) conducted by the US Department of Census every five years. These availability measures were adjusted to reflect the level of firm formation one would expect in the absence of discrimination using the firm formation rate analysis referenced above. This is a measure of potential availability absent discrimination. Comparing actual utilization by VTA to this potential availability figure best captures the combined effect of the marketplace—including unfair treatment arising in contracting by participants in both the public and private sectors that may limit contracting opportunities and discourage firm formation and growth.

Second, we measured availability within the relevant market using unadjusted SBO data. Evidence from recent Census Current Population Survey (CPS) data indicates that the population of minority-owned firms has grown since the last SBO survey in 2002. Therefore, these SBO-based measures are likely to be conservative estimates of minority-owned firm availability.

Third, we separately measured availability by imposing a size restriction on the unadjusted SBO data. Based on our review of firms bidding on VTA contracts, we determined that firms reporting annual revenues of $50,000 or less were unlikely to bid. Consequently, we counted only firms reporting more than $50,000 in annual revenues as available. This method provides the most conservative measure of availability, but may not fully reveal the extent of discrimination, particularly because it does not capture the effect of discriminatory barriers to firm formation nor of similar barriers to growth. In fact, most minority- and woman-owned firms remain comparatively small and are disproportionately excluded from this measure of availability.

Using the three availability measures, we tested for disparity using the ratio of utilization to availability:

$$\frac{\text{Utilization}_{ij}}{\text{Availability}_{ijl}} \times 100$$

where *i* represents a particular race or gender group, *j* represents a particular industry, and *l* represents which availability database is employed (SBO adjusted for potential availability, SBO unadjusted, or SBO restricted to firms with annual revenues greater than $50,000). A disparity ratio below 100 indicates that government-sector utilization was lower than availability for a particular group in a particular industry.

We also tested for disparities during periods when VTA implemented a race and gender conscious disadvantaged business enterprise (DBE) program and when VTA implemented a race and gender neutral small business enterprise (SBE) program. Comparing these results indicates whether a race and gender conscious program is necessary to avoid disparities. A further comparison using federally and non federally funded contract data is also made for this purpose since non federally funded contracts have not been under a race conscious program during the study period.

Statistical and Practical Significance

We have also calculated the statistical significance of disparity ratios where possible. Statistical significance indicates that the observed difference between utilization and availability is sufficiently large that it is highly unlikely to be the result of chance. We determined which differences between utilization and availability are statistically significant at a 5% level. Recognizing that estimates of availability reflect random draws from the universe of firms, we constructed standard errors around these estimates. These are used to estimate the probability that the differences in availability and utilization occur by chance. Disparities are considered statistically significant when the probability of a difference of that size or larger occurring by chance is less than 5%. Statistical significance is noted by an asterisk (*) in the tables throughout the report.

Because of the large number of contracts reviewed, statistical significance may be found when the observed difference in utilization and availability rates is only a few percentage points. For this reason, we take special note of differences that reflect practical significance as well. Practical significance means that the difference is large and meaningful.[9] Consistent with the Equal Opportunity Commission's Uniform Guidelines, we consider a disparity ratio equal to or less than 80% of practical significance regarding underutilization and evidence of discrimination.[10] This value indicates that utilization is 20 percentage points below availability. Thus, if there were 1000 minority firms available, a disparity ratio of 80 would mean that 200 fewer minority firms were being utilized than we would expect in a race-neutral environment. Consistent with their

[9] See for example, David H. Kaye and David A. Freedman, "Reference Guide on Statistics" and Daniel Rubinfeld, "Reference Guide on Multiple Regression," in Federal Judicial Center, Reference Manual on Scientific Evidence, 2nd Edition, 2000.
[10] Equal Opportunity Commission Uniform Guidelines, 29 CFR 1607(D).

interpretation, a disparity ratio at or above 120% would also be considered of practical significance.

C. Collection and Review of Anecdotal Evidence

The Ninth Circuit also noted the importance of anecdotal evidence. We have collected anecdotal information regarding discrimination in four ways. First, we conducted a survey of minority-owned, woman-owned, and White male-owned firms operating in the SJ CSA and relevant surrounding areas. The survey was designed to enable us to compare the experiences of these groups relative to similarly situated White male-owned firms and to elicit perceptions of discrimination on the part of minority- and woman-owned firms. Second, we reviewed recent public hearing testimony, interviews, and surveys of minority- and woman-owned firms in the SJ CSA and relevant surrounding areas. Third, we reviewed the results of other disparity studies with overlapping geographic and product markets. Fourth, we conducted interviews with firms bidding on contracts at VTA to collect information regarding their experiences with VTA contracting and bidding as well as contracting in the local marketplace in general.

V. Woman- and Minority-Owned Firm Availability Analysis

This section summarizes our findings regarding the availability of minority and woman-owned firms to participate in federally-supported contracting at the Santa Clara Valley Transportation Authority (VTA).

This first stage of analysis involves determination of the relevant market boundaries, both geographically and by industry sector. As discussed below, based on an analysis of professional service contract bidding activity, the area defined by the San Jose-San Francisco-Oakland Combined Statistical Area (SJ CSA) and Sacramento County is determined to be the relevant geographic area for our analyses. For the construction contracting market, the geographic boundaries are defined by this same area as well as San Joaquin County. As with the professional services market, the geographic boundary determination is based on an analysis of VTA bid activity.

Our primary source for measuring availability is the 2002 Survey of Business Owners (SBO) conducted by the U.S. Census. We rely on publicly available SBO data as well as data specially prepared by the Census at our request. The latter source allows for examination of the robustness of availability rates with screens for firm revenue, which may be considered a proxy for firm capacity thresholds. Furthermore, the specially prepared Census data allow for a precise definition of the geographic contracting market boundaries. We also rely on the Census Current Population Surveys (CPS) from 2002 to 2006 to measure availability, though these measures will not be used for the purposes of disparity analysis. While the CPS does not yield sufficient local observations to serve as a stand alone measure of availability, it provides an excellent check on whether there have been notable changes in the proportion of firms that are minority and woman-owned in recent years. Finally, this report discusses other sources considered for measuring

availability, including *potential* availability (or availability expected in a race and gender neutral market) based on econometric analysis and those dismissed due to insufficient data (i.e., availability based on detailed bid data). We estimate potential availability by adjusting the SBO data based on the results of our econometric analyses of firm formation. This method of adjustment to availability of minority- and woman-owned firms is described in some detail below.

A. Relevant Product and Geographic Market

The recent Ninth Circuit US Court of Appeals finding in *Western States Paving Co. v. Washington State DOT* emphasizes the need to focus disparity analysis on the relevant market in which race-conscious policies may seek to remedy potential disparities. We define the market here in terms of products and services as well as location of likely participants in federally funded contracting with VTA. We then are able to estimate availability by identifying firms present within the geographic confines that offer those goods and services as well as the subset of minority- and woman-owned firms.

1. Product Market

We define the relevant product market based on North American Industry Classification (NAIC) codes assigned to contracts and bidding firms by staff from the VTA Office of Small and Disadvantaged Businesses (OSDB).[11] VTA maintains data on firms bidding on construction contracts, at both prime and subcontractor levels, containing detailed industry designations. These designations were made prior to and independent of our study. While construction contract bidder data maintained by VTA is not comprehensive, it does provide an unbiased sample sufficient for inference on industry sectors involved in VTA construction contracting.[12] For professional service contracts, VTA also maintains data on prime contract bidders. For these bidders, we have merged bidder information with industry classifications of the contracts bid upon to determine the frequency of bids to VTA by industry. Professional service contract industry classifications over the last five years were provided by VTA OSDB staff.

Table 1 summarizes the distribution of bids by industry and data source. The distribution of bids by industry are reported separately for construction and professional service contracts, as well as combined. Drawing on all available bid data, our analysis indicates that two industry designations yield bidder activity sufficient for meaningful disparity analysis: NAIC 23 (Construction) and NAIC 54 (Professional, Scientific and Technical

[11] Product market definition, as well as all analysis that follows, is limited to industry detail afforded by two-digit level NAIC designations. Survey of Business Owners (SBO) availability data is not available for the local (SJ CSA and surrounding areas) market at any further level of detail. Other data sources, such as the Current Population Survey (CPS) do not contain sufficient observations at the relevant geographic market level to perform meaningful analysis at more detailed product distinctions. Other data sources, such as Dun & Bradstreet's *Marketplace*, provide further industry detail but insufficiently identify minority firm participation.

[12] Firms included in the construction master bidder list are listed on VTA form 4A completed by prime bidders as part of the VTA bidding process. These forms list both prime and subcontract bidders. However, compliance in filling out form 4A was not complete.

Services). Among the bids identified, 28% originated from firms or were related to contracts classified within NAIC 23.[13] Further, 53% of bids originated from firms or were related to contracts classified within NAIC 54.[14]

Table 2 presents the results of similar analysis, this time with the distribution of bids weighted by the dollar values of the contracts bid upon. The figures in Table 2 indicate whether the distribution of bids reported in Table 1 requires adjustment based on the differing values of bids. The results indicate that the value of bids is weighted more heavily toward NAIC 23 (59%) than NAIC 54 (22%).[15] Further, it indicates that no other industry is represented sufficiently in VTA contracting to support disparity testing.[16]

[13] We also performed similar analysis focusing only on contracts identified as Federally-funded. This did not yield any appreciable difference in the distribution of bids across industry sectors.

[14] The next highest proportion of bids, at 6.7%, is related to NAIC 53, Real Estate and Rental and Leasing. Nearly all of these bids are related to professional service contracts. It is not clear from the data whether or not they are related to Federally-funded VTA contracts or non-Federal contracts that are similar in scope to Federally-funded contracts at VTA. No other industry sector is represented in more than 3% of bids. These data are not sufficient to conduct disparity analyses tailored to these specific industry sectors.

[15] Dollar-weighted bid distribution for professional service contracts reported here should be considered with some caution. Given data limitations, a sizable proportion of professional service contract bids were not able to be matched up with contract dollar values.

[16] Again, we also performed similar analysis focusing only on contracts identified as Federally-funded. This did not yield any appreciable difference in the distribution of dollar-weighted bids across industry sectors.

Table 1: Distribution of Bids for VTA Contracts, by NAICs and Contract Count, Federal and Non-Federal Contracts

	Construction	Professional Services [2], [3]	Combined [4]
NAICS	**% of Bids**	**% of Bids**	**% of Bids**
21	0.1	0.0	0.0
22	0.1	0.0	0.0
23	74.4	0.0	27.7
32	2.1	0.3	0.9
33	8.2	0.0	3.1
42	2.9	0.0	1.1
44	0.9	0.0	0.3
48	1.9	0.3	0.9
51	0.0	0.5	0.3
52	0.0	2.4	1.5
53	0.8	10.2	6.7
54	5.2	80.9	52.8
56	3.0	2.9	3.0
61	0.0	0.7	0.4
62	0.0	1.1	0.7
71	0.0	0.7	0.4
81	0.3	0.0	0.1
Total Bids	**864**	**1,458**	**2,322**

Notes:

1) Bid counts only include bidders who were assigned a NAICS code.

2) Professional services bidders list is comprised of two sources: the professional services request for proposal (RFP) list and a list of contract numbers associated with each RFP. There can be multiple contracts associated with an RFP. If a firm bids on an RFP, it is assumed that the firm bids on all contracts associated with that RFP.

3) Professional services contract counts only include bids for prime contractors.

4) Percentages for "combined" is calculated using bid counts for construction and professional

Source: Valley Transit Authority Bidder's Lists, 2001-2006.

Table 2: Distribution of Bids for VTA Contracts, by NAICs and Contract Dollars, Federal and Non-Federal Contracts

	Construction	Professional Services [(2), (3), (4)]	All Contracts [(2), (5)]
NAICS	% of Contract Dollars	% of Contract Dollars	% of Contract Dollars
21	0.2	0.0	0.1
22	0.0	0.0	0.0
23	71.5	0.0	59.2
32	1.4	0.0	1.1
33	5.2	0.0	4.3
42	3.0	0.0	2.5
44	0.7	0.0	0.6
48	3.2	3.1	3.2
51	0.0	0.0	0.0
52	0.0	0.2	0.0
53	0.3	0.0	0.3
54	6.8	96.2	22.2
56	7.7	0.5	6.5
61	0.0	0.0	0.0
62	0.0	0.0	0.0
71	0.0	0.0	0.0
81	0.1	0.0	0.1
Total	**$286,626,503**	**$59,703,714**	**$346,330,218**

Notes:
1) Contract dollars are weighted by the number of bidders for each contract.
2) Due to data limitations, percentages for professional services and combined contracts should be interpreted with caution. Contract payment data were unavailable for many professional services contracts. Percentages are reported using existing data, which is a limited sample of professional services contracts.
3) Professional services bidders list is comprised of two sources: the professional services request for proposal (RFP) list and a list of contract numbers associated with each RFP. There can be multiple contracts associated with an RFP. If a firm bids on an RFP, it is assumed that the firm bids on all contracts associated with that RFP.
4) Professional services bids only include bids for prime contractors.
5) Percentages for "combined" is calculated using bid counts for construction and

Sources:
(1) Valley Transit Authority Bidder's Lists, 2001-2006.
(2) Valley Transit Authority, Office of Small and Disadvantaged Businesses, Contract Monitoring Database, 2001-2006.

2. Geographic Market

Based on analysis of VTA contract bidder data[17], we define the geographic dimension of the relevant market to be the San Jose-San Francisco-Oakland Combined Statistical Area

[17] As with industry analysis, available VTA bidder data does not encompass all bidders on all recent contracts. It is based on an available sample of bidders maintained by VTA.

(SJ CSA) as well as the adjoining counties of Sacramento and San Joaquin. This entire geographic area is considered for all analysis of the construction sector. When analysis is confined to the professional services sector, the relevant geographic area does not include San Joaquin County.

The SJ CSA is defined in a manner that renders it directly applicable to market analysis of this type. It is composed of Metropolitan Statistical Areas (MSAs), which are defined primarily as economic nodes – metropolitan areas that serve as centers of economic activity. Further, the primary factor used in determining economic relationships among counties and MSAs comprising CSAs is commuting patterns. CSAs are therefore defined by the degree of economic integration of the labor force. We also include neighboring counties within the market perimeter when warranted by bidding activity at VTA.

We arrive at geographic market boundaries by first identifying the location of participating bidders for contracts with VTA.[18] The distribution of identified bids by geography is summarized in Table 3. Of construction contract bids identified, including prime and subcontractors, only 28 percent of bids came from firms in the San Jose-Sunnyvale-Santa Clara or the Santa Cruz-Watsonville MSAs, which are part of the SJ CSA. However, when the geographic market boundaries are expanded to include the entire SJ CSA, 78 percent originated from firms within this area. Of the bids from firms in the SJ CSA, just over a third (36 percent) came from the San Jose-Sunnyvale-Santa Clara or Santa Cruz-Watsonville MSAs. Beyond the SJ CSA, 8 percent of bids identified came from firms located in either Sacramento or San Joaquin County. About 8 percent of construction bids originated from elsewhere within California and the remaining 3 percent were made by firms in other states. By this measure, 85 percent of bidding activity occurs within the geographic bounds of the market to be analyzed in this study. We also performed analysis of the distribution of Federally-supported VTA construction contract bids alone. This analysis did not yield any appreciable differences in geographic concentration of bidding firms.

Table 4 presents the distribution of bids, this time with the geographic distribution of bids weighted by the dollar values of the contracts bid upon. For construction bids, the value-weighted distribution is largely the same as the distribution based on bid counts. The results show that 85 percent of bid value originates from firms within the defined geographic market. Notably, compared to the results for construction in Table 3, bid values are more highly concentrated in Placer County than the number of bids (7.2% vs. 1.6%). However, Placer County reaches as far as the Nevada border and does not border the CSA. Given its remote reach and the likelihood that its inclusion may dilute a narrowly tailored market analysis, firms from Placer County are not considered in this study as part of the available local market for VTA construction contracting. Again, the dollar-weighted concentration of Federal contract bids alone was also examined, yielding no appreciable differences.

[18] For professional services, VTA also maintains data on firms that have signed into the VTA web-based system to obtain information on contracts. Analysis of this data source of interested firms yields similar results to those obtained by focusing on bidding firms.

Next, as reported in Table 3, professional service prime contract bid data reveal that 76 percent of prime bids are placed by firms located within the SJ CSA, while only 22 percent of bids originated from firms within the San Jose-Sunnyvale-Santa Clara or Santa-Cruz MSAs. Bids from firms in the San Jose-Sunnyvale-Santa Clara and Santa Cruz-Watsonville MSAs constitute 29 percent of bids from firms in the SJ CSA. Beyond the SJ CSA, 1.4 percent of professional service prime bids come from firms in Sacramento County. All other neighboring counties and MSAs yield only less than one percent of bids. Nine percent of professional service prime bids were placed by firms elsewhere in California, with the remaining 13 percent placed by firms located out of state. By this measure, 78 percent of bidding activity occurs within the bounds of the geographic market to be analyzed in this study. Finally, turning again to Table 4, when professional service bids are weighted by contract values, we see that nearly all of the value identified lies within the bounds of the SJ CSA. However, given limitations in matching VTA professional service bids with contract values, these results should be viewed with great caution.

It is our opinion that an expansion of the geographic market boundary for either sector (e.g. to include all of California) would yield results that are likely to be influenced by the presence or absence of discrimination in other contracting markets. In such a case, the analysis would not be sufficiently narrowly tailored to provide evidence viewed as relevant by the Courts.

Table 3: Distribution of Bids for VTA Contracts, by Location and Contract Count, Federal and Non-Federal Contracts

	Construction	Professional Services [2], [3]	Combined [5]
	% of Total	% of Total	% of Total
San Jose-San Francisco-Oakland CSA	77.5	76.4	77.0
San Jose-Sunnyvale-Santa Clara MSA [4]	24.9	21.6	23.2
Santa Cruz-Watsonville MSA [4]	3.0	0.0	1.5
Sacramento-Arden-Arcade-Roseville MSA	5.3	1.7	3.5
Sacramento County	3.0	1.4	2.2
Yolo County	0.5	0.0	0.2
Placer County	1.6	0.3	1.0
El Dorado County	0.2	0.0	0.1
Neighboring Counties			
San Joaquin County	4.8	0.0	2.4
Stanislaus County	0.8	0.0	0.4
Monterey County	0.1	0.0	0.1
Fresno County	0.3	0.1	0.2
Other areas in California	7.7	9.3	8.5
Out of State	3.4	12.5	7.9
Total	**873**	**863**	**1,736**

Notes:

1) Bid counts only include bidders who disclosed firm address or other firm location information.

2) Professional services bidders list is comprised of two sources: the professional services request for proposal (RFP) list and a list of contract numbers associated with each RFP. There can be multiple contracts associated with an RFP. If a firm bids on an RFP, it is assumed that the firm bids on all contracts associated with that RFP.

3) Professional services bids only include bids for prime contractors.

4) The San Jose-Sunnyvale-Santa Clara MSA consists of Santa Clara County and San Benito County. The Santa Cruz-Watsonville MSA consists of Santa Cruz County. These three counties are also included in the San Jose-San Francisco-Oakland CSA.

5) Percentages for "combined" is calculated using bid counts for construction and professional services contracts.

Source: Valley Transit Authority Bidder's Lists, 2001-2006.

Table 4: Distribution of Bids for VTA Contracts, by Location and Contract Dollars, Federal and Non-Federal Contracts

	Construction	Professional Services [2], [4], [5]	Combined [2], [7]
	% of Contract Dollars	% of Contract Dollars	% of Contract Dollars
San Jose-San Francisco-Oakland CSA	73.1	95.7	76.7
San Jose-Sunnyvale-Santa Clara MSA [5]	23.7	2.9	20.4
Santa Cruz-Watsonville MSA [5]	1.4	0.0	1.2
Sacramento-Arden-Arcade-Roseville MSA	10.5	0.6	8.9
Sacramento County	3.1	0.6	2.7
Yolo County	0.2	0.0	0.1
Placer County	7.2	0.0	6.0
El Dorado County	0.1	0.0	0.1
Neighboring Counties			
San Joaquin County	8.4	0.0	7.0
Stanislaus County	0.5	0.0	0.4
Monterey County	0.0	0.0	0.0
Fresno County	0.1	0.0	0.1
Other areas in California	5.0	0.8	4.3
Out of State	2.3	2.9	2.4
Total	**$301,557,818**	**$57,468,731**	**$359,026,549**

Notes:

1) Contract dollars are weighted by the number of bidders for each contract.

2) Contract payment data were unavailable for many professional services contracts. Percentages are reported using existing data, which is a limited sample of professional services contracts. Due to these data limitations, percentages for professional services and combined contracts should be interpreted with caution.

3) Contract dollar calculations only include firms who disclosed firm address or other location information.

4) Professional services bidders list is comprised of two sources: the professional services request for proposal (RFP) list and a list of contract numbers associated with each RFP. There can be multiple contracts associated with an RFP. If a firm bids on an RFP, it is assumed that the firm bids on all contracts associated with that RFP.

5) Professional services bids only include bids for prime contractors.

6) The San Jose-Sunnyvale-Santa Clara MSA consists of Santa Clara County and San Benito County. The Santa Cruz-Watsonville MSA consists of Santa Cruz County. These three counties are also included in the San Jose-San Francisco-Oakland CSA.

7) Percentages for "combined" is calculated using the contract dollars for construction and professional services

Sources:

(1) Valley Transit Authority Bidder's Lists, 2001-2006.

(2) Valley Transit Authority, Office of Small and Disadvantaged Businesses, Contract Monitoring Database, 2001-2006.

B. Data Sources for Measuring Availability

We rely on two data sources to examine minority and woman-owned business availability rates. First, we provide estimates from the most recent, nationally representative, and well-respected source of data on minority businesses – the Survey of Business Owners

(SBO).[19] We report estimates of the number and frequency of minority and woman-owned businesses from the 2002 Survey of Business Owners, which replaced the earlier Survey of Minority- and Women-Owned Business Enterprises (SMOBE/SWOBE). Published estimates from the SMOBE and SBO are the most commonly cited and used estimates of the number, revenues and employment of minority and woman-owned businesses in the United States. Second, we employ CPS monthly data for 2002 through 2006 to arrive at availability measures for the United States, California and the relevant local market. These data are used to gauge whether or not adjustments to SBO-based availability measures are warranted in light of recent changes in the number and mix of firms.

The SBO data provide comprehensive and representative coverage well-suited to identifying the composition of potential bidders. However, measures based on SBO data involving all firms do not fully account for firm capacity or willingness. To this end, our analysis involves a further track aimed at addressing this issue. We rely on SBO data screened to include only firms above annual revenue thresholds of up to $50,000. This data has been specially prepared by the SBO for this study. These results help bound reasonable measures of availability from below by including only firms that have demonstrated capacity.

C. Availability Based on the U.S. Census Survey of Business Owners (SBO)

1. SBO Overview

The SBO is conducted by the U.S. Census Bureau every five years to collect statistics that describe the composition of U.S. businesses by owner gender, race, and ethnicity. This survey was previously conducted as the Survey of Minority- and Women-Owned Business Enterprises (SMOBE/SWOBE). Data are compiled from several sources: IRS business tax returns, other Economic Census reports (e.g., Annual Survey of Manufacturers; Annual Retail Trade Survey), Social Security information on race and Hispanic or Hispanic origin; and a mailout/mailback survey.

[19] While not undertaken in this study, a commonly used approach to availability estimates in disparity analyses of this type involves (1) relying on intensive data-gathering to identify potential minority- and woman-owned businesses within the defined market, and (2) determining total firm counts and supplementing minority firm identification with data compiled by *Dun & Bradstreet* (D&B). After careful review, we decided against employing this approach here for the following reasons: D&B data demonstrably undercount woman- and minority-owned firms, and are imprecise in their identification of ethnicity and gender where firms are counted. Also, relying on intensive data gathering focused solely on supplementing lists of minority firms (without similar efforts for non-minority firms) identified through D&B or another similar source yields an imbalanced approach potentially biased towards findings of higher minority firm market participation. Finally, the necessary survey work can be time consuming and expensive. For analysis of the accuracy of D&B data of this sort, see Catherine Haggerty, Karen Grigorian, Rachel Harter and John Wolken, "The 1998 Survey of Small Business Finances: Sampling and Level of Effort Associated with Gaining Cooperation from Minority-Owned Businesses," *Proceedings of the Second International Conference on Establishment Surveys*, 2000.

The universe for the most recent survey is all firms operating during 2002 with receipts of $1,000 or more that filed tax forms as individual proprietorships, partnerships, or any type of corporation.[20] Businesses that are classified as agricultural production, domestically scheduled airlines, railroads, U.S. Postal Service, mutual funds (except real estate investment trusts), religious grant operations, private households and religious organizations, public administration, and government are excluded. The SMOBE and SBO data have undergone several major changes over time including the addition of C corporations in 1997 and the removal of firms with annual receipts less than $500 to $1,000 also in 1997.

These surveys provide the most comprehensive data available on businesses by the race, ethnicity, and gender of the owners. Business ownership is defined as having 51 percent or more of the stock or equity in the business. Business ownership was categorized by: Gender (Male; Female; or Equally Male-/Female-Owned); Ethnicity (Hispanic, non-Hispanic); and Race (White; Black or African American; Native American; or Alaska Native; Asian; Native Hawaiian or Other Pacific Islander). Aggregate publications from this survey are available for each racial group, Hispanics, and women.

The public use tables from the SBO/SMOBE are the most widely used source for tracking the number, performance, size, and industry composition of minority businesses in the United States. Many researchers have used these data to try to better understand the role that minority- and female-owned businesses play in our economy (see for example U.S. SBA 1999; Handy and Swinton, 1983 and 1984; Woolf, 1986, Robb 2000).

2. 2002 SBO Based Availability Estimates

a) Measures Based on Firms at All Revenue Levels

The 2002 SBO data enables us to estimate availability of firms by owner race, ethnicity and gender and by industry in the SJ CSA and surrounding areas.[21] As discussed above, the SBO is the most reliable and comprehensive source of information on ethnicity and gender composition of firm ownership for the US and relevant market centered around the Bay Area and studied here.

Table 5 and Table 6 detail SJ CSA and surrounding area availability rates for four minority-ownership groups and females for three industries: construction (NAIC 23), professional, scientific & technical services (NAIC 54), and trucking, transportation and warehousing industry (NAIC 48). Rates are also calculated and reported in subsequent tables for firms with at least $25,000 in annual revenues and at least $50,000 in annual

[20] Sole proprietorships complete a 1040C form, partnerships complete a 1065 form, S corporations complete a 1120S form, and C corporations complete a 1120 form.
[21] Publicly available data does not contain separate statistics specific to Sacramento and San Joaquin counties. Tabulations that define the geographic market with these counties included (along with the SJ CSA) are have been prepared for CRA by the Census.

revenues.[22] These revenue threshold measures are discussed in the next section. Table 5 provides availability when all firms regardless of the number of employees are considered. Table 6 details availability rates calculated when the pool of firms is restricted to those with at least one employee. In each table, availability rates are calculated separately for the SJ CSA region alone and for the SJ CSA combined with the adjoining Sacramento and San Joaquin counties. The latter geographic set of measures are compared with utilization rates and used to calculate disparity ratios and conduct testing for statistical significance later in this report.

Table 5: Comparison of Availability by Minority Group and Industry for SJ CSA and Surrounding Areas, All Firms - Survey of Business Owners (2002)

		African American		Hispanic		Asian		NA/AN		Female		Total
Industry	**NAICS**	**Number**	**% of Total**	**Number**	**% of Total**	**Number**	**% of Total**	**Number**	**% of Total**	**Number**	**% of Total**	**Number**
All Firms SJ CSA												
Construction	23	1,061	2.1%	5,188	10.3%	3,870	7.7%	902	1.8%	2,842	5.7%	50,130
Transportation & warehousing	48-49	1,147	6.4%	3,164	17.6%	4,586	25.5%	144	0.8%	1,984	11.0%	18,005
Professional, scientific, & technical services	54	3,633	2.4%	S	n/a	20,694	13.7%	1,058	0.7%	47,525	31.4%	151,135
Total for all sectors		***23,797***	***3.7%***	***53,489***	***8.3%***	***104,476***	***16.2%***	***6,549***	***1.0%***	***199,561***	***30.9%***	***646,218***
All Firms SJ CSA, Sacramento County, and San Joaquin County												
Construction	23	1,206	2.0%	6,195	10.1%	4,339	7.0%	985	1.6%	3,439	5.6%	61,611
Transportation & warehousing	48-49	1,365	5.8%	4,143	17.6%	5,989	25.4%	200	0.8%	2,578	10.9%	23,578
Professional, scientific, & technical services	54	4,167	2.5%	7,523	4.6%	21,826	13.2%	1,147	0.7%	51,430	31.1%	165,139
Total for all sectors		***29,237***	***3.8%***	***66,077***	***8.6%***	***119,986***	***15.6%***	***7,967***	***1.0%***	***237,990***	***30.9%***	***769,093***

Notes:
1) "S" indicates that the data has been suppressed by the Census because the relative standard error (RSE) of all firms' revenue is greater than or equal to 50%.
2) "Total for all sectors" includes all available NAICS codes (NAICS 11 through NAICS 99).
3) This table represents data from the San Jose-San Francisco-Oakland Combined Statistical Area (CSA), Sacramento County, and San Joaquin County.

4) For the construction industry and all other industries, SJ CSA and surrounding areas is defined as the San Jose-San Francisco-Oakland CSA, Sacramento County, and San Joaquin County. For the Professional, Scientific, and Technical Services industry, SJ CSA and surrounding areas is defined as the San Jose-San Francisco-Oakland CSA and Sacramento County.

Source:
Survey of Business Owners, 2002. Data for the SJ CSA were downloaded from factfinder.census.gov on July 31, 2007. Data for Sacramento and San Joaquin Counties were created by the U.S. Census as a special request.

[22] SBO data screened for revenue were obtained from special runs prepared by the U.S. Census at our request.

Table 6: Comparison of Availability by Minority Group and Industry for SJ CSA and Surrounding Areas, Employer Firms - Survey of Business Owners (2002)

		African American		Hispanic		Asian		NA/AN		Female		Total
Industry	**NAICS**	**Number**	**% of Total**	**Number**	**% of Total**	**Number**	**% of Total**	**Number**	**% of Total**	**Number**	**% of Total**	**Number**
Employer Firms SJ CSA												
Construction	23	S	n/a	1,602	8.9%	1,035	5.7%	S	n/a	786	4.3%	18,079
Transportation & warehousing	48-49	85	2.5%	272	8.1%	321	9.6%	S	n/a	487	14.6%	3,347
Professional, scientific, & technical services	54	322	1.1%	S	n/a	3,963	13.6%	179	0.6%	5,445	18.6%	29,226
Total for all sectors		***2,616***	***1.6%***	***8,934***	***5.5%***	***29,049***	***17.9%***	***S***	***n/a***	***29,716***	***18.3%***	***162,646***
Employer Firms SJ CSA, Sacramento County, and San Joaquin County												
Construction	23	241	1.1%	1,941	8.9%	1,075	4.9%	303	1.4%	918	4.2%	21,912
Transportation & warehousing	48-49	111	2.6%	396	9.4%	390	9.2%	25	0.6%	573	13.6%	4,219
Professional, scientific, & technical services	54	345	1.1%	938	2.9%	4,114	12.7%	182	0.6%	6,065	18.8%	32,336
Total for all sectors		***3,040***	***1.6%***	***10,958***	***5.7%***	***33,669***	***17.6%***	***1,032***	***0.5%***	***34,434***	***18.0%***	***191,331***

Notes:

1) "S" indicates that the data has been suppressed by the Census because the relative standard error (RSE) of all firms' revenue is greater than or equal to 50%.

2) This table represents data from the San Jose-San Francisco-Oakland Combined Statistical Area (CSA), Sacramento County, and San Joaquin County.

3) "Total for all sectors" includes all available NAICS codes (NAICS 11 through NAICS 99).

4) For the construction industry and all other industries, SJ CSA and surrounding areas is defined as the San Jose-San Francisco-Oakland CSA, Sacramento County, and San Joaquin County. For the Professional, Scientific, and Technical Services industry, SJ CSA and surrounding areas is defined as the San Jose-San Francisco-Oakland CSA and Sacramento County.

Source:

Survey of Business Owners, 2002. Data for the SF CSA were downloaded from factfinder.census.gov on July 31, 2007. Data for Sacramento and San Joaquin Counties were created by the U.S. Census as a special request.

Minority- and female-owned availability rates in Construction and Professional Services resulting from data considering all firms (Table 5) are for the most part higher than those arising from the population of employer firms only (Table 6). Focusing on the "SJ and Surrounding Areas" measures, construction availability rates fall from 10.1% to 8.9% for Hispanic-owned, 7% to 4.9% for Asian-owned, and 5.6% to 4.2% for female-owned. For Professional Services in the same area, availability rates fall from 2.5% to 1.1% for African American-owned, 31.1% to 18.8% for female-owned, and fall from 13.2% to 12.7% for Asian-owned. As discussed in the next section, availability rates for these groups also fall as firm size, measured by annual revenue, is considered.

Comparisons of local market availability rates with national averages (see Table 7) largely reflect demographic differences between the San Francisco Bay Area and the nation as a whole. In all three industries listed in Table 5 as well as overall, the availability of Hispanic-owned and Asian-owned firms exceeds national averages, while the reverse is true for African American-owned businesses. While female-owned firms make up a higher portion of local businesses overall relative to the national average, local female-owned availability measures for the construction industry fall below the U.S. measure.

Table 7: Availability by Minority Group and Industry for the United States, All Firms - Survey of Business Owners (2002)

		African American		Hispanic		Asian		NA/AN		Female		Total
Industry	NAICS	Number	% of Total	Number	% of Total	Number	% of Total	Number	% of Total	Number	% of Total	Number
Construction	23	75,026	2.7%	212,502	7.6%	38,787	1.4%	32,253	1.2%	201,784	7.3%	2,780,323
Transportation & warehousing	48-49	99,339	10.2%	125,762	12.9%	52,056	5.3%	9,958	1.0%	111,445	11.4%	976,826
Professional, scientific, & technical services	54	115,814	3.5%	138,343	4.2%	154,220	4.7%	22,505	0.7%	934,800	28.5%	3,280,627
Total for all sectors		***1,197,567***	***5.2%***	***1,573,464***	***6.8%***	***1,103,587***	***4.8%***	***201,387***	***0.9%***	***6,489,259***	***28.2%***	***22,974,655***

Note: "Total for all sectors" includes all available NAICS codes (NAICS 11 through NAICS 99).

1) Survey of Business Owners, 2002. All firms data downloaded from factfinder.census.gov on July 18, 2007.

b) Availability Based on the SBO with Revenue Thresholds

In order to control more stringently for capacity, we also calculate availability rates where the population of firms is restricted via minimum annual revenue levels. It is important to note that we do not view these availability rates as necessarily more reliable or accurate than those based on SBO data for all firms. In particular, we recognize that capacity and revenue do not move in lockstep, and further that firms with capacity for revenue generation may have been impeded by discriminatory treatment. These revenue-restricted measures will be used in our disparity analysis to test the sensitivity of baseline results for all firms to alternative assumptions regarding the appropriate pool of firms available for work on federal contracts at VTA.

Revenue cutoffs at $25,000 and $50,000 were chosen based on results of a survey of bidders to VTA conducted in conjunction with this study. They are also supported by evidence from surveys of firms bidding for contracts similar transit agencies within the same market (San Francisco MTA and San Francisco International Airport). According to VTA bidder responses, 5% of surveyed bidders (8 out of 153 reporting revenues) reported annual revenues at or below $50,000. Three firms reported revenues at or below $30,000, and one firm reported revenue below $25,000.

Table 8: Availability by Minority Group and Industry for SJ CSA and Surrounding Areas, All Firms - Survey of Business Owners (2002)

Industry	NAICS	African American		Hispanic		Asian		NA/AN		Female		Total
		Number	% of Total	Number	% of Total	Number	% of Total	Number	% of Total	Number	% of Total	Number
All Firms												
Construction	23	1,206	2.0%	6,195	10.1%	4,339	7.0%	985	1.6%	3,439	5.6%	61,611
Transportation & warehousing	48-49	1,365	5.8%	4,143	17.6%	5,989	25.4%	200	0.8%	2,578	10.9%	23,578
Professional, scientific, & technical services	54	4,167	2.5%	7,523	4.6%	21,826	13.2%	1,147	0.7%	51,430	31.1%	165,139
Total for all sectors		***29,237***	***3.8%***	***66,077***	***8.6%***	***119,986***	***15.6%***	***7,967***	***1.0%***	***237,990***	***30.9%***	***769,093***
All Firms with Revenue >$25K												
Construction	23	566	1.3%	3,798	8.7%	2,711	6.2%	579	1.3%	2,062	4.7%	43,646
Transportation & warehousing	48-49	715	5.0%	2,296	15.9%	3,275	22.7%	105	0.7%	1,257	8.7%	14,433
Professional, scientific, & technical services	54	1,487	1.8%	3,206	3.8%	9,318	11.0%	572	0.7%	21,156	24.9%	84,948
Total for all sectors		***9,146***	***2.2%***	***28,288***	***6.7%***	***65,792***	***15.7%***	***2,751***	***0.7%***	***94,377***	***22.5%***	***419,974***
All Firms with Revenue >$50K												
Construction	23	452	1.3%	3,045	8.6%	2,100	5.9%	473	1.3%	1,538	4.3%	35,512
Transportation & warehousing	48-49	338	3.3%	1,281	12.4%	1,831	17.7%	97	0.9%	880	8.5%	10,336
Professional, scientific, & technical services	54	881	1.4%	1,980	3.2%	6,503	10.5%	436	0.7%	13,711	22.1%	62,155
Total for all sectors		***5,491***	***1.7%***	***18,808***	***5.8%***	***50,404***	***15.7%***	***2,116***	***0.7%***	***62,710***	***19.5%***	***321,719***

Notes:

1) "Total for all sectors" includes all available NAICS codes (NAICS 11 through NAICS 99).

2) This table represents data from the San Jose-San Francisco-Oakland Combined Statistical Area (CSA), Sacramento County, and San Joaquin County.

3) For the construction industry and all other industries, SJ CSA and surrounding areas is defined as the San Jose-San Francisco-Oakland CSA, Sacramento County, and San Joaquin County. For the Professional, Scientific, and Technical Services industry, SJ CSA and surrounding areas is defined as the San Jose-San Francisco-Oakland CSA and Sacramento County.

Source:

Survey of Business Owners, 2002. All firms data downloaded from factfinder.census.gov on July 31, 2007. Subsets of firms with over $25K and over $50K in revenue were created by the U.S. Census Bureau as a special request.

Table 9: Availability by Minority Group and Industry for SJ CSA and Surrounding Areas, Employer Firms - Survey of Business Owners (2002)

		African American		Hispanic		Asian		NA/AN		Female		Total
Industry	**NAICS**	**Number**	**% of Total**	**Number**	**% of Total**	**Number**	**% of Total**	**Number**	**% of Total**	**Number**	**% of Total**	**Number**
Employer Firms												
Construction	23	241	1.1%	1,941	8.9%	1,075	4.9%	303	1.4%	918	4.2%	21,912
Transportation & warehousing	48-49	111	2.6%	396	9.4%	390	9.2%	25	0.6%	573	13.6%	4,219
Professional, scientific, & technical services	54	345	1.1%	938	2.9%	4,114	12.7%	182	0.6%	6,065	18.8%	32,336
Total for all sectors		***3,040***	***1.6%***	***10,958***	***5.7%***	***33,669***	***17.6%***	***1,032***	***0.5%***	***34,434***	***18.0%***	***191,331***
Employer Firms with Revenue >$25K												
Construction	23	237	1.1%	1,833	8.6%	1,054	5.0%	260	1.2%	901	4.2%	21,212
Transportation & warehousing	48-49	99	2.5%	373	9.3%	386	9.6%	25	0.6%	532	13.2%	4,017
Professional, scientific, & technical services	54	327	1.1%	885	2.9%	3,763	12.4%	169	0.6%	5,531	18.2%	30,331
Total for all sectors		***2,826***	***1.6%***	***10,394***	***5.7%***	***31,697***	***17.4%***	***937***	***0.5%***	***31,796***	***17.5%***	***182,086***
Employer Firms with Revenue >$50K												
Construction	23	222	1.1%	1,709	8.3%	997	4.9%	205	1.0%	875	4.3%	20,486
Transportation & warehousing	48-49	79	2.1%	372	9.7%	372	9.7%	24	0.6%	525	13.6%	3,848
Professional, scientific, & technical services	54	299	1.0%	866	3.0%	3,398	11.9%	159	0.6%	5,059	17.7%	28,645
Total for all sectors		***2,431***	***1.4%***	***9,693***	***5.6%***	***29,648***	***17.1%***	***838***	***0.5%***	***29,297***	***16.9%***	***173,315***

Notes:

1) This table represents data from the San Jose-San Francisco-Oakland Combined Statistical Area (CSA), Sacramento County, and San Joaquin County.

2) "Total for all sectors" includes all available NAICS codes (NAICS 11 through NAICS 99).

3) For the construction industry and all other industries, SJ CSA and surrounding areas is defined as the San Jose-San Francisco-Oakland CSA, Sacramento County, and San Joaquin County. For the Professional, Scientific, and Technical Services industry, SJ CSA and surrounding areas is defined as the San Jose-San Francisco-Oakland CSA and Sacramento County.

Source:

Survey of Business Owners, 2002. All firms data downloaded from factfinder.census.gov on July 31, 2007. Subsets of firms with over $25K and over $50K in revenue were created by the U.S. Census Bureau as a special request.

Table 10: Availability by Minority Group and Industry for SJ CSA, All Firms - Survey of Business Owners (2002)

Industry	NAICS	African American		Hispanic		Asian		NA/AN		Female		Total
		Number	% of Total	Number	% of Total	Number	% of Total	Number	% of Total	Number	% of Total	Number
All Firms												
Construction	23	1,061	2.1%	5,188	10.3%	3,870	7.7%	902	1.8%	2,842	5.7%	50,130
Transportation & warehousing	48-49	1,147	6.4%	3,164	17.6%	4,586	25.5%	144	0.8%	1,984	11.0%	18,005
Professional, scientific, & technical services	54	3,633	2.4%	S	n/a	20,694	13.7%	1,058	0.7%	47,525	31.4%	151,135
Total for all sectors		***23,797***	***3.7%***	***53,489***	***8.3%***	***104,476***	***16.2%***	***6,549***	***1.0%***	***199,561***	***30.9%***	***646,218***
All Firms with Revenue >$25K												
Construction	23	471	1.3%	3,271	9.1%	2,441	6.8%	556	1.6%	1,638	4.6%	35,814
Transportation & warehousing	48-49	608	5.6%	1,576	14.5%	2,535	23.4%	73	0.7%	1,062	9.8%	10,834
Professional, scientific, & technical services	54	1,420	1.8%	S	n/a	8,966	11.5%	537	0.7%	19,612	25.1%	77,994
Total for all sectors		***7,702***	***2.1%***	***22,894***	***6.4%***	***57,848***	***16.1%***	***S***	***n/a***	***82,086***	***22.9%***	***358,266***
All Firms with Revenue >$50K												
Construction	23	418	1.4%	2,622	9.0%	1,903	6.5%	450	1.5%	1,230	4.2%	29,184
Transportation & warehousing	48-49	262	3.5%	782	10.4%	1,290	17.1%	72	1.0%	755	10.0%	7,533
Professional, scientific, & technical services	54	864	1.5%	S	n/a	6,259	11.0%	423	0.7%	12,789	22.5%	56,928
Total for all sectors		***4,736***	***1.7%***	***15,304***	***5.6%***	***44,293***	***16.1%***	***S***	***n/a***	***55,588***	***20.2%***	***275,109***

Notes:
1) "S" indicates that the data has been suppressed by the Census because the relative standard error (RSE) of all firms' revenue is greater than or equal to 50%.
2) This table represents data from the San Jose-San Francisco-Oakland, CA Combined Statistical Area (CSA) which is composed of the following core-based statistical areas (CBSAs): Napa, CA Metropolitan Statistical Area (MSA), San Francisco-Oakland-Fremont MSA, San Jose-Sunnyvale-Santa Clara MSA, Santa Cruz-Watsonville MSA, Santa Rosa-Petaluma MSA, Vallejo-Fairfield MSA.
3) "Total for all sectors" includes all available NAICS codes (NAICS 11 through NAICS 99).

Source:
Survey of Business Owners, 2002. All firms data downloaded from factfinder.census.gov on July 31, 2007. Subsets of firms with over $25K and over $50K in revenue were created by the U.S. Census Bureau as a special request.

Table 11: Availability by Minority Group and Industry for SJ CSA, Employer Firms - Survey of Business Owners (2002)

Industry	NAICS	African American		Hispanic		Asian		NA/AN		Female		Total
		Number	% of Total	Number	% of Total	Number	% of Total	Number	% of Total	Number	% of Total	Number
Employer Firms												
Construction	23	S	n/a	1,602	8.9%	1,035	5.7%	S	n/a	786	4.3%	18,079
Transportation & warehousing	48-49	85	2.5%	272	8.1%	321	9.6%	S	n/a	487	14.6%	3,347
Professional, scientific, & technical services	54	322	1.1%	S	n/a	3,963	13.6%	179	0.6%	5,445	18.6%	29,226
Total for all sectors		***2,616***	***1.6%***	***8,934***	***5.5%***	***29,049***	***17.9%***	***S***	***n/a***	***29,716***	***18.3%***	***162,646***
Employer Firms with Revenue >$25K												
Construction	23	S	n/a	1,497	8.5%	1,014	5.8%	S	n/a	S	n/a	17,523
Transportation & warehousing	48-49	76	2.4%	261	8.1%	316	9.9%	S	n/a	457	14.3%	3,203
Professional, scientific, & technical services	54	307	1.1%	S	n/a	3,628	13.2%	166	0.6%	4,984	18.2%	27,417
Total for all sectors		***2,431***	***1.6%***	***8,520***	***5.5%***	***27,460***	***17.7%***	***S***	***n/a***	***27,635***	***17.8%***	***154,961***
Employer Firms with Revenue >$50K												
Construction	23	S	n/a	1,402	8.3%	957	5.6%	S	n/a	S	n/a	16,939
Transportation & warehousing	48-49	S	n/a	260	8.5%	303	9.9%	S	n/a	453	14.8%	3,065
Professional, scientific, & technical services	54	283	1.1%	S	n/a	3,278	12.7%	S	n/a	4,550	17.6%	25,876
Total for all sectors		***2,078***	***1.4%***	***8,087***	***5.5%***	***25,620***	***17.3%***	***S***	***n/a***	***25,500***	***17.3%***	***147,669***

Notes:
1) "S" indicates that the data has been suppressed by the Census because the relative standard error (RSE) of all firms' revenue is greater than or equal to 50%.
2) This table represents data from the San Jose-San Francisco-Oakland, CA Combined Statistical Area (CSA) which is composed of the following core-based statistical areas (CBSAs): Napa, CA Metropolitan Statistical Area (MSA), San Francisco-Oakland-Fremont MSA, San Jose-Sunnyvale-Santa Clara MSA, Santa Cruz-Watsonville MSA, Santa Rosa-Petaluma MSA, Vallejo-Fairfield MSA.
3) "Total for all sectors" includes all available NAICS codes (NAICS 11 through NAICS 99).

Source:
Survey of Business Owners, 2002. All firms data downloaded from factfinder.census.gov on July 31, 2007. Subsets of firms with over $25K and over $50K in revenue were created by the U.S. Census Bureau as a special request.

Based on data specially prepared by the Census for the markets studied here, we calculate availability rates for minority and woman-owned firms when only firms with at least $25,000 or $50,000 are considered. Table 8 reports these figures considering all firms at

three revenue floors ($0, $25K and $50K). Table 9 reports figures for the same revenue cutoffs when only employer firms are considered. We also report availability rates using these revenue cutoffs when the geographic market boundary is defined by the SJ CSA only (see Table 10 and Table 11). Given that the vast majority of the market is encompassed within this area, it is not surprising that the availability rates reported in Table 10 and Table 11 do not differ substantially from those covering the entire geographic market in question.

Table 12: Comparison of Construction Availability Measures, SJ CSA and Surrounding Areas

	SBO Availability					
	All Firms	**All > $25K**	**All > $50K**	**Employer Firms**	**Employer > $25K**	**Employer > $50K**
Women	5.6%	4.7%	4.3%	4.2%	4.2%	4.3%
African American	2.0%	1.3%	1.3%	1.1%	1.1%	1.1%
Asian/Pacific Islander	7.0%	6.2%	5.9%	4.9%	5.0%	4.9%
American Indian / Alaska Native	1.6%	1.3%	1.3%	1.4%	1.2%	1.0%
Hispanic	10.1%	8.7%	8.6%	8.9%	8.6%	8.3%

Notes:
1) This table represents data from the San Jose-San Francisco-Oakland Combined Statistical Area (CSA), Sacramento County, and San Joaquin County.
2) Availability is reported separately by gender and by minority status. As a result, minority women are counted twice - once in the gender analysis and once in the minority status analysis.
3) Please see Tables 5 and 6 for additional detail.

Sources:
Survey of Business Owners, 2002. Data for the SJ CSA and surrounding area was created by the U.S. Census Bureau as a special request.

Table 13: Comparison of Professional Services Availability Measures, SJ CSA and Surrounding Areas

	SBO Availability					
	All Firms	**All > $25K**	**All > $50K**	**Employer Firms**	**Employer > $25K**	**Employer > $50K**
Women	31.1%	24.9%	22.1%	18.8%	18.2%	17.7%
African American	2.5%	1.8%	1.4%	1.1%	1.1%	1.0%
Asian/Pacific Islander	13.2%	11.0%	10.5%	12.7%	12.4%	11.9%
American Indian / Alaska Native	0.7%	0.7%	1.3%	0.6%	0.6%	0.6%
Hispanic	4.6%	3.8%	3.2%	2.9%	2.9%	3.0%

Notes:
1) This table represents data from the San Jose-San Francisco-Oakland Combined Statistical Area (CSA), Sacramento County, and San Joaquin County.
2) Availability is reported separately by gender and by minority status. As a result, minority women are counted twice - once in the gender analysis and once in the minority status analysis.
3) Please see Tables 5 and 6 for additional detail.

Sources:
Survey of Business Owners, 2002. Data for the SJ CSA and surrounding areas was created by the U.S. Census Bureau as a special request.

Table 14: Comparison of Construction Availability Measures, SJ CSA

	SBO Availability					
	All Firms	All > $25K	All > $50K	Employer Firms	Employer > $25K	Employer > $50K
Women	5.7%	4.6%	4.2%	4.3%	n/a	n/a
African American	2.1%	1.3%	1.4%	n/a	n/a	n/a
Asian/Pacific Islander	7.7%	6.8%	6.5%	5.7%	5.8%	5.6%
American Indian / Alaska Native	1.8%	1.6%	1.5%	n/a	n/a	n/a
Hispanic	10.3%	9.1%	9.0%	8.9%	8.5%	8.3%

Notes:
1) The SJ CSA is defined here as the following counties: Alameda, Contra Costa, Marin, Napa, San Francisco, San Mateo, Santa Clara, Santa Cruz, Solano, San Benito and Sonoma.
2) Availability is reported separately by gender and by minority status. As a result, minority women are counted twice - once in the gender analysis and once in the minority status analysis.
3) Please see Tables 7 and 8 for additional detail.

Sources:
1) Survey of Business Owners, 2002. Data for the SJ CSA was created by the U.S. Census Bureau as a special request.

Table 15: Comparison of Professional Services Availability Measures, SJ CSA

	SBO Availability					
	All Firms	All > $25K	All > $50K	Employer Firms	Employer > $25K	Employer > $50K
Women	31.4%	25.1%	22.5%	18.6%	18.2%	17.6%
African American	2.4%	1.8%	1.5%	1.1%	1.1%	1.1%
Asian/Pacific Islander	13.7%	11.5%	11.0%	13.6%	13.2%	12.7%
American Indian / Alaska Native	0.7%	0.7%	0.7%	0.6%	0.6%	n/a
Hispanic	n/a	n/a	n/a	n/a	n/a	n/a

Notes:
1) The SJ CSA is defined here as the following counties: Alameda, Contra Costa, Marin, Napa, San Francisco, San Mateo, Santa Clara, Santa Cruz, Solano, San Benito and Sonoma.
2) Availability is reported separately by gender and by minority status. As a result, minority women are counted twice - once in the gender analysis and once in the minority status analysis.
3) Please see Tables 7 and 8 for additional detail.

Sources:
1) Survey of Business Owners, 2002. Data for the SJ CSA was created by the U.S. Census Bureau as a special request.

Finally, Tables 12 through 15 compare SBO-based availability rates under all six assumptions for the pool of available firms considered. These tables compare availability measures based on all firms with those at two revenue cutoffs and with availability measures based on employer firms only. Tables 12 and 13 compare rates for construction and professional service markets respectively for the entire local market. Next, Tables 14 and 15 provide the same comparisons based on the SJ CSA only. As reported in Tables 12 and 14, the proportions of available construction firms that are minority or female-owned decline as we restrict the universe of firms considered by higher annual revenue thresholds. As Tables 13 and 15 indicate, the same is true for professional services.

D. Check on 2002 SBO Availability Estimates with Recent CPS (2002-2006)

Since the SBO data is from 2002, we also sought to determine whether this data remains timely. We turned to the more recent Current Population Survey (CPS) Outgoing Rotations Group (ORG), data covering the period 2002-2006 for this purpose. The CPS, collected by the U.S. Census Bureau and U.S. Bureau of Labor Statistics, provides the most up-to-date estimates of the number of self-employed business owners in the United States. The CPS ORG data are less comprehensive than SBO data and do not provide enough observations to reliably calculate industry specific availability rates by race, ethnicity and gender within the SJ CSA and surrounding areas. Therefore, we compared CPS industry estimates for larger geographic areas or aggregated industry estimates for smaller regions. These comparisons allow us to gauge whether it is reasonable to expect the 2002 SBO availability estimates to differ from current conditions. It is important to note however that differences may also arise from the differing methodologies in identifying firms and firm owners between the SBO and CPS.

1. Current Population Survey Method and Data

We calculated estimates of the number of minority and female self-employed business owners from CPS micro-data. The survey, conducted by the U.S. Census Bureau and the Bureau of Labor Statistics, is representative of the entire U.S. population and interviews approximately 50,000 households and more than 130,000 people per month. It contains detailed information on labor force and demographic characteristics.

The CPS provides the most up-to-date estimates of the rate of business ownership in the United States. These data provide a different, individual-based, representation of recent trends in minority business ownership than estimates of the number of businesses from the SBO/SMOBE. Self-employed business owners in the CPS are defined as those individuals who identify themselves as self-employed in their own unincorporated or incorporated business in the class of worker survey question. All business owners are captured in the CPS including those who own incorporated or unincorporated businesses and those who hire or do not hire any employees.[23] The class of worker question refers to the job with the most hours during the reference week. We restricted the sample to include only individuals ages 21 and over who worked at least 15 hours during this week. The restriction on hours is imposed to rule out very small-scale business activities. In the CPS, side or "casual" businesses owned by wage and salary workers or individuals who are not in the labor force are excluded. We thus capture only primary business owners who devote a substantial amount of work effort to their businesses, which is the main advantage of the CPS. The CPS has other advantages as well.

First, the CPS provides detailed information on the characteristics of the owner. This allows us to address issues of capacity because we can select only business owners

[23] The estimates of business ownership rates from CPS microdata presented in this study improve on published estimates from the same source by the Bureau of Labor Statistics (BLS). Regularly published estimates from the BLS, such as those reported in *Employment and Earnings*, do not include incorporated business owners, which represent roughly one third and a growing share of all business owners.

working 15 or more hours per week and calculate estimates for more educated owners. More importantly, the detailed demographic information allows us to create estimates for several minority groups. We report estimates for African-American, Hispanic, Asian, Native American and female business owners.

Second, the CPS micro-data are made available shortly after the surveys are conducted. This allows for up-to-date estimates of the number of businesses. Estimates of the number of minority business owners in the past few years are useful for predicting what current numbers of minority businesses are based on the SBO data.

The main disadvantage of the CPS is that even with the large total sample size, the sample sizes become relatively small when focusing on detailed racial groups in specific industries for the San Francisco CSA and surrounding areas. Reliable availability estimates from the CPS are thus limited to more aggregate groups or industries.

2. Comparison of CPS and SBO Availability Estimates

Table 16 reports CPS-based U.S. availability estimates for four industry categories. Comparing national estimates for construction to the SBO (see Table 7), African-American availability at 4.4% exceeds the SBO rate of 2.7% and Hispanic availability at 11.5% exceeds its SBO counterpart at 7.6%. Comparing national estimates for professional services to the SBO, female-owned availability at 41.8% exceeds the SBO rate of 28.5% and CPS-based rates for both Hispanic and African American-owned exceed SBO-based rates. These are consistent with recent findings of growing availability of minority firms, yet may also be the result of differing survey methodologies. Given that the remaining estimates are close to SBO estimates, it may be reasonably inferred given evidence of growth in availability that estimates based on the 2002 SBO are conservative. In addition, comparisons of SBO-based estimates with CPS-based estimates for the focus region of the SJ CSA and surrounding areas reveal that CPS-based measures are generally near to or higher than measures based on the SBO. It is important to note however, that CPS-based measures at this level of detail are not precise given the limited size of the survey at local levels. Therefore, comparisons at the local level should be viewed with caution. With that said, the results are consistent with our conclusions drawn from comparing the national level data.

Table 16: Availability of Minority- and Woman-Owned Firms by Industry Group - Current Population Survey Outgoing Rotations Group, 2002-2006

	Construction	Professional Services	General Services	Commodities
	% Total	% Total	% Total	% Total
United States				
Men	93.0%	58.2%	64.6%	67.4%
Women	7.0%	41.8%	35.4%	32.6%
White, Non-Hispanic	80.9%	82.0%	74.2%	80.6%
African American	4.4%	5.8%	7.8%	3.5%
Asian/Pacific Islander	1.4%	4.7%	6.4%	7.3%
Native American/Alaska Native	0.6%	0.4%	0.5%	0.5%
White, Hispanic	11.5%	6.1%	10.1%	7.5%
Other, Hispanic	0.1%	0.1%	0.1%	0.0%
Other, Non-Hispanic	1.0%	0.9%	0.8%	0.5%
SJ CSA and surrounding areas				
Men	92.9%	57.4%	62.3%	69.5%
Women	7.1%	42.6%	37.7%	30.5%
White, Non-Hispanic	70.8%	70.3%	57.8%	64.5%
African American	1.0%	3.0%	4.8%	2.5%
Asian/Pacific Islander	9.2%	16.7%	21.5%	23.2%
Native American/Alaska Native	0.8%	0.6%	0.9%	0.3%
White, Hispanic	18.2%	8.0%	14.1%	8.5%
Other, Hispanic	n/a	n/a	n/a	0.3%
Other, Non-Hispanic	n/a	1.4%	1.0%	0.6%
SJ CSA				
Men	92.2%	55.3%	61.3%	71.6%
Women	7.8%	44.7%	38.7%	28.4%
White, Non-Hispanic	67.0%	71.0%	55.6%	63.4%
African American	1.4%	2.7%	5.4%	3.2%
Asian/Pacific Islander	10.3%	16.9%	21.7%	23.3%
Native American/Alaska Native	1.2%	0.2%	1.1%	0.4%
White, Hispanic	20.1%	8.0%	15.4%	8.5%
Other, Hispanic	n/a	n/a	n/a	0.4%
Other, Non-Hispanic	n/a	1.3%	0.7%	0.8%

Notes:
1) The population is restricted to individuals aged 21 and over who work more than 15 hours per week in a non-agricultural, non-military industry.
2) For 2002, the data only include four race categories: White, African American, Asian/Pacific Islander, and Native American/Alaska Native. For 2003-2006, the data give a more detailed specification of race: White, African American, Asian, Hawaiian/Pacific Islander, Native American/Alaska Native, and various combinations of the abovementioned categories for multiracial individuals. Hispanic individuals were identified in a separate variable called "Spanish Ethnicity."
3) Availability has been calculated using the value weights given in the CPS data.
4) Please see Appendix B for CPS industry group definitions.
5) For the construction, general services, and commodities industries, SJ CSA and surrounding areas is defined as the San Jose-San Francisco-Oakland CSA, Sacramento County, and San Joaquin County. For the professional service industry, SJ CSA and surrounding areas is defined as the San Jose-San Francisco-Oakland CSA and Sacramento County.

Source: Outgoing Rotation Group files of the Current Population Survey Earner Study, 2002-2006.

Table 17: Availability of Minority- and Woman-Owned Business Enterprises - Current Population Survey Outgoing Rotations Group, 2002-2006

	US	California	SJ CSA and Surrounding Areas	SJ CSA
	% Total	% Total	% Total	% Total
Men	68.5%	66.9%	67.1%	64.7%
Women	31.5%	33.1%	32.9%	35.3%
White, Non-Hispanic	79.1%	63.5%	66.3%	64.1%
African American	5.7%	3.6%	3.4%	3.5%
Asian/Pacific Islander	5.2%	13.0%	17.7%	18.7%
Native American/Alaska Native	0.5%	0.8%	0.6%	0.7%
White, Hispanic	8.6%	18.0%	11.0%	12.1%
Other, Hispanic	0.1%	0.2%	0.0%	0.1%
Other, Non-Hispanic	0.8%	0.9%	1.0%	0.9%

Notes:
1) The population is restricted to individuals aged 21 and over who work more than 15 hours per week in a non-agricultural, non-military industry.
2) For 2002, the data only include four race categories: White, African American, Asian/Pacific Islander, and Native American/Alaska Native. For 2003-2006, the data give a more detailed specification of race: White, African American, Asian, Hawaiian/Pacific Islander, Native American/Alaska Native, and various combinations of the abovementioned categories for multiracial individuals. Hispanic individuals were identified in a separate variable called "Spanish Ethnicity."
3) Availability has been calculated using the value weights given in the CPS data.
4) SJ CSA and surrounding areas is defined as the San Jose-San Francisco-Oakland CSA, Sacramento County, and San Joaquin County.

Source: Outgoing Rotation Group files of the Current Population Survey Earner Study, 2002-2006.

Table 17 displays availability aggregated across industries for the U.S., California and SF CSA plus surrounding areas. Comparing these 2002-2006 CPS estimates to the 2002 SBO estimates for all sectors also indicates that SBO estimates are likely to be conservatively undercounting current minority- and female-owned availability. The CPS-based estimates reported in Table 17 are consistent with overall SBO estimates reported under “Total for all sectors” in Table 7 (U.S.) and Table 5 (SF CSA and surrounding areas). The CPS-based white non-Hispanic firm availability is estimated at a similar 79.1% for the US (compared with 82.3% in the SBO) and 66.3% for the SF CSA and surrounding areas (compared with 71% in the SBO). Again, the recent data from the CPS suggest that minority firm availability has risen. Hence, it is reasonable to infer that 2002 SBO availability is a conservative measure of current minority participation.

E. Potential Availability

The availability measures presented above reflect estimates of firms currently available. However, where discrimination is present, these measures will not reflect the availability of female- and minority-owned firms that would prevail in a race and gender neutral market. Given that the results of our econometric analyses of firm formation provide evidence of race and gender disparities in firm formation; it is plausible that discrimination acts to inhibit the number and success of minority- and female-owned firms. In this section, we draw on results from an econometric model of firm formation to determine the difference between current availability and expected availability in a race and gender neutral setting.

To arrive at measures of availability expected to prevail in a race- and gender-neutral marketplace, we combine current self-employment rates with results from probit regression analysis isolating the impact of race and gender on likelihood of self employment. These measures of potential availability are calculated separately for construction and professional services utilizing data from those employed in the SJ CSA and surrounding areas (defined according to the market definition guidelines discussed earlier in this report). In short, race and gender coefficients from self-employment probit regressions indicate the differential between the race/gender group and white non-Hispanic likelihood of self employment after controlling for differences in several factors including education, location, and marital status. While the race and gender coefficients may pick up effects of several unobserved traits, they may also be driven by discrimination. By negating these race- and gender-specific effects, we are able to predict self employment rates in a race and gender neutral environment. To the extent that these coefficients pick up effects either directly or indirectly influenced by discrimination, the revised availability rates represent improved measures over those based on current availability.

We applied the coefficients to both the SBO and 2000 Census availability figures described above to calculate potential availability. Table 18 presents the results using the Census data while Table 19 presents the results using the SBO data.

Table 18: Actual and Potential Availability in the SJ CSA and Surrounding Areas - CPS Probit Regression Results, 2000 Census Self-Employment Rate, 2000 Census Availability

	Construction		Professional Services	
	Baseline Availability	Potential Availability	Baseline Availability	Potential Availability
Women	6.4%	11.4%	42.7%	55.2%
African American	2.2%	4.4%	3.2%	6.2%
Asian/Pacific Islander	7.4%	7.6%	10.4%	15.0%
Native American / Alaska Native	0.7%	1.2%	0.5%	0.7%
Hispanic[3]	12.0%	16.4%	4.9%	6.1%
Other, Non-Hispanic	4.0%	3.7%	3.0%	2.6%

Notes:
1) "Baseline Availability" is the actual availability observed in the 2000 Census, while "Potential Availability" is the estimated availability of MBE/WBEs absent discrimination. Please see the text for more detail.
2) For 2002, the data only include four categories: White, African American, Asian/Pacific Islander, and Native American/Alaska Native. For 2003-2006, the data give a more detailed specification of race: White, African American, Asian, Hawaiian/Pacific Islander, Native American/Alaska Native, and various combinations of the abovementioned categories for multiracial individuals. Hispanic individuals were identified in a separate variable called "Spanish Ethnicity."
3) "Hispanic" includes individuals identified as "White, Hispanic" and "Other, Hispanic" under the Census definitions.
4) Please see Appendix B for CPS and Census industry group definitions.
5) For the construction industry, SJ CSA and surrounding areas is defined as the San Jose-San Francisco-Oakland CSA, Sacramento County, and San Joaquin County. For the professional services industry, SJ CSA and surrounding areas is defined as the San Jose-San Francisco-Oakland CSA and Sacramento County.
6) Availability is reported separately by gender and by minority status. As a result, minority women are counted twice - once in the gender analysis and once in the minority status analysis.

Sources:
1) Outgoing Rotation Group files of the Current Population Survey Earner Study, 2002-2006.
2) 5% Public Use Microdata Sample of the US Census 2000.

Table 19: Actual and Potential Availability in the SJ CSA and Surrounding Areas - CPS Probit Regression Results, 2000 Census Self-Employment Rate, SBO Availability

	Construction		Professional Services	
	Baseline Availability	Potential Availability	Baseline Availability	Potential Availability
Women	5.6%	10.0%	31.4%	40.6%
African American	2.0%	4.0%	2.5%	4.9%
Asian/Pacific Islander	7.0%	7.2%	13.2%	19.0%
Native American / Alaska Native	1.6%	2.7%	0.7%	1.0%
Hispanic[3]	10.1%	13.8%	4.6%	5.7%

Notes:

1) "Baseline Availability" is the actual availability observed in the 2002 Survey of Business Owners, while "Potential Availability" is the estimated availability of MBE/WBEs absent discrimination. Please see the text for more detail.

2) For 2002, the data only include four categories: White, African American, Asian/Pacific Islander, and Native American/Alaska Native. For 2003-2006, the data give a more detailed specification of race: White, African American, Asian, Hawaiian/Pacific Islander, Native American/Alaska Native, and various combinations of the abovementioned categories for multiracial individuals. Hispanic individuals were identified in a separate variable called "Spanish Ethnicity."

3) "Hispanic" includes individuals identified as "White, Hispanic" and "Other, Hispanic" under the Census definitions.

4) Please see Appendix B for CPS and Census industry group definitions.

5) For the construction industry, SJ CSA and surrounding areas is defined as the San Jose-San Francisco-Oakland CSA, Sacramento County, and San Joaquin County. For the professional services industry, SJ CSA and surrounding areas is defined as the San Jose-San Francisco-Oakland CSA and Sacramento County.

6) Availability is reported separately by gender and by minority status. As a result, minority women are counted twice - once in the gender analysis and once in the minority status analysis.

Sources:

1) Outgoing Rotation Group files of the Current Population Survey Earner Study, 2002-2006.

2) 5% Public Use Microdata Sample of the US Census 2000.

3) Survey of Business Owners, 2002.

F. Other Sources Considered

Due to data limitations, our disparity analyses will not consider any measures of availability based only on bidders to VTA. Together with VTA staff, CRA has performed an exhaustive search of VTA contracting data sources in an attempt to gather information on successful and unsuccessful prime and subcontract bidders competing for contracts at VTA. Comprehensive data sources capturing bidder information including identification of the majority race and gender of bidding firm ownership are necessary to arrive at such measures. While VTA maintains a list of both prime and subcontract bidders to construction contracts, this list does not have sufficient contract and bidder coverage to calculate reliable availability measures. Further, records maintained for professional service contract bidders are limited to information on prime contract bidders.

While availability measures based on bidding firms arguably satisfy the criteria that firms are ready, willing and able to perform on the contracts in question, it is almost certainly

an undercount of firms available or firms that would be available in a race and gender neutral marketplace. Though bidder list availability may be useful for bounding the appropriate measure from below, it is neither a necessary nor sufficient measure of availability for disparity analysis. It is our opinion that measures based on the SBO provide the most reliable and appropriate estimates for the purposes of this study.

VI. Market-Based Statistical Evidence

As recognized by the Courts, statistical evidence of disparity among gender and ethnic and racial groups based on simple disparity ratios is not sufficient to conclude that race conscious programs can be justified especially if other factors that may explain disparities cannot be ruled out. Data sufficient to rigorously control for these factors only exists at the market level. Thus, we first study statistical evidence of discrimination with respect to firm formation, earnings, and access to capital based on several econometric techniques.

A. Study of Disparities in DBE Firm Formation and Owner Earnings in the Market

The presence of statistically significant disparities in firm formation and earnings is consistent with ongoing discrimination or the current impact of past discrimination in the marketplace. Our analysis here begins by relying on Decennial Censuses and the monthly Current Population Survey (CPS) from 1996 to 2006 to evaluate historical trends in firm formation rates and owner earnings by gender and ethnicity. Here, a pattern of marked and persistent differences in formation and earnings by group is readily apparent. Further, we present statistical evidence of disparities in business formation for the 2000-2005 period by comparing unconditional group self-employment rates as well as multivariate regression analysis. This statistical evidence draws on the 2002-2006 CPS and is complemented by similar evaluation using the 2000 Decennial Census. Next, we present statistical evidence of disparities in business owner earnings both unconditionally and within a regression framework using the same data sources. Finally, firm earnings differences across groups based on the 2002 Census Survey of Business Owners (SBO) are evaluated.

1. Data Sources Utilized

We rely on three primary sources of public data for our analysis, the US Decennial Census, the CPS, and the SBO. For the census, we use the 5% Public Use Microdata Sample, which contains information at the individual, family, and household level for a 5% random sample of the entire US population. The data contain self-reported information on the principal type of work performed in the prior year by individuals in the sample, as well as their annual earnings from that work. As such, we are able to identify those individuals who report themselves as primarily self-employed.

For the CPS, we use the monthly Outgoing Rotation Group (ORG) files, as well as the Annual Social and Economic Supplement (ASEC) for years 1996 through 2006. From the ORG, we again are able to identify those who report themselves as primarily self-

employed. From the ASEC, we are able to identify annual earnings for self-employed business owners.[24] Finally, the 2002 SBO, formerly known as the SMOBE/SWOBE, provides statistics that describe the composition of US businesses by gender, race, and ethnicity. The universe of firms sampled by the SBO is compiled from a combination of business tax returns and data collected on other economic census reports. The Census Bureau obtains electronic files from the Internal Revenue Service (IRS) for all companies filing business income tax forms.[25] In addition to identifying owner gender, race, and ethnicity, this data provides estimates of average firm revenue by detailed industry and geography.

Therefore, we use two large independent and representative sources of data to examine statistical disparities in self-employment rates, which we consider to be a proxy for small business ownership, and two sources of data to conduct similar analysis of self-employment earnings with respect to gender, race, and ethnicity.[26] Using the Census and CPS, we analyze these disparities for three geographic areas: the entire US; the State of California; and the San Francisco Bay Area.[27] Further, we analyze these differences both for the economy as a whole, as well as within four broad industry categories: Construction; Professional Services; General Services; and Commodities. Where the data permits, we align the San Francisco Bay Area geographic region analyzed with the geographic market for VTA contracting defined above: the SJ CSA plus Sacramento and San Joaquin counties. Finally, we leverage the large universe of firms sampled for the SBO to examine differences in business earnings across gender, race and ethnic groups by detailed industries for both the US and California.

2. Statistical Disparities in Self-Employment Rates

Estimates arising from the Census and CPS indicate sizable and persistent disparities in rates of self-employment when comparing individuals across ethnic, racial, and gender groups. Minorities form businesses at lower rates than non-minorities and women form businesses at lower rates than men. This is true at both national and local market levels.

[24] The ASEC (previously named ADF) survey is taken in March, whereas the ORG surveys are taken in all months of the year, but only in the fourth or eighth month of a household's rotation in the CPS. Therefore, its sample size is only about a one-third that of the ORG.

[25] The Census Bureau obtains electronic files from the Internal Revenue Service (IRS) for all companies filing IRS Form 1040, Schedule C (individual proprietorship or self-employed person); 1065 (partnership); any one of the 1120 corporation tax forms; and 941 (Employer's Quarterly Federal Tax Return). The IRS provides certain identification, classification, and measurement data for businesses filing those forms.

[26] We consider self employment rates equivalent to firm formation rates.

[27] Geographic boundaries defining the San Francisco Bay Area market differ slightly between data sources. Analysis based on the SBO and CPS relies on the SJ CSA. The SJ CSA includes the counties of Alameda, Contra Costa, Marin, Napa, Santa Clara, San Benito, Santa Cruz, Sonoma, Solano, San Francisco, and San Mateo. Analysis based on the 2000 Decennial Census uses the San Francisco-Oakland-San Jose Combined Metropolitan Statistical Area (SF CMSA) rather than the CSA. The SF CMSA excludes San Benito County, but is otherwise identical to the SJ CSA. Decennial Census data cannot distinguish between observations from San Benito County and Monterey. The bidder data analyzed and discussed above in defining the VTA contract market indicates that Monterey County lies far outside of the relevant market. Finally, all analysis of the SF Bay Area and surrounding areas includes Sacramento and San Joaquin counties.

Table 20 displays self-employment rates from the Census for the US, California, and two measures of the local Bay Area market: the San Francisco-Oakland-San Jose CMSA (SF CMSA) and the SF CMSA plus two neighboring counties (Sacramento and San Joaquin). For the US as a whole, self-employment rates for men, at approximately 12%, are almost twice those for women at approximately 7%. In the Bay Area (SF CMSA), both rates are somewhat higher, approximately 12% and 9% respectively, but the disparity between the two remains. Differences between men and women persist when we expand the scope to the larger area serving VTA (SF CMSA + Surrounding Areas). Large disparities in self-employment rates also exist across ethnic and racial groups.[28] For the US, white non-Hispanics, at nearly 11%, have the highest self-employment rates of any race or ethnicity. In contrast, African Americans have a self-employment rate of only 4% and the white Hispanic rate stands at 8%.[29] Other Hispanics, Native Americans/Alaska Natives, and Native Hawaiian/Pacific Islanders also have substantially lower self-employment rates than white non-Hispanics.

The relative disparities in self-employment rates observed in the US tend to be larger in California and, in particular, the Bay Area. For example, the white non-Hispanic rate rises by over three percentage points to nearly 14% in the SF CMSA, whereas the rates for African Americans and white Hispanics rise 0.9 and 0.2 percentage points respectively. As a result, disparities in average self-employment rates appear, in general, to be larger in the Bay Area than in the US as a whole. The same holds true when comparisons are made between the US and the expanded Bay Area market serving VTA (SF CMSA and Surrounding Area figures in Table 20).

Table 21 displays average self-employment rates from the Census for five industry categories for the US, California, and the Bay Area market. While average self-employment rates vary considerably across these five categories, the relative rankings are quite stable. Women have lower self-employment rates on average than men. Other races and ethnicities have lower self-employment rates on average than white non-Hispanics. Again, the disparities appear, in general, to be larger in the Bay Area market than in the US as a whole.

Table 22 displays self-employment rates from the US Census for 1980, 1990, and 2000. The data reflect the persistence of disparities in firm formation rates between men and women as well as between non-minorities and minority groups over time. Over the past two decades, self-employment rates have risen for all races and ethnicities in both the US and California. The relative rankings, however, remain unchanged: men and white non-Hispanics have had and continue to have the highest self-employment rates.

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[28] There is no "Hispanic" ethnicity category in the Census and CPS. Rather, Hispanics are identified as White, Black, Asian, etc., coupled with "Hispanic or Hispanic origin." When classifying individuals into standardized categories, we used a general classification scheme in which race supersedes Hispanic or Hispanic ethnicity, except for "white" or "other" races. For example, if an individual's race is "Black" and Hispanic ethnicity is "Cuban," the individual is coded as "Black." Alternatively, if an individual's race is "White" and Hispanic ethnicity is "Cuban," then the individual would be coded as "White, Hispanic."

[29] The category of White Hispanic is larger than the category of other Hispanics.

Examining an even longer period of time does not change the conclusion regarding relative trends in minority self-employment. Using data from the 1910 to 1990 Census, Fairlie and Meyer (2000) compare black to white self-employment rates. Throughout the twentieth century, black self-employment rates have been considerably lower than white rates. The black self-employment rate has not risen relative to the white rate over this entire period.

Turning to our second source of data, Figures 1 and 2 display national average self-employment rates from the CPS over time from 1995 to 2006. We use a three-year moving average to smooth fluctuations in these rates that are associated with macro-economic cycles such as recessions. The relative disparities appear to be quite constant: men and white non-Hispanics have had and continue to have the highest self-employment rates. Although business ownership rates have increased in recent years for a few groups, minority and female business ownership rates have not increased substantially in the past decade.[30]

Focusing on the most recently available data by combining 2002-2006, Table 23 displays average self-employment rates from the CPS for the US, California, and the Bay Area geographic market in which VTA and VTA contract bidders participate (San Jose-San Francisco-Oakland Combined Statistical Area, or SJ CSA, plus Sacramento and San Joaquin counties). The results in this table are consistent with those from the Census. In the US as a whole, men have almost twice the self-employment rate of women, and white non-Hispanics have higher self-employment rates than all other races or ethnicities. Self-employment rates are higher in San Francisco than in the entire US for white non-Hispanics, but are lower or nearly the same for many ethnic and racial groups, indicating larger disparities than those implied by the national results. The larger disparities in the local geographic market are consistent with similar findings based on the 2000 Census and reported above.

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[30] This appears to contrast with recently released findings from the US Census Bureau on rapid growth in the number of minority businesses from 1997 to the last release of business-level data in 2002. These findings received a lot of attention in the press and among policymakers. The series of press releases by the US Census Bureau noted a 45% increase in the number of black-owned businesses from 1997 to 2002, a 31% increase in the number of Hispanic-owned businesses, and a 24% increase in the number of Asian-owned businesses (See the following 2006 U.S. Census Bureau Press Releases: "Revenues for Asian-Owned Firms Surpass $326 Billion, Number of Businesses Up 24 Percent," "Revenues for Black-Owned Firms Near $89 Billion, Number of Businesses Up 45 Percent," and "Growth of Hispanic-Owned Businesses Triples the National Average.").

These estimates based on comparing the 1997 SMOBE and 2002 SBO were viewed as positive news for the state of minority business, especially in light of the much slower growth rate in the number of all businesses of 10%. As evidenced here by trends in business ownership rates from the CPS, however, the increase was primarily driven by population growth and not by an increased propensity to start businesses among minorities. Furthermore, recent estimates generated by the US Small Business Administration using the SMOBE and SBO data adjusted for changes in population size show a much more modest rate of growth for Asians, no growth for Hispanics, and a slightly lower growth rate for blacks (See *Minorities in Business: A Demographic Review of Minority Business Ownership,* US Small Business Administration, Washington, D.C.: U.S.G.P.O 2007).

The finding of large racial disparities and the ordering across groups in the US is remarkably similar across alternative data sources and years. These include, but are not limited to, estimates for some or all groups from the 1980 Census (Borjas 1986, Borjas and Bronars 1989, Light and Rosenstein 1995), the 1990 Census (Fairlie and Meyer 1996 and Razin and Light 1998), the General Social Survey (Hout and Rosen 2000), the Panel Study of Income Dynamics (Fairlie 1999), the Survey of Income and Program Participation (Meyer 1990, Bates 1997), the 2002 Survey of Business Owners (US Small Business Administration 2007), and the 1997 Survey of Minority-Owned Business Enterprises (US Small Business Administration 2007).

Table 23 includes individuals regardless of their level of education. As detailed later in this report and commonly found in the relevant academic literature on propensity for self-employment, level of education plays a significant role in determining likelihood of self-employment. Table 24 addresses this in part by examining whether differing compositions of educational attainment across groups provides the driving force behind the disparate rates of firm formation. Here, looking at self-employment rates for college educated individuals alone, the disparate patterns in rates across gender, racial, and ethnic groups remain substantially identical to those found when educational background is not controlled for.[31]

Shifting the focus from geographic market to industry, Table 25 summarizes U.S. self-employment rates based on the 2002-2006 CPS for four broad industry categories: Construction; Professional Services; General Services; and Commodities. These data largely confirm the 2000 Census results (see Table 21) hold in the current period. The hierarchy of average self-employment rates remains relatively stable across the four industry designations.[32]

[31] Controlling for education at high school graduate and above yields similar results.
[32] Census 2000 results list comparable Professional Service self-employment rates under two sub-categories: Architecture & Engineering and Professional Services. CPS results combine these two sub-categories.

Table 20: Self-Employment Rates, 2000 Census

	US	California	SF Bay Area CMSA and Surrounding Areas	SF Bay Area CMSA
Men	11.7%	13.1%	11.9%	12.3%
Women	6.7%	8.6%	8.3%	8.8%
White, Non-Hispanic	10.5%	13.8%	12.8%	13.6%
African American	4.3%	5.7%	5.1%	5.2%
Asian	10.0%	10.2%	7.7%	7.6%
Native Hawaiian/Pacific Islander	6.3%	6.2%	6.7%	7.4%
Native American/Alaska Native	6.8%	7.6%	6.5%	7.1%
White, Hispanic	7.8%	8.2%	7.9%	8.0%
Other, Hispanic	6.1%	7.1%	6.0%	6.2%
Other, Non-Hispanic	9.4%	11.9%	10.8%	10.9%
Two or More Races	8.6%	10.1%	8.7%	8.9%
Number of Observations	***6,005,339***	***690,831***	***198,117***	***163,072***

Notes:
1) Sample includes non-agricultural, non-military workers who were 21 years or older and worked at least 15 hours per week and 20 weeks per year in the previous year.
2) Weighted averages are calculated using person weights assigned by the Census.
3) The San Francisco-Oakland-San Jose CMSA is composed of the following 10 Counties: Alameda, Contra Costa, Marin, Napa, San Francisco, San Mateo, Santa Clara, Santa Cruz, Solano, and Sonoma. It differs from the SJ CSA in its exclusion of San Benito County.
4) The "Surrounding Areas" are made up of Sacramento and San Joaquin Counties.

Source:
5% Public Use Microdata Sample of the US Census 2000.

Table 21: Self-Employment Rates by Industry Group, 2000 Census

	Construction	Architecture & Engineering	Professional Services	General Services	Commodities
United States					
Men	24.0%	15.3%	12.9%	14.3%	6.7%
Women	17.3%	7.3%	5.1%	12.5%	5.1%
White, Non-Hispanic	26.2%	14.2%	8.8%	15.5%	6.8%
African American	15.0%	6.4%	3.4%	7.2%	1.9%
Asian	22.2%	8.3%	7.1%	17.7%	8.4%
Native Hawaiian/Pacific Islander	13.0%	3.0%	6.0%	8.0%	3.8%
Native American/Alaska Native	17.0%	10.2%	5.3%	8.6%	4.7%
White, Hispanic	14.6%	11.9%	6.2%	10.1%	4.6%
Other, Hispanic	11.0%	5.8%	4.4%	8.2%	3.0%
Other, Non-Hispanic	28.0%	9.8%	7.8%	10.6%	5.0%
Two or More Races	19.2%	9.1%	7.0%	11.0%	5.8%
Number of Observations	***457,435***	***56,488***	***2,094,533***	***1,193,693***	***1,815,015***
California					
Men	21.6%	18.9%	15.8%	15.6%	8.2%
Women	14.4%	9.3%	7.4%	14.5%	6.2%
White, Non-Hispanic	27.0%	18.5%	13.2%	18.9%	9.9%
African American	12.6%	15.1%	5.6%	8.4%	3.5%
Asian	26.2%	11.2%	7.8%	17.8%	8.3%
Native Hawaiian/Pacific Islander	17.4%	0.0%	5.9%	8.9%	3.4%
Native American/Alaska Native	16.8%	30.4%	7.2%	9.0%	3.9%
White, Hispanic	12.6%	12.9%	6.8%	11.7%	4.5%
Other, Hispanic	11.3%	8.1%	4.9%	10.4%	3.6%
Other, Non-Hispanic	22.9%	21.5%	9.6%	15.6%	9.9%
Two or More Races	19.2%	13.4%	8.8%	13.4%	6.9%
Number of Observations	***46,883***	***7,709***	***244,847***	***147,849***	***201,003***
SF Bay Area CMSA and Surrounding Areas					
Men	20.5%	16.9%	14.4%	14.3%	6.6%
Women	12.1%	9.7%	7.7%	14.4%	5.4%
White, Non-Hispanic	24.9%	17.3%	12.8%	18.3%	8.0%
African American	10.5%	2.5%	5.3%	7.5%	2.4%
Asian	24.1%	10.2%	6.7%	14.1%	4.8%
Native Hawaiian/Pacific Islander	13.8%	N/A	5.1%	11.1%	3.3%
Native American/Alaska Native	12.6%	N/A	7.4%	6.8%	3.6%
White, Hispanic	10.4%	10.2%	7.9%	10.3%	4.3%
Other, Hispanic	8.4%	4.4%	4.2%	8.2%	2.7%
Other, Non-Hispanic	15.4%	N/A	12.7%	13.4%	3.4%
Two or More Races	16.1%	16.0%	7.8%	12.3%	5.3%
Number of Observations	***13,175***	***2,730***	***75,138***	***39,188***	***55,336***

Notes:

1) Sample includes non-agricultural, non-military workers who were 21 years or older and worked at least 15 hours per week and 20 weeks per year in the previous year.

2) Weighted averages are calculated using person weights assigned by the Census. Industry groups were identified using Census 2000 industry codes.

3) Please see Appendix A for 2000 Census industry group definitions.

4) The San Francisco-Oakland-San Jose CMSA is composed of the following 10 Counties: Alameda, Contra Costa, Marin, Napa, San Francisco, San Mateo, Santa Clara, Santa Cruz, Solano, and Sonoma. It differs from the SJ CSA in its exclusion of San Benito County.

5) The "Surrounding Areas" are made up of Sacramento and San Joaquin Counties.

6) Estimates are listed as "N/A" if a sample included fewer than 10 individuals.

Source:

5% Public Use Microdata Sample of the US Census 2000.

Table 22: Self-Employment Rates, 1980, 1990 & 2000 Census

	1980	1990	2000
United States			
Men	11.1%	11.3%	11.7%
Women	4.2%	6.1%	6.7%
White, Non-Hispanic	9.1%	9.9%	10.5%
African American	2.8%	3.5%	4.3%
Asian/Pacific Islander	8.7%	10.2%	9.9%
Native American/Alaska Native	5.4%	6.7%	6.8%
White, Hispanic	6.1%	7.4%	7.8%
Other, Hispanic	3.7%	5.2%	6.1%
Other, Non-Hispanic	6.4%	6.7%	9.4%
Number of Observations	***4,235,875***	***5,259,545***	***5,889,593***
California			
Men	12.9%	12.8%	13.1%
Women	5.5%	7.8%	8.6%
White, Non-Hispanic	11.5%	12.7%	13.8%
African American	3.8%	4.8%	5.7%
Asian/Pacific Islander	9.7%	10.7%	10.1%
Native American/Alaska Native	6.8%	8.0%	7.6%
White, Hispanic	5.7%	7.0%	8.2%
Other, Hispanic	3.7%	5.8%	7.1%
Other, Non-Hispanic	7.7%	9.5%	11.9%
Number of Observations	***457,030***	***622,344***	***662,729***

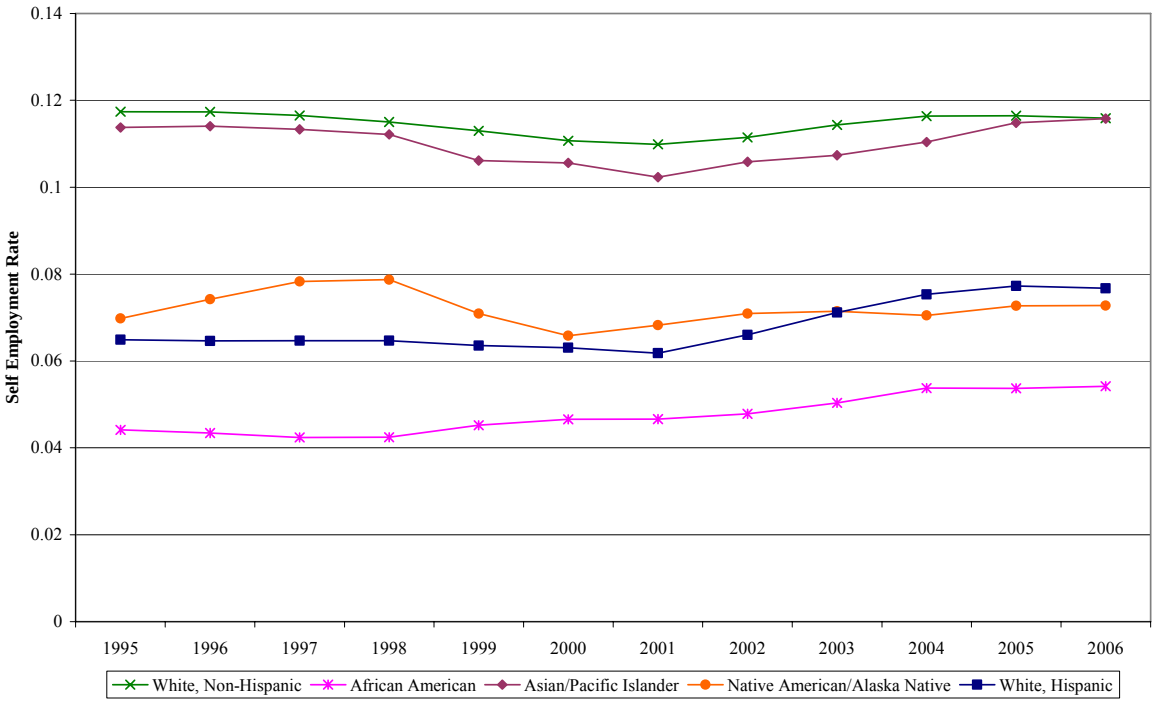
Notes:

1) Sample includes non-agricultural workers who were 21 years or older and worked at least 15 hours per week and 20 weeks per year in the previous year.
2) In 1990 and 2000 weighted averages are calculated using person weights assigned by the Census.
3) Individuals who identified themselves as multiple races in 2000 were excluded from these calculations.

Source:

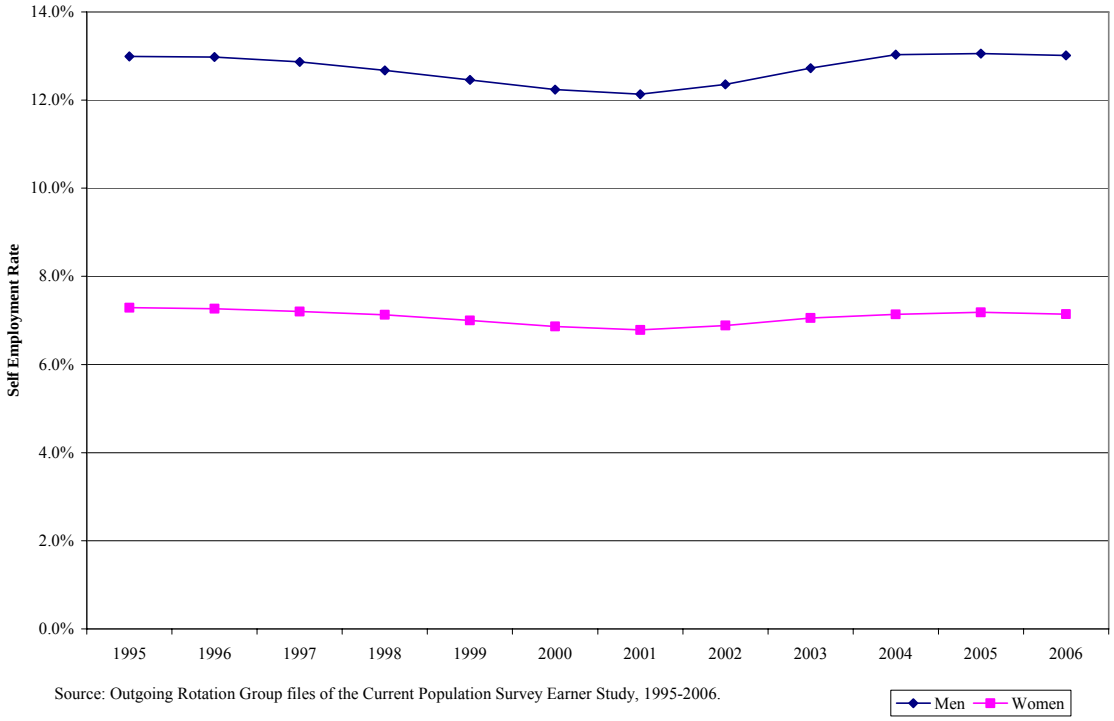
5% Public Use Microdata Sample of the US Census 1980, 1990 & 2000.

Figure 1: Self Employment Rate by Race, 3 Year Moving Average



Notes: (1) Self employment rate has been calculated using the weights given in the CPS data.
(2) The category "Other" has been omitted because data was not available for years 1996-2002.
Source: Outgoing Rotation Group files of the Current Population Survey Earner Study, 1995-2006.

Figure 2: Self Employment Rate by Gender, 3 Year Moving Average



Source: Outgoing Rotation Group files of the Current Population Survey Earner Study, 1995-2006.

Table 23: Self Employment Rates, CPS Outgoing Rotations Group, 2002-2006, All Individuals Regardless of Education

	US	California	SJ CSA and surrounding areas
Men	12.8%	14.7%	12.7%
Women	7.1%	9.4%	8.2%
White, Non-Hispanic	11.5%	15.8%	13.5%
African American	5.2%	7.4%	5.4%
Asian/Pacific Islander	11.1%	11.8%	9.2%
Native American/Alaska Native	7.2%	9.6%	7.3%
White, Hispanic	7.4%	7.9%	7.0%
Other, Hispanic	5.5%	6.0%	1.6%
Other, Non-Hispanic	10.3%	11.7%	9.0%

Notes:
1) The analysis is restricted to individuals aged 21 and over who work more than 15 hours per week in a non-agricultural, non-military industry.
2) Self employment rates have been calculated using the value weights given in the CPS data.
3) For 2002, the data only include four categories: White, African American, Asian/Pacific Islander, and Native American/Alaska Native. For 2003-2006, the data give a more detailed specification of race: White, African American, Asian, Hawaiian/Pacific Islander, Native American/Alaska Native, and various combinations of the abovementioned categories for multiracial individuals. Hispanic individuals were identified in a separate variable called "Spanish Ethnicity."
4) SJ CSA and surrounding areas is defined as the San Jose-San Francisco-Oakland CSA, Sacramento County, and San Joaquin County.
5) The percentage of Other, Hispanic in the San Francisco and surrounding areas is unusually small because it represents only one observation.

Source: Outgoing Rotation Group files of the Current Population Survey Earner Study, 2002-2006.

Table 24: Self Employment Rates, CPS Outgoing Rotations Group, 2002-2006, Individuals with Some College Education or Higher

	US	California	SJ CSA and surrounding areas
Men	13.9%	16.3%	13.9%
Women	7.5%	9.9%	8.5%
White, Non-Hispanic	11.9%	16.1%	14.1%
African American	5.3%	7.3%	5.6%
Asian/Pacific Islander	10.6%	11.1%	8.5%
Native American/Alaska Native	6.7%	9.8%	8.7%
White, Hispanic	8.3%	7.9%	7.2%
Other, Hispanic	4.5%	5.8%	4.4%
Other, Non-Hispanic	10.5%	12.3%	10.7%

Notes:

1) The analysis is restricted to individuals aged 21 and over who work more than 15 hours per week in a non-agricultural, non-military industry.

2) Self employment rates have been calculated using the value weights given in the CPS data.

3) For 2002, the data only include five categories: White, African American, Asian/Pacific Islander, Native American/Alaska Native. For 2003-2006, the data give a more detailed specification of race: White, African American, Asian, Hawaiian/Pacific Islander, Native American/Alaska Native, and various combinations of the abovementioned categories for multiracial individuals. Hispanic individuals were identified in a separate variable called "Spanish Ethnicity."

4) SJ CSA and surrounding areas is defined as the San Jose-San Francisco-Oakland CSA, Sacramento County, and San Joaquin County.

Source: Outgoing Rotation Group files of the Current Population Survey Earner Study, 2002-2006.

Table 25: US Self-Employment Rates by Industry Group, CPS Outgoing Rotations Group, 2002-2006

	Construction	Professional Services	General Services	Commodities
Men	23.9%	13.9%	15.5%	7.8%
Women	18.2%	5.7%	12.6%	6.5%
White, Non-Hispanic	27.1%	9.7%	16.4%	8.3%
African American	16.9%	4.1%	8.9%	2.7%
Asian/Pacific Islander	21.8%	7.9%	17.5%	10.6%
Native American/Alaska Native	15.4%	5.8%	9.8%	5.7%
White, Hispanic	13.0%	6.9%	9.4%	4.4%
Other, Hispanic	11.1%	4.8%	7.6%	2.0%
Other, Non-Hispanic	29.3%	9.5%	13.7%	5.1%

Notes:
1) The analysis is restricted to individuals aged 21 and over who work more than 15 hours per week in a non-agricultural, non-military industry.
2) For 2002, the data only include five categories: White, African American, Asian/Pacific Islander, Native American/Alaska Native. For 2003-2006, the data give a more detailed specification of race: White, African American, Asian, Hawaiian/Pacific Islander, Native American/Alaska Native, and various combinations of the abovementioned categories for multiracial individuals. Hispanic individuals were identified in a separate variable called "Spanish Ethnicity."
3) Self employment rates have been calculated using the value weights given in the CPS data.
4) Please see Appendix B for CPS industry group definitions.

Source: Outgoing Rotation Group files of the Current Population Survey Earner Study, 2002-2006.

3. Statistical Disparities in Self-Employment Earnings: CPS ASEC, Census and SBO

In addition to minorities and women exhibiting lower rates of self-employment than their white non-Hispanic or male counterparts, estimates from all representative datasets examined here indicate persistent disparities in earnings. This holds true both for CPS and Census data covering earnings of self employed individuals as well as for firm sales and receipts data derived from the SBO.

Table 26 displays average self-employment earnings in 1999 US dollars from the Census for the US, California, and the Bay Area CMSA. On average for the US, self-employed men earn approximately $60,000 annually, whereas self-employed women earn only about $30,000 annually. Such earnings in the Bay Area rise to about $77,000 and $43,000 respectively, but the relative gap remains. Self-employed white non-Hispanics earn more on average than do any of the other racial or ethnic groups. In the Bay Area, for example, white non-Hispanics earn approximately $71,000, whereas white Hispanics earn only about $43,000 and African Americans earn only about $50,000.

Table 27 displays average self-employment earnings in 1999 US dollars from the Census for five major industry categories for the US, California, and the Bay Area CMSA. While average self-employment earnings vary considerably across these five industries, the relative rankings are quite stable. Women have lower self-employment earnings on

average than men. Other races and ethnicities tend to have lower self-employment rates on average than white non-Hispanics.[33]

To provide a context for how and whether self-employment earnings are changing over time, Table 28 displays average self-employment earnings in 1999 US dollars from the US Census for 1980, 1990, and 2000. Over the past two decades, self-employment earnings have risen in real terms for almost all of the races and ethnicities in each of the geographic areas we examine. The relative rankings of earnings, however, remain unchanged: men and white non-Hispanics have had and continue to have the highest self-employment earnings.

Turning to our next source of data and focusing on more recent data from 2002-2006, Table 29 displays average self-employment earnings in 1999 US dollars from the CPS for the US, California, and the Bay Area geographic market in which VTA and VTA contract bidders participate (SJ CSA plus Sacramento and San Joaquin counties). While the magnitudes differ somewhat across the two data sources, the results in this table are generally consistent with those from the Census.[34]

Figures 3 and 4 display average earnings over time from 1996 to 2006. We use a three-year moving average to smooth fluctuations in these rates that are associated with macro-economic cycles such as recessions. The relative disparities appear to be quite constant: men and white non-Hispanics have had and continue to have the highest self-employment earnings. While self-employed earnings among Asians have followed white non-Hispanics over the period, all other minorities lag those levels and show no signs of convergence toward higher levels.

Further, Table 30 expands our 2000 Census analysis of self-employment earnings by broad industry categories by relying on more current 2002-2006 CPS ASEC data. Given the substantial reduction in observations available from the CPS ASEC relative to the 2000 Census sample, it is not surprising that estimates derived from this data exhibit more variation. Nevertheless, with few exceptions, self-employed earnings of minorities and women lag those of their male and white non-Hispanic counterparts across categories.[35]

Next, the 2002 SBO provides a view of firm sales and receipts by gender and ethnicity of owners that is at once more recent than the 2000 Census and more comprehensive in terms of coverage than the 2002-2006 CPS ASEC data. Tables 31 and 32 display average firm sales and receipts across groups with twenty industry category detail at both the US and California level. First, comparing US minority-owned firm average revenues to overall average revenues of non-publicly owned firms, minority group estimates lag

[33] There are a few exceptions. For example, Asians have higher self-employment earnings in Architecture & Engineering.
[34] The magnitudes in earnings will tend to differ across these two data sources due, in part, to the rise in real self-employment earnings over time.
[35] Estimates were also prepared using higher cutoffs for hours worked (30 hours per week) to better control for this variation among groups. These alternate measures exhibited no meaningful difference from measures presented here.

the industry average in 96% (73 of 76) of the minority-industry categories when considering classified industries and 94% (75 of 80) when including "industries not classified." Further, woman-owned firms lag the industry revenue averages in all industries. Turning our attention to California SBO estimates, minority revenues lag industry averages for non-publicly owned firms in 98% (65 of 66) of categories where comparisons are available. As with the US measures, California woman-owned firm average revenue lags in all industries. In the next subsection, we look further back to assess longer-term trends in business outcomes by race of owners, relying on SMOBE/SBO surveys from 1982 to 2002.

Table 26: Average Self-Employment Earnings, 2000 Census

1999 Dollars	US	California	SF Bay Area CMSA and Surrounding Areas	SF Bay Area CMSA
Men	60,499	66,453	74,873	77,383
Women	30,378	36,154	41,188	43,208
White, Non-Hispanic	53,244	64,129	68,388	71,117
African American	35,006	45,432	46,040	49,504
Asian	53,108	52,134	57,392	57,797
Native Hawaiian/Pacific Islander	37,486	38,935	32,396	32,619
Native American/Alaska Native	33,036	40,783	#N/A	41,786
White, Hispanic	38,225	37,214	42,681	42,854
Other, Hispanic	28,121	27,567	33,601	33,938
Other, Non-Hispanic	37,405	45,992	58,540	51,001
Two or More Races	40,441	45,901	53,629	58,376
Number of Observations	***581,523***	***78,330***	***20,920***	***17,954***

Notes:

1) Sample includes self-employed, non-agricultural, non-military workers who were 21 years or older, worked at least 15 hours per week and 20 weeks per year in the previous year.

2) Weighted averages are calculated using person weights assigned by the Census.

3) The San Francisco-Oakland-San Jose CMSA is composed of the following 10 Counties: Alameda, Contra Costa, Marin, Napa, San Francisco, San Mateo, Santa Clara, Santa Cruz, Solano, and Sonoma. It differs from the SJ CSA in its exclusion of San Benito County.

4) The "Surrounding Areas" are made up of Sacramento and San Joaquin Counties.

Source: 5% Public Use Microdata Sample of the US Census 2000.

Table 27: Average Self-Employment Earnings by Industry, 2000 Census

1999 Dollars	Construction	Architecture & Engineering	Professional Services	General Services	Commodities
United States					
Men	42,298	71,781	98,970	43,942	56,888
Women	30,107	41,474	35,694	28,011	28,341
White, Non-Hispanic	42,846	68,350	74,334	40,070	49,955
African American	30,376	46,354	44,531	31,004	35,644
Asian	43,812	69,397	92,758	33,987	43,641
Native Hawaiian/Pacific Islander	32,405	N/A	37,764	37,887	39,051
Native American/Alaska Native	35,515	55,754	39,538	28,832	30,373
White, Hispanic	34,758	57,482	59,293	31,100	38,541
Other, Hispanic	31,588	75,910	32,498	27,687	28,650
Other, Non-Hispanic	33,523	N/A	51,194	31,105	39,860
Two or More Races	36,057	59,851	55,850	35,640	36,612
Number of Observations	***109,464***	***7,791***	***165,390***	***170,617***	***114,284***
California					
Men	49,358	74,597	97,800	47,670	61,758
Women	35,411	39,965	43,202	33,015	34,687
White, Non-Hispanic	53,802	72,454	79,826	49,361	60,713
African American	30,603	37,468	55,423	37,633	51,986
Asian	44,458	68,610	80,230	34,926	46,999
Native Hawaiian/Pacific Islander	38,720	N/A	38,562	26,854	70,578
Native American/Alaska Native	40,827	70,236	48,361	37,638	36,855
White, Hispanic	37,755	41,654	50,572	34,103	38,687
Other, Hispanic	30,405	74,480	31,957	28,032	29,484
Other, Non-Hispanic	30,711	N/A	58,486	42,260	46,772
Two or More Races	41,851	64,284	59,511	40,223	44,940
Number of Observations	***10,060***	***1,268***	***26,383***	***22,974***	***15,292***
SF Bay Area CMSA and Surrounding Areas					
Men	57,070	84,764	103,164	54,886	68,951
Women	39,635	45,579	47,436	37,930	38,626
White, Non-Hispanic	60,235	78,362	82,135	55,550	61,218
African American	32,950	N/A	55,625	39,194	51,004
Asian	47,053	86,081	83,946	35,108	58,672
Native Hawaiian/Pacific Islander	N/A	N/A	23,373	32,457	N/A
Native American/Alaska Native	46,034	N/A	41,520	43,693	51,141
White, Hispanic	56,410	66,852	51,692	34,011	47,708
Other, Hispanic	35,582	N/A	40,368	35,697	34,906
Other, Non-Hispanic	N/A	N/A	70,794	64,998	N/A
Two or More Races	42,642	55,715	65,509	50,465	55,174
Number of Observations	***2,626***	***427***	***7,989***	***5,814***	***3,543***

Notes:

1) Sample includes self-employed, non-agricultural, non-military workers who were 21 years or older, worked at least 15 hours per week and 20 weeks per year in the previous year.

2) Weighted averages are calculated using person weights assigned by the Census. Industry groups were identified using Census 2000 industry codes.
3) Please see Appendix A for 2000 Census industry group definitions.
4) The San Francisco-Oakland-San Jose CMSA is composed of the following 10 Counties: Alameda, Contra Costa, Marin, Napa, San Francisco, San Mateo, Santa Clara, Santa Cruz, Solano, and Sonoma. It differs from the SJ CSA in its exclusion of San Benito County.
5) The "Surrounding Areas" are made up of Sacramento and San Joaquin Counties.
6) Estimates are listed as "N/A" if a sample included fewer than 10 individuals.

Source: 5% Public Use Microdata Sample of the US Census 2000.

Table 28: Average Self-Employment Earnings, 1980, 1990, & 2000 Census

1999 Dollars	1980	1990	2000
United States			
Men	46,643	52,931	60,499
Women	18,371	23,135	30,378
White, Non-Hispanic	41,345	45,138	53,244
African American	26,358	28,450	35,006
Asian/Pacific Islander	44,647	49,711	52,805
Native American/Alaska Native	29,967	28,090	33,036
White, Hispanic	35,933	35,792	38,225
Other, Hispanic	29,104	27,153	28,121
Other, Non-Hispanic	36,382	37,429	37,405
Number of Observations	***350,021***	***491,264***	***571,401***
California			
Men	51,800	60,840	66,453
Women	22,845	30,401	36,154
White, Non-Hispanic	46,840	55,287	64,129
African American	33,533	40,923	45,432
Asian/Pacific Islander	40,160	46,994	51,927
Native American/Alaska Native	32,601	34,040	40,783
White, Hispanic	36,236	36,605	37,214
Other, Hispanic	30,828	28,008	27,567
Other, Non-Hispanic	39,358	42,807	45,992
Number of Observations	***45,032***	***67,340***	***75,461***

Notes:

1) Sample includes non-agricultural workers who were 21 years or older and worked at least 15 hours per week and 20 weeks per year in the previous year.

2) Weighted averages are calculated using person weights assigned by the Census.

3) Earnings from the 1980 and 1990 Census were normalized to 1999 dollars using the Consumer Price Index for All Urban Consumers (CPI-U index), published by the Bureau of Labor Statistics.

Source: 5% Public Use Microdata Sample of the US Census 1980, 1990 & 2000

Table 29: Average Self-Employment Earnings, CPS ASEC, 2002-2006

	US	California	SJ CSA and Surrounding Areas
Men	$55,829	$59,782	$63,092
Women	$27,632	$30,972	$32,864
White, Non-Hispanic	$49,303	$56,857	$57,960
African American	$32,745	$36,643	$51,176
Asian/Pacific Islander	$49,472	$47,200	$44,773
Native American/Alaska Native	$28,622	$35,337	$65,193
White, Hispanic	$31,518	$32,172	$40,780
Other, Hispanic	$24,758	$24,052	$9,486
Other, Non-Hispanic	$36,392	$30,083	$26,495

Notes:

1) The population is restricted to individuals aged 21 and over who work more than 15 hours per week in a non-agricultural, non-military industry.

2) Annual earnings are in 1999 dollars and have been weighted using the weights given in the CPS data.

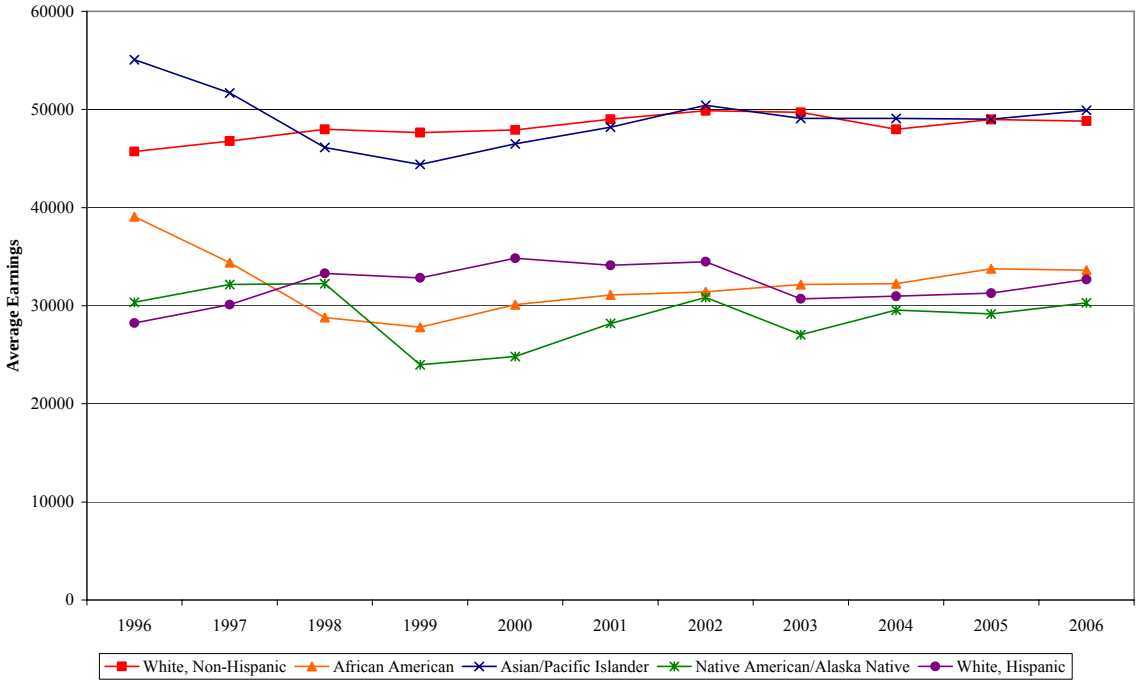
3) For 2002, the data only include four categories: White, African American, Asian/Pacific Islander, and Native American/Alaska Native. The category "Other" was not available in 2002. For 2003-2005, the data give a more detailed specification of race: White, African American, Asian, Hawaiian/Pacific Islander, Native American/Alaska Native, and various combinations of the abovementioned categories for multiracial individuals. Hispanic individuals were identified in a separate variable called "Spanish Ethnicity."

4) SJ CSA and surrounding areas is defined as the San Jose-San Francisco-Oakland CSA, Sacramento County, and San Joaquin County.

5) The average self-employment earnings of Other, Hispanic for San Francisco and surrounding areas is unusually small because it only represents one observation.

Source: Annual Social and Economic Supplement of the Current Population Survey, 2002-2006.

Figure 3: Earnings of Self-Employed Individuals by Race, 3-Year Moving Average



Notes: (1) Average earnings have been calculated using the weights given in the CPS data.
(2) Average earnings are reported in 1999 dollars.
Source: Annual Social and Economic Supplement of the Current Population Survey, 1996-2006.

Figure 4: Earnings of Self-Employed Individuals by Gender, 3-Year Moving Average

Note: (1) Average earnings have been calculated using the weights given in the CPS data.
(2) Average earnings are reported in 1999 dollars.
Source: Annual Social and Economic Supplement of the Current Population Survey, 1996-2006.

Table 30: US Average Self-Employment Earnings by Industry, CPS ASEC, 2002-2006

	Construction	Professional Services	General Services	Commodities
Men	$38,474	$88,927	$44,219	$52,800
Women	$24,992	$32,002	$24,864	$24,697
White, Non-Hispanic	$38,940	$67,384	$39,767	$45,318
African American	$32,413	$44,908	$25,738	$28,764
Asian/Pacific Islander	$38,198	$74,212	$35,533	$44,467
Native American/Alaska Native	$27,333	$29,154	$36,571	$19,812
White, Hispanic	$29,443	$44,001	$27,348	$29,220
Other, Hispanic	$20,925	$24,702	$29,806	$21,760
Other, Non-Hispanic	$33,998	$45,857	$27,614	$32,712

Notes:

1) The population is restricted to individuals aged 21 and over who work more than 15 hours per week in a non-agricultural, non-military industry.

2) For 2002, the data only include four categories: White, African American, Asian/Pacific Islander, Native American/Alaska Native. The category "Other" was not available in years 2002. For 2003-2005, the data give a more detailed specification of race: White, African American, Asian, Hawaiian/Pacific Islander, Native American/Alaska Native, and various combinations of the abovementioned categories for multiracial individuals. Hispanic individuals were identified in a separate variable called "Spanish Ethnicity."

3) Annual earnings are in 1999 dollars have been weighted using the weights given in the CPS data.

Source: Annual Social and Economic Supplement of the Current Population Survey, 2002-2006.

Table 31: Average Firm Revenues by Minority Group and Industry for the United States, Survey of Business Owners (2002)

Industry	NAICS	African American	Hispanic	Asian	NA/AN	Male	Female	Total Revenue, All Firms	Total Revenue, Private Only
Forestry, fishing & hunting, & ag support services (113-115)	11	61,863	134,255	78,365	44,659	121,752	83,836	135,985	113,386
Mining	21	176,834	488,048	467,224	469,253	667,898	236,377	2,501,422	531,007
Utilities	22	188,732	57,823	163,284	110,920	1,031,982	360,394	22,635,203	897,830
Construction	23	128,433	147,953	250,896	187,721	414,337	339,087	477,348	400,277
Manufacturing	31-33	460,944	581,697	1,115,072	520,526	2,413,694	845,618	6,704,728	1,813,109
Wholesale trade	42	451,921	1,150,625	1,870,498	508,470	3,230,389	1,736,125	6,721,415	2,672,333
Retail trade	44-45	133,042	267,102	428,442	242,380	1,174,434	157,969	1,225,840	665,550
Transportation & warehousing	48-49	55,028	84,424	95,326	94,579	247,773	201,411	447,586	234,136
Information	51	175,854	158,033	400,413	140,753	743,046	275,039	2,995,273	572,759
Finance & insurance	52	99,627	152,229	231,593	113,043	457,910	160,889	3,223,866	375,072
Real estate & rental & leasing	53	54,902	89,746	131,130	77,081	221,819	95,809	236,807	174,528
Professional, scientific, & technical services	54	81,175	108,504	176,426	92,895	231,851	84,769	307,245	180,003
Management of companies & enterprises	55	626,045	3,848,638	481,010	604,621	1,717,820	812,762	5,119,944	1,172,602
Administrative & support & waste management & remediation service	56	53,223	58,756	127,453	108,119	247,164	84,690	299,459	180,408
Educational services	61	30,230	58,330	50,186	41,018	111,650	38,394	404,315	76,185
Health care & social assistance	62	48,125	75,728	241,976	50,508	431,255	66,090	571,520	214,838
Arts, entertainment, & recreation	71	42,116	42,325	62,031	42,469	113,812	43,904	163,197	97,062
Accommodation & food services	72	199,034	234,376	312,725	198,215	624,669	232,079	691,919	463,018
Other services (except public administration)	81	24,702	40,449	59,709	35,075	106,284	35,655	94,108	78,570
Industries not classified	99	113,877	214,909	173,008	80,571	177,528	126,729	192,254	153,944

Notes:
1) "Male" and "Female" category revenues exclude firms which have an equal ownership split between male and female. As a consequence, the total revenue listed under "Total Revenue, All Firms" is greater than the sum of "Male" and "Female" revenues.
2) "Total Revenue, Private Only" excludes revenue publicly-owned firms.

Source:
1) Data downloaded from "SBO on American Fact Finder" at http://www.census.gov/csd/sbo/ on September 6, 2006.

Table 32: Average Firm Revenues by Minority Group and Industry for California, Survey of Business Owners (2002)

Industry	NAICS	African American	Hispanic	Asian	NA/AN	Male	Female	Total Revenue, All Firms	Total Revenue, Private Only
Forestry, fishing & hunting, & ag support services (113-115)	11	24,974	365,978	293,285	S	D	212,992	311,856	D
Mining	21	143,184	0	0	S / D	540,009	166,055	1,886,757	388,715
Utilities	22	0	0	0	193,083	576,696	61,800	21,692,313	704,657
Construction	23	151,424	190,414	221,305	222,553	583,251	566,347	681,119	568,085
Manufacturing	31-33	441,756	610,675	1,119,280	412,729	2,045,298	823,972	4,521,668	1,579,484
Wholesale trade	42	1,104,374	1,145,824	2,078,020	652,713	2,825,961	1,576,357	6,751,521	2,487,159
Retail trade	44-45	100,128	217,119	481,130	S	1,129,887	179,609	1,315,953	692,159
Transportation & warehousing	48-49	73,079	96,167	143,364	75,968	235,081	241,775	482,179	243,946
Information	51	211,517	188,270	553,581	105,445	770,889	300,847	2,786,412	655,850
Finance & insurance	52	84,124	131,327	228,250	76,837	D	171,696	2,828,242	424,421
Real estate & rental & leasing	53	42,362	91,339	135,526	60,894	263,658	119,071	286,656	203,160
Professional, scientific, & technical services	54	67,099	98,943	137,670	60,349	253,551	87,175	326,579	198,824
Management of companies & enterprises	55	0	0	0	D	952,490	377,662	3,258,874	930,720
Administrative & support & waste management & remediation service	56	61,196	60,883	100,226	64,939	234,188	94,525	296,546	189,135
Educational services	61	35,181	51,520	57,585	S	114,442	46,672	352,712	88,928
Health care & social assistance	62	61,512	41,896	222,687	30,636	363,191	72,398	455,384	194,424
Arts, entertainment, & recreation	71	96,906	45,083	74,126	S	143,580	67,174	194,214	141,543
Accommodation & food services	72	302,368	233,439	352,248	S	602,155	283,696	696,348	481,919
Other services (except public administration)	81	23,908	48,054	70,472	29,000	117,880	41,692	102,747	85,719
Industries not classified	99	0	392,624	0	D	D	364,798	231,000	S / D

Notes:
1) "Male" and "Female" category revenues exclude firms which have an equal ownership split between male and female. As a consequence, the total revenue listed under "Total Revenue, All Firms" is greater than the sum of "Male" and "Female" revenues.
2) "Total Revenue, Private Only" excludes revenue publicly-owned firms.
3) "D" indicates that the data has been suppressed by the Census at the California level to avoid disclosing individual company information.
4) "S" indicates that the data has been suppressed by the Census because the relative standard error (RSE) of the firms' revenue is greater than or equal to 50%.

Source:
1) Data downloaded from "SBO on American Fact Finder" at http://www.census.gov/csd/sbo/ on September 6, 2006.

4. Trends in Racial Disparities in Business Outcomes 1982-2002 SMOBE/SBO

Estimates presented here from the SBO and SMOBE are taken from published sources and special tabulations prepared for CRA by the US Census Bureau. The data provide information on racial disparities in business outcomes, such as closures, profits, employment, and sales, which are not typically found in household survey data.

Table 33 reports estimates of sales and receipts by race from the 2002 SBO and prior SMOBE surveys (1982-1997) for minority-owned, white-owned, and all firms. We report separate estimates for 1997 that both include and exclude C-corporations, and estimates for all firms exclude publicly held, foreign-owned, not for profit, and other to make them more comparable to the minority firm estimates. The 2002 SBO data provide the most recent estimates of annual firm sales for minority-owned firms. African American-owned firms have much lower average sales than white-owned firms. In 2002, average annual sales and receipts are $77,364 for African American-owned firms compared with $440,882 for white-owned firms.

Hispanic firms also have lower average sales than white-owned firms. Average annual sales are $143,866 for Hispanic-owned firms in 2002, which are only 33% of average annual sales of white-owned firms. Asian-owned firms have lower average sales than white-owned firms, but the difference is much smaller. Average annual sales and receipts are $306,376 for Asian-owned businesses.

Racial disparities in annual sales are not new. Throughout the past two decades African American- and Hispanic-owned firms have substantially lower average sales than white- and Asian-owned firms. In every reported year, African American and Hispanic firms had lower sales than white-owned firms. Asian firms also had lower average sales than white firms, but the differences were notably smaller.

Trends in annual sales for African American- and Hispanic-owned firms also do not indicate improvement over the past two decades when compared with trends in average sales for white-owned firms. Average sales of African American firms were 25% of white average sales in 1992 and dropped to less than 20% in 2002. The decline does not appear to be due to the inclusion of C corporations in which African American firms are underrepresented. Average sales for African American-owned firms drop from $86,478 to $54,652 in 1997 after excluding C corporations, but average sales for white firms drop by a similar percent. The result is that African American average sales are approximately 20% of white average sales with or without C corporations in 1997.

The same finding holds for Hispanic-owned businesses, except the disadvantage is smaller. In 1992, average sales for Hispanic-owned firms were less than one half the average sales for white firms. In 1997, average sales for Hispanics dropped to 35% of white average sales if C corporations are included or 40% if C corporations are excluded.

For both African American and Hispanic firms, these trends represent disappointing news. Although there has been substantial growth in the number of businesses relative to white businesses, the average sales of these firms relative to all firms have not improved over time and, in fact, have actually lost ground. From 1992 to 2002, average sales among Asian firms also fell relative to average sales among white firms. On average, Asian firms have lower sales than white firms.

Estimates from the SBO and SMOBE also indicate that African American- and Hispanic-owned firms are less likely to hire employees and hire fewer employees on average than white- or Asian-owned firms (see Table 34). Most African American- and Hispanic-owned businesses in the US do not hire any employees. Slightly less than one quarter of firms had employees in 2002. Whether or not a firm has employees, however, varies quite substantially by race. Only 7.9% of African American-owned firms have paid employees, compared with 12.7% of Hispanic-owned firms, and 28.5% of Asian-owned firms. Just under one quarter of white-owned firms have employees with a mean employment of 2.8. In 2002, African American-owned firms averaged less than one employee and Hispanic-owned firms averaged only one employee. Asian businesses hired an average of two employees.

Racial disparities in employment levels are evident throughout the period covered by the SBO and SMOBE data. African American and Hispanic firms are less likely to hire any employees and hire fewer employees on average than white or Asian firms in every year with available data. The differences exist even after the inclusion of C corporations in 1997.

Using confidential and restricted-use microdata based on the SMOBE data, previous research also finds large racial disparities in business outcomes. Estimates from the 1987 and 1992 Characteristics of Business Owners (CBO) indicate that black-owned businesses have much lower profits, sales, and employment levels than white-owned businesses (Bates 1997 and Fairlie and Robb 2007). Black firms are also found to be more likely to close over a four-year window than are white firms. These findings from the restricted-use microdata are important because the authors find that the racial disparities are robust to many alternative samples of different types and sizes of firms.

In summary, using three separate data sources, we found that on average women are less likely to be self-employed, and earn less if self-employed, than men. This is true in all of the geographic areas that we examine, including San Francisco. We also found, with few exceptions, that other races or ethnicities are less likely to be self-employed, and earn less if self-employed, than white non-Hispanics. Again, this is true in all of the geographic areas that we examine, including San Francisco. Furthermore, these differences are large for most groups.

All estimates of disparities examined in this subsection control for very few observable characteristics at once (e.g., race, gender, geography, industry). A more sophisticated framework of statistical analysis is needed in order to discern whether similarities or differences in earnings between groups are likely attributable to race, ethnicity, and gender rather than other observable characteristics such as education and detailed geographic location. Multivariate regression analysis of firm formation and earnings covered in the next section of this report allows for more detailed analysis of the contributions of individual characteristics in addition to those found in the broad figures presented here.

Table 33: US Sales and Receipts by Race

		All Firms	White-Owned Firms	African American-Owned Firms	Hispanic-Owned Firms	Asian/PI -Owned Firms
Total number of firms	1982	12,059,950	11,284,494	308,260	248,141	204,211
	1987	13,695,480	12,472,231	424,165	422,373	355,331
	1992	17,253,143	15,154,826	620,912	771,708	603,426
	1997	18,278,933	15,403,329	780,770	1,121,433	785,480
	1997*	20,440,415	17,316,796	823,499	1,199,896	912,960
	2002*	22,485,449	18,320,664	1,197,988	1,574,159	1,137,628
Total sales and receipts (thousands)	1982	$967,450,721	$926,423,019	$9,619,055	$14,976,337	$15,785,561
	1987	$1,994,808,000	$1,916,277,919	$19,762,876	$24,731,600	$33,124,326
	1992	$3,324,200,000	$3,115,407,754	$32,197,361	$72,824,269	$95,713,613
	1997	$4,239,708,305	$3,899,023,305	$42,671,000	$114,431,000	$161,142,000
	1997*	$8,392,001,261	$7,763,010,611	$71,214,662	$186,274,581	$306,932,982
	2002*	$8,844,543,267	$8,077,248,001	$92,681,562	$226,468,398	$348,542,296
Mean sales and receipts	1982	$80,220	$82,097	$31,204	$60,354	$77,300
	1987	$145,654	$153,644	$46,592	$58,554	$93,221
	1992	$192,672	$205,572	$51,855	$94,368	$158,617
	1997	$231,945	$253,129	$54,652	$102,040	$205,151
	1997*	$410,559	$448,294	$86,478	$155,242	$336,195
	2002*	$393,345	$440,882	$77,364	$143,866	$306,376

Notes:

1) Estimates for 1997* and 2002* include C corporations. Estimates for all other years exclude C corporations.
2) The white category for 1982, 1987, and 1992 is equal to the total minus all minority groups, and the white category for 2002 is equal to all white firms minus Latino-owned firms.
3) All firms excludes publicly held, foreign-owned, not for profit and other, which are not included in the estimates for ethnic/racial groups.
4) Asian estimates for 1992 are taken from the 1997 Census report.

Sources:

1) U.S. Census Bureau, Economic Census, Survey of Minority-Owned Business Enterprises, 1982, 1987, 1992, 1997.
2) U.S. Census Bureau, Survey of Business Owners, 2002.
3) U.S. Census Bureau, Survey of Business Owners, special tabulations prepared by Valerie Strang (U.S. Census Bureau) using IRS data from Statistics of Income.

Table 34: US Employment Statistics by Race

		All Firms	White-Owned Firms	African American-Owned Firms	Hispanic-Owned Firms	Asian/PI-Owned Firms
Total number of firms	1982	12,059,950	11,284,494	308,260	248,141	204,211
	1987	13,695,480	12,472,231	424,165	422,373	355,331
	1992	17,253,143	15,154,826	620,912	771,708	603,426
	1997	18,278,933	15,403,329	780,770	1,121,433	785,480
	1997*	20,440,415	17,316,796	823,499	1,199,896	912,960
	2002*	22,485,449	18,320,664	1,197,988	1,574,159	1,137,628
Percent of firms with paid employees	1982	N/A	N/A	12.3%	16.1%	20.6%
	1987	N/A	N/A	16.7%	19.6%	26.1%
	1992	18.2%	18.6%	10.4%	14.9%	N/A
	1997	N/A	N/A	8.1%	13.5%	23.6%
	1997*	24.6%	25.2%	11.3%	17.7%	31.8%
	2002*	23.0%	24.6%	7.9%	12.7%	28.5%
Mean number of paid employees	1982	N/A	N/A	0.4	0.8	1.0
	1987	N/A	N/A	0.5	0.6	1.0
	1992	1.6	1.7	0.6	0.9	N/A
	1997	1.6	1.8	0.5	0.7	1.6
	1997*	2.9	3.1	0.9	1.2	2.4
	2002*	2.5	2.8	0.6	1.0	2.0

Notes:
1) Estimates for 1997* and 2002* include C corporations. Estimates for all other years exclude C corporations.
2) The white category for 1982, 1987, and 1992 is equal to the total minus all minority groups, and the white category for 2002 is equal to all white firms minus Latino-owned firms.
3) All firms excludes publicly held, foreign-owned, not for profit and other, which are not included in the estimates for ethnic/racial groups.
4) Asian estimates for 1992 are taken from the 1997 Census report.

Sources:
1) U.S. Census Bureau, Economic Census, Survey of Minority-Owned Business Enterprises, 1982, 1987, 1992, 1997.
2) U.S. Census Bureau, Survey of Business Owners, 2002.
3) U.S. Census Bureau, Survey of Business Owners, special tabulations prepared by the U.S. Census Bureau using IRS data from Statistics of Income.

5. Multivariate Regression Results

The averages presented above do not account for individual characteristics that might explain gender, racial, and ethnic differences in self-employment and self-employment earnings. They also do not apply a standard of statistical significance to the disparities we have cited. To address these points directly, we employ multiple regression techniques that allow us to account for individual characteristics, such as age and education, and apply a standard of statistical significance to the disparities in self-employment and self-employment earnings.[36]

To examine the likelihood of self-employment, we use a statistical model called a probit regression, which allows us to measure the effects of a variety of characteristics on

[36] For a discussion of the use of multiple regression analysis in the courtroom, see Daniel L. Rubinfeld, "Reference Guide on Multiple Regression," Reference Manual on Scientific Evidence, 2nd Edition: Federal Judicial Center. For a discussion of statistical significance and confidence levels, see David H. Kaye and David A. Freedman, "Reference Guide on Statistics," Reference Manual on Scientific Evidence, 2nd Edition: Federal Judicial Center.

whether or not an individual is self-employed.[37] These characteristics include the gender, race, or ethnicity of the individual, as well as such attributes as age, education, marital status, and geographic location.[38] To examine differences in self-employment earnings, we use a statistical model called Ordinary Least Squares (OLS), which again allows us to measure the effects of a variety of characteristics on the level of self-employment earnings. Both the probit and OLS models are standard statistical models that are used frequently by professional economists for academic research.

6. Likelihood of Self-Employment: Probit Regression Results

Table 35 displays the probit regression results from the 2000 Census on the likelihood of self-employment at three levels of geographic precision: US, California and the Bay Area. The statistical coefficient that we report for women can be interpreted as the deviation from the self-employment rate of men, and the coefficients for ethnic and racial groups can be interpreted as deviations from the self-employment rate of white non-Hispanics. For example, the coefficient associated with women for the U.S. is –0.0295, which is interpreted to say that, accounting for other characteristics, women are 2.95 percentage points less likely to be self-employed than men. Reported in parentheses below this coefficient is a "t-statistic," which is a measure of the statistical significance of the coefficient. We report these for each coefficient in all remaining exhibits. A t-statistic in excess of about two is considered to be statistically significant at the 95% confidence level, which is frequently used to assess statistical significance in both the economics literature and in the courtroom. It is the standard of statistical significance that we adopt in this report. The coefficient of –0.0295 has a t-statistic of nearly 123, indicating statistical significance at a level well in excess of 95%.

As another example, the coefficient associated with African Americans for the U.S. is −0.0396, which is interpreted to say that, accounting for other characteristics, African Americans are 3.96 percentage points less likely to be self-employed than white non-Hispanics. The t-statistic of this coefficient is nearly 102, again indicating statistical significance at a level well in excess of 95%.

From Table 35, we find that in all of the geographic areas that we examine, including the Bay Area, there is statistically significant evidence that women have lower self-employment rates than men and that nearly all other races and ethnicities have lower self-employment rates than white non-Hispanics.[39] These statistically significant disparities are consistent with the self-employment disparities reported earlier. In several cases, such as for African Americans, the magnitudes of these disparities are higher in the Bay Area than in the entire US. This is strong evidence that under recent market conditions,

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[37] For a discussion of this type of statistical model, see William H. Greene, *Econometric Analysis*, 2nd Edition, Englewood Cliffs, N.J.: Prentice-Hall.

[38] These characteristics are commonly used in the academic literature on the determinants of self-employment. See, for example, Fairlie 2004.

[39] We estimated all models both with and without industry controls and found those models with industry controls were sufficiently improved in a goodness-of-fit sense to justify their inclusion. Therefore, we do not report any results without industry controls. Those results can be found in our data files.

minority-owned and female-owned firms have not formed as often as non-minority male-owned firms.

Table 36 displays the probit regression results from the Census for each of five major industry categories for the US. In this case, the disparities appear to be relatively larger in Construction, EAS, and Professional Services. Nevertheless, the disparities indicate that women and races and ethnicities other than white non-Hispanics have lower self-employment rates even after accounting for differences in group characteristics such as age, education and location. Almost all of these disparities are statistically significant.

Table 37 displays results that address whether self-employment disparities are larger in the Bay Area than in the US, both overall and within five industry categories. To examine this, we use the Census for the US and create variables that allow us to measure the incremental disparities in the SF Bay Area. This is accomplished by interacting each of the gender, race, and ethnicity indicators with an indicator for the San Francisco-Oakland-San Jose ("Bay Area") CMSA. The coefficient associated with a given interaction is a measure of the incremental disparity for a given gender, race, or ethnicity variable. For example, the coefficient associated with "Women * Bay Area" in the column labeled "US" measures the incremental disparity in female self-employment in Bay Area relative to the female disparities in the US as a whole.[40] The same interpretation applies to each of the five industry categories.

The results in Table 37 show that in many cases, relative disparities are higher in the Bay Area. For example, Asians are 3.5 percentage points less likely to be self-employed in the Bay Area relative to their self-employment rate in the US as a whole. This incremental disparity is statistically significant. In Construction & EAS, however, Asians are relatively more likely to be self-employed in the Bay Area than elsewhere. On the other hand, African Americans are relatively less likely to be self-employed in the Bay Area than elsewhere, and this finding holds for four of the five industry categories. In certain cases, women appear to be relatively less likely to be self-employed in the Bay Area than elsewhere, such as in construction & EAS. On the other hand, they appear relatively more likely to form firms in the Bay Area in professional services and general services.

Turning to more recent 2002-2006 CPS ORG data, Table 38 displays probit regression results for the US, California, and the Bay Area geographic market in which VTA and VTA contract bidders participate (SJ CSA plus Sacramento and San Joaquin counties). In turn, separate probits are run on data combining all industries as well as for the two broad industry groups that serve as the focus of this study: construction and professional services. The results in this table are consistent with those from the 2000 Census. In each of the geographic areas we examine at the combined industry level, including the local Bay Area market, we found statistically significant evidence that women are less likely to be self-employed than males and that nearly all other races and ethnicities are less likely to be self-employed than white non-Hispanics. Bay Area-specific coefficients

[40] To obtain the total self-employment disparity for women in the Bay Area, as opposed to the incremental disparity, one would sum the coefficients associated with "Women" and "Women * Bay Area."

on women and minorities in the construction and professional services categories all reflect self-employment rate disparities of similar magnitudes to the national and California-based results, though are less frequently statistically significant.[41] This arises due to the sizable drop in observations leading to larger standard errors, or imprecision, around these estimates when moving from national to local sample sizes. Nevertheless, these estimates do conform well with more precise evidence of disparities found with the Census probit regression analysis discussed above.

[41] Identical regressions were performed with data restricted to individuals reporting 30 or more hours of work per week. While this may help control for potential differences in composition of small "side-businesses" across groups considered, results were not meaningfully impacted. Further, regressions using Bay Area data were run for the period 1997-2006. With the five years of additional data, disparities for American Indians and White Hispanics in professional services were also found to be statistically significant.

Table 35: Likelihood of Self-Employment Probit Equations, 2000 Census

Difference in Probability From Reference Group	US	California	SF Bay Area CMSA
Women	-0.0295	-0.0300	-0.0236
	(122.69)	(39.49)	(15.86)
African American	-0.0396	-0.0414	-0.0438
	(101.77)	(25.29)	(14.25)
Asian	-0.0056	-0.0093	-0.0245
	(9.62)	(7.81)	(12.44)
Native Hawaiian/Pacific Islander	-0.0315	-0.0368	-0.0319
	(10.79)	(5.68)	(2.95)
Native American/Alaska Native	-0.0270	-0.0347	-0.0317
	(23.40)	(10.19)	(3.91)
White, Hispanic	-0.0237	-0.0294	-0.0282
	(48.15)	(23.87)	(10.07)
Other, Hispanic	-0.0333	-0.0321	-0.0356
	(62.90)	(26.24)	(12.66)
Other, Non-Hispanic	-0.0014	0.0050	0.0021
	(0.44)	(0.63)	(0.15)
Two or More Races	-0.0111	-0.0092	-0.0109
	(14.56)	(5.16)	(3.07)
Number of Observations	5,683,468	655,998	156,252
Log Likelihood Value	-1,631,017	-208,257	-48,193

Notes:
1) Probit analysis is conducted in STATA using the -dprobit- command. The coefficients reported represent the percentage point differences in self-employment rates between the indicated racial group and White, Non-Hispanics, or, in the case of women, between women and men.
2) T-Statistics are in parenthesis and refer to the probit coefficients above them. T-Statistics of approximately two or more indicate that disparities are statistically significant at the 95 percent confidence level.
3) Controls in all specifications include number of own children, age, age squared, education indicators, marital status indicators, and major industry indicators (1-14; based on major industries identified by the Census). In addition, geographic controls include state indicators in the USA specification, and PUMA indicators in the CA and Bay Area CMSA specifications.
4) The Bay Area CMSA is composed of the following 10 Counties: Alameda, Contra Costa, Marin, Napa, San Francisco, San Mateo, Santa Clara, Santa Cruz, Solano, and Sonoma. The CMSA differs from the CSA in its exclusion of San Benito County.

Source: 5% Public Use Microdata Sample of the US Census 2000.

Table 36: Likelihood of Self-Employment for US by Industry Group Probit Equations, 2000 Census

Difference in Probability From Reference Group	Construction	Architecture & Engineering	Professional Services	General Services	Commodities
Women	-0.0801	-0.0447	-0.0573	-0.0125	-0.0076
	(38.80)	(14.12)	(148.29)	(19.78)	(23.23)
African American	-0.0969	-0.0519	-0.0357	-0.0652	-0.0360
	(36.65)	(7.12)	(61.60)	(65.14)	(59.74)
Asian	-0.0436	-0.0577	-0.0231	0.0084	0.0018
	(7.21)	(10.68)	(29.26)	(5.27)	(2.27)
Native Hawaiian/Pacific Islander	-0.0941	-0.0881	-0.0232	-0.0520	-0.0224
	(5.08)	(2.41)	(4.71)	(7.15)	(4.95)
Native American/Alaska Native	-0.0792	-0.0009	-0.0255	-0.0587	-0.0096
	(13.49)	(0.04)	(13.25)	(19.62)	(5.11)
White, Hispanic	-0.0863	-0.0149	-0.0194	-0.0396	-0.0148
	(32.03)	(1.97)	(22.42)	(30.39)	(20.36)
Other, Hispanic	-0.1141	-0.0379	-0.0271	-0.0520	-0.0213
	(41.24)	(3.44)	(25.74)	(37.72)	(27.33)
Other, Non-Hispanic	0.0281	-0.0086	-0.0018	-0.0274	-0.0034
	(1.45)	(0.20)	(0.38)	(3.45)	(0.73)
Two or More Races	-0.0450	-0.0249	-0.0087	-0.0269	-0.0029
	(10.12)	(2.39)	(6.91)	(13.73)	(2.55)
Number of Observations	457,435	56,488	2,094,533	1,193,693	1,815,015
Log Likelihood Value	-237,926	-20,073	-53,231	-460,178	-392,916

Notes:

1) Probit analysis is conducted in STATA using the -dprobit- command. The coefficients reported represent the percentage point differences in self-employment rates between the indicated racial group and White, Non-Hispanics, or, in the case of women, .

2) T-Statistics are in parenthesis and refer to the probit coefficients above them. T-Statistics of approximately two or more indicate that disparities are statistically significant at the 95 percent confidence level.

3) Controls include number of own children, age, age squared, education indicators, marital status indicators and state indicators.
4) Please see Appendix A for 2000 Census definitions of industry groups.

Source: 5% Public Use Microdata Sample of the US Census 2000.

Table 37: Likelihood of Self-Employment by Industry Group, 2000 Census Probit Equations with Bay Area CMSA Interactions

Difference in Probability From Reference Group	US	Construction	Architecture & Engineering	Professional Services	General Services	Commodities
Women	-0.0460	-0.0789	-0.0450	-0.0581	-0.0129	-0.0076
	(195.13)	(37.70)	(13.86)	(147.06)	(20.13)	(23.09)
African American	-0.0496	-0.0962	-0.0496	-0.0356	-0.0646	-0.0359
	(124.03)	(35.99)	(6.63)	(60.38)	(63.64)	(59.19)
Asian	-0.0058	-0.0461	-0.0615	-0.0208	0.0164	0.0072
	(8.90)	(7.02)	(10.54)	(24.24)	(9.52)	(8.32)
Native Hawaiian/Pacific Islander	-0.0352	-0.0942	-0.0862	-0.0212	-0.0515	-0.0218
	(10.80)	(4.87)	(2.26)	(4.04)	(6.69)	(4.56)
Native American/Alaska Native	-0.0328	-0.0792	-0.0054	-0.0258	-0.0583	-0.0096
	(27.27)	(13.35)	(0.26)	(13.20)	(19.23)	(5.09)
White, Hispanic	-0.0265	-0.0850	-0.0144	-0.0192	-0.0392	-0.0151
	(50.26)	(30.91)	(1.86)	(21.67)	(29.52)	(20.60)
Other, Hispanic	-0.0369	-0.1125	-0.0387	-0.0263	-0.0519	-0.0218
	(64.28)	(39.63)	(3.39)	(24.17)	(36.68)	(27.57)
Other, Non-Hispanic	-0.0014	0.0338	-0.0347	-0.0022	-0.0294	-0.0026
	(0.41)	(1.70)	(0.83)	(0.46)	(3.62)	(0.53)
Two or More Races	-0.0124	-0.0441	-0.0301	-0.0079	-0.0270	-0.0029
	(14.96)	(9.66)	(2.78)	(6.00)	(13.38)	(2.45)
California	0.0257	0.0489	-0.0023	0.0180	0.0006	-0.0203
	(9.01)	(2.17)	(0.06)	(4.30)	(0.09)	(3.94)
Bay Area	-0.0051	0.0010	-0.0145	-0.0038	-0.0041	-0.0111
	(5.23)	(0.18)	(1.82)	(2.84)	(1.42)	(8.86)
Women * Bay Area	0.0179	-0.0526	0.0124	0.0160	0.0135	0.0042
	(12.90)	(3.85)	(0.84)	(8.65)	(3.62)	(2.13)
African American * Bay Area	-0.0086	-0.0429	-0.0737	-0.0053	-0.0278	0.0053
	(2.83)	(2.03)	(1.80)	(1.36)	(3.96)	(0.85)
Asian * Bay Area	-0.0355	0.0167	0.0444	-0.0205	-0.0538	-0.0267
	(22.17)	(0.93)	(2.22)	(8.57)	(12.68)	(14.25)
Nat. Hawaiian/Pac. Island. * Bay Area	-0.0105	-0.0051	n/a	-0.0233	-0.0011	-0.0049
	(0.87)	(0.07)		(1.35)	(0.04)	(0.25)
Am. Ind./Alaska Native * Bay Area	-0.0029	-0.0043	0.1464	0.0136	-0.0319	-0.0043
	(0.33)	(0.09)	(1.09)	(1.02)	(1.41)	(0.34)
White, Hispanic * Bay Area	-0.0088	-0.0434	-0.0121	-0.0056	-0.0186	-0.0028
	(3.19)	(3.02)	(0.35)	(1.27)	(2.78)	(0.65)
Other, Hispanic * Bay Area	-0.0092	-0.0511	0.0092	-0.0222	-0.0145	-0.0048
	(3.32)	(3.72)	(0.19)	(4.45)	(2.29)	(1.09)
Other, Non-Hispanic * Bay Area	-0.0029	-0.1479	0.4677	0.0039	0.0424	-0.0183
	(0.22)	(1.59)	(1.98)	(0.22)	(1.07)	(0.91)
Two or More Races * Bay Area	-0.0101	-0.0243	0.0751	-0.0128	-0.0030	-0.0043
	(2.99)	(1.16)	(1.72)	(2.70)	(0.34)	(0.89)
Number of Observations	6,005,339	457,435	56,483	2,094,533	1,193,693	1,815,015
Log Likelihood Value	-1,806,803	-237,900	-20,063	-531,943	-46,057	-392,637

Notes:

1) Probit analysis is conducted in STATA using the -dprobit- command. The coefficients reported represent the percentage point differences in self-employment rates between the indicated racial group and White, Non-Hispanics, or, in the case of women, between women and men.
2) T-Statistics are in parenthesis and refer to the probit coefficients above them. T-Statistics of approximately two or more indicate that disparities are statistically significant at the 95 percent confidence level.
3) Controls include number of own children, age, age squared, education indicators, marital status indicators and state indicators.
4) Please see Appendix B for 2000 Census definitions of industry groups.
5) The SF Bay Area CMSA is composed of the following 10 Counties: Alameda, Contra Costa, Marin, Napa, San Francisco, San Mateo, Santa Clara, Santa Cruz, Solano, and Sonoma. It differs from the SJ CSA in its exclusion of San Benito County.

Source: 5% Public Use Microdata Sample of the US Census 2000.

Table 38: Likelihood of Self-Employment Probit Equations, CPS Outgoing Rotations Group

Difference in Probability From Reference Group	US			California			SJ CSA and Surrounding Areas		
	All Industries	Construction	Prof. Services	All Industries	Construction	Prof. Services	All Industries	Construction	Prof. Services
Women	-0.0352 (52.25)	-0.0845 (15.94)	-0.0626 (58.92)	-0.0361 (12.41)	-0.0987 (4.91)	-0.0731 (15.34)	-0.0324 (6.04)	-0.1133 (3.35)	-0.0506 (5.65)
African American	-0.0343 (29.26)	-0.0889 (11.55)	-0.0314 (18.36)	-0.0473 (8.28)	-0.1432 (4.28)	-0.0574 (6.82)	-0.0463 (4.43)	-0.1411 (2.28)	-0.0571 (3.22)
Asian/Pacific Islander	-0.0098 (6.40)	-0.0627 (4.63)	-0.0251 (11.70)	-0.0215 (5.44)	-0.0421 (1.51)	-0.0448 (7.45)	-0.0245 (3.90)	-0.0273 (0.61)	-0.0380 (3.65)
Native American/Alaska Native	-0.0258 (8.23)	-0.0973 (6.35)	-0.0238 (4.71)	-0.0298 (2.34)	-0.0458 (0.86)	-0.0491 (2.21)	-0.0503 (2.33)	-0.1207 (1.52)	-0.0547 (1.27)
White, Hispanic	-0.0337 (30.44)	-0.1035 (19.05)	-0.0137 (6.65)	-0.0533 (14.64)	-0.1009 (6.01)	-0.0426 (6.79)	-0.0440 (6.10)	-0.1194 (3.78)	-0.0225 (1.52)
Other, Hispanic	-0.0416 (6.05)	-0.1088 (3.23)	-0.0199 (1.60)	-0.0622 (3.04)	0.1144 (0.95)	-0.0677 (1.96)	-0.0676 (1.61)	n/a n/a	n/a n/a
Other, Non-Hispanic	-0.0043 (1.47)	0.0232 (1.49)	0.0029 (0.64)	-0.0047 (0.36)	-0.0685 (1.04)	-0.0047 (0.25)	-0.0228 (1.10)	n/a n/a	0.0152 (0.41)
State Indicators	yes	yes	yes	no	no	no	no	no	no
CBSA Indicators	no	no	no	yes	yes	yes	yes	yes	yes
Industry Indicators	yes	no	no	yes	no	no	yes	no	no
Education Indicators	yes	yes	yes	yes	yes	yes	yes	yes	yes
Marital Status Indicators	yes	yes	yes	yes	yes	yes	yes	yes	yes
Number of Observations	816,006	67,756	307,309	51,484	4,032	18,739	12,860	1,010	4,756
Log Likelihood Value	-250,303	-35,165	-84,473	-17,692	-1,895	-6,295	-4,091	-448	-1,530
Pseudo R-Squared	0.122	0.071	0.077	0.121	0.110	0.088	0.122	0.146	0.070

Notes:

1) Probit analysis is conducted in STATA using the "dprobit" command. The coefficients reported represent marginal effects in the likelihood of self-employment between the indicated racial group and White, Non-Hispanics, or, in the case of women, between women and men. Coeffiecients are listed as "n/a" if sample sizes are too small to include the variable in the specification.

2) T-statistics are in parentheses and refer to the probit coefficients above them. T-statistics of approximately two or more indicate that disparities are statistically significant at the 95% confidence level.

3) The reported specifications also include the following control variables: age, age squared and year indicators.

4) The population is restricted to individuals aged 21 and over who work more than 15 hours per week in a non-agricultural, non-military industry.

5) For 2002, the data only include four categories: White, African American, Asian/Pacific Islander, and Native American/Alaska Native. For 2003-2005, the data give a more detailed specification of race: White, African American, Asian, Hawaiian/Pacific Islander, Native American/Alaska Native, and various combinations of the abovementioned categories for multiracial individuals. Hispanic individuals were identified in a separate variable called "Spanish Ethnicity."

6) The San Jose-Oakland-San Francisco CSA (SJ CSA) consists of the following 11 counties: Alameda, Contra Costa, Marin, San Francisco, San Mateo, San Benito, Santa Clara, Sonoma, Solano, Santa Cruz, and Napa. For all industries and the construction industry, SJ CSA and surrounding areas is defined as the San Jose-San Francisco-Oakland CSA, Sacramento County, and San Joaquin County. For the services industry, SJ CSA and surrounding areas is defined as the San Jose-San Francisco-Oakland CSA and Sacramento County.

Source: Outgoing Rotation Group files of the Current Population Survey Earner Study, 2002-2006.

7. Self-Employed Earnings Disparities: OLS Regression Results

We next investigated gender, racial, and ethnic differences in earnings of the self-employed. First, Table 39 displays OLS regression results on self-employment earnings disparities in 1999 US dollars from the Census for the US, California, and the Bay Area CMSA. Consistent with the probit regression results, the coefficients presented here measure deviations from the reference (or omitted) group. This means that all coefficients are relative to male white non-Hispanics. For example, the coefficient for women of –29,673 implies that, accounting for other characteristics, self-employed women earn $29,673 less annually than self-employed men.

The results in Table 39 indicate that there are substantial disparities in self-employed earnings in the US as a whole, in California, and in the Bay Area. Most of these disparities are statistically significant. For example, in the Bay Area, self-employed females earn annually nearly $32,000 less than self-employed males even after controlling for group differences in education and other demographic characteristics. Further, self-employed Bay Area Asians and white Hispanics earn nearly $11,000 less than self-employed white non-Hispanics. All of these disparities are statistically significant. On the other hand, in the Bay Area, self-employment earnings disparities between African Americans and white non-Hispanics are relatively small and not statistically significant.

Table 40 displays OLS regression results for self-employment earnings disparities in 1999 US dollars from the Census for five industry categories in the US. Although self-employment earnings disparities vary considerably across these five categories, the relative rankings are quite stable. Women have statistically significantly lower self-employment earnings than men. With few exceptions, other races and ethnicities have lower self-employment earnings than white non-Hispanics. Most of these disparities are statistically significant.

Table 41 displays results that address whether self-employment earnings disparities are larger in the Bay Area than in the US, both overall and within five industry categories. We use a similar methodology described above for self-employment probabilities. In this case, the coefficient associated with a given interaction is a measure of the incremental earnings disparity from a given gender, race, or ethnicity variable. For example, the coefficient associated with "Women * Bay Area" in the column labeled "US" measures the incremental disparity in female self-employment earnings in the Bay Area relative to that in the US as a whole. The same interpretation applies to each of five industry category regression results.

The results in Table 41 show that in many cases, relative disparities are higher in the Bay Area than in the US as a whole. For example, the annual earnings gap for women in the Bay Area is about $4,000 greater than the gender earnings disparity in the US as a whole. This incremental disparity is statistically significant. In Construction and EAS, this figure is over $7,000 annually. In Professional Services and General Services, the gap between Asian and white annual earnings is respectively about $16,000 and about $10,000 larger in the Bay Area than earnings disparities between whites and Asians elsewhere. In General Services, the earnings gap for white Hispanics is about $7,000 greater in the Bay Area than it is elsewhere. All of these incremental disparities are statistically significant. These results suggest that in many cases, earnings disparities are worse in the Bay Area than elsewhere in the US.

Turning to more recent 2002-2006 CPS ASEC data, Table 42 displays self-employment earnings disparities in 1999 US dollars based on OLS regressions for the US, California, and VTA's local geographic market (SJ CSA, Sacramento County and San Joaquin County). While the magnitudes differ somewhat across the two data sources, the results

in this table are generally consistent with those from the Census.[42] The results in Table 42 indicate that there are substantial disparities in self-employed earnings in the US as a whole and in California. While the data show significant disparities when considering females and minorities relative to white non-Hispanic males for the US and California, results from "SJ CSA and surrounding areas" data alone are too imprecise to establish statistical significance in most categories. Nevertheless, we observe that in the local geographic market self-employed females earn $34,000 less than self-employed males, while Asians earn roughly $16,000 less than white non-Hispanics. Each of these disparities is statistically significant.[43,44]

In summary, using two separate data sources and standard statistical methods, we find that women are statistically significantly less likely to be self-employed than men. Further, they have statistically significantly lower earnings, if self-employed, than men. This is true in all of the geographic areas that we examine, including measures for the local market. We also found, with few exceptions, that other races or ethnicities are statistically significantly less likely to be self-employed than white non-Hispanics. Further, they have statistically significantly lower earnings, if self-employed. Again, this is true in most of the geographic areas that we examine, including the Bay Area centered local market.

[42] Because of to the smaller sample sizes offered by the CPS relative the census, some minority coefficients relying on infrequent observations are subject to imprecision due to outliers. For instance, the SJ CSA and Surrounding Areas earnings differential for African American-owned professional service firms is in nearly $62,000. This reflects just ten observations for that category with two high earnings outliers (over $400,000).

[43] As with the probit analysis, identical regressions were performed with data restricted to individuals reporting 30 or more hours of work per week. While this may help control for potential differences in composition of small "side-businesses" across groups considered, results for earnings differences were not meaningfully impacted.

[44] Earnings differences were also analyzed using a model largely developed by Dr. James Heckman (Heckman 1979) in an attempt to better control for sample selection bias. Because individual characteristics unobserved by the researcher and impacting earnings are likely to contribute to the propensity for self-employment, results are susceptible to selection bias. Following Rees and Shah 1986, the instrument use in this model is number of children. The resulting coefficients in general were found to be of a smaller magnitude or reversed relative to the OLS results. However, several estimates were clearly imprecise or nonsensical. We attribute this to the weak instrument. Unfortunately, no better instruments are available.

Table 39: Self-Employment Earnings Regression Equations, 2000 Census

Difference in 1999 Dollars From Reference Group	US	California	SF Bay Area CMSA
Women	-29,673	-28,131	-31,637
	(154.28)	(50.29)	(25.44)
African American	-8,689	-3,110	-2,157
	(20.74)	(1.96)	(0.61)
Asian	-5,626	-11,153	-10,655
	(12.40)	(12.53)	(5.89)
Native Hawaiian/Pacific Islander	-7,549	-14,867	-27,614
	(2.52)	(2.38)	(2.45)
Native American/Alaska Native	-7,536	-7,572	-14,710
	(6.74)	(2.43)	(1.74)
White, Hispanic	-7,490	-9,598	-10,996
	(16.84)	(9.42)	(4.07)
Other, Hispanic	-11,571	-12,234	-12,041
	(21.65)	(11.70)	(4.10)
Other, Non-Hispanic	-10,948	-8,405	-15,623
	(4.61)	(1.56)	(1.41)
Two or More Races	-7,531	-7,283	-2,762
	(11.82)	(5.44)	(0.88)
Number of Observations	581,143	78,266	17,933
Adjusted R-squared	0.1772	0.1762	0.1700

Notes:
1) Linear regression analysis is conducted in STATA using the -regress- command. The coefficients reported represent differences self-employment earnings in 1999 dollars between the indicated racial group and White, Non-Hispanics, or, in the case of women, between women and men.
2) T-Statistics are in parenthesis and refer to the probit coefficients above them. T-Statistics of approximately two or more indicate that disparities are statistically significant at the 95 percent
3) Controls in all specifications include number of own children, age, age squared, education indicators, marital status indicators, and major industry indicators (1-14; based on major industries identified by the Census). In addition, geographic controls include state indicators in the USA specification, and PUMA indicators in the CA and SF Bay Area CMSA specifications.
4) Please see Appendix B for 2000 Census definitions of industry groups.
5) The SF Bay Area CMSA is composed of the following 10 Counties: Alameda, Contra Costa, Marin, Napa, San Francisco, San Mateo, Santa Clara, Santa Cruz, Solano, and Sonoma. It differs fromt the SJ CSA in its exclusion of San Benito County.

Source: 5% Public Use Microdata Sample of the US Census 2000.

Table 40: Self-Employment Earnings for US by Industry Group Regression Equations, 2000 Census

Difference in 1999 Dollars From Reference Group	Construction	Architecture & Engineering	Professional Services	General Services	Commodities
Women	-14,566	-29,162	-45,513	-16,750	-26,730
	(24.69)	(12.61)	(105.58)	(65.41)	(67.80)
African American	-8,161	-16,456	-8,282	-5,709	-9,010
	(9.88)	(2.54)	(8.41)	(10.56)	(7.42)
Asian	-4,593	-2,958	4,792	-9,415	-11,630
	(2.93)	(0.65)	(4.36)	(15.98)	(13.37)
Native Hawaiian/Pacific Islander	-12,484	15,879	-6,673	-2,298	-12,562
	(2.08)	(0.32)	(0.91)	(0.58)	(1.71)
Native American/Alaska Native	-3,094	-10,892	-10,742	-6,264	-9,038
	(1.74)	(0.83)	(3.54)	(3.79)	(3.59)
White, Hispanic	-5,938	-8,571	-6,196	-7,605	-8,670
	(7.32)	(1.71)	(5.11)	(12.30)	(8.54)
Other, Hispanic	-8,567	12,700	-10,604	-11,103	-15,127
	(9.17)	(1.34)	(6.23)	(15.57)	(12.03)
Other, Non-Hispanic	-9,921	-22,128	-15,728	-7,951	-11,282
	(2.26)	(0.83)	(2.83)	(2.16)	(1.92)
Two or More Races	-6,401	-6,736	-6,735	-5,162	-11,028
	(5.29)	(0.89)	(4.16)	(5.79)	(7.77)
Number of Observations	109,464	7,791	165,390	170,617	114,284
Adjusted R-squared	0.0494	0.0833	0.2275	0.0706	0.0877

Notes:
1) Linear regression analysis is conducted in STATA using the -regress- command. The coefficients reported represent differences self-employment earnings in 1999 dollars between the indicated racial group and White, Non-Hispanics, non-hispanics, or, in the case of women, between women and men.
2) T-Statistics are in parenthesis and refer to the regression coefficients above them. T-Statistics of approximately two or more indicate that disparities are statistically significant at the 95 percent confidence level.
3) Controls include number of own children, age, age squared, education indicators, marital status indicators and state indicators.
4) Please see Appendix B for 2000 Census definitions of industry groups.
5) Earnings were normalized to 1999 dollars using the Consumer Price Index for All Urban Consumers (CPI-U index), published by the Bureau of Labor Statistics.

Source: 5% Public Use Microdata Sample of the US Census 2000.

Table 41: Self-Employment Earnings by Industry Group, 2000 Census Regression Equations with SF Bay Area Interactions

Difference in 1999 Dollars From Reference Group	US	Construction	Architecture & Engineering	Professional Services	General Services	Commodities
Women	-26,459	-14,355	-28,482	-45,459	-16,644	-26,413
	(145.49)	(24.10)	(11.92)	(103.25)	(63.93)	(65.94)
African American	-8,095	-7,852	-15,722	-9,118	-5,827	-9,313
	(19.02)	(9.44)	(2.41)	(9.11)	(10.65)	(7.58)
Asian	-6,300	-3,975	-5,446	6,842	-8,866	-12,565
	(13.15)	(2.32)	(1.08)	(5.85)	(14.34)	(13.83)
Native Hawaiian/Pacific Islander	-6,674	-11,416	11,513	-6,617	-42	-14,048
	(2.10)	(1.82)	(0.23)	(0.87)	(0.01)	(1.83)
Native American/Alaska Native	-7,587	-3,255	-9,097	-10,098	-6,049	-9,340
	(6.65)	(1.81)	(0.67)	(3.26)	(3.62)	(3.67)
White, Hispanic	-7,827	-6,305	-8,948	-6,310	-7,487	-8,950
	(17.14)	(7.63)	(1.75)	(5.09)	(11.86)	(8.67)
Other, Hispanic	-12,328	-8,259	16,108	-12,078	-11,416	-15,814
	(22.32)	(8.66)	(1.65)	(6.94)	(15.53)	(12.31)
Other, Non-Hispanic	-11,183	-9,100	-15,134	-13,876	-8,231	-10,208
	(4.52)	(2.06)	(0.48)	(2.37)	(2.15)	(1.71)
Two or More Races	-8,379	-6,147	-5,110	-6,795	-5,747	-11,878
	(12.68)	(4.97)	(0.63)	(4.05)	(6.25)	(8.15)
California	3,648	2	24,701	5,310	3,175	9,113
	(1.90)	(0.56)	(1.14)	(1.07)	(1.19)	(2.03)
Bay Area	7,520	10,598	8,708	5,401	8,667	6,943
	(11.15)	(8.28)	(1.81)	(3.78)	(7.99)	(4.44)
Women * Bay Area	-4,369	-7,273	-7,533	-1,033	30	-3,597
	(4.60)	(1.77)	(0.81)	(0.54)	(0.02)	(1.58)
African American * Bay Area	110	-13,614	-23,164	4,827	-3,732	5,662
	(0.04)	(2.13)	(0.46)	(0.92)	(1.07)	(0.69)
Asian * Bay Area	-5,542	-9,080	11,458	-16,236	-9,793	7,568
	(3.76)	(2.13)	(1.01)	(4.86)	(4.89)	(2.47)
Nat. Hawaiian/Pac. Island. * Bay Area	-18,854	-22,092	n/a	-26,156	-25,184	895
	(1.87)	(1.03)		(0.99)	(2.10)	(0.03)
Am. Ind./Alaska Native * Bay Area	-10,943	1,727	-40,574	-18,118	-14,308	4,729
	(1.56)	(0.14)	(0.79)	(1.25)	(1.23)	(0.28)
White, Hispanic * Bay Area	-2,645	4,545	5,154	-7,674	-6,766	277
	(1.20)	(1.05)	(0.22)	(1.39)	(2.24)	(0.05)
Other, Hispanic * Bay Area	-395	-13,239	-45,879	4,912	-1,219	2,558
	(0.17)	(2.93)	(1.24)	(0.62)	(0.42)	(0.41)
Other, Non-Hispanic * Bay Area	-8,499	-15,842	-30,158	-13,686	-887	-19,637
	(0.88)	(0.45)	(0.51)	(0.74)	(0.06)	(0.62)
Two or More Races * Bay Area	4,449	-7,412	-9,499	2,456	5,455	12,484
	(1.67)	(1.29)	(0.43)	(0.40)	(1.48)	(1.99)
Number of Observations	581,523	109,464	7,791	165,390	170,617	114,284
Adjusted R-squared	0.1669	0.0509	0.0849	0.2308	0.0718	0.0892

Notes:
1) Linear regression analysis is conducted in STATA using the -regress- command. The coefficients reported represent differences self-employment earnings in 1999 dollars between the indicated racial group and White, Non-Hispanics, non-hispanics, or, in the case of women,
2) T-Statistics are in parenthesis and refer to the probit coefficients above them. T-Statistics of approximately two or more indicate that disparities are statistically significant at the 95 percent confidence level.
3) Controls include number of own children, age, age squared, education indicators, marital status indicators and state indicators.
4) Please see Appendix B for 2000 Census definitions of industry groups.
5) The SF Bay Area CMSA is composed of the following 10 Counties: Alameda, Contra Costa, Marin, Napa, San Francisco, San Mateo, Santa Clara, Santa Cruz, Solano, and Sonoma. It differs from the CSA in its exclusion of San Benito County.

Source: 5% Public Use Microdata Sample of the US Census 2000.

Table 42: Self-Employment Earnings Regression Equations, CPS Annual Social and Economic Supplement

Difference in 1999 Dollars From Reference Group	US			California			SJ CSA and Surrounding Areas		
	All Industries	Construction	Prof. Services	All Industries	Construction	Prof. Services	All Industries	Construction	Prof. Services
Women	-30,750	-16,514	-45,276	-28,888	-7,879	-40,297	-33,552	-19,370	-45,170
	(48.29)	(8.43)	(32.42)	(11.99)	(0.76)	(8.30)	(6.21)	(0.89)	(4.02)
African American	-9,399	-5,105	-3,538	-12,399	-18,415	1,946	7,747	-16,474	61,922
	(7.04)	(1.78)	(1.16)	(2.22)	(1.02)	0.18	0.60	(0.49)	2.31
Asian/Pacific Islander	-4,689	-7,927	419	-13,970	-31,004	4,638	-16,143	-34,757	-2,249
	(3.49)	(1.83)	0.13	(4.32)	(2.77)	0.66	(2.47)	(1.93)	(0.16)
Native American/Alaska Native	-7,446	-1,522	-10,145	-12,548	-18,217	-45,831	14,890	-21,868	n/a
	(2.45)	(0.29)	(1.36)	(1.20)	(1.13)	(1.35)	0.74	(0.74)	n/a
White, Hispanic	-9,004	-6,627	-7,182	-11,746	-21,950	-7,894	-6,091	-9,806	16,961
	(8.07)	(3.46)	(2.43)	(3.76)	(3.10)	(1.09)	(0.78)	(0.55)	1.02
Other, Hispanic	-12,171	-3,877	-23,979	-24,379	-34,891	-38,757	-54,758	n/a	-93,894
	(1.67)	(0.32)	(1.50)	(1.28)	(0.88)	(1.34)	(1.13)	n/a	(1.24)
Other, Non-Hispanic	-5,090	-3,769	-2,836	-16,882	-39,380	-19,887	-27,268	-15,274	-11,065
	(2.01)	(0.86)	(0.48)	(1.77)	(1.00)	(1.17)	(1.55)	(0.28)	(0.37)
State Indicators	yes	yes	yes	no	no	no	no	no	no
CBSA Indicators	no	no	no	yes	yes	yes	yes	yes	yes
Industry Indicators	yes	no	no	yes	no	no	yes	no	no
Education Indicators	yes	yes	yes	yes	yes	yes	yes	yes	yes
Marital Status Indicators	yes	yes	yes	yes	yes	yes	yes	yes	yes
Number of Observations	45,075	8,506	13,371	3,885	527	1,293	820	116	223
Adjusted R-Squared	0.184	0.055	0.228	0.157	0.062	0.155	0.137	0.022	0.147

Notes:

1) Linear regression analysis is conducted in STATA using the "regress" command. The coefficients reported represent differences in self-employment earnings in 1999 dollars between the indicated racial group and White, Non-Hispanics, or, in the case of women, between women and men. Coefficients are listed as "n/a" if sample sizes are too small to include the variable in the specification.

2) T-statistics are in parentheses and refer to the probit coefficients above them. T-statistics of approximately two or more indicate that disparities are statistically significant at the 95% confidence level.

3) The reported specifications also include the following control variables: age, age squared and year indicators.

4) The population is restricted to individuals aged 21 and over who work more than 15 hours per week for more than 20 weeks per year in a non-agricultural, non-military industry last year.

5) For 1996-2002, the data only include four categories: White, African American, Asian/Pacific Islander, and Native American/Alaska Native. For 2003-2006, the data give a more detailed specification of race: White, African American, Asian, Hawaiian/Pacific Islander, Native American/Alaska Native, and various combinations of the abovementioned categories for multiracial individuals. Hispanic individuals were identified in a separate variable called "Spanish Ethnicity."

6) The San Jose-Oakland-San Francisco CSA (SJ CSA) consists of the following 11 counties: Alameda, Contra Costa, Marin, San Francisco, San Mateo, San Benito, Santa Clara, Sonoma, Solano, Santa Cruz, and Napa. For all industries and the construction industry, SJ CSA and surrounding areas is defined as the San Jose-San Francisco-Oakland CSA, Sacramento County, and San Joaquin County. For the services industry, SJ CSA and surrounding areas is defined as the San Jose-San Francisco-Oakland CSA and Sacramento County.

7) The coefficient for Other Hispanic for SJ CSA and surrounding areas is oddly small because it only represents 1 observation.

Source: Annual Social and Economic Supplement of the Current Population Survey, 2002-2006.

B. Disparity Testing – Rates of Firm Formation

The results of our econometric analyses can also be presented in the form of disparity testing – the method most frequently applied in studies of this kind. We compared the actual rates of firm formation with those predicted to prevail in a race and gender neutral marketplace (also referred to as *potential* firm formation rates) to create a disparity ratio:

$$\frac{\text{Actual firm formation rate, ij}}{\text{Predicted firm formation rate, ij}} \times 100$$

where *i* represents a particular race or gender group and *j* represents a particular industry. A disparity ratio below 100 indicates that the actual firm formation rate fell below the

predicted rate for a race and gender neutral marketplace. It is important to remember here that the predicted rate already accounts for group differences in the non-racial or gender factors that contribute to firm formation, such as education. Thus, ratios that fall under 100 by a statistically significant measure can be considered evidence that discrimination plays a role in deterring the creation of new minority- and woman-owned firms.

Table 43 compares actual and potential self-employment rates for construction and professional services in the local geographic market (SJ CSA and surrounding counties). These rely on CPS ORG probit regression results for 2002-2006 and local market-specific self-employment rates from the 2000 Census. Every rate displayed is revised upward when the assumption of a race and gender neutral marketplace is considered. For example, the rate of self-employment for African Americans in construction is estimated by the 2000 Census to be 11.6%. After incorporating results from our regression model, this is predicted to be 27.4% in a race-neutral environment. This corresponds to a disparity ratio comparing actual to potential business formation of 42.3. This measure implies that the rate at which African American-owned construction firms are formed is under half of what it would be if race were not a factor. Similar adjustments are made for other groups in construction and in professional services. African Americans warrant the largest adjustment (42.3 disparity ratio) among construction groups and also display the highest disparity (37.0) among those employed in professional services. Absolute differences between baseline and potential availability vary given population sizes but move close to proportionally with self-employment adjustments.

Table 43: Actual and Potential Self-Employment Rates in the SJ CSA and Surrounding Areas, CPS Probit Regression Results, 2000 Census Self-Employment Rate

	Construction			Professional Services		
	Actual Rate	Potential Rate	Disparity Ratio[(1)]	Actual Rate	Potential Rate	Disparity Ratio[(1)]
Women	12.0%	25.0%	48.0 **	8.1%	14.3%	56.7 **
African American	11.6%	27.4%	42.3 **	5.3%	14.4%	37.0 **
Asian/Pacific Islander	22.2%	26.7%	83.1	6.8%	13.4%	50.9 **
Native American / Alaska Native	13.7%	26.6%	51.3	8.6%	17.4%	49.5
Hispanic[(3)]	9.3%	14.8%	62.7 **	6.3%	10.7%	58.7 *
Other, Non-Hispanic	16.7%	17.6%	94.6	8.5%	10.1%	84.7

Notes:
1) The Disparity Ratio is ratio of actual self-employment rate to potential self-employment rate.
2) For 2002, the data only include four categories: White, African American, Asian/Pacific Islander, and Native American/Alaska Native. For 2003-2006, the data give a more detailed specification of race: White, African American, Asian, Hawaiian/Pacific Islander, Native American/Alaska Native, and various combinations of the abovementioned categories for multiracial individuals. Hispanic individuals were identified in a separate variable called "Spanish Ethnicity."
3) "Hispanic" includes individuals identified as "White, Hispanic" and "Other, Hispanic" under the Census definitions.
4) Please see Appendix A for CPS and Census industry group definitions.
5) The San Jose-Oakland-San Francisco CSA (SJ CSA) consists of the following 11 counties: Alameda, Contra Costa, Marin, San Francisco, San Mateo, San Benito, Santa Clara, Sonoma, Solano, Santa Cruz, and Napa. For all industries and the construction industry, SJ CSA and surrounding areas is defined as the San Jose-San Francisco-Oakland CSA, Sacramento County, and San Joaquin County. For the services industry, SJ CSA and surrounding areas is defined as the San Jose-San Francisco-Oakland CSA and Sacramento County.
6) Availability is reported separately by gender and by minority status. As a result, minority women are counted twice - once in the gender analysis and once in the minority status analysis.
7) * denotes statistical significance based on a 90% confidence level one-tailed test.
** denotes statistical significance based on a 95% confidence lebel one-tailed test.

Sources:
1) Outgoing Rotation Group files of the Current Population Survey Earner Study, 2002-2006.
2) 5% Public Use Microdata Sample of the US Census 2000.

C. Study of Disparities in Access to Financial Capital

We next explore the evidence of treatment against minority and female-owned businesses in credit markets. Following previous studies, we use data from the Survey of Small Business Finances (SSBF) to look for evidence of lending discrimination (see Blanchflower, Levine and Zimmerman 2003 and Cavalluzzo, Cavalluzzo and Wolken 2002 for example). We expand on these studies in two ways. First, we examine lending patterns for the Pacific region and make comparisons to the rest of the country. The Pacific region is the smallest geographical area that can be analyzed with SSBF data, which is the same as the approach taken in the Caltrans (2007) study. Second, we update the previous research, including the Caltrans study, by using SSBF data from the 1998 and 2003 SSBF. To our knowledge, this is the first study to examine lending discrimination using the recently released 2003 SSBF data.

The SSBF is a survey of small businesses conducted by the Board of Governors of the Federal Reserve System roughly every five years. The most recently available data are the 2003 SSBF which contain a nationally representative sample of 4,240 for-profit, non-governmental, non-agricultural businesses with fewer than 500 employees. The 1998 contains a sample of more than 3,500 firms with over samples of minority-owned firms. The SSBF provides detailed information on many owner and firm characteristics,

including credit histories, recent borrowing experiences, balance sheet data, and sources of financial products and services used (see Bitler, Robb, and Wolken 2001, Mach and Wolken 2006, and www.federalreserve.gov/ssbf for more information). In all analyses we combine the 1998 and 2003 SSBFs to increase precision of estimates.

Table 44 reports estimates of loan denial rates, fear of applying, loan amounts and interest rates by the race and gender of the firm. National and Pacific region estimates are reported. African-American, Hispanic, and Asian estimates are reported for the United States, but only estimates for all minorities are reported for the Pacific region because of limited sample sizes. As found in previous studies, loan denial rates are much higher for minority firms than for non-minority owned firms. This holds true at the national level and for the Pacific region. In the Pacific region, 32.9 percent of minority firms applying for loans experienced a rejection. In contrast, 22.9 percent of non-minority owned firms applying for loans experienced a rejection. Female firms that applied for loans, on the other hand, experienced similar levels of loan rejections at the national level and lower rejection rates for the Pacific region than male firms.

Table 44: Loan Denial Rates, Fear of Applying, Loan Amounts and Interest Rates by Race and Gender Survey of Small Business Finances (1998 and 2003)

Geography	Group	Denial Rate	N	Did not Apply: Fear of Rejection	N	Mean Loan Amount	Median Loan Amount	N	Interest Rate	N
U.S.	Non-minority	16.6%	2,432	18.3%	6,480	$296,197	$49,669	2,252	7.4%	2,252
U.S.	African American	65.0%	133	50.4%	402	$90,050	$25,000	70	10.4%	70
U.S.	Hispanic	30.4%	144	29.6%	424	$102,171	$35,000	107	8.8%	107
U.S.	Asian	29.9%	130	21.0%	411	$345,329	$100,000	110	7.6%	110
U.S.	All Minorities	39.9%	427	32.3%	1,321	$190,623	$50,000	305	8.6%	305
U.S.	Men	19.8%	2,063	19.5%	5,411	$310,236	$50,000	1,868	7.6%	1,868
U.S.	Women	20.1%	796	22.2%	2,390	$222,769	$39,509	689	7.3%	689
Pacific	Non-minority	22.9%	379	20.7%	1,112	$351,212	$56,442	340	8.1%	340
Pacific	African American	38.9%	13	38.5%	53	$26,338	$9,000	8	12.2%	8
Pacific	Hispanic	31.0%	30	31.1%	113	$121,216	$24,834	21	8.8%	21
Pacific	Asian	33.9%	52	20.1%	181	$388,991	$50,000	43	8.7%	43
Pacific	All Minorities	32.9%	97	27.4%	359	$259,851	$39,509	74	9.0%	74
Pacific	Men	28.4%	337	22.6%	974	$401,564	$75,000	295	8.2%	295
Pacific	Women	17.0%	139	21.5%	497	$202,464	$40,000	119	8.4%	119

Notes:
(1) Survey weights provided by the SSBF are used for all estimates.
(2) The Pacific region includes California, Oregon, Washington, Hawaii, and Alaska.

Source:
Survey of Small Business Finances, 1998 and 2003.

Although a large percentage of minority firms that applied for loans were rejected even more might have been rejected if they had applied. Of course, it is impossible to measure how these firms would have been treated in they applied for loans. Instead, the SSBF provides related information on whether the firm did not apply for credit when it needed it because the firm thought that the application would be turned down (i.e. fear of rejection). Estimates reported in Table 44 indicate that minority firms are more likely to not apply for loans because of a fear of being rejected than non-minority firms. At the national level this holds for black and Hispanic firms, but not for Asian firms. For the Pacific region, minority firms are more likely than non-minority firms to not apply because of a fear of rejection. Female firms were not that different than male firms in their likelihood of not applying for loans because of a fear of rejection.

Table 45: Probit Regressions for Probability of Not Applying for Needed Credit because of Fear of Denial Survey of Small Business Finances (1998, 2003)

	Specification				
	(1)	(2)	(3)	(4)	(5)
African American	0.2522	0.2337	0.2309	0.1336	0.1358
	(0.0207)	(0.0204)	(0.0200)	(0.0183)	(0.0180)
Hispanic	0.1009	0.0609	0.0670	0.0319	0.0340
	(0.0204)	(0.0202)	(0.0198)	(0.0177)	(0.0175)
Asian	0.0339	0.0170	0.0243	0.0197	0.0181
	(0.0234)	(0.0232)	(0.0228)	(0.0206)	(0.0203)
Other	0.0859	0.0666	0.0594	0.0087	0.0031
	(0.0404)	(0.0392)	(0.0385)	(0.0350)	(0.0343)
Female	0.0366	0.0277	0.0233	0.0141	0.0128
	(0.0106)	(0.0107)	(0.0106)	(0.0096)	(0.0095)
Minority in Pacific	-0.0342	-0.0368	-0.0441	-0.0370	-0.0366
	(0.0286)	(0.0279)	(0.0274)	(0.0247)	(0.0244)
Female in Pacific	-0.0447	-0.0441	-0.0416	0.0012	-0.0007
	(0.0237)	(0.0232)	(0.0228)	(0.0207)	(0.0205)
Owner characteristics	No	Yes	Yes	Yes	Yes
Business characteristics	No	Yes	Yes	Yes	Yes
Geographic chacteristics	No	Yes	Yes	Yes	Yes
Business performance measures	No	No	Yes	Yes	Yes
Personal financial history	No	No	No	Yes	Yes
Business financial history	No	No	No	Yes	Yes
Use of financial services	No	No	No	No	Yes
Mean of dependent variable	0.2037	0.2039	0.2040	0.2036	0.2036
Sample size	7,801	7,742	7,732	7,703	7,703

Notes:
(1) Marginal effects and their standard errors (in parentheses) are reported.
(2) Owner characteristics include 4 dummies for level of education, age, and experience.
(3) Business characteristics include number of owners, number of employees, whether an owner manages business, family business, dummies for business was purchased or inherited, business age, 5 dummies for legal form of organization, and 6 dummies for industry.
(4) Geographic characteristics include urban status and 2 dummies for Herfindahl banking market concentration in addition to 8 region dummies which are included in all specifications.
(5) Business performance measures include log sales, log profits, log assets, log equity, multiple sites, and national market.
(6) Personal financial history includes home ownership, log home equity, log non-home wealth, owner declared past bankruptcy, owner delinquent on past obligations, any past judgements rendered against owner, and dummies for credit score.
(7) Business financial history includes business declared past bankruptcy and business delinquent on past obligations.
(8) Use of financial services includes dummies for checking accounts, savings accounts, credit line, trade credit, business mortgages, business vehicle loans, business equipment loans, loans from stockholders, and other loans.

Source:
Survey of Small Business Finances, 1998 and 2003.

At the national level, black and Hispanic firms that were not deterred by loan rejections and fear of rejection, and actually received loans, received much smaller loan amounts than non-minority firms. Table 44 reports mean and median loan amounts by race, gender and geographical location. Asian firms, on the other hand, received larger loans than non-minority firms. In the Pacific region, minority firms also received substantially smaller loans than non-minority firms. Female firms were also found to receive smaller loans both at the national level and in the Pacific region.

Finally, previous studies have also found that minority firms tend to pay higher interest rates on business loans than do non-minority firms (Blanchflower, Levine and Zimmerman 2003 and Cavalluzzo, Cavalluzzo and Wolken). We find similar evidence for black and Hispanic firms, but not for Asian firms. At the national level, black and Hispanic firms paid higher interest rates than non-minority firms. In the Pacific region minorities also paid higher interest rates than non-minority firms. In contrast, to these patterns female-owned businesses paid comparable interest rates as male-owned businesses.

Overall, black and Hispanic firms are more likely to be denied when applying for loans and are less likely to apply for loans because of a fear of rejection. When these firms do receive loans they are for smaller amounts and for higher interest rates than non-minority firms. Racial disparities are also large in the Pacific region -- minority firms have higher loan rejection and fear of applying rates, and they receive smaller loans and pay higher interest rates. These alarming differences in treatment in the lending market, however, may be due to differences in the size, creditworthiness and other characteristics of the owners and firms. To investigate this issue further we estimate several multivariate regression models, which control for racial and gender differences in numerous owner and firm characteristics. Any remaining negative racial or gender differences in lending outcomes are consistent with lending discrimination (Blanchflower, Levine and Zimmerman 2003 and Cavalluzzo, Cavalluzzo and Wolken).

Table 46 reports estimates from several probit regression models for the probability of a loan denial. Specification 1 reports estimates for the base model which only includes race/ethnicity, female, and interactions with the Pacific region. The results display the patterns found in the previous table. The Pacific region interactions indicate whether minority or female firms in the Pacific region are treated differently relative to non-minority and male firms than in the rest of the United States. For example, the regression estimates indicate that black firms are 35 percentage points more likely and Hispanics, Asians and other minorities are roughly 11 percentage points more likely to experience a loan denial than non-minority firms in the United States. The minority Pacific interaction estimate is very small and statistically insignificant. It indicates that minority firms do not experience better outcomes in applying for loans in the Pacific region than in the rest of country.

Table 46: Probit Regressions for Probability of Loan Denial Survey of Small Business Finances (1998, 2003)

	Specification				
	(1)	(2)	(3)	(4)	(5)
African American	0.3380	0.2896	0.2799	0.1863	0.1854
	(0.0321)	(0.0317)	(0.0314)	(0.0298)	(0.0301)
Hispanic	0.1156	0.0895	0.0861	0.0752	0.0840
	(0.0305)	(0.0306)	(0.0303)	(0.0275)	(0.0274)
Asian	0.1179	0.1013	0.1004	0.0722	0.0681
	(0.0346)	(0.0347)	(0.0342)	(0.0318)	(0.0311)
Other	0.1150	0.0954	0.0960	0.0592	0.0415
	(0.0893)	(0.0878)	(0.0876)	(0.0785)	(0.0792)
Female	0.0296	0.0227	0.0115	-0.0015	-0.0011
	(0.0168)	(0.0171)	(0.0170)	(0.0159)	(0.0157)
Minority in Pacific	-0.0699	-0.0671	-0.0675	-0.0551	-0.0462
	(0.0474)	(0.0469)	(0.0465)	(0.0429)	(0.0419)
Female in Pacific	-0.1271	-0.1334	-0.1342	-0.0807	-0.0833
	(0.0414)	(0.0412)	(0.0407)	(0.0378)	(0.0368)
Owner characteristics	No	Yes	Yes	Yes	Yes
Business characteristics	No	Yes	Yes	Yes	Yes
Geographic characteristics	No	Yes	Yes	Yes	Yes
Business performance measures	No	No	Yes	Yes	Yes
Personal financial history	No	No	No	Yes	Yes
Business financial history	No	No	No	Yes	Yes
Use of financial services	No	No	No	Yes	Yes
Loan application chars.	No	No	No	No	Yes
Mean of dependent variable	0.1988	0.1985	0.1985	0.1972	0.1972
Sample size	2,859	2,816	2,816	2,807	2,807

Notes:
(1) Marginal effects and their standard errors (in parentheses) are reported.
(2) Owner characteristics include 4 dummies for level of education, age, and experience.
(3) Business characteristics include number of owners, number of employees, whether an owner manages business, family business, dummies for business was purchased or inherited, business age, 5 dummies for legal form of organization, and 6 dummies for industry.
(4) Geographic characteristics include urban status and 2 dummies for Herfindahl banking market concentration in addition to 8 region dummies which are included in all specifications.
(5) Business performance measures include log sales, log profits, log assets, log equity, multiple sites, and national market.
(6) Personal financial history includes home ownership, log home equity, log non-home wealth, owner declared past bankruptcy, owner delinquent on past obligations, any past judgements rendered against owner, and dummies for credit score.

(7) Business financial history includes business declared past bankruptcy and business delinquent on past obligations.
(8) Use of financial services includes dummies for checking accounts, savings accounts, credit line, trade credit, business mortgages, business vehicle loans, business equipment loans, loans from stockholders, and other loans.
(9) Loan application characteristics include amount of loan application, length of relationship with institution, and dummies for year of loan application.

Source:
Survey of Small Business Finances, 1998 and 2003.

We now turn to the specifications that control for owner and firm characteristics including creditworthiness. We sequentially had different types of variables to provide evidence on the sensitivity of the results to the inclusion of different types of characteristics and creditworthiness. The final and complete specification borrows from the variables included in previous studies of lending discrimination (Blanchflower, Levine and Zimmerman 2003, Cavalluzzo, Cavalluzzo and Wolken, and the Caltrans Report 2007). Specification 2 includes standard controls for owner, business and geographic characteristics, which are listed at the bottom of the table. Each of the minority group coefficients remains large, positive and statistically significant. Although slightly smaller, they imply that minority firms are more likely to be denied credit even after controlling for several characteristics of the owner and firm, including education, age, experience, number of employees, and industry as well as other characteristics. Furthermore, the addition of these controls does not change the conclusion regarding the Pacific region. There is no statistical difference between the likelihood of experiencing a loan rejection for minorities in the Pacific region relative to whites than in the rest of the country.

The results for female firms are different, however. There is no evidence indicating that female firms have higher loan denial rates than male firms in the United States. Another interesting finding is that female firms in the Pacific relative to male firms actually have lower denial rates when compared to the rest of the country. We do not have an explanation for this finding.

Specification 3 also includes measures of business performance in addition to the previous controls. We find similar results. In Specification 4 we add many additional controls for the creditworthiness of the owner and firm. We include information on the owner's personal financial history, the business' financial history, and the use of financial services. These include very detailed creditworthiness information such as past bankruptcies, past delinquencies, and credit scores. The minority coefficients become smaller, but remain large and statistically significant. Also the minority in the Pacific coefficient remains small and insignificant. The final specification reported in Table 46 includes additional controls for the type of loan application such as amount of loan application, length of relationship with institution, and dummies for year of loan application. The inclusion of these controls matter very little for the coefficient estimates.

The results from these regressions show very clearly that black, Hispanics, Asian and other minority firms are more likely to be denied loans than are non-minority firms. The results also do not provide any evidence suggesting that minority firms fare any better relative to non-minority firms in the Pacific region. Finally, we do not find evidence that female firms experience higher loan denial rates than male firms.

We also estimate probit regressions for the probability of not applying for needed credit because of a fear of denial. These results reported in Table 45 provide some evidence on whether minority firms are dissuaded from applying for credit and might have even higher denial rates than suggested above. We estimate a similar set of specifications as in

Table 46. The numerous controls that we include for owner, business and geographic characteristics, business performance, personal financial history, business financial history and use of financial services reduce the minority and female coefficients, but do not eliminate them. Black firms are 13.6 percentage points less likely to apply for credit because of a fear of denial than non-minority firms, and Hispanic firms are 3.4 percentage points less likely to apply for credit. Asian, other minority and female firms have essentially similar likelihoods of experiencing a fear of rejection at the national level. The Pacific interactions do not provide evidence that minority firms or female firms are less likely to be dissuaded from applying for credit in the Pacific region than other parts of the country.

In Table 47, we also estimate linear regressions for interest rates. Focusing on the last specification, we find that black and Hispanic firms pay higher interest rates on loans. There is no evidence that minority firms pay lower interest rates in the Pacific region relative to non-minority firms. Note that these results even control for characteristics of the loan for which the firm applied. These loan application characteristics include the amount of the loan application, length of relationship with the institution, and year of the loan application. The differences are also large and imply higher long-term costs of loans. In all specifications, black firms pay more than 2 percentage point higher interest rates and Hispanic firms pay more than 1 percentage point higher interest rates than non-minority firms.

Table 47: Linear Regressions for Interest Rate Survey of Small Business Finances (1998, 2003)

	Specification				
	(1)	(2)	(3)	(4)	(5)
African American	2.7834	2.3177	2.2613	2.2244	2.2810
	(0.3906)	(0.3851)	(0.3825)	(0.3828)	(0.3791)
Hispanic	1.4644	1.3417	1.3193	1.2654	1.1745
	(0.2922)	(0.2880)	(0.2867)	(0.2879)	(0.2847)
Asian	0.1361	0.2007	0.2457	0.0275	0.2057
	(0.3171)	(0.3157)	(0.3151)	(0.3221)	(0.3178)
Other	0.1044	-0.1274	-0.0827	-0.2018	-0.1472
	(0.8060)	(0.7863)	(0.7822)	(0.7783)	(0.7667)
Female	-0.0783	-0.2553	-0.3508	-0.3520	-0.3447
	(0.1365)	(0.1382)	(0.1381)	(0.1391)	(0.1370)
Minority in Pacific	0.1948	-0.0179	-0.0366	0.0092	-0.2588
	(0.4556)	(0.4460)	(0.4435)	(0.4446)	(0.4391)
Female in Pacific	0.5193	0.4465	0.4665	0.6069	0.5777
	(0.3474)	(0.3410)	(0.3391)	(0.3408)	(0.3367)
Owner characteristics	No	Yes	Yes	Yes	Yes
Business characteristics	No	Yes	Yes	Yes	Yes
Geographic characteristics	No	Yes	Yes	Yes	Yes
Business performance measures	No	No	Yes	Yes	Yes
Personal financial history	No	No	No	Yes	Yes
Business financial history	No	No	No	Yes	Yes
Use of financial services	No	No	No	Yes	Yes
Loan application chars.	No	No	No	No	Yes
Mean of dependent variable	7.4992	7.5048	7.5048	7.5079	7.5079
Sample size	2,557	2,516	2,516	2,511	2,511

Notes:
(1) OLS coefficient estimates and their standard errors (in parentheses) are reported.
(2) Owner characteristics include 4 dummies for level of education, age, and experience.
(3) Business characteristics include number of owners, number of employees, whether an owner manages business, family business, dummies for business was purchased or inherited, business age, 5 dummies for legal form of organization, and 6 dummies for industry.
(4) Geographic characteristics include urban status and 2 dummies for Herfindahl banking market concentration in addition to 8 region dummies which are included in all specifications.
(5) Business performance measures include log sales, log profits, log assets, log equity, multiple sites, and national market.
(6) Personal financial history includes home ownership, log home equity, log non-home wealth, owner declared past bankruptcy, owner delinquent on past obligations, any past judgements rendered against owner, and dummies for credit score.

(7) Business financial history includes business declared past bankruptcy and business delinquent on past obligations.
(8) Use of financial services includes dummies for checking accounts, savings accounts, credit line, trade credit, business mortgages, business vehicle loans, business equipment loans, loans from stockholders, and other loans.

Source:
Survey of Small Business Finances, 1998 and 2003.

Overall, these results provide evidence that minority firms, particularly black and Hispanic firms, are more likely to experience loan denials, not apply for loans because of fear of rejection, and pay higher interest rates on loans. These patterns hold even after

controlling for extremely detailed owner and business characteristics, and the creditworthiness of the firm. The evidence also does not indicate that minority firms in the Pacific region experience different lending outcomes relative to non-minority firms compared to the rest of the country. These results using the new SSBF and focusing on the Pacific region are consistent with minority firms facing lending discrimination and support the findings from previous studies in the literature.

D. Review of Academic Empirical Studies of Discrimination

In an attempt to identify causes of low rates of business ownership among disadvantaged minority groups, previous research has examined work experience, lending, and consumer discrimination against minority business owners. Considerable evidence is provided by the literature that minority businesses face discrimination in several forms. We also present evidence from the broader literature on discrimination. There is an extensive literature providing evidence that minorities face discrimination in the labor market, mortgage lending, and consumer markets. Many of the studies in this literature employ state-of-the-art empirical techniques to identify the presence of discrimination. Given the overwhelming evidence of discrimination against minorities for a wide range of economic outcomes, there is no reason to suspect that minority-owned businesses also do not face discrimination.

1. Work Experience and Consumer Discrimination

Discrimination against minority businesses may occur before these businesses are even created. Previous research indicates that minorities have limited opportunities to penetrate networks, such as those in construction (Bates 1993b, Feagin and Imani 1994, Bates and Howell 1997). If minorities cannot acquire valuable work experience in these industries then it will limit their ability to start and operate successful businesses. Coate and Tennyson (1993) also present a theoretical model positing that more general labor market discrimination can reduce the incentive for minorities to enter self-employment. This happens because lenders provide less favorable terms in the credit market, such as higher interest rates, to the discriminated group because of the difficulty in observing entrepreneurial ability.

Several previous studies have focused on consumer discrimination against minority-owned firms. Minority firms may have difficulty selling certain products and services to non-minority customers limiting the size of their markets and resulting success. Using microdata from the 1980 Census, Borjas and Bronars (1989) explore whether the large variance in self-employment rates across racial groups are partly due to consumer discrimination. They found that African Americans negatively select into self-employment, with the most able African Americans remaining in the wage/salary sector, whereas Whites positively select into self-employment and negatively select into wage/salary work. These findings are consistent with White consumers having distaste for purchasing goods and services from minority businesses. Kawaguchi (2004) found that among African Americans, low earners are the most likely to enter into business ownership, whereas both low and higher earning Whites are the most likely to enter self-

employment. He notes that this finding is consistent with the theoretical predictions of consumer and credit market discrimination against African Americans. However, in contrast to these results, Meyer (1990) does not find evidence supporting the consumer discrimination hypothesis. Using data from the 1987 Characteristics of Business Owners (CBO), he found that African American businesses are relatively more common in industries in which White customers more frequently patronize African American businesses.

In general, African American-owned firms may face limited market access for the goods and services that they produce (Bates 1989, 1997). This may be partly due to consumer discrimination by customers, other firms and/or the government, and redlining. But, it may also be due to the types, scale, and locations of African American firms. Published estimates from the CBO indicate that African American-owned businesses serve smaller geographical areas than White-owned businesses on average (US Census Bureau 1997). African American firms are more likely than White firms to report that their neighborhood is the geographic area that best describes where the business' goods and services are sold. African American owners are less likely to report larger geographical areas as markets for their goods and services. Furthermore, they are much more likely to sell to a minority clientele than are White businesses, which may reflect more limited market access. As expected, market access or penetration is both a cause and consequence of success in business making it difficult to interpret racial differences in these measures. The more successful African American firms are likely to expand to larger market areas.

2. Disparities in Access to Financial Capital

Because of its importance to business formation and success, we discuss the main findings from the literature on racial disparities in access to financial capital. An important limiting factor for business success among African Americans and Hispanics is the lack of access to financial capital. Relatively low levels of wealth among African Americans and Hispanics, and the existence of liquidity constraints in US financial markets may limit the ability of African American and Hispanic entrepreneurs to raise the optimal levels of capital needed to start businesses. As discussed above, there is evidence in the literature that low levels of assets among African Americans and Hispanics are one of the major causes of low rates of business formation. Related to this issue, and exacerbating the problem, is that there is evidence in the literature indicating that minority entrepreneurs face discrimination in the lending market, which also limits their ability to invest in their businesses.

Some suggestive evidence on racial differences in access to financial capital is provided by published estimates from the CBO (US Census Bureau 1997). The CBO questionnaire asks owners with unsuccessful businesses from 1992 to 1996 why their businesses were unsuccessful. African American business owners are twice as likely as all business owners to report "lack of access to business loans/credit" as a reason for closure (16.2% compared with 8.3%). They are also nearly three times more likely than all business owners to report "lack of access to personal loans/credit" as a reason for closure (8.8%

compared with 3.3%). Capital constraints appear to be more relevant for African American entrepreneurs than for White entrepreneurs.

On the other hand, the median net worth of Whites is nearly 11 times higher than the median net worth of African Americans. The median level of net worth, defined as the current value of all assets minus all liabilities on those assets, for African American households is only slightly more than $6,000. Remarkably, that estimate implies that if you add home equity, the value of all savings, retirement, and mutual fund accounts, and other assets, 50% of all African American households in the US have less than $6,166 in net worth. The median level of net worth among White households is $67,000. Large racial differences in net worth are also found using other datasets and within age groups, education levels, and marital status (see Blau and Graham 1990, Oliver and Shapiro 1995, Scholz and Levine 2004, Altonji and Doraszelski 2005 for some examples).

The single largest asset held by most households is their home. Estimates of home ownership from the US Census Bureau indicate that only 46.8% of all African American households own their own homes. For Whites, 73% own their own home. Among homeowners, African Americans have much less equity in their homes than Whites. The median home equity among African American homeowners is $35,000, whereas the median home equity among White homeowners is $64,200. African Americans are clearly less likely to own their own homes and among those who own a home have less equity in their homes. This is due to a combination of lower home values and having lower equity/debt ratios in their homes.

The consequences of racial wealth inequality are severe. Low asset levels affect the ability of African American families to smooth their consumption over fluctuations in income due to job loss and other negative labor market outcomes. Wealth inequality also translates into political, social, residential and educational inequality. Current asset levels, and not only current and future income, are important for home purchases and financing education. Through inheritances and intergenerational transfers, Black/White wealth inequality is also transmitted to future generations.

Racial inequality in wealth is also likely to have negative consequences for business formation and success through its effects on access to financial capital. Clearly, lower levels of wealth among African Americans are likely to translate into less access to startup capital. Business creation is often funded by the owner's equity and investors frequently require a substantial level of the owner's investment of his/her own capital as an incentive and as collateral. Racial differences in home equity may be especially important in providing access to startup capital. Homes provide collateral for business loans and home equity loans can provide relatively low-cost financing. Thus, lower levels of wealth can lead to inadequate access to financial capital, which in turn can both limit business creation and result in undercapitalized businesses.

Lower levels of parental wealth may also limit access to financial capital for African American entrepreneurs. Clearly, African American families have less to pass on to their children through inheritances. This in turn will result in lower wealth holdings and access

to startup capital among the current generation of African Americans. The lower likelihood of receiving inheritances and the smaller amount of inheritances that are received may also have a direct effect on business success for African Americans. The receipt of inheritances among business owners is associated with higher survival rates and higher sales among surviving businesses (Holtz-Eakin, Joulfaian and Rosen 1994).

An additional factor that might explain differing rates of startup capital by race is lending discrimination. Much of the recent research on the issue of discrimination in business lending uses data from the Survey of Small Business Finances (SSBF).[45] The main findings from this literature are that minority-owned businesses experience higher loan denial probabilities and pay higher interest rates than White-owned businesses even after controlling for differences in credit-worthiness and other factors (Cavalluzzo, Cavalluzzo, and Wolken 2002, Blanchflower, Levine and Zimmerman 2003, Coleman 2002, 2003, Blanchard, Yinger and Zhao 2004, Cavalluzzo, and Wolken 2005, Robb and Fairlie 2006).

Using the 1993 National Survey of Small Business Finances (NSSBF), Cavalluzzo, Cavalluzzo, and Wolken (2002) found that African American business owners are more likely than Whites to have unmet credit needs and more likely to have been denied credit, even after controlling for many factors related to creditworthiness. Blanchflower, Levine, and Zimmerman (2003) found similar results for loan approvals and also found that African Americans pay a higher interest rate on loans obtained. They also found that concerns over whether a loan application would be denied prevented some prospective borrowers from applying for a loan in the first place. The disparities between the denial rates between Whites and African Americans are greater when including these individuals with those that actually applied for a loan. Bostic and Lampani (1999) include additional geographic controls, but also found a statistically significant difference in approval rates between African Americans and Whites.

Using the 1998 SSBF, Cavalluzzo and Wolken (2005) found substantial unexplained differences in loan denial rates between African American- and White-owned firms. They also found that while greater personal wealth is associated with a lower probability of denial, even after controlling for personal wealth, a large difference in denial rates between Blacks and Whites remains. Finally, they found that denial rates for African Americans increase with lender market concentration, which is consistent with Becker's (1957) classic theories of discrimination. Cavalluzzo and Wolken (2005) estimate the magnitude of contributions from group differences in characteristics to racial gaps in loan denial rates and found that group differences in credit history differences explain most of the difference in denial rates. When examining specific loan types, Mitchell and Pearce (2004) found that African American firms faced significantly greater loan denial probabilities than White-male-owned firms on both relationship bank loans and transaction bank loans.

[45] Earlier empirical research using the SBA funded survey, Access to Capital by Subcategories of Firms, also found evidence consistent with lending discrimination. Ando (1988) finds that Blacks were much more likely to have their loan application denied than Whites, even after controlling for a variety of creditworthiness factors.

Using the 1998 SSBF, Robb and Fairlie (2006) focus on more established businesses—those five years and older. They found that established African American-owned business are still significantly less likely than White-owned businesses to be approved for loans, to pay a higher rate of interest on approved loans, and to not apply for credit when needed because of fear that the loan application would be denied. They also found that African Americans are more likely than Whites to be denied trade credit and to rely on credit cards for borrowing purposes. Older, more-established African American-owned businesses appear to also face significant barriers in accessing financial capital.

The evidence from the literature is consistent with the existence of continuing lending discrimination against African American-owned firms. African American firms are more likely to be denied loans, pay higher interest rates and are less likely to borrow from banks for startup or continuing capital. Lending discrimination may have a direct effect on business outcomes because it limits access to loans that can help business "weather a storm" or diversify into new products or markets. Although most of the evidence from this literature focuses on existing African American businesses, lending discrimination may also severely limit access to startup capital, discouraging would-be minority entrepreneurs and jeopardizing the scale and longevity of their businesses.

There is also evidence in the literature that African American-owned firms have very low levels of startup capital relative to White-owned businesses (Fairlie and Robb 2006). Less than 2% of African American firms start with $100,000 or more of capital and 6.5% have between $25,000 and $100,000 in startup capital. Nearly two-thirds of African American businesses have less than $5,000 in startup capital. Although a large percentage of White firms also start with little capital, a higher percentage of White firms start with large amounts of capital than African American firms. The leading explanation for these racial disparities in startup capital is that African American entrepreneurs have less access to capital, which appears to be due to lower levels of personal and family wealth to borrow against or use as equity financing and lending discrimination.

Overall, consumer and lending discrimination are likely to discourage would-be minority entrepreneurs and reduce the longevity of minority-owned businesses. These patterns are consistent with relatively low rates of business ownership among discriminated against groups. The theoretical predictions and empirical evidence on the effects of labor market discrimination on minority business ownership are less clear, but there is the possibility that this type of discrimination also hurts minority business formation.

3. Discrimination in the Labor Market and Other Areas

An extensive body of literature documents discrimination against minorities in labor, credit, and consumer markets. Minorities are found to have had less employment opportunities, paid lower wages, been discouraged from buying or renting certain properties, paid higher prices for automobiles, and are more likely to be denied mortgages than Whites. The previous research in this area either controls for racial differences in demographic characteristics, such as age, education, and income, or uses audit-pair analyses in which the outcomes of similarly credentialed minorities and Whites are compared.

In perhaps the most well-known review of the literature on race and the labor market, Altonji and Blank (1999) conclude that, "we believe that the evidence suggests there is ongoing discrimination in the labor market, both against Blacks as well as women" (p. 3191). They report estimates from numerous studies providing evidence on discrimination against minorities in the labor market. They also focus on three recent studies involving audit pairs that indicate large levels of discrimination against Blacks and Hispanics in hiring decisions (Turner et al. 1991, Cross et al. 1990, and James and DelCastillo 1991). Audit pair studies use data generated from sending out identical resumes that differ only by race or gender or actual people that are as similar as possible except for race and gender. The goal is to compare job offer rates between similar candidates who only differ by race or gender. The studies consistently show that minorities are substantially less likely to be offered jobs even though they look nearly identical to White job candidates.

In another well-known review of the literature on employment discrimination, Darity and Mason (1998) reach a similar conclusion. In summarizing the evidence supporting discrimination, they note that the "evidence is ubiquitous: careful research studies which estimate wage and employment regressions, help-wanted advertisements, audit and correspondence studies, and discrimination suits which are often reported by the news media." In one audit-pair study that they cite by Bendick, Jackson and Reinoso (1994), White testers were roughly 10% more likely to receive interviews, were four times as likely to receive job offers if interviewed, and were paid 15 cents per hour more if offered the job than Black testers. Darity and Mason show that the evidence is consistent across many different methodologies used in the literature.

A new study using a slightly different approach than the audit-pair studies also provides evidence of discrimination against Blacks. In this study, Bertrand and Mullainathan (2004) sent fictitious resumes to help-wanted ads in Boston and Chicago. They randomly assigned White and Black sounding names to the resumes. They found that resumes with White-sounding names received 50% more callbacks for interviews than resumes with Black-sounding names. Similar evidence of discrimination was found across occupations, industries, and employer sizes.

The literature also provides evidence of customer discrimination against minority workers. Holzer and Ihlanfeldt (1998) provide evidence of customer discrimination from a large survey of employers in four US metropolitan areas. They found that the racial composition of customers has a sizeable effect on the racial composition of employees. The effects are largest for jobs in which employees frequently come in contact with customers.

Minorities also face discrimination in making purchases such as houses and cars. Discrimination in housing markets otherwise known as "redlining" can be especially detrimental because of its effects on wealth accumulation. This in turn can have a negative effect on business creation and expansion among minorities.

Older and more extensive literature documents the discrimination against Black and Hispanics in housing markets and is reviewed by Yinger (1998). Much of the literature relies on the findings from audit studies in which similarly qualified minorities and Whites are sent to look at houses or rental properties. The US Department of Housing and Urban Development conducted one of the first studies in 1977 and additional studies in 1989 and 2000 (Wienk et al. 1979; Turner, Struyk, and Yinger 1991; Turner and Mickelsons 1992; and Yinger 1993, 1995, 2006). In addition to these national studies, many smaller studies have been conducted. In the national study, undertaken by HUD, they found that minorities were told about fewer available units for sale or rent, and have to make more of an effort to obtain information or to purchase or rent a property. The smaller, more regionally focused studies also found consistent evidence of discrimination against minorities in housing markets. A smaller literature, using audit studies, also found discrimination against minorities in automobile purchases, which typically represent the second largest purchase by consumers (Yinger 1998).

There is also evidence that minorities face discrimination in mortgage lending. The most well-known study conducted on this topic was by the Federal Reserve Bank of Boston (Munnell et al. 1996). The Fed study examined all of the loan applications by minorities in the Boston metropolitan area and a random sample of applications by Whites. They requested information on everything that a lender sees on the application for a loan. Controlling for all of these characteristics, which included, for example, income, net wealth, and credit history, they found that Black applicants were 8 percentage points more likely to be denied a loan than White applicants. This finding is consistent with minorities facing lending discrimination.

Overall, there is an extensive literature documenting discrimination against minorities in labor, consumer, and lending markets. Discrimination in these markets is troubling for minority business development because it affects wealth accumulation among potential entrepreneurs. Also, the consistent evidence of discrimination against minorities in several different economic markets suggests that discrimination might permeate through the economy.

VII. Private Sector Utilization Measures and Disparity Analysis

The presence of race and gender conscious contracting policies at VTA during the period studied here (2002-2006) limits conclusions that may be drawn regarding whether race and gender disparities in contracting might exist absent such corrective measures. Useful analysis aimed at answering this question must rely on a control group, i.e. a segment of the same geographic and product market that is not substantively affected by race-conscious programs or requirements during the same period. Unaffected by corrective contracting measures, the experiences of this control group are more likely to reflect the market conditions faced absent policy intervention.

To this end, we turn the focus of our analysis to the private sector of the market. Analysis of utilization in VTA contracting alone neglects the significant portion of the market accounted for by private sector customers. VTA stands as one participant in markets for construction and professional services that include other public and private entities. According to results from the survey conducted in conjunction with this study, businesses that bid or perform on contracts with VTA also typically provide similar goods and services to private sector clients. Since very few private sector firms have implemented race conscious corrective measures regarding contracting, we turn to an analysis of private sector contracting as a control group in order to evaluate the treatment of minority- and woman-owned firms in the absence of corrective measures.

A. Approach

As with disparity analysis using overall market data, private sector analysis relies on calculating utilization and availability of firms in each DBE group. The geographic and product market remain defined by boundaries set via VTA contract bid and procurement data. Also, we assume that availability of firms draws from the same population within the defined market.

The approach to private sector utilization rates is best understood by considering the elements factoring into calculation of the numerator and denominator in:

DBE Private Sector Utilization *= DBE Private Revenue/All Firm Private Revenue*

Both elements rely on a combination of data from the SBO and data collected via survey of firms in the relevant market conducted specifically for this study. First, the denominator of the utilization ratio in each product market represents total revenue generated by private sector transactions. We arrive at this measure by multiplying total revenue for the market (defined by geography and industry as above) from the 2002 SBO by the share of revenue to firms from private sources. The latter component is estimated using survey data collected from firms in the market. Randomly selected firms meeting the market definition criteria reported the share of revenue from private versus public sources over the last five years. Second, the numerator of the utilization ratio (i.e. private sector revenue for the DBE group in question) also relies on the SBO and survey data collected from firms operating in the relevant market. CRA obtained special tabulations of SBO data focused on the local geographic market defined above (referred to as "SJ CSA and surrounding areas") that detail industry-specific revenues for each DBE category. Group-specific market revenue is multiplied by the estimated proportion of revenue arising from private sources for the DBE group.

In the case of the survey undertaken to collect private share data, we are able to identify private revenue shares for three groups: minority-owned, woman-owned, and non-minority/non-woman-owned firms. Together with availability figures from special local market-focused tabulations of SBO data, we are then able to calculate private-sector-specific disparity ratios. Disparity analyses by refined race and ethnic groups beyond the minority classification are not attempted here given the limited sample size of the survey. The limited sample size precludes a precise determination of private sector utilization by more specific minority groupings.

Table 48: Estimated Share of Revenue from Private Sector Projects for Firms in the SJ CSA and Surrounding Areas

	Past Fiscal Year	Past Five Years
Construction		
All Firms	56.8%	58.6%
Minority-Owned Firms	72.3%	70.4%
Woman-Owned Firms	47.5%	48.4%
Professional Services		
All Firms	80.0%	82.3%
Minority-Owned Firms	83.4%	81.1%
Woman-Owned Firms	89.7%	88.4%

Notes:

1) Percentages reported are revenue- and geography-weighted averages of firm responses using weights from (a) the revenue of individual firms surveyed, (b) aggregate group revenue from the 2002 SBO, and (c) location of the firm within the defined geographic area. Where shares reflect groups defined by both gender and minority status, weights are simply the reported firm revenues. Where groups span minority classification or gender, weighted averages are calculated by further weighing individual group estimates by their share of total revenue based on the 2002 SBO. This second weighting accounts for oversampling of minority- and woman-owned firms surveyed. Finally, the geopgraphy weight accounts for the difference in probabilities of firms being chosen from the San Jose-Oakland-San Francisco CSA and Sacramento/San Joaquin County.

2) Only respondents from the stratified survey sample arising from Dun & Bradstreet contact data are included.

3) The survey asked the respondents to report the share of their revenue that comes from public sector work. Private sector share was calculated as follows: *private sector share = 1 - public sector share* .

Sources:

1) Surveys conducted by QSA Research & Strategy September through October 2006 and July through August 2007.
2) Survey of Business Owners (2002)

B. Disparity Testing—Private Sector

We compared the utilization of minority- and woman-owned construction and professional firms to their availability using the following disparity ratio:

$$\frac{\text{Private Sector Utilization}_{ij}}{\text{Availability}_{ij}} \times 100$$

where *i* represents a particular race or gender group and *j* represents a particular industry. A disparity ratio below 100 indicates that private sector utilization was lower than availability for the particular group in the particular industry. Generally, a value of 80 or less indicates a substantive and statistically significant difference in rates that indicates discrimination rather than chance.

Table 48 reports the share of revenue from private sector projects overall in each industry (used to arrive at the private sector utilization denominator) and for three survey strata groups (used to arrive at the private sector utilization numerator). We use randomly selected D&B survey respondent data only to arrive at population estimates for the groups considered. Bidder survey respondent data is not included given its bias toward non-zero public sector shares. Responses are weighted by reported firm revenue in arriving at group averages. Average share over all firms are arrived at by further weighting the group sample averages by 2002 SBO revenue estimates and adjusting by selection probabilities. As explained above, these private sector revenue shares are applied to DBE group and overall industry revenue totals in order to arrive at the private sector utilization estimates reported in Table 49.

Table 49: Private Sector Dollar Utilization and Disparity Ratios, SJ CSA and Surrounding Areas

	Utilization [1]	Availability [2]	Disparity Ratio [3]=[1]/[2]*100
All Firms			
Construction			
Minority-Owned Firms	6.9%	20.7%	33.6
Woman-Owned Firms	2.6%	5.6%	46.3 *
Professional Services			
Minority-Owned Firms	6.4%	21.1%	30.1 *
Woman-Owned Firms	7.9%	31.2%	25.3 *
All Firms with Revenue >$50K			
Construction			
Minority-Owned Firms	5.5%	17.1%	32.1 *
Woman-Owned Firms	2.4%	4.3%	56.0 *
Professional Services			
Minority-Owned Firms	5.7%	15.9%	36.2 *
Woman-Owned Firms	6.4%	22.0%	29.3 *

Note:
1) Private sector utilization was estimated by taking the ratio of MBE or WBE private sector revenue over total private sector revenue. MBE, WBE, and total private sector revenue was estimated using the private sector shares over the last five years reported in Table 40 and revenue information from the Survey of Business Owners (SBO).
2) The disparity ratio was estimated by taking the ratio of utilization and availability and mulitplying by 100 (*disparity ratio = (utilization/availability)*100*).
3) * denotes significance at the 5% level.

Sources:
1) Surveys conducted by QSA Research & Strategy September through October 2006 and July through August 2007.
2) Survey of Business Owners (2002)

Table 49 reports private sector utilization rates, SBO-based availability rates (based on employer and non-employer firms) and corresponding disparity ratios for minority- and woman-owned firms for each industry.

In all but one case, DBE firms were found to be underutilized at a level statistically significant from their availability. Underutilization of practical significance is true in all cases. All ratios are well under 80%. Focusing on comparisons based on private sector income shares over the last five years, we found minority-owned construction firm utilization to be at 33.6% of that expected based on the frequency of minority firms among all firms in the industry. Likewise, woman-owned firm utilization stands at just 46.3% relative to availability. Similar results were found for professional service minority- and woman-owned firms with disparity ratios of 30.1% and 25.3% respectively. These results are driven by the low shares of DBE firm revenues arising from private sources as well as lower average revenues to DBE firms overall. For the most part, these disparity measures are lower than those based on federal contract utilization at VTA (see Section VIII). This indicates not only that disparities between utilization and availability of DBE firms are likely to exist in the private sector, but also that the gap between the two in private contracting likely exceeds the difference in public contracting. Given the lack of race-conscious corrective measures in the private sector, these results suggest disparities that would be found in government contracting absent the implementation of corrective measures.

We also consider disparity ratios where firms are only considered if they exceed $50,000 in annual revenue. These results presented in Table 49 test the robustness of our findings, discussed above, to an alternate proxy for firm capabilities. To be included, firms in each group must meet this minimum threshold, so that it acts to dampen any systematic differences in firm capabilities across groups. This analysis is made possible by special data production from the Census with revenue filters not previously publicly available from the underlying 2002 SBO micro-data. This acts to lower both estimated utilization and availability of minority- and woman-owned firms. Nevertheless, disparity ratios remain quite low, with the highest among the four groups at only 56%.

VIII. Statistical Evidence Based on VTA Contracting

The disparity analyses based on the general population of construction and professional service firms enabled us to identify and evaluate differences in firm formation and earnings by minority and gender status. The analyses focused on the local geographic market where VTA participates as a federally-supported contractor. These overall market-based approaches yield clear evidence of disparities by gender and race, even after controlling for other observable characteristics that could influence group differences. The private sector analyses evaluated the difference between the availability and utilization of firms in this market absent race conscious corrective measures, but did not provide information by minority group. In this section, we evaluate the relationship between the utilization of specific minority group-owned firms and woman-owned firms on VTA contracts and the availability of minority- and woman-owned firms within the relevant market. We rely on several measures of availability. Disparities that occur despite the implementation of race and gender conscious corrective measures provide further evidence regarding the presence of discrimination.

A. Utilization Analysis

Minority- and Woman-Owned Firm Utilization Analysis

To determine the share of contract dollars awarded to minority- or woman-owned firms by VTA, we rely on contract monitoring records compiled by VTA in the normal course of business. These data are maintained by VTA's Office of Small and Disadvantaged Businesses (OSDB), which monitors contracts for internal and federal reporting. Where industry and firm ownership status are not available in VTA contract monitoring databases, CRA has relied on VTA OSDB staff to identify industry and ownership status via review of original VTA contracting documents and certification records. Utilization based on contract dollars is calculated for several ownership groups by funding source of the contract, DBE requirement status, and industry.

To determine whether there is evidence of discrimination of minority- and woman-owned businesses in public contracting we should ideally examine payments that were not subject to race and gender conscious requirements or influenced by past requirements. However, nearly all of the federally funded projects involving payments by VTA in the 2001–2006 period were subject to affirmative action programs at the time of award. Further, utilization data for contracts with small business enterprise (SBE) requirements are prone to contamination arising from conversion from DBE to SBE requirements in the year 2000. As a result, data for VTA contracts may not show evidence of under-utilization even if it exists in the private sector section of the same market. Therefore, utilization data presented here is more likely to establish whether VTA and the federal government have been successful in meeting the goals of their MBE and WBE policies rather than provide direct evidence of utilization absent intervention.

B. Utilization Data Sources

We rely on records maintained by VTA OSDB as the primary source of information on awards and payments for VTA contracts. In the normal course of business, VTA OSDB maintains detailed records on all federally-funded contracts, including the extent of certified DBE and SBE participation. This data also includes tracking of several, though not all, non-federally funded contracts and contract task order payments. The contract monitoring datasets are regularly updated by VTA OSDB staff drawing on payment and award information and self-reporting by prime contractors. In order to arrive at a more complete picture of contracting at VTA, we supplemented the main annual VTA contract monitoring datasets with further identification of the minority and gender status of contracting firms' ownership, industry classifications, and payment history. This additional financial and industry information has been provided to CRA by VTA OSDB staff, based on their review of VTA contract records. Identification of minority and female-owned firms draws on VTA contract records, as well as VTA and UCP certification databases.

The resulting VTA contract payment dataset provides detailed information for all monitored contracts (including all federally supported contracts and a large sample of non-federally supported contracts), prime contractors, and DBE or SBE certified subcontractors. This information includes race of owner, gender of owner and industry designations for prime contractors and certified DBE and SBE subcontractors. It also includes information on the source of contract funding, indicators of DBE contract requirements, total payments made on the contract and payments made to certified DBE or SBE subs. The contracting data does not track or identify subcontractors that are not certified as a DBE or SBE. Therefore, subcontract payments that are not identified as going to a certified DBE or SBE subcontractor are generally counted as payments to either the prime contractor or a firm with the same ownership and industry characteristics as the prime contractor.

C. Limitations to the Analysis

1. Identification of Minority- and Female-Owned Firms

CRA worked closely with VTA OSDB staff to ensure an accurate and comprehensive attribution of payments to firms identified by ownership and industry status. However, data available from VTA contract records does not allow for a precise accounting of payments to all subcontracting firms on all monitored contracts. Contract monitoring at VTA involves tracking payment information to prime contractors and subcontractors that are certified as a DBE or SBE. For all of these identified firms (both prime and sub), we are able to associate an industry and race and gender of majority ownership. Given that prime contractors are not required to report specific payments to non-DBE and non-SBE subcontractors, we are unable to separately track other subcontracting payments by race and gender of ownership. Since the available data does not allow us to separate the amounts retained by primes with payments primes may have made to uncertified subcontractors, we allocate these payments entirely to the prime contractor. In such cases, payments are attributed to the ownership group (by race and gender) of the prime contractor. This has an ambiguous affect on measurement of utilization of minority- and female-owned firms. For example, where the prime contractor is minority and an unidentified subcontractor is non-minority, minority utilization will be overstated. On the other hand, where a prime contractor is non-minority and a minority contractor is not certified as an SBE or DBE, minority utilization will be understated. One exception to this method is the instance of the prime contractor being a certified minority and/or female owned firm. Because the firm is a certified DBE or SBE, VTA has a record of the exact amount the prime ultimately retained. Using this, we can identify the precise amount paid to uncertified subcontractors. In these circumstances, it is assumed that these uncertified subcontractors are non-minority, non-female owned firms.

The degree of inaccuracy is tied in large part to the extent to which minority- and female-owned firms that are not certified as such participate as subcontractors at VTA. In most cases, firms that are truly minority- or female-owned but not certified have not been certified because they exceed ceilings in size or net worth. However, these larger firms are more likely to contract with VTA as prime contractors, and hence are correctly

identified in the payments database. This mitigates the potential for bias in the utilization measurements.

2. Accounting for Outliers

We examined the utilization data from VTA for contracts that should be considered statistical outliers. Outliers are observations that are very different from most of the data, and they may bias statistical measures. We found that one construction firm, listed as a Hispanic firm, had obtained a single contract as a joint venture in excess of $45 million. This single payment far exceeds the typical award given to Hispanic-owned firms contracting with VTA, and in fact stands as an outlier when firms of all ownership categories are considered. The concern here is that analysis including this single payment obfuscates from view the experience of the typical Hispanic-owned construction firm seeking public contracts. We therefore present utilization and disparity analysis both including and excluding this single award.

D. Utilization Measures

Relying on VTA contract payment monitoring data, supplemented with additional research by VTA staff, we calculate the proportion of contract dollars received by five business types defined by the gender, race and ethnicity of ownership. These utilization measures are reported separately for construction firms, professional services firms, and all contractors combined. Measures are further broken down by source of funding (federal and non-federal) and according to whether contracts require DBE participation. The results are presented in Table 50 through 52.

Table 50 presents utilization rates based on all tracked contract dollars as well as separate figures for federally funded and non-federally funded contracts. Contract dollars tracked are relatively evenly split between federally funded and non-federally funded contracts ($567 million vs. $732 million). Utilization rate profiles differ by industry, with Hispanic-owned firms exhibiting the highest rates among minority- and female-owned firms in construction (14.0% overall and 20.5% on federal contracts), and Asian-owned firms exhibiting the highest rates in professional services (16.0% overall and 17.4% on federal contracts). Hispanic-owned utilization on federal contracts is almost three times the rate for Hispanic-owned utilization on non-federal contracts (20.5% vs. 7.2%). The high federal contract rate reflects the influence of a single contract award. When this award is excluded from the analysis, the difference between the two figures shrinks markedly (to 8.8% vs. 7.2% - See Table 52). Next, aside from Hispanic-owned construction firms and Asian-owned professional service firms, no group achieves a rate higher than 6% in either industry category. Female-owned firms are more highly represented in professional services than construction; and African American-owned firms are more highly utilized in professional services as well (albeit at or below 3.3% in all categories presented in Table 50). Not surprisingly, utilization is almost always higher on federally funded contracts than non-federally funded contracts, given that most federal contracts under consideration involve race and gender conscious corrective measures. Among all measures for construction and professional services, only female-owned firms in construction exhibit higher utilization on non-federal contracts. The remaining nine

categories all exhibit federal contract utilization rates at or above those for non-federal contracts.

Table 51 presents utilization rates calculated separately for contracts awarded with and without DBE requirements. In this case, all tracked contracts awarded without DBE participation requirements followed SBE requirement guidelines.[46] Given that most DBE contracts making payments over the period studied where federally-funded, the results track closely with the federal/non-federal breakdown presented in Table 50. Again, across the DBE/non-DBE split, Hispanic-owned construction firms and Asian-owned professional service firms exhibit the highest rates of utilization. Also, Hispanic-owned firms exhibit significantly higher utilization on contracts with DBE requirements due to a single large contract award. Comparing construction utilization rates, three out of the four groups are have higher utilization rates on contracts which require DBE participation. Making the same comparison for professional services, the general direction of differences is less clear with two of four groups exhibiting higher rates when DBE requirements are in place.

[46] A handful of contracts were counted as DBE and SBE (but not double-counted). For example, if there was a $1 million contract, and $600,000 was paid out when the contract had DBE goals and then the contract changed to an SBE contract - the $600K was counted as DBE dollars and $400K was counted as SBE dollars. An example is the Silicon Valley Rapid Transit (SVRT) engineering project, which was originally race conscious given anticipation of federal funding. A portion of the SVRT contract payments are tracked as "DBE contract" dollars and a portion of payments are tracked as "SBE contract" dollars.

Table 50: Utilization of Minority- and Woman-owned Business Enterprises, by Contract Dollars and Federal Funding Status

	Construction Firms	Professional Services	All Firms
ALL CONTRACTS			
Women	2.1%	5.0%	4.0%
African American	0.5%	1.9%	1.0%
Asian/Pacific Islander	0.5%	16.1%	5.7%
Hispanic	14.0%	3.4%	10.0%
Total Contract Dollars	***$693,366,848***	***$395,963,114***	***$1,298,716,001***
FEDERALLY FUNDED CONTRACTS			
Women	1.9%	5.7%	2.6%
African American	1.0%	3.3%	1.4%
Asian/Pacific Islander	0.7%	17.4%	4.2%
Hispanic	20.5%	4.4%	14.9%
Total Contract Dollars	***$356,425,994***	***$119,221,160***	***$567,179,829***
NON-FEDERALLY FUNDED CONTRACTS			
Women	2.3%	4.7%	5.0%
African American	0.0%	1.3%	0.7%
Asian/Pacific Islander	0.3%	15.5%	7.0%
Hispanic	7.1%	3.0%	6.2%
Total Contract Dollars	***$336,940,854***	***$276,741,954***	***$731,536,172***

Notes:

1) Firms are classified by on their NAICS code. Firms with NAICS 23 are classified as construction firms and firms with NAICS 54 are classified as Professional Services firms.
2) Utilization is reported separately by gender and by minority status. As a result, minority women are counted twice - once in the gender analysis and once in the minority status analysis.

Source:

Valley Transit Authority Office of Small and Disadvantaged Businesses, 2001-2006.

Table 51: Utilization of Minority- and Woman-Owned Business Enterprises, by Contract Dollars and Contract Requirements

	Construction	Professional Services	All Industries
ALL CONTRACTS			
Women	2.1%	5.0%	4.0%
African American	0.5%	1.9%	1.0%
Asian/Pacific Islander	0.5%	16.1%	5.7%
Hispanic	14.0%	3.4%	10.0%
Total Contract Dollars	***$693,366,848***	***$395,963,114***	***$1,298,716,001***
CONTRACTS WITH DBE REQUIREMENTS			
Women	1.8%	5.6%	3.3%
African American	0.9%	1.7%	1.1%
Asian/Pacific Islander	0.6%	14.2%	5.6%
Hispanic	19.0%	3.7%	12.2%
Total Contract Dollars	***$402,612,867***	***$233,201,302***	***$749,244,094***
CONTRACTS WITH SBE REQUIREMENTS			
Women	2.6%	4.3%	4.9%
African American	0.0%	2.1%	0.9%
Asian/Pacific Islander	0.3%	18.7%	5.9%
Hispanic	7.0%	3.1%	6.9%
Total Contract Dollars	***$290,753,981***	***$162,761,812***	***$549,471,907***

Notes:

1) Firms are classified by on their NAICS code. Firms with NAICS 23 are classified as construction firms and firms with NAICS 54 are classified as Professional Services firms.

2) Primes who bid on contracts with DBE requirements are required to hire a certain portion of DBE, MBE, and WBE subcontractors to fulfill contract obligations. Primes who bid on contracts with SBE requirements are required to hire a certain portion of SBE subcontractors to fulfill contract obligations.

3) Utilization is reported separately by gender and by minority status. As a result, minority women are counted twice - once in the gender analysis and once in the minority status analysis.

Source:

Valley Transit Authority Office of Small and Disadvantaged Businesses, 2001-2006.

Finally, Table 52 takes a closer look at the issue of a single outlying award's sizable impact on Hispanic-owned construction firm utilization measures. In this case, a single contract award of $45.5 million stands as a clear outlier relative to other Hispanic-owned construction firm payments. This single award may obscure from view the experience of the typical Hispanic-owned contractor. If Hispanic-owned contractors are utilized according to their availability, the exclusion of a single award should not dramatically affect measures of their rate of participation. Table 52 compares utilization rates that

include this award with those where it is excluded. Exclusion of this outlier causes utilization on federally-funded contacts to fall from 20.5% to 8.8% and rates on contracts with DBE requirements to fall from 19.0% to 8.7%. When all construction contracts are considered, Hispanic-owned utilization is revised from 14.0% to 8.0% when this single award is not included.

It is clear from the results in Table 52 and from analysis of the contracting data that this award stands as an outlier from the typical experience of Hispanic-owned contractors. The next highest award amount for a Hispanic-owned construction contractor over the period was $12.1 million. Further, at $45.5 million, the outlying award stands at over 15 standard deviations from the average award to Hispanic construction contractors of $0.5 million (note that this average itself is high given inclusion of the single large award). This point is made clearer by comparison of Hispanic-owned construction firm utilization to the next highest utilized group – Asian-owned professional service firms. With overall utilization at nearly 16%, Asian-owned professional service firms exhibit a high rate of utilization similar to Hispanic-owned construction firms. However, analysis of the contracting data reveals that this high rate of utilization for Asian-owned professional service firms is the result of several awards spread across many firms.[47] That is, high utilization in this case results from broad participation by the general population of Asian firms, and does not reflect the success of a single firm. In contrast, the high utilization rate for Hispanic-owned construction firms is clearly driven by a single contract award rather than broad participation by Hispanic-owned firms.

[47] One measure of dispersion of a distribution that illustrates the point made here is the coefficient of variation (CV). This is equal to the ratio of the standard deviation of the sample standard deviation to the sample mean. For Hispanic-owned construction firm awards, the CV is 5.8. For Asian-owned professional service firm awards, the CV is 3.1. At nearly half the CV value, this reflects the fact that payments to Asian-owned professional service firms are distributed much more uniformly across contractors.

Table 52: Sensitivity of Hispanic-owned Utilization to an Outlying Award

	Construction	All Firms
ALL CONTRACTS		
Utilization, All Hispanic Firms	14.0%	10.0%
Utilization, excluding outlying award [(1)]	8.0%	6.7%
FEDERALLY FUNDED CONTRACTS		
Utilization, All Hispanic Firms	20.5%	14.9%
Utilization, excluding outlying award [(1)]	8.8%	7.5%
NON-FEDERALLY FUNDED CONTRACTS		
Utilization, All Hispanic Firms	7.1%	6.2%
Utilization, excluding outlying award [(1)]	7.1%	6.2%
CONTRACTS WITH DBE REQUIREMENTS [(3)]		
Utilization, All Hispanic Firms	19.0%	12.2%
Utilization, excluding outlying award [(1)]	8.7%	6.6%
CONTRACTS WITH SBE REQUIREMENTS [(3)]		
Utilization, All Hispanic Firms	7.0%	6.9%
Utilization, excluding outlying award [(1)]	7.0%	6.9%

Notes:
1) Between 2001 and 2006, the "outlying firm" was awarded $45.5 million dollars on one federally funded contract.
2) Firms are classified by their NAICS code. Firms with NAICS 23 are classified as construction firms and firms with NAICS 54 are classified as Professional Services firms.
3) Primes who bid on contracts with DBE requirements are required to hire a certain portion of DBE, MBE, and WBE subcontractors to fulfill contract obligations. Primes who bid on contracts with SBE requirements are required to hire a certain portion of SBE subcontractors to fulfill contract obligations.

E. Disparity Testing

Although the presence of race-conscious corrective programs affecting utilization prevents us from directly measuring the influence of discrimination on participation in federally-funded contracting, we have calculated disparity ratios for minority- and woman-owned firms. Finding disparities despite the presence of these programs indicates that they have not fully overcome discrimination present in the market. The disparity ratio is calculated using the standard equation:

$$\frac{\text{Utilization}_{ij}}{\text{Availability}_{ijl}} \times 100$$

where *i* represents a particular race or gender group, *j* represents a particular industry, and *l* represents which availability database is employed (SBO, SBO adjusted for potential availability, or SBO restricted to firms with annual revenues greater than a minimum threshold). A disparity ratio below 100 indicates that government-sector utilization was lower than availability for a particular group in a particular industry.

We conduct disparity ratio analysis focusing on three measures of availability for minority- and woman-owned firms. These measures are based on the following sources: (1) all firm SBO data; (2) SBO data restricted to include only firms above a minimum annual revenue threshold of $50,000; and (3) all firm SBO data adjusted via econometric analysis to reflect firm formation in a race- and gender-neutral marketplace.

For each availability measure, disparity ratios are calculated for federally-supported contracts only as well as non-federally supported contracts only. Comparison of the two sets of disparity measures is useful because most, though not all, federal contracts over the period were awarded with race and gender conscious requirements while most of the non federal contracts were not. The presence of a race and gender conscious program guiding federal contract awards over much of the period considered here likely obscures the extent of disparity that may be observed under race and gender neutral contracting policies. Disparities on non-federal contracts serve as a gauge for disparities that may be observed in federal contracting absent DBE requirements. This comparison is tempered to the extent that federal and non-federal contracts are not comparable in the sense that they participate in similar contracting markets using similarly qualified firms. If VTA participates in different markets when contracting for non-federally funded goods and services, disparity ratios may not be perfectly comparable. For instance, firm qualifications and capacity thresholds may differ between the two sets of contracts. However, in our market definition analysis, we investigated concentration of industry and geography on federal and non-federal contracts separately, and found no significant differences. We consider these two sets of contracts comparable based on those findings.

Over the period in question, VTA dropped its race and conscious DBE program replacing it with a race and gender neutral SBE program, thus federal contracting at VTA switched from involving race and gender conscious to race and gender neutral requirements. Therefore, comparison of disparity ratios based on federal contracts with those based on non-federal contracts does not provide an exact comparison between disparities with and without a race and gender conscious program. In order to examine a direct comparison we therefore also turn to a second set of comparisons between SBE and DBE contracts described below.

Disparity ratios are also calculated separately for contracts with DBE participation requirements and for those without. The existence of both contracts awarded with and without race and gender conscious programs allows for a useful natural experiment by

allowing us to observe disparity measures under both scenarios. The comparison of disparity ratios calculated using contracts awarded on a race and gender neutral basis (SBE contracts) with those calculated using contracts awarded with race and gender conscious DBE guidelines gauges the impact of race and gender conscious measures on contracting outcomes. Disparity ratios calculated based on SBE contracting are likely to reflect the level of disparity that would exist in the absence race or gender conscious contracting policies. This comparison is distinct from a comparison of disparity ratios using federally supported and non-federally supported contract dollar utilization measures.[48] However, given that most federally-funded contracts tracked by VTA over this period employed DBE policies, the DBE and SBE comparison follows the federal and non-federal comparison closely.

Finally, we also evaluate the sensitivity of ratios for Hispanic-owned firms in construction to a single outlying award.

1. Disparity Ratios Based on SBO Availability

Table 53 summarizes disparity ratios calculated based on SBO availability data. Within industry groupings, columns of disparity ratios in Table 53 differ by the annual revenue thresholds used to screen firms considered as available for public contracting. Table 54 provides detailed disparity calculations for the most restrictive SBO-based availability measure (revenue > $50,000). Ratios in Table 53 are also reported separately by source of contract funding: federal or non-federal. The comparison of disparity measures between the two funding source categories allows for a rough gauge of the impact of race and gender conscious programs on observed levels of disparity. First, disparity ratios all increase as revenue thresholds for availability become more stringent. Nevertheless, several results showing statistically significant underutilization persist across all availability measures. Also, underutilization is more prevalent and exists at greater degrees on non-federally funded contracts. These contracts are less likely to be impacted by race and gender conscious and corrective measures. Lastly, it is important to remember that all disparity measures presented here cover a period where race and gender conscious corrective measures were in place on most federal contracts. It is also likely that the number firms certified to fulfill race and gender neutral SBE requirements has been influenced by past race and gender conscious certification and contracting programs. Therefore, where ratios exceed 100%, the existence of these corrective measures prevents the interpretation that prevalent discriminatory behavior would not exist in the absence of a corrective program.

Focusing on measures in the construction industry, we find statistically significant evidence of underutilization for three of the four ownership groups when federal contracting alone is considered. Female-owned construction firms are underutilized on federal contracts at statistically significant ratio of 34.7% when utilization is compared to

[48] In the case of federally supported contracts, most though not all federally supported VTA contracts were awarded under a DBE program. Given the relatively recent conversion of federally-funded contracts from DBE to SBE contracting status, there is insufficient federally-funded SBE contracts to perform a meaningful comparison based on federal contracts alone. Therefore, when comparing DBE and SBE contracts, both categories also include non-federally funded contracts that are tracked by VTA.

SBO availability based on all firms in the market. This finding of significant underutilization is true for all measures calculated for female-owned construction firms, including those based on higher revenue thresholds and those based on non-federally funded contracts. The same is true for Asian-owned firms, with all ratios at or below 12%. Next, all measures for African-American owned firms reflect underutilization, with four of six measures indicating underutilization at a statistically significant level. Finally, disparity ratios for Hispanic-owned construction firms on federally funded contracts all reflect utilization that is demonstrably higher than availability. As referred to above, these measures are driven primarily by a single large award. When this outlying award is excluded from the analysis, these disparity ratios all drop to reflect near parity between the utilization and availability of Hispanic-owned construction firms (ranging from 86.9% to 103.1% - See Table 57). However, when disparity ratios are based on non-federal contract utilization, all measures indicate underutilization of Hispanic-owned construction contractors (with one of three at a statistically significant level). To the extent that non-federal contracts are not influenced by race and gender conscious corrective measures, these ratios may come closer to reflecting market results that would prevail in federal contracting absent race and gender conscious policy intervention.

Turning to professional service disparity ratios presented in Table 53, there are stark differences between utilization on federal versus non-federal contracts. While female-owned firms are the only group that exhibits statistically significant underutilization on federal contracts, professional service firm ratios are inconclusive because of the existence of a race and gender conscious program. When turning to measures based on non-federal contracts, only Asian-owned firms remain in showing no evidence of underutilization. This swing in the ratios suggests that participation by minority contractors on federally funded projects was likely influenced by race and gender conscious corrective measures.

Table 53: Disparity Ratios Based on Contract Dollar Utilization, by Federal Funding Status – VTA Utilization, SBO Availability

	Construction			Professional Services		
	All Firms	> $25K Rev.	> $50K Rev.	All Firms	> $25K Rev.	> $50K Rev.
FEDERALLY FUNDED CONTRACTS						
Women	34.7 *	41.0 *	44.7 *	18.2 *	22.8 *	25.7 *
African American	52.5 *	79.2	80.7	131.2 *	187.4 *	231.5 *
Asian/Pacific Islander	9.7 *	11.0 *	11.5 *	131.0 *	158.2 *	165.9 *
Hispanic	203.6 *	235.3 *	238.8 *	94.3	116.9	138.5 *
NON-FEDERALLY FUNDED CONTRACTS						
Women	41.8 *	49.4 *	53.9 *	15.2 *	19.1 *	21.5 *
African American	0.0 *	0.0 *	0.0 *	51.4 *	73.5	90.8
Asian/Pacific Islander	3.8 *	4.3 *	4.5 *	117.1 *	141.5 *	148.3 *
Hispanic	71.0 *	82.0	83.2	63.9 *	79.2	93.8

Notes:

1) * denotes statistical significance based on a 95% confidence level one-tailed test.

2) The utilization used to calculate disparity ratios is reported as a percentage of total contracts dollars paid in each category between 2001 and 2006.

3) Disparity ratios are reported separately by gender and by minority status. As a result, minority women are counted twice - once in the gender analysis and once in the minority status analysis.

4) Firms are classified by their NAICS code. Firms with NAICS 23 are classified as construction firms and firms with NAICS 54 are classified as professional services firms.

Sources:

1) Valley Transit Authority Office of Small and Disadvantaged Businesses, 2001-2006.

2) Survey of Business Owners, 2002. Data for the SJ CSA and surrounding area was created by the U.S. Census Bureau as a special request.

Table 54: Disparity Ratio Calculations Based on Contract Dollar Utilization, by Federal Funding Status – VTA Utilization, SBO Availability for Firms > $50K Revenue

	Construction			Professional Services[5]		
	VTA Utilization [1]	SBO Availability [2]	Disparity Ratio [3] = [1]/[2]*100	VTA Utilization [1]	SBO Availability [2]	Disparity Ratio [3] = [1]/[2]*100
FEDERALLY FUNDED CONTRACTS						
Women	1.94%	4.33%	44.7 *	5.68%	22.06%	25.7 *
African American	1.03%	1.27%	80.7	3.28%	1.42%	231.5 *
Asian/Pacific Islander	0.68%	5.91%	11.5 *	17.36%	10.46%	165.9 *
Hispanic	20.47%	8.57%	238.8 *	4.41%	3.19%	138.5 *
NON-FEDERALLY FUNDED CONTRACTS						
Women	2.33%	4.33%	53.9 *	4.75%	22.06%	21.5 *
African American	0.00%	1.27%	0.0 *	1.29%	1.42%	90.8
Asian/Pacific Islander	0.27%	5.91%	4.5 *	15.52%	10.46%	148.3 *
Hispanic	7.13%	8.57%	83.2	2.99%	3.19%	93.8

Notes:
1) * denotes statistical significance based on a 95% confidence level one-tailed test.
2) The utilization used to calculate disparity ratios is reported as a percentage of total contracts dollars paid in each category between 2001 and 2006.
3) Availability, utilization, and disparity ratios are reported separately by gender and by minority status. As a result, minority women are counted twice - once in the gender analysis and once in the minority status analysis.
4) Firms are classified by their NAICS code. Firms with NAICS 23 are classified as construction firms and firms with NAICS 54 are classified as Professional Services firms.
5) Contract payment data, which are used to calculate utilization, were unavailable for many professional services contracts. Percentages are reported using existing data, which is a limited sample of professional services contracts.

Sources:
1) Valley Transit Authority Office of Small and Disadvantaged Businesses, 2001-2006.
2) Survey of Business Owners, 2002. Data for the SJ CSA and surrounding area was created by the U.S. Census Bureau as a special request.

Over the 2001-2006 period, VTA awarded contracts both with and without race and gender conscious requirements. All contracts awarded without race and gender conscious DBE requirements were instead awarded using race and gender neutral SBE guidelines. The comparison of the two allows for a natural experiment gauging the effect the race and gender conscious DBE program has on disparity measures. In Tables 55 and 56, ratios are broken out according to DBE requirements at the time of contract award, rather than by the source of funding. Otherwise, Tables 55 and 56 present disparity ratios and disparity calculations in a similar manner to that shown in Tables 53 and 54.

In construction, these ratios indicate underutilization for all groups save Hispanic-owned firms on contracts with DBE requirements. Further, three of four groups display higher ratios when contracts employ DBE requirements, indicating a clear influence of DBE requirements on participation across groups. Next, professional service results are varied and do not lend themselves to quick summary. Statistically significant underutilization is found for female-owned professional service firms, regardless of the measure used. For African-American owned firms, statistically significant underutilization is found only when availability measures are not limited by minimum revenue thresholds. The lack of statistical significance is reflective of the exceedingly low level of availability at close to 1%. At this level of availability, even no utilization whatsoever of African American-

owned construction firms would be considered statistically insignificant. A similar general characterization holds for ratios based on Hispanic-owned professional service firms. Asian-owned firms exhibit utilization at rates higher than their availability in the market in all measures. Finally, for professional service firms, there is no clear pattern of difference between ratios based on contracts with DBE requirements and those without. The ratios are the same for one group, and the direction of difference is evenly split across the remaining four groups.

Table 55: Disparity Ratios Based on Contract Dollar Utilization, by Contract Requirement – VTA Utilization, SBO Availability

	Construction			Professional Services		
	All Firms	**> $25K Rev.**	**> $50K Rev.**	**All Firms**	**> $25K Rev.**	**> $50K Rev.**
CONTRACTS WITH DBE REQUIRMENTS [(2)]						
Women	31.9 *	37.7 *	41.1 *	17.8 *	22.3 *	25.2 *
African American	46.4 *	70.1	71.4	69.6 *	99.5	122.9
Asian/Pacific Islander	8.6 *	9.8 *	10.3 *	107.4	129.8 *	136.1 *
Hispanic	189.4 *	218.8 *	222.1 *	78.1 *	96.9	114.8
CONTRACTS WITH SBE REQUIREMENTS [(2)]						
Women	46.7 *	55.2 *	60.2 *	13.7 *	17.2 *	19.4 *
African American	0.0 *	0.0	0.0 *	83.8 *	119.7	147.8 *
Asian/Pacific Islander	4.3 *	4.9	5.1 *	141.1 *	170.5 *	178.7 *
Hispanic	69.6 *	80.4 *	81.6	65.7 *	81.5	96.6

Notes:

1) * denotes statistical significance based on a 95% confidence level one-tailed test.

2) Prime contractors who bid on contracts with DBE requirements are required to hire a certain portion of DBE, MBE, and WBE subcontractors to fulfill contract obligations. Prime contractors who bid on contracts with SBE requirements are required to hire a certain portion of SBE subcontractors to fulfill contract obligations.

3) The utilization used to calculate disparity ratios is reported as a percentage of total contracts dollars paid in each category between 2001 and 2006.

4) Disparity ratios are reported separately by gender and by minority status. As a result, minority women are counted twice - once in the gender analysis and once in the minority status analysis.

5) Firms are classified by their NAICS code. Firms with NAICS 23 are classified as construction firms and firms with NAICS 54 are classified as professional services firms.

Sources:

1) Valley Transit Authority Office of Small and Disadvantaged Businesses, 2001-2006.

2) Survey of Business Owners, 2002. Data for the SJ CSA and surrounding area was created by the U.S. Census Bureau as a special request.

Table 56: Disparity Ratio Calculations Based on Contract Dollar Utilization, by Contract Requirement – VTA Utilization, SBO Availability for Firms > $50K Revenue

	Construction			Professional Services[6]		
	VTA Utilization [1]	SBO Availability [2]	Disparity Ratio [3] = [1]/[2]*100	VTA Utilization [1]	SBO Availability [2]	Disparity Ratio [3] = [1]/[2]*100
CONTRACTS WITH DBE REQUIREMENTS [2]						
Women	1.78%	4.33%	41.1 *	5.55%	22.06%	25.2 *
African American	0.91%	1.27%	71.4	1.74%	1.42%	122.9
Asian/Pacific Islander	0.61%	5.91%	10.3 *	14.24%	10.46%	136.1 *
Hispanic	19.04%	8.57%	222.1 *	3.66%	3.19%	114.8
CONTRACTS WITH SBE REQUIREMENTS [2]						
Women	2.61%	4.33%	60.2 *	4.27%	22.06%	19.4 *
African American	0.00%	1.27%	0.0 *	2.10%	1.42%	147.8 *
Asian/Pacific Islander	0.30%	5.91%	5.1 *	18.70%	10.46%	178.7 *
Hispanic	7.00%	8.57%	81.6	3.08%	3.19%	96.6

Notes:

1) * denotes statistical significance based on a 95% confidence level one-tailed test.

2) Prime contractors who bid on contracts with DBE requirements are required to hire a certain portion of DBE, MBE, and WBE subcontractors to fulfill contract obligations. Prime contractors who bid on contracts with SBE requirements are required to hire a certain portion of SBE subcontractors to fulfill contract obligations.

3) The utilization used to calculate disparity ratios is reported as a percentage of total contracts dollars paid in each category between 2001 and 2006.

4) Disparity ratios are reported separately by gender and by minority status. As a result, minority women are counted twice - once in the gender analysis and once in the minority status analysis.

5) Firms are classified by on their NAICS code. Firms with NAICS 23 are classified as construction firms and firms with NAICS 54 are classified as Professional Services firms.

6) Contract payment data, which are used to calculate utilization, were unavailable for many professional services contracts. Percentages are reported using existing data, which is a limited sample of professional services contracts.

Sources:

1) Valley Transit Authority Office of Small and Disadvantaged Businesses, 2001-2006.

2) Survey of Business Owners, 2002. Data for the SJ CSA and surrounding area was created by the U.S. Census Bureau as a special request.

2. Sensitivity of Hispanic-owned Disparity Indices to a Single Award

As discussed above, we have identified one award to a Hispanic-owned construction firm that we consider to be an outlier. Table 57 compares disparity ratios for Hispanic-owned construction firms when this outlier is excluded with those above including the outlying award. The revised results better reflect the experiences of Hispanic-owned construction firms at large. This change only impacts disparity ratios for federally-funded contracts and contracts with DBE requirements. As the ratios in Table 57 indicate, Hispanic-owned construction firms' utilization is at or below their availability in the market when the outlying award is excluded. All revised ratios (excluding those based on potential availability) fall between 69.9% and 103.1%.

Table 57: Sensitivity of Hispanic-owned Disparity Ratios to an Outlying Award, Construction Only

	SBO All Firms	SBO >$25K Revenue	SBO >$50K Revenue	SBO Potential Availability [4]
FEDERALLY FUNDED CONTRACTS				
Utilization, All Hispanic Firms	203.6 *	235.3 *	238.8 *	148.2
Utilization, excluding outlying award [2]	88.0	101.6	103.1	64.0
NON-FEDERALLY FUNDED CONTRACTS				
Utilization, All Hispanic Firms	71.0 *	82.0	83.2	51.7
Utilization, excluding outlying award [2]	71.0 *	82.0	83.2	51.7
CONTRACTS WITH DBE REQUIREMENTS [3]				
Utilization, All Hispanic Firms	189.4 *	218.8 *	222.1 *	137.8
Utilization, excluding outlying award [2]	86.9	100.4	101.9	63.2
CONTRACTS WITH SBE REQUIREMENTS [3]				
Utilization, All Hispanic Firms	69.6 *	80.4 *	81.6	50.7
Utilization, excluding outlying award [2]	69.6 *	80.4 *	81.6	50.7

Notes:
1) * denotes statistical significance based on a 95% confidence level one-tailed test.
2) Between 2001 and 2006, the "outlying firm" was awarded $45.5 million dollars on one federally funded contract.
3) Prime contractors who bid on contracts with DBE requirements are required to hire a certain portion of DBE, MBE, and WBE subcontractors to fulfill contract obligations. Prime contractors who bid on contracts with SBE requirements are required to hire a

4) The SBO potential availability disparity ratio is calculated as the ratio of VTA utilization to the discrimination-adjusted measure of SBO availability. The discrimination-adjusted SBO availability accounts for the difference between actual and predict
5) The utilization used to calculate disparity ratios is reported as a percentage of total contracts dollars paid in each category between 2001 and 2006.
6) Disparity ratios are reported separately by gender and by minority status. As a result, minority women are counted twice - once in the gender analysis and once in the minority status analysis.
7) Firms are classified by their NAICS code. Firms with NAICS 23 are classified as construction firms.

Sources:
1) Valley Transit Authority Office of Small and Disadvantaged Businesses, 2001-2006.
2) Survey of Business Owners, 2002. Data for the SJ CSA and surrounding area was created by the U.S. Census Bureau as a special request.

3. Sensitivity of Findings to Alternate Classification of 'Switching' Contracts

While most contracts were initially designated as having DBE or SBE goals and maintained that status throughout the duration of the contract, there were a handful of contracts whose status changed from having DBE goals to SBE goals**.** It is unclear how these contracts should be allocated when making comparisons between utilization and disparity ratios for DBE contracts versus SBE contracts. Therefore, we tested the sensitivity of our findings to alternate rules for classifying payments on these "switching" contracts. We found that alternate rules for classifying payments on these contracts did not alter our results in any substantial manner.

In the utilization and disparity analysis presented in this report, contract dollars that were paid when a contract had DBE goals were counted toward DBE contract dollars while

contract dollars that were paid when the contract was designated as a SBE contract were counted toward SBE contract dollars. For example, if there was a $1 million contract, and $600,000 was paid out when the contract had DBE goals and then the contract changed to an SBE contract - the $600,000 was counted as DBE dollars and $400,000 was counted as SBE dollars.

To test the sensitivity of the results to this classification choice, we reclassified contracts that were originally designated as DBE to be counted as a DBE contract throughout the duration of the contract, regardless of whether there was a change in status. This classification recognizes that several crucial decisions in contract dollar allocation are made at the time of award, even though these decisions may not prove binding once the status of the contract changes to the SBE program. Revisiting the example above, under this method, all $1 million are counted toward DBE contract dollars when calculating rates of utilization for minority-owned and female-owned firms.

This switch in classification rules primarily affects professional services contracts. Therefore, utilization and disparity ratios for construction contracts change negligibly. Generally, utilization and disparity ratios across all race and gender groups for professional services contracts are slightly lower. However, the changes are insignificant and the final results are unaffected. Forty-four of 48 disparity ratios remain unchanged in terms of statistical significance or identification of a disparity ratio above or below the threshold of 80.

The few exceptions where disparity ratios increase relative to those calculated under the original classification do not alter our main findings. For SBE contracts, the disparity ratios for all African American professional services firms and African American professional services firms with annual revenues greater than $25,000 are higher than in the original analysis, as are the disparity ratios for all Hispanic professional services firms as well as those with revenues greater than $50,000. One reason for these shifts is low availability for African American and Hispanic firms. Since availability for both Hispanic and African American firms for both groups is very low, small changes in utilization are amplified in the disparity ratios. Thus, the shift in disparity ratios may reflect low firm availability rather than large changes in utilization.

4. Disparity Ratios Based on Potential Availability

Finally, we calculate disparity ratios using agency utilization and potential availability. These ratios compare VTA utilization rates of minority- and woman-owned firms to availability adjusted to reflect levels that may be expected in the absence of discrimination. Tables 58 and 59 present resulting disparity ratios, broken down first by source of funding (Table 58) and then by DBE contract requirement status (Table 59). With few exceptions, ratios indicate underutilization relative to what would be expected if firms formed in a race and gender neutral marketplace. Only Asian-owned professional service firms and Hispanic-owned construction firms show disparity ratios exceeding 80%. However, if we exclude a single outlying award to a Hispanic-owned construction contractor discussed above, all ratios based on Hispanic-owned construction firms fall well below the 80% threshold.

Table 58: Disparity Ratio Calculations Based on Contract Dollar Utilization, By Federal Funding Status – VTA Utilization, SBO Potential Availability

	Construction			Professional Services[3]		
	VTA Utilization [1]	Potential Availability [2]	Disparity Ratio [3] = [1]/[2]*100	VTA Utilization [1]	Potential Availability [2]	Disparity Ratio [3] = [1]/[2]*100
FEDERALLY FUNDED CONTRACTS						
Women	1.94%	10.00%	19.3	5.68%	40.55%	14.0
African American	1.03%	4.05%	25.4	3.28%	4.94%	66.4
Asian/Pacific Islander	0.68%	7.22%	9.4	17.36%	19.00%	91.3
Hispanic	20.47%	13.81%	148.2	4.41%	5.74%	76.9
NON-FEDERALLY FUNDED CONTRACTS						
Women	2.33%	10.00%	23.3	4.75%	40.55%	11.7
African American	0.00%	4.05%	0.0	1.29%	4.94%	26.0
Asian/Pacific Islander	0.27%	7.22%	3.7	15.52%	19.00%	81.6
Hispanic	7.13%	13.81%	51.7	2.99%	5.74%	52.1

Notes:

1) The utilization used in the disparity ratio is reported as a percentage of total contracts dollars paid in each category between 2001 and 2006.

2) Availability and utilization is reported separately by gender and by minority status. As a result, minority women are counted twice - once in the gender analysis and once in the minority status analysis.

3) Contract payment data, which are used to calculate utilization, were unavailable for many professional services contracts. Percentages are reported using existing data, which is a limited sample of professional services contracts.

Sources:

1) Valley Transit Authority Office of Small and Disadvantaged Businesses, 2001-2006.

2) Survey of Business Owners, 2002. Data for the SJ CSA and surrounding area was created by the U.S. Census Bureau as a special request.

Table 59: Disparity Ratio Calculations Based on Contract Dollar Utilization, By Contract Requirement – VTA Utilization, SBO Potential Availability

	Construction			Professional Services[4]		
	VTA Utilization [1]	Potential Availability [2]	Disparity Ratio [3] = [1]/[2]*100	VTA Utilization [1]	Potential Availability [2]	Disparity Ratio [3] = [1]/[2]*100
CONTRACTS WITH DBE REQUIREMENTS [1]						
Women	1.78%	10.00%	17.8	5.55%	40.55%	13.7
African American	0.91%	4.05%	22.5	1.74%	4.94%	35.2
Asian/Pacific Islander	0.61%	7.22%	8.4	14.24%	19.00%	74.9
Hispanic	19.04%	13.81%	137.8	3.66%	5.74%	63.7
CONTRACTS WITH SBE REQUIREMENTS [1]						
Women	2.61%	10.00%	26.1	4.27%	40.55%	10.5
African American	0.00%	4.05%	0.0	2.10%	4.94%	42.4
Asian/Pacific Islander	0.30%	7.22%	4.2	18.70%	19.00%	98.4
Hispanic	7.00%	13.81%	50.7	3.08%	5.74%	53.6

Notes:
1) Prime contractors who bid on contracts with DBE requirements are required to hire a certain portion of DBE, MBE, and WBE subcontractors to fulfill contract obligations. Prime contractors who bid on contracts with SBE requirements are required to hire a certain portion of SBE subcontractors to fulfill contract obligations.
2) The utilization used in the disparity ratio is reported as a percentage of total contracts dollars paid in each category between 2001 and 2006.
3) Availability and utilization is reported separately by gender and by minority status. As a result, minority women are counted twice - once in the gender analysis and once in the minority status analysis.
4) Contract payment data, which are used to calculate utilization, were unavailable for many professional services contracts. Percentages are reported using existing data, which is a limited sample of professional services contracts.

Sources:
1) Valley Transit Authority Office of Small and Disadvantaged Businesses, 2001-2006.
2) Survey of Business Owners, 2002. Data for the SJ CSA and surrounding area was created by the U.S. Census Bureau as a special request.

IX. Anecdotal Evidence

A. Overview

The Ninth Circuit in its *Western States Paving* decision noted the importance of anecdotal evidence. We have collected anecdotal information regarding discrimination in four ways. First, we conducted a survey of minority-owned, woman-owned, and White male-owned firms operating in the SJ CSA and relevant surrounding areas. The survey was designed to enable us to compare the experiences of these groups relative to similarly situated White male-owned firms and to elicit perceptions of discrimination on the part of minority- and woman-owned firms. Second, we reviewed recent public hearing testimony, interviews, and surveys of minority- and woman-owned firms in the SJ CSA and relevant surrounding areas. Third, we reviewed the results of other disparity studies with overlapping geographic and product markets. Fourth, we conducted interviews with firms bidding on contracts at VTA to collect information regarding their experiences with VTA contracting and bidding as well as contracting in the local marketplace in general.

B. Survey of Construction and Professional Service Firms Operating in the SJ CSA and Surrounding Areas

Unlike public hearings and focus groups that are commonly used to create anecdotal evidence in studies of this kind, a survey avoids the problem of selection bias. Survey

respondents are randomly selected to represent minority- and woman-owned firms as well as non minority male-owned firms. This enables us to compare the experiences of both groups. In contrast, public hearings and focus groups often attract firms with a particular perspective.

The survey also provides the basis for identifying specific instances of discrimination. We conducted 15 interviews with survey respondents to gain further insight into how discriminatory behavior inhibits contracting and firm growth. We also gained further insight into non-discriminatory barriers to contracting faced by minority-owned and female-owned firms. The results of these interviews are summarized later in this section.

The survey results support our disparity and firm formation analysis because minority- and woman-owned firms report facing various impediments to obtaining contracts significantly more frequently than white male-owned firms. Furthermore, nearly all minority- and woman-owned firms report experiences with discriminatory treatment related to contracting. The survey data is also consistent with minority- and woman-owned firms experiencing difficulties forming business relationships with more established white male-owned firms.

1. Survey Sample and Design

The survey field allows for data collection both from a random sample of firms in the relevant market and those identified as bidders on VTA contracts. The field includes a stratified random sample of firms from six categories defined by gender and minority status (e.g. non-minority male-owned, minority male-owned, or non-minority female-owned) as well as industry (construction or professional services). The random sample in each category is drawn from a list of firms compiled by *Dun and Bradstreet* (D&B). D&B's Marketplace dataset provides an extensive catalogue of firms listed by detailed NAIC industry code as well as information on gender, race, and ethnicity of firm ownership.[49]

The field also includes over 900 firms identified as bidders on projects between 2001 and 2006. This portion of the survey field includes a complete account of bidders on VTA construction contracts, as well as prime bidders on VTA professional services contracts. The professional services bidders' list only captures prime bidders for each contract. However, firms who are prime bidders on some contracts can be subcontractors on other contracts. Firms were contacted via telephone in repeated rounds of calls until a goal of 626 firms were reached. We collected 202 responses from bidders and 424 responses from the D&B stratified sample.

[49] Responses were ultimately categorized by industry, gender and minority status reported by respondents.

Table 60: Composition of Survey Sample

Number of firms	Bidder List	Dun & Bradstreet	Total
Total Respondents	202	424	626
Industry			
Construction	78	222	300
Professional Services	120	195	315
Other	4	7	11
Ethnicity			
Non-Hispanic White or Caucasian	139	250	389
Black or African American	7	25	32
Asian or Pacific Islander	35	68	103
Hispanic	17	60	77
Native American	1	6	7
Other	1	4	5
Two or More Ethnicities	2	11	13
No Response	0	0	0
Gender			
Male	150	257	407
Female	52	163	215
No Response	0	4	4

Notes:
1) "Other" ethnicities include Middle Eastern, Iranian, and "person of color".
2) There is one firm that is certified as a WBE, but report owner as male. This firm is assumed to be a woman-

Source:
Survey conducted by the Henne Group and QSA Research & Strategy September through October 2006 and July through August 2007.

The first section of the survey instrument collects information on firm characteristics including industry, years in business, firm size (measured by number of employees and revenue), race and ethnicity of the majority owner(s), gender of the majority owner(s), and status as certified MBE or WBE. We also collect information on the share of firm revenue earned from the public sector work, which includes contracting with local, state, and federal government agencies. This enables analysis of utilization in private sector contracting (see Section VII). Firms identified as bidders received a more extensive questionnaire. Bidders were queried on their experiences with commonly identified impediments to securing contracts, financial resources, dealings with prime contractors, and discriminatory treatment on the basis of race, ethnicity, or gender.

2. Survey Results

a) Impediments to Contracting

Minority- and woman-owned survey respondents experience difficulty securing contracts as a result of commonly identified impediments to contracting at consistently higher rates than white male-owned respondents. Table 61 presents the frequency with which respondents in each group indicated difficultly obtaining contracts as a result of the various impediments identified in the survey. Both minority- and woman-owned bidding firms reported the same three impediments most frequently and in the same order. Both report that the cost of completing paperwork and the process of becoming a certified minority-owned or woman-owned business most frequently (54.0% and 67.3% respectively). The size of projects was the second most frequently reported impediment to securing contracts. Almost 43 percent of minority-owned bidding firms and about 40 percent of woman-owned bidding firms reported this as an impediment. Both minority-owned and woman-owned firms reported insufficient time to bid third most frequently (33.3% and 36.5% respectively). These results are consistent with our firm formation results which indicate minorities and women have more difficulty creating and maintaining firms than similarly situated white males.

Minority-owned bidding firms report experience with the agency or prime contractor more frequently than woman-owned firms do (28.6% vs. 21.2%). Woman-owned bidding firms report the price of supplies and materials more frequently than minority-owned firms (17.3% vs. 11.1%). Both report other impediments, such as bonding and insurance requirements, financing, and bid or proposal costs, at similar frequencies. These results are consistent with the academic literature reviewed in Section VI.

Differences between minority- or woman-owned bidders and non-minority male-owned bidders are substantial. Table 62 presents the response rates reported in Table 61 and computes the relative frequencies with which minority- and woman-owned bidding firms report impediments compared to non-minority male-owned bidders. Both minority- and woman-owned firms report insufficient funding more than twice as frequently as non-minority male-owned firms do. Similarly, minority-owned firms report difficulty obtaining contracts due to lack of experience with the company, agency, or prime contractor more than twice as often than white male-owned firms surveyed, and woman-owned firms report the same impediment 50 percent more often than white male-owned firms (Table 62, column 5). Note that even if overt discriminatory treatment towards minority- and woman-owned firms is declining, impediments due to prior experiences may carry forward the effects of prior discriminatory behavior if minority- and woman-owned firms have formed recently or have faced greater obstacles to accumulation of relevant experience.

Both minority- and woman-owned firms report large project size as an impediment to contracting two times more often (2.2 and 2.1 times respectively, Table 62, columns 3 and 5) as white male-owned firms. This suggests a possible race and gender-neutral remedy to underutilization of these groups may lie in either breaking projects into smaller

competitively bid contracts or requiring primes on large projects to divide subcontract work into smaller tasks. Finally, both minority- and woman-owned firms report bid or proposal costs as an impediment to securing contracts more than twice as frequently as white male-owned firms.

These results are of particular import given that they compare firms that have demonstrated willingness to contract with VTA. Each firm included in this survey group has bid on projects at VTA. To the extent that firms included on bids by prime contractors are vetted by primes, these firms are also likely to be similarly qualified.

Table 61: Impediments to Contracting Reported by Bidder List Respondents

	Minority-Owned Firms	Woman-Owned Firms	Non-Minority Male-Owned Firms	All Firms
Bonding requirements	15.9%	17.3%	15.7%	15.8%
Insurance requirements	25.4%	26.9%	23.1%	25.2%
Requirements concerning prior experience	27.0%	23.1%	12.0%	17.8%
Bid or proposal costs	31.7%	30.8%	14.8%	22.3%
Projects are too large	42.9%	40.4%	19.4%	29.7%
Price of supplies or materials	11.1%	17.3%	22.2%	18.3%
Not being able to get sufficient sources of funding	25.4%	21.2%	9.3%	16.3%
Prime contractors don't give you enough time to bid	33.3%	36.5%	29.6%	32.2%
Not having enough experience working for the company, agency or prime contractor to have a chance to work	28.6%	21.2%	13.9%	19.8%
The cost of completing the paperwork and becoming certified as a Women-owned or Minority-owned Business Enterprise.(2)	54.0%	67.3%	0.0%	27.2%

Notes:
1) The respondents were asked whether they have experienced the above impediments in the past five years. This was not a free response question.
2) Tabulations cover respondents identified as bidding on VTA construction or professional service contracts.

Source:
Survey conducted by The Henne Group and QSA Research & Strategy, July through August 2007.

Table 62: Relative Frequency of Reporting Impediments to Contracting, Bidder List Respondents

	Non-Minority Male-Owned Firms	Minority-Owned Firms		Woman-Owned Firms	
	% Reported	% Reported	Relative Frequency[3]	% Reported	Relative Frequency[4]
	[1]	[2]	[3] = [2]/[1]	[4]	[5] = [4]/[1]
Not being able to get sufficient sources of funding	9.3%	25.4%	2.7	21.2%	2.3
Bonding requirements	15.7%	15.9%	1.0	17.3%	1.1
Insurance requirements	23.1%	25.4%	1.1	26.9%	1.2
Requirements concerning prior experience	12.0%	27.0%	2.2	23.1%	1.9
Bid or proposal costs	14.8%	31.7%	2.1	30.8%	2.1
Projects are too large	19.4%	42.9%	2.2	40.4%	2.1
Price of supplies or materials	22.2%	11.1%	0.5	17.3%	0.8
Prime contractors don't give you enough time to bid	29.6%	33.3%	1.1	36.5%	1.2
Not having enough experience working for the company, agency or prime contractor to have a chance to work	13.9%	28.6%	2.1	21.2%	1.5

Notes:
1) The respondents were asked whether they have experienced the above impediments in the past five years. This was not a free response question.
2) Tabulations cover respondents identified as bidding on VTA construction or professional service contracts.
3) Minority-owned firm frequency relative to non-minority male-owned firm frequency.
4) Woman-owned firm frequency relative to non-minority male-owned firm frequency.

Source:
Survey conducted by The Henne Group and QSA Research & Strategy, July through August 2007.

Table 63 investigates access to funding for contractors in greater detail. When queried on their primary sources of funding other than business earnings, minority- and woman-owned bidders report a much higher rate of reliance on personal savings, friends and family, and credit cards than white male-owned bidders. In fact, minority-owned and woman-owned firms are more than twice as likely to rely on personal savings, family and friends, and credit cards as white male-owned firms. At the same time, white male-owned firms surveyed reported a slightly higher reliance on commercial bank loans and bank line of credit, which commonly have more favorable interest rates than other sources. This is consistent with the substantial economic literature discussed earlier in this report (see Section VI) indicating that white male-owned businesses enjoy more ready access to or are offered more favorable terms for commercial loans. In this light, it is not surprising that white male-owned firms rely on personal savings and family and friends as funding sources much less frequently.

Table 63: Primary Sources of Funds Reported by Bidder List Respondents

	Minority-Owned Firms	Woman-Owned Firms	Non-Minority Male-Owned Firms	All Firms
Personal savings	50.8%	50.0%	27.8%	37.1%
Friends and family	34.9%	26.9%	9.3%	19.8%
Commercial bank loans	28.6%	30.8%	31.5%	31.2%
Credit cards	31.7%	30.8%	16.7%	23.3%
Bank line of credit	39.7%	44.2%	45.4%	44.1%
Other	3.2%	1.9%	3.7%	3.5%

Note:
1) The respondents were asked to identify the primary sources of funding other than business earnings their firms have used to expand their businesses or meet financial obligations when there is a cash flow problem. This was not a free response question.
2) Tabulations cover respondents identified as bidding on VTA construction or professional service contracts.

Source:
Survey conducted by The Henne Group and QSA Research & Strategy, July through August 2007.

b) Experiences with Race and Gender Discrimination

Finally, results reported in Table 64 indicate that minority- and woman-owned bidders surveyed report experiences with discrimination at significant rates and in several facets of business interactions in the last five years. The table reports frequencies with which respondents reported experiences of less favorable treatment due to race or gender in several areas of business interaction. About 97% of minority-owned firms and 96.1% of woman-owned firms report that their firm experienced discriminatory treatment based on race or gender. Both minority- and woman-owned firms report that getting subcontracts

from prime contractors, and securing local, state, or federal government contracts as two of the most frequent discriminatory treatments. Minority-owned firms also report high frequencies of discriminatory treatment in obtaining the agreed upon share of work from prime contractors and getting contracts from private businesses. Woman-owned firms frequently cite trouble attracting customers generally because of discriminatory treatment.

In addition, 14.3% of minority-owned firms and 13.5% of woman-owned firms surveyed reported discrimination in obtaining local, state, or government contracts. In these instances, discriminatory treatment may be the result of actions by the public entity itself or from primes bidding on a public contract. Overall, the results in Table 64 make clear that the highest rates of reported experiences with discrimination arise in connection with minority- and woman-owned firms' relationships with prime contractors. This pattern is consistent with difficulties minority- and woman-owned firms may face in entering established business networks necessary for success in large scale public contracting.

Table 64: Discrimination in Contracting Reported by Bidder List Respondents

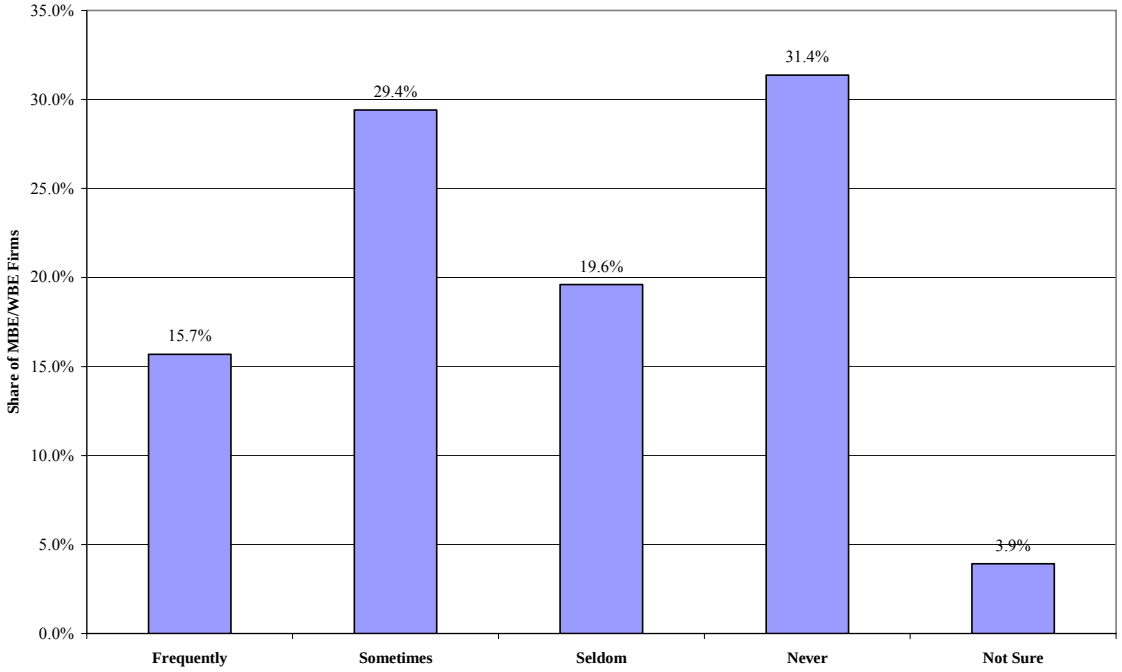
	Minority-Owned Firms	Woman-Owned Firms
Getting business loans from a bank	7.9%	3.8%
Getting local, state, or federal government contract	14.3%	13.5%
Getting contracts from private businesses	14.3%	11.5%
Attracting customers generally	12.7%	15.4%
Being bonded	4.8%	1.9%
Trying to join trade or professional associations	0.0%	0.0%
Getting subcontracts from prime contractors	22.2%	19.2%
Getting paid on time by prime contractors	12.7%	9.6%
Getting the agreed upon share of project work from prime contractors	22.2%	7.7%

Note:
1) The respondents were asked whether they have experienced discrimination based on their race or gender in the
2) Tabulations cover respondents identified as bidding on VTAconstruction or professional service contracts.

Source:
Survey conducted by The Henne Group and QSA Research & Strategy, July through August 2007.

The results presented in Figure 5 indicate that the contracting business landscape appears quite different to minority- and woman-owned firms when DBE requirements are introduced. Minority- and woman-owned survey respondents who were used or solicited to bid by prime contractors on projects with DBE requirements were asked about their other experiences with the same prime contractors. Fifty-one percent of minority- and woman-owned survey subjects in this situation respond that the same prime contractors seldom or never used them as subcontractors or asked them to bid on contracts without DBE participation requirements. Only 15.7 percent of these firms report that they were used by the same primes frequently on projects without DBE participation.

Figure 5: Summary of Survey Respondents: How often have these prime contractors [from projects with MBE/WBE requirements] also used your company or asked you to bid on jobs that do not have DBE requirements?



Note: Applicable survey sample for tabulations here is comprised of minority and women-owned businesses who have worked as subcontractors on a project with MBE/WBE requirements in the past 5 years.
Source: Surveys conducted by The Henne Group and QSA Research & Strategy, September-October 2006 and July-August 2007.

3. Characteristics of Firms Surveyed

In addition to the collection of anecdotal evidence described above, the survey also allows for comparisons of firm characteristics across groups defined by several dimensions: (1) firms bidding on VTA contracts and firms in the general population (D&B sample), (2) industry, and (3) race and gender of owner(s). Tables 65 through 67 provide summary statistics on firm characteristics separately for the bidder and D&B

samples. The tables are distinguished by industry of respondents, with Table 65 summarizing responses from all industries.

In comparison to other qualified bidders and to their peers in the general population, white male-owned bidding firms appear to be more successful and long-lasting. This group of firms is more likely to be entrenched in established business networks for public contracting. The differences in firm characteristics across gender and racial and ethnic of ownership suggest that minority- and woman-owned firms are likely to experience difficulty penetrating business networks of established white male-owned contractors in the absence of a race and gender conscious contracting program.

a) Differences Reflecting Potential Network Barriers

If long-lasting business relationships between prime and subcontractors are highly valued by primes contracting with VTA, the survey data indicate minority- and woman-owned potential bidders may experience difficulty cracking the business networks of established white male-owned prime bidders in order to earn subcontracts in the absence of race and gender conscious contracting requirements. First, white-male owned bidding firms have been established longer than their counterparts in the general population. While the average number of years in business for white male-owned construction and professional service firms in the general population (D&B sample) is 18.4 years, white male-owned bidding firms have been in business on average 24.9 years. Second, the bidder data (Table 65, column 1) shows that minority- and woman-owned bidders are more recently established (averaging 18.7 and 16.8 years in business respectively) than white male-owned bidders and more closely resemble the general population in terms of firm experience (Table 65, column 3). Finally, minority- and woman-owned bidding firms cite lack of established relationships with primes and contracting agencies as an impediment to obtaining contracts more often than white male-owned bidding firms. Minority- and woman-owned firms cite "not having enough experience working for the company, agency, or prime contractor to have a chance to work" as an impediment to contracting 28.6% and 21.2% of the time (Table 61, columns 1 and 2). On the other hand, only 13.9% of white male-owned bidding firms surveyed cite this as an impediment to contracting (Table 61, column 3).

b) Further Comparisons by Sample, Minority Status, and Gender

The results indicate that bidding firms of all categories are on average larger in terms of employees and revenue than those in the general population. However, differences between the two populations are smaller for minority- and woman-owned firms than for white male-owned firms. For instance, minority bidders are estimated to have on average 1.8 times the number of employees (Table 65, column 1/column 3 = 18/10) and almost twice the revenue of their counterparts in the general population (Table 65, column 1/column 3 = $2436/$1287). White male-owned bidders by comparison have 13.4 times the number of employees and more than triple the revenue of white male-owned firms in the population (Table 65, comparing columns 1 and 3).

In addition to differences between bidders and the general population of firms, the survey response data also shows differences in firm characteristics across firms by race and gender of the owner. Looking first at bidding firms, white male-owned bidding firms have on average more than double the dollars in revenue, and over one-third more years in business compared to qualified minority- and woman-owned bidders surveyed (Table 65, column 1). White male-owned bidding firms on average have a higher number of employees than their minority- and woman-owned counterparts. The large magnitude of the average number of employees is attributed to four firms that report having more than 2,000 employees. When examining the median number of employees, white male-owned firms still have over two times the number of employees that minority firms have and over three times the number of employees woman-owned firms have. While gaps also exist between these groups in the general population, they are much less dramatic (Table 65, column 3). For example, average revenues of white male-owned firms in the D&B sample exceed both minority- and woman-owned average revenues by less than one-third ($1.62 million vs. $1.29 and $1.23 million – Table 65, column 3).

Figures 6 through 15 further describe characteristics of firms surveyed and provide detail on their distribution. The figures indicate that a firm size threshold for participation in public contracting is not likely to be large and that firms qualified to bid often perform on contracts both as prime and subcontractors. Figure 10 shows that approximately 6% of surveyed bidding firms earned under $100,000 in revenue last year and about 12% of surveyed bidders earned under $250,000. Also, Figure 14 shows that about 55 percent of bidding firms earned revenue from both prime and subcontract work.

Table 65: Survey Summary by Contact List Source, All Firms

	VTA Bidder List [3]		D&B[5]	
	Mean [1]	Median [2]	Mean [3]	Median [4]
Number of Employees [6]				
All Firms	231	17		
Non-Minority Male-Owned Firms	415	26	31	3
Minority-Owned Firms	18	12	10	5
Woman-Owned Firms	14	8	8	3
Revenue Last Year (thousands)				
All Firms	$4,070	$2,500		
Non-Minority Male-Owned Firms	$5,809	$5,000	$1,619	$375
Minority-Owned Firms	$2,436	$1,000	$1,287	$375
Woman-Owned Firms	$2,458	$1,000	$1,227	$375
Years in Business				
All Firms	21.9	20.0		
Non-Minority Male-Owned Firms	24.9	21.0	18.4	15.0
Minority-Owned Firms	18.7	17.0	15.4	14.0
Woman-Owned Firms	16.8	17.5	16.0	14.0
Share of Revenue from Public Sector Work Last Year				
All Firms	49.3%	50.0%		
Non-Minority Male-Owned Firms	51.5%	50.0%	24.0%	0.0%
Minority-Owned Firms	49.6%	50.0%	20.5%	0.0%
Woman-Owned Firms	39.7%	40.0%	23.1%	0.0%
Share of Revenue from Public Sector Work in Past 5 Years				
All Firms	51.6%	50.0%		
Non-Minority Male-Owned Firms	53.2%	50.0%	11.8%	1.0%
Minority-Owned Firms	50.0%	50.0%	17.3%	1.0%
Woman-Owned Firms	44.2%	50.0%	17.9%	1.0%
Share of Revenue from Subcontractor Work in Past 5 Years				
All Firms	42.1%	30.0%		
Non-Minority Male-Owned Firms	45.4%	50.0%	22.4%	3.0%
Minority-Owned Firms	36.0%	25.0%	27.4%	5.0%
Woman-Owned Firms	34.9%	20.0%	25.2%	5.0%

Notes:
1) For all questions above, respondents were asked to give an exact answer. However, if they had trouble with the questions, they were given a range of possible answers and asked to identify a range that best describes their business. For these questions, the midpoint of each range is used to calculate the mean and the median. Please see Appendix B for more detail.
2) The above analysis includes Construction, Professional Services, and Other industries, as described in Table Z.
3) SF MTA and SFO bidder data collected from survey conducted by QSA Research & Strategy, September through October
4) VTA bidder data collected from survey conducted by QSA Research & Strategy, July through August 2007.
5) The Dun & Bradstreet (D&B) survey oversamples some groups by design. It is constructed to have roughly equal sample sizes for minority-owned, woman-owned and non-minority male-owned firms and an even split between construction and professional services firms. Therefore, the "all firms" results for the D&B list alone are not meaningful.
6) For the VTA bidders' list and the VTA, SF MTA, and SFO bidders' list, the mean number of employees for non-minority male-owned firms, and therefore the mean number of employees for all firms, is unusally large because of three outliers. These outliers are professional services firms who bid on VTA contracts only and report having more than 5,000 employees.

Sources:
Surveys conducted by The Henne Group and QSA Research & Strategy September through October 2006 and July through August 2007.

Table 66: Survey Summary by Contact List Source, Construction Firms

	VTA Bidder List[2]		D&B[4]	
	Mean [1]	Median [2]	Mean [3]	Median [4]
Number of Employees				
All Firms	92	21		
Non-Minority Male-Owned Firms	133	31	21	4
Minority-Owned Firms	20	13	10	7
Woman-Owned Firms	11	10	12	7
Revenue Last Year (thousands)				
All Firms	$5,240	$3,500		
Non-Minority Male-Owned Firms	$7,201	$5,500	$1,950	$625
Minority-Owned Firms	$2,815	$1,000	$1,390	$375
Woman-Owned Firms	$1,640	$1,000	$1,883	$750
Years in Business				
All Firms	24.3	21.5		
Non-Minority Male-Owned Firms	26.5	24.0	18.9	15.5
Minority-Owned Firms	22.6	18.0	16.0	15.0
Woman-Owned Firms	13.9	16.0	17.8	15.0
Share of Revenue from Public Sector Work Last Year				
All Firms	55.1%	50.0%		
Non-Minority Male-Owned Firms	53.6%	50.0%	23.4%	0.0%
Minority-Owned Firms	60.2%	70.0%	22.8%	1.5%
Woman-Owned Firms	48.5%	50.0%	33.2%	5.0%
Share of Revenue from Public Sector Work in Past 5 Years				
All Firms	58.1%	50.0%		
Non-Minority Male-Owned Firms	57.1%	50.0%	11.3%	1.0%
Minority-Owned Firms	59.5%	70.0%	18.6%	5.0%
Woman-Owned Firms	54.5%	50.0%	25.2%	5.0%
Share of Revenue from Subcontractor Work in Past 5 Years				
All Firms	64.6%	80.0%		
Non-Minority Male-Owned Firms	68.9%	90.0%	31.2%	15.0%
Minority-Owned Firms	47.8%	30.0%	35.3%	15.0%
Woman-Owned Firms	73.9%	95.0%	43.5%	27.5%

Notes:

1) For all questions above, respondents were asked to give an exact answer. However, if they had trouble with the questions, they were given a range of possible answers and asked to identify a range that best describes their business. For these questions, the midpoint of each range is used to calculate the mean and the median. Please see Appendix B for more detail.

2) SF MTA and SFO bidder data collected from survey conducted by QSA Research & Strategy, September through October 2006.

3) VTA bidder data collected from survey conducted by QSA Research & Strategy, July through August 2007.

4) The Dun & Bradstreet (D&B) survey oversamples some groups by design. It is constructed to have roughly equal sample sizes for minority-owned, woman-owned and non-minority male-owned firms and an even split between construction and professional services firms. Therefore, the "all firms" results for the D&B list alone are not meaningful.

Sources:

Surveys conducted by The Henne Group and QSA Research & Strategy September through October 2006 and July through August 2007.

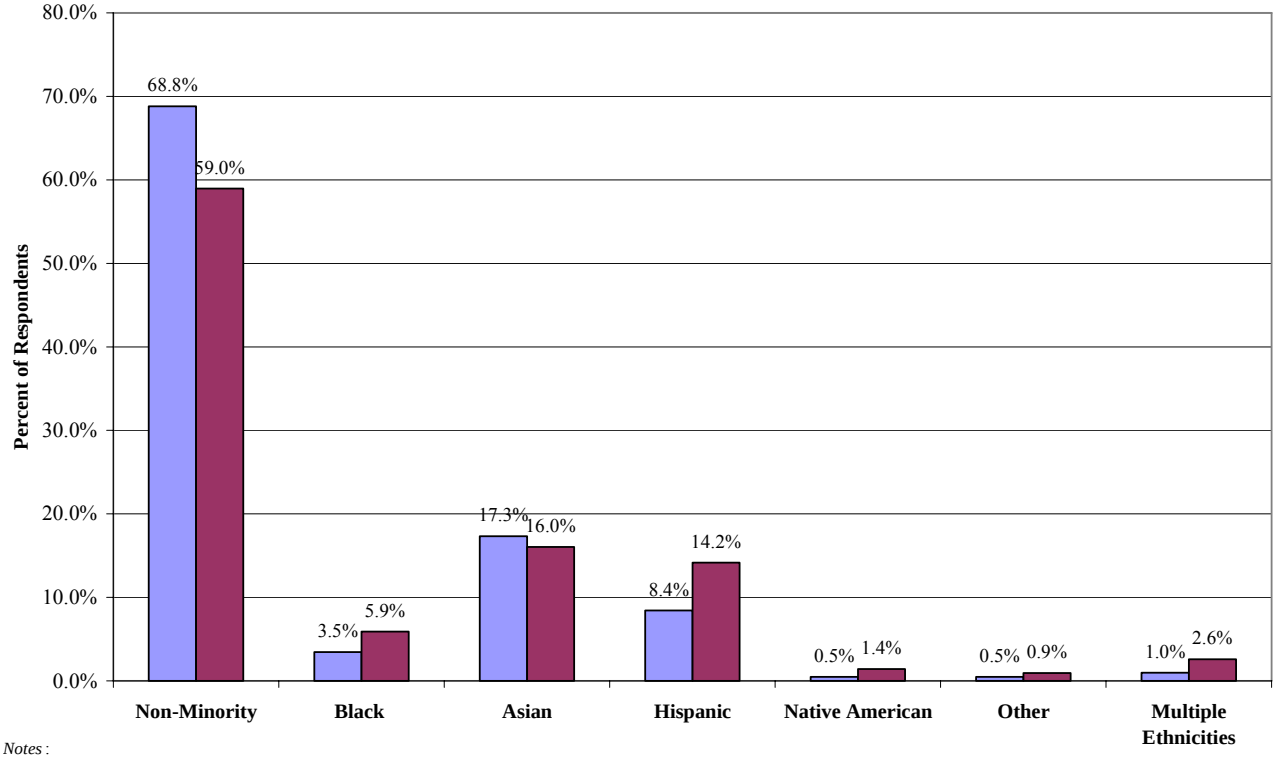
Table 67: Survey Summary by Contact List Source, Professional Services Firms

	VTA Bidder List[2]		D&B[4]	
	Mean [1]	Median [2]	Mean [3]	Median [4]
Number of Employees [5]				
All Firms	326	15		
Non-Minority Male-Owned Firms	687	22	44	2
Minority-Owned Firms	18	11	11	3
Woman-Owned Firms	13	8	6	2
Revenue Last Year (thousands)				
All Firms	$3,107	$2,000		
Non-Minority Male-Owned Firms	$4,453	$4,500	$1,131	$175
Minority-Owned Firms	$2,224	$1,100	$1,118	$175
Woman-Owned Firms	$2,286	$1,000	$673	$175
Years in Business				
All Firms	20.1	18.0		
Non-Minority Male-Owned Firms	23.1	20.0	16.8	15.0
Minority-Owned Firms	16.8	16.0	14.8	13.0
Woman-Owned Firms	17.3	18.0	14.4	14.0
Share of Revenue from Public Sector Work Last Year				
All Firms	45.7%	50.0%		
Non-Minority Male-Owned Firms	49.6%	50.0%	24.3%	0.0%
Minority-Owned Firms	44.2%	50.0%	18.0%	0.0%
Woman-Owned Firms	38.4%	40.0%	15.1%	0.0%
Share of Revenue from Public Sector Work in Past 5 Years				
All Firms	47.6%	50.0%		
Non-Minority Male-Owned Firms	49.8%	50.0%	13.1%	1.0%
Minority-Owned Firms	45.0%	45.0%	16.2%	1.0%
Woman-Owned Firms	42.6%	45.0%	12.0%	1.0%
Share of Revenue from Subcontractor Work in Past 5 Years				
All Firms	26.6%	15.0%		
Non-Minority Male-Owned Firms	22.2%	10.0%	11.9%	0.0%
Minority-Owned Firms	30.7%	20.0%	17.3%	0.0%
Woman-Owned Firms	24.5%	10.0%	10.5%	0.0%

Notes:
1) For all questions above, respondents were asked to give an exact answer. However, if they had trouble with the questions, they were given a range of possible answers and asked to identify a range that best describes their business. For these questions, the midpoint of each range is used to calculate the mean and the median. Please see Appendix B for more detail.
2) SF MTA and SFO bidder data collected from survey conducted by QSA Research & Strategy, September through October
3) VTA bidder data collected from survey conducted by QSA Research & Strategy, July through August 2007.
4) The Dun & Bradstreet (D&B) survey oversamples some groups by design. It is constructed to have roughly equal sample sizes for minority-owned, woman-owned and non-minority male-owned firms and an even split between construction and professional services firms. Therefore, the "all firms" results for the D&B list alone are not meaningful.
5) For the VTA bidders' list and the VTA, SF MTA, and SFO bidder's list, the mean number of employees for non-minority male-owned firms, and therefore the mean number of employees for all firms, is unusally large because of three outliers. These outliers are professional services firms who bid on VTA contracts only and report having more than 5,000 employees.

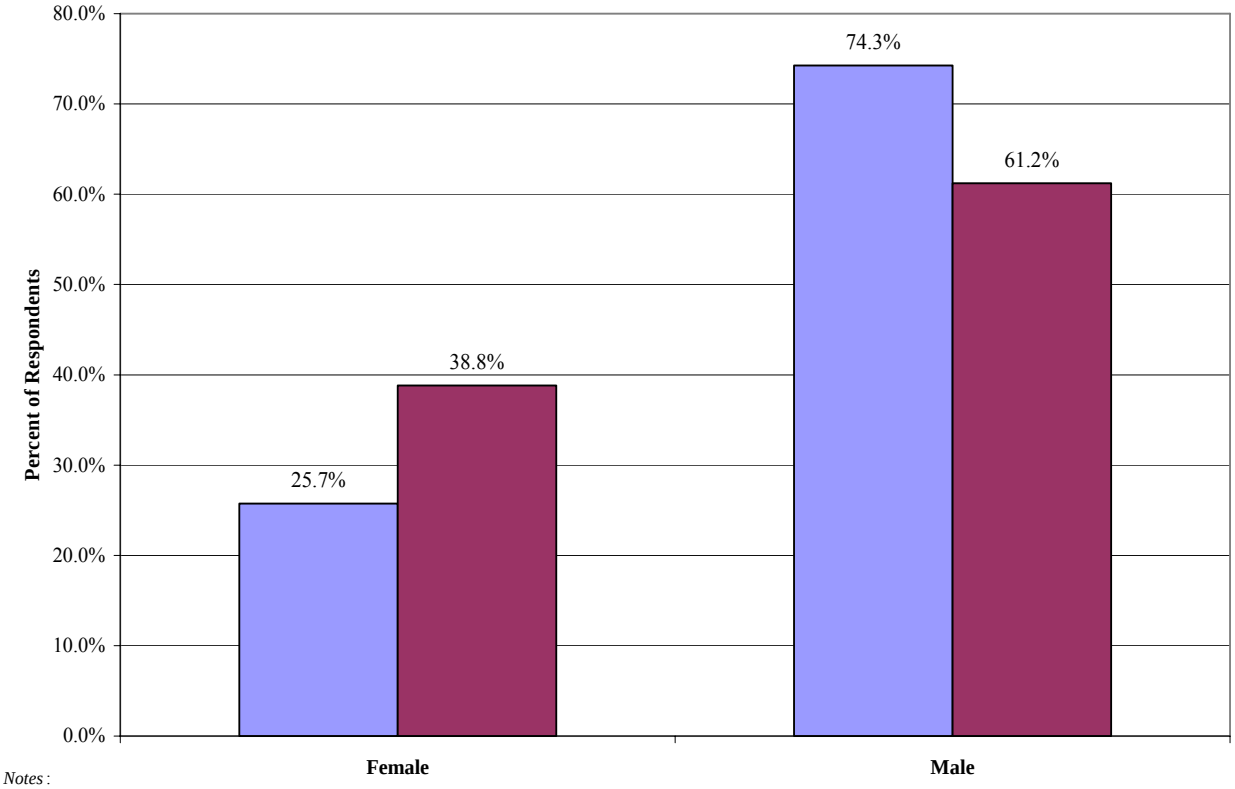
Source:
Surveys conducted by The Henne Group and QSA Research & Strategy September through October 2006 and July through August 2007.

Figure 6: Summary of Survey Respondents: Ethnicity of Owner(s)



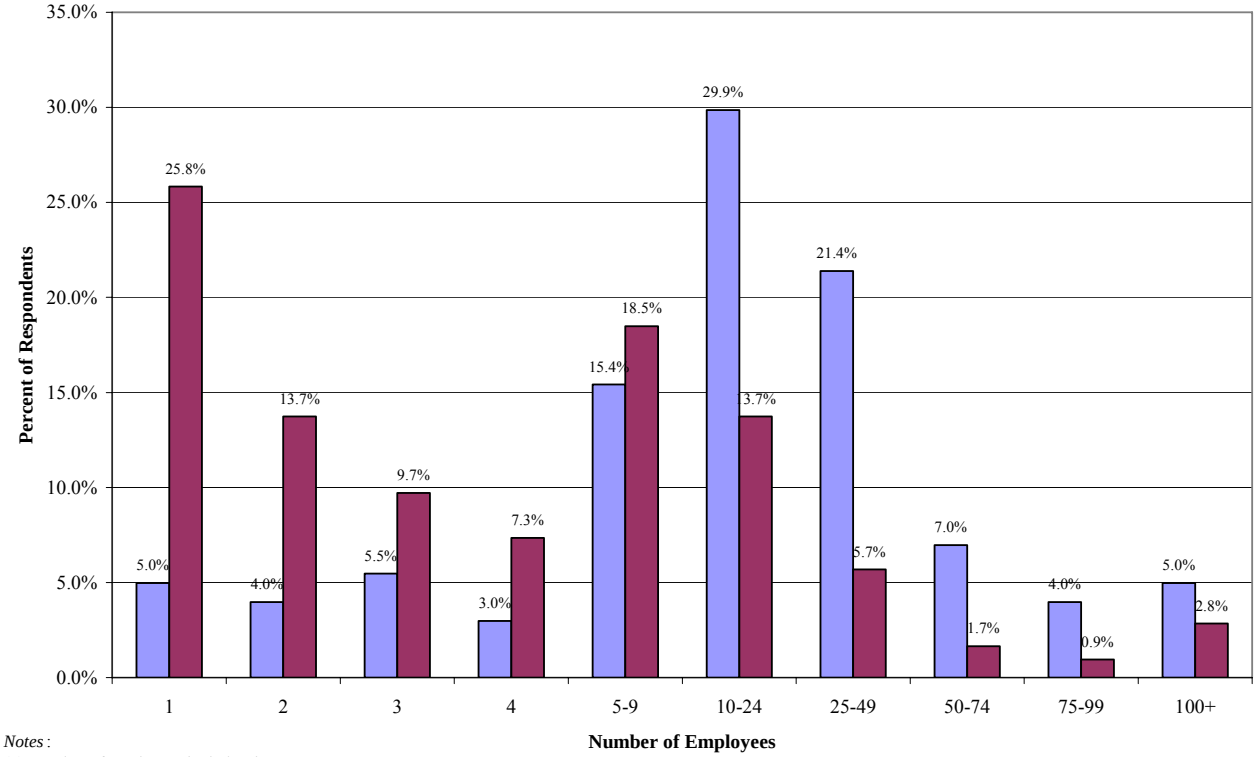
Notes :
(1) "Bidder List" responses are from firms identified as bidding on VTA construction or professional service contracts.
(2) "D&B" responses are from a stratified random sample of firms in construction or professional services in the SJ CSA, Sacramento County, or San Joaquin County identified via Dun & Bradstreet.
Source : Surveys conducted by The Henne Group and QSA Research & Strategy, September-October 2006 and July-August 2007.

Figure 7: Summary of Survey Respondents: Gender of Owner(s)



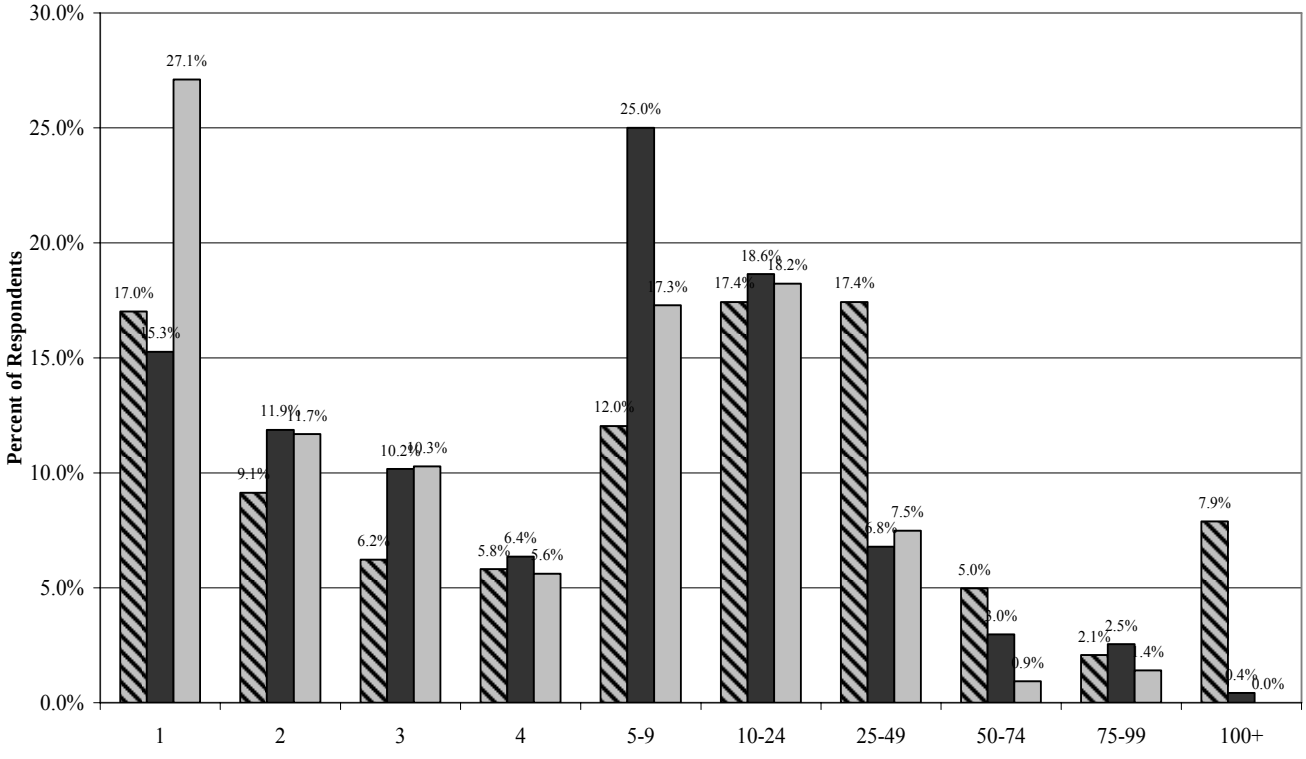
Notes :
(1) "Bidder List" responses are from firms identified as bidding on VTA construction or professional service contracts.
(2) "D&B" responses are from a stratified random sample of firms in construction or professional services in the SJ CSA, Sacramento County, or San Joaquin County identified via Dun & Bradstreet.
Source : Surveys conducted by The Henne Group and QSA Research & Strategy, September-October 2006 and July-August 2007.

Figure 8: Summary of Survey Respondents: Distribution of Firm Size by Contact Source: Number of Employees



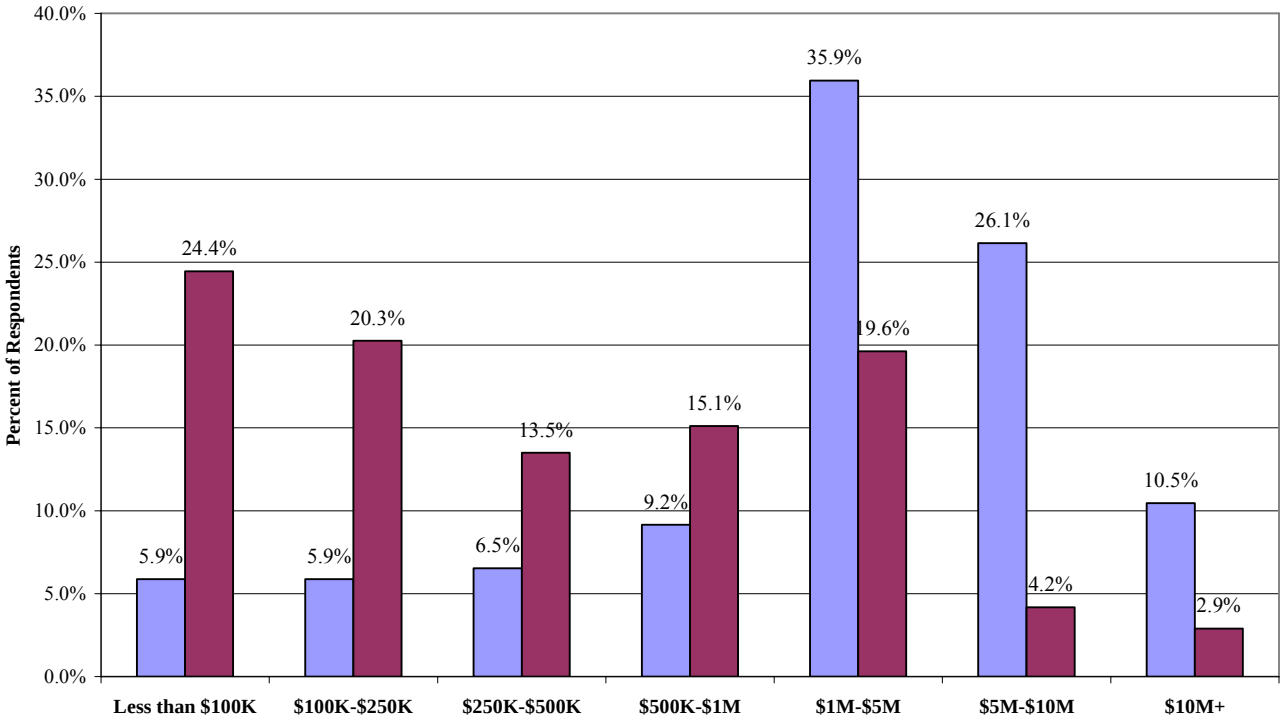
Notes:
(1) Number of employees includes the owner.
(2) "Bidder List" responses are from firms identified as bidding on VTA construction or professional service contracts.
(3) "D&B" responses are from a stratified random sample of firms in construction or professional services from the SJ CSA, Sacramento County, and San Joaquin identified via Dun & Bradstreet.
Source: Surveys conducted by The Henne Group and QSA Research & Strategy, September-October 2006 and July-August 2007.

Figure 9: Summary of Survey Respondents: Distribution of Firm Size by Ownership: Number of Employees



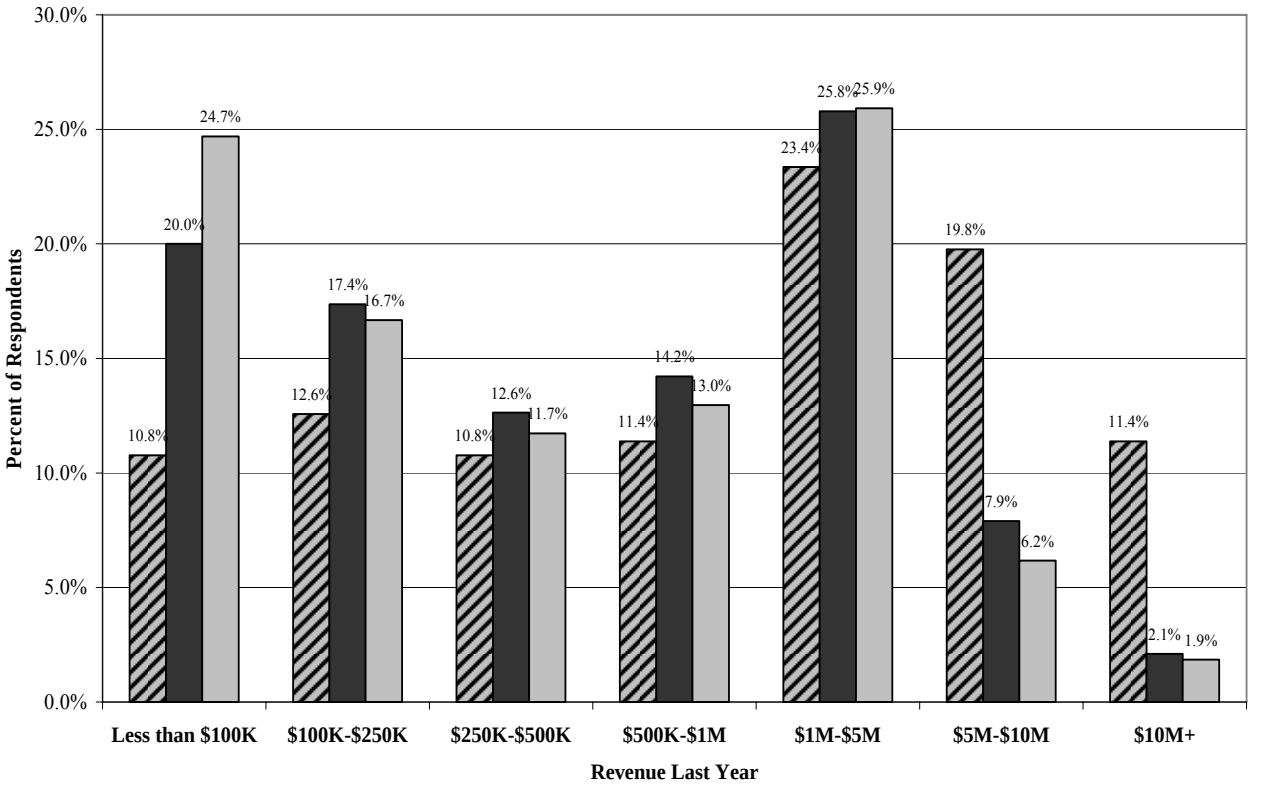
Notes:
(1) Number of employees includes the owner.
(2) Respondents are drawn from firms identified as bidding on VTA construction or professional service contracts as well as from a stratified random sample of firms in construction or professional services from the SJ CSA, Sacramento County, or San Joaquin County identified via Dun & Bradstreet.
Source: Surveys conducted by The Henne Group and QSA Research & Strategy, September-October 2006 and July-August 2007.

Figure 10: Summary of Survey Respondents: Distribution of Firm by Contact Source: Revenue Last Year



Notes:
(1) "Bidder List" responses are from firms identified as bidding on VTA construction or professional service contracts.
(2) "D&B" responses are from a stratified random sample of firms in construction or professional services from the SJ CSA, Sacramento County, and San Joaquin identified via Dun & Bradstreet.
Source: Surveys conducted by The Henne Group and QSA Research & Strategy, September-October 2006 and July-August 2007.

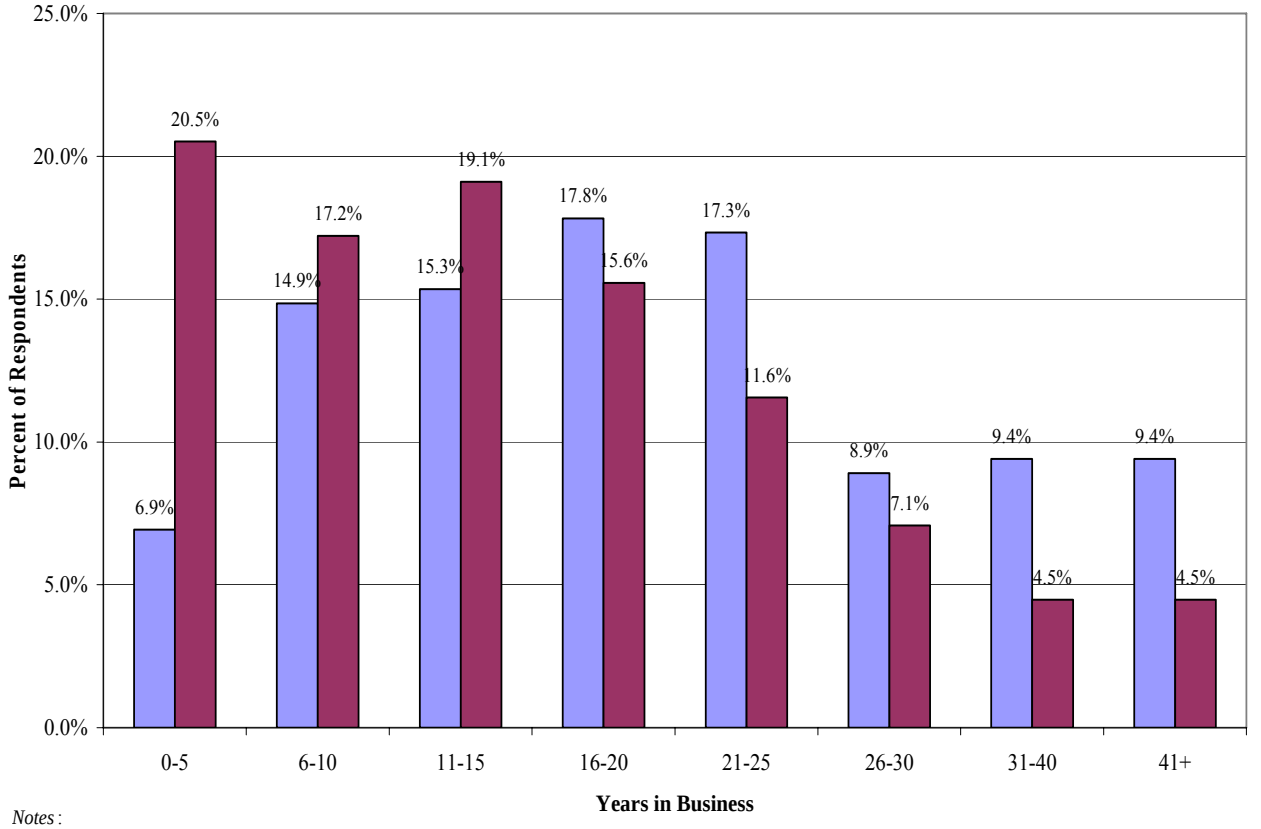
Figure 11: Summary of Survey Respondents: Distribution of Firms by Firm Ownership: Revenue Last Year



Note: Respondents are drawn from firms identified as bidding on VTA construction or professional service contracts as well as from a stratified random sample of firms in construction or professional services from the SJ CSA, Sacramento County, or San Joaquin County identified via Dun & Bradstreet.

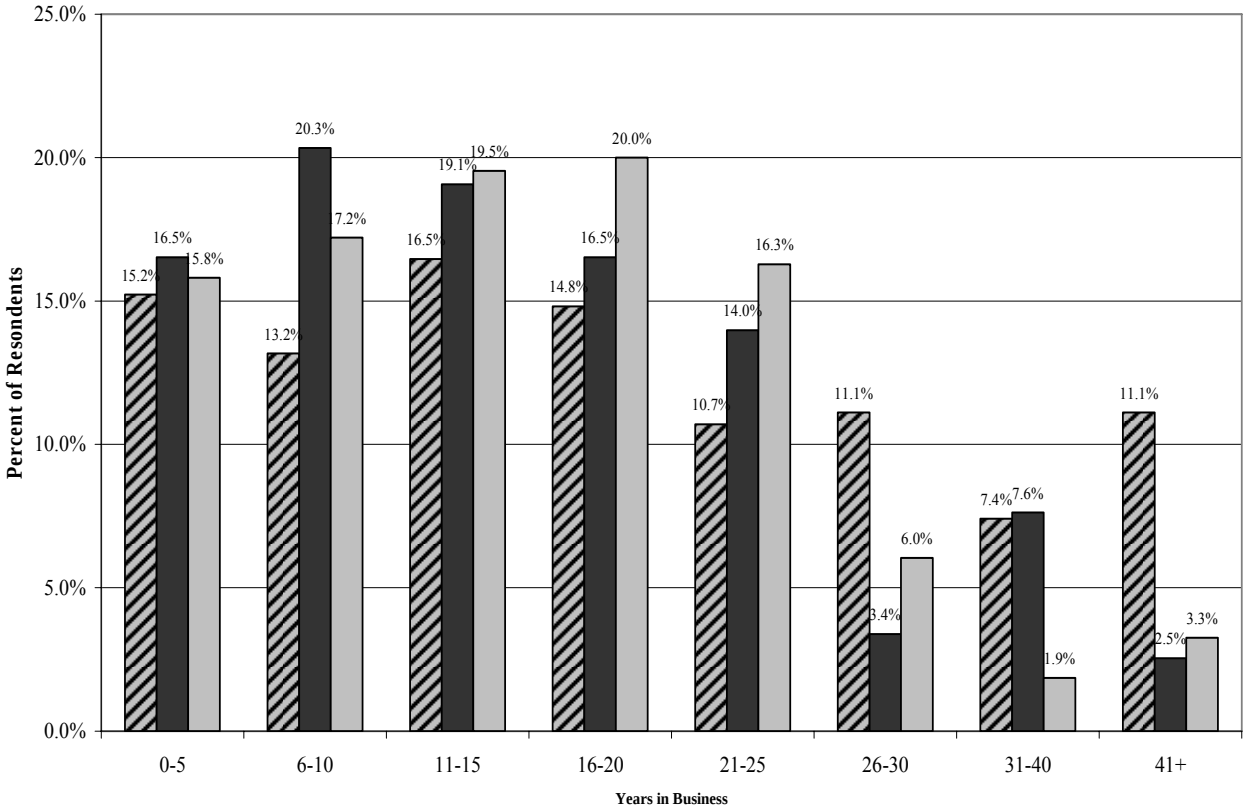
Source: Surveys conducted by The Henne Group and QSA Research & Strategy, September-October 2006 and July-August 2007.

Figure 12: Summary of Survey Respondents: Distribution of Business Experience by Contact Source: Years in Business



Notes:
(1) "Bidder List" responses are from firms identified as bidding on VTA construction or professional service contracts.
(2) "D&B" responses are from a stratified random sample of firms in construction or professional services from the SJ CSA, Sacramento County, and San Joaquin identified via Dun & Bradstreet.
Source: Surveys conducted by The Henne Group and QSA Research & Strategy, September-October 2006 and July-August 2007.

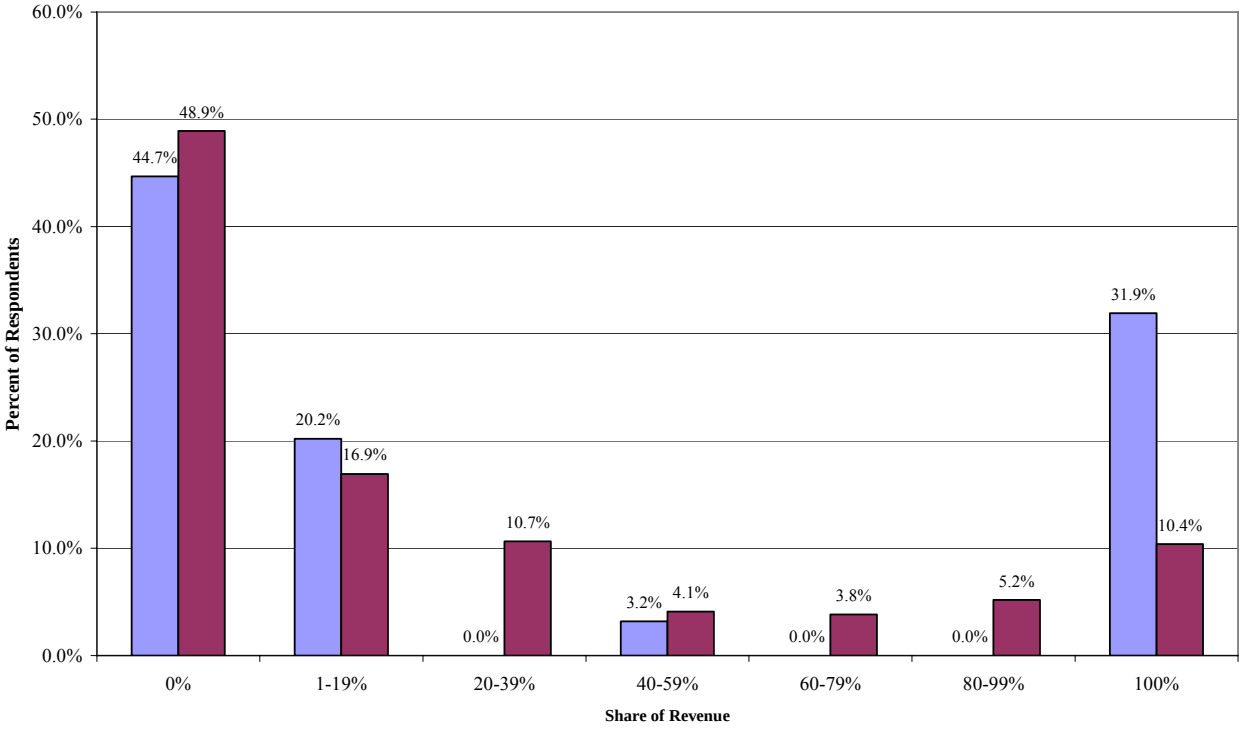
Figure 13: Summary of Survey Respondents: Distribution of Business Experience by Firm Ownership: Years in Business



Note: Respondents are drawn from firms identified as bidding on VTA construction or professional service contracts as well as from a stratified random sample of firms in construction or professional services in the SJ CSA, Sacramento County, or San Joaquin County identified via Dun & Bradstreet.

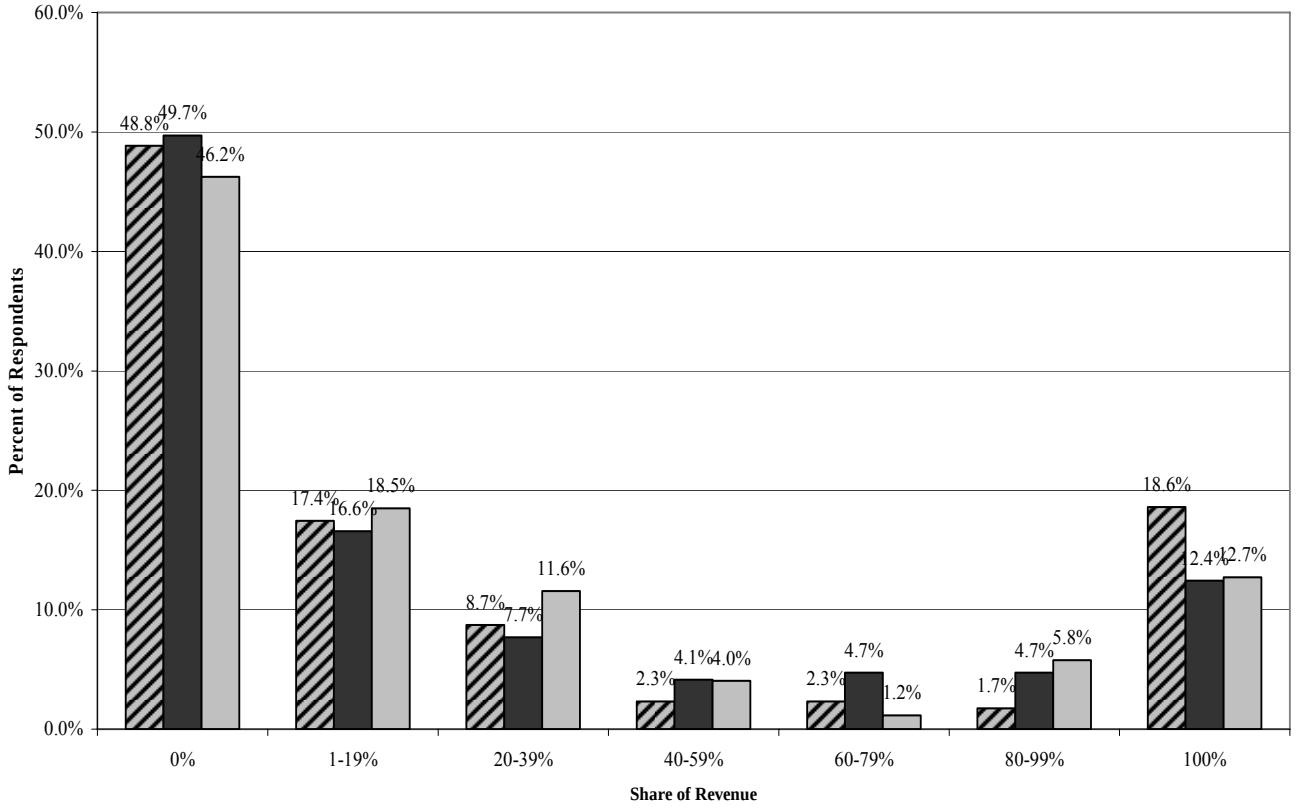
Source: Surveys conducted by The Henne Group and OSA Research & Strategy, September-October 2006 and July-August 2007.

Figure 14: Summary of Survey Respondents: Share of Revenue by Subcontractor Work by Contact Source: Revenue from Past Five Years



Notes :
(2) "Bidder List" responses are from firms identified as bidding on VTA construction or professional service contracts.
(3) "D&B" responses are from a stratified random sample of firms in construction or professional services from the SJ CSA, Sacramento County, and San Joaquin identified via Dun & Bradstreet.
Source: Surveys conducted by The Henne Group and QSA Research & Strategy, September-October 2006 and July-August 2007.

Figure 15: Summary of Survey Respondents: Share of Revenue by Subcontractor Work by Firm Ownership: Revenue from Past Five Years



Note : Respondents are drawn from firms identified as bidding on VTA construction or professional service contracts as well as from a stratified random sample of firms in construction or professional services from the SJ CSA, Sacramento County, or San Joaquin County identified via Dun & Bradstreet.
Source : Surveys conducted by The Henne Group and QSA Research & Strategy, September-October 2006 and July-August 2007.

C. Comparison of VTA Survey Results to the Results of a Similar Survey Conducted for SF MTA and SFO

While the VTA survey is similar to the survey conducted for our recent study for the City and county of San Francisco, there are some notable differences with respect to impediments to contracting, access to capital, and reliance on public sector work. Comparisons regarding these concerns are described below.

Impediments to Contracting

Minority-owned and woman-owned firms who bid on San Francisco Municipal Transportation Agency (SFMTA) and San Francisco International Airport (SFO) construction and professional service contracts MTA and SFO contracts reported similar experiences relative to white male owned firms regarding most impediments to contracting. Minority-owned and woman-owned bidders report facing these impediments more frequently than non-minority male-owned firms do. Table 68 compares the

frequency with which respondents in each survey indicated difficulty obtaining contracts as a result of commonly identified impediments.

Bidders in both surveys reported project size and lack of bidding time from prime contractors among their three most frequently reported problems. VTA bidders identified cost of completing paper work among the top three, while SFMTA and SFO bidders reported prior experience among the top three. VTA bidders did frequently report the latter (27% compared to 33.8% for SF) but this did not place it among the top three. Interestingly, none of the SFMTA and SFO bidders reported paperwork costs as an impediment.

Minority- and woman-owned firms report impediments more frequently than their white male owned counterparts on the same factors for the most part. There are, however, some notable differences. For example, VTA bidders report requirements concerning prior experience a problem twice as frequently as white male-owned firms. In the SF MTA and SFO survey, minority- and woman-owned bidding firms report the same impediment six times as frequently as white male-owned firms. VTA minority- and woman-owned bidders reported the price of supplies and materials less often than white male-owned firms (11.1% vs. 22.2%). This was not case among SFMTA and SFO bidders.

Access to Capital

Table 69 compares the access to capital for contractors in each survey. Minority and female bidder list respondents from both surveys report using personal savings, friends and family, and credit cards at higher frequencies than non-minority male-owned firms. These respondents also report using commercial bank loans less frequently than non-minority male-owned firms do. However, differences among the three groups are smaller for VTA bidders. For example, in the VTA survey, 28.6% of minority-owned firms reported using commercial bank loans compared to 31.5% of non-minority male-owned firms. Whereas in the SF MTA and SFO survey, 32.5% of minority-owned firms reported using commercial bank loans compared to 48.6% of non-minority male-owned firms. Unlike their SF MTA and SFO counterparts, minority and female bidder list respondents from the VTA survey use bank line of credit less frequently than non-minority male-owned firms. In the VTA survey, 39.7% of minority firms and 44.2% of woman-owned firms report using bank line of credit for funding compared to 45.4% of non-minority male-owned firms. In the SF MTA and SFO survey, 71.3% of minority-owned firms and 69.6% of woman-owned firms report using bank line of credit compared with only 62.2% of non-minority male-owned firms.

Reliance on the Public Sector

In the VTA survey, minority and female bidder respondents generally report receiving a lower share of work from the public sector than non-minority male-owned firms. However, minority-owned construction firms report receiving a slightly greater share of

public sector work than non-minority male-owned firms. Contrary to VTA survey respondents, minority and female bidder respondents from the SF MTA and SFO survey report receiving a greater portion of work from the public sector than non-minority male-owned firms. With the exception of woman-owned construction firms, minority and female bidder respondents in the VTA survey also report receiving a lower share of work from subcontracting. The opposite is true of bidder respondents in the SF MTA and SFO survey.

Table 68: Summary of San Francisco Bay Area Disparity Study Findings

	Firms bidding on VTA Contracts		
	Minority-Owned Firms [1]	**Woman-Owned Firms [2]**	**Non-Minority Male-Owned Firms [3]**
Bonding requirements	15.9%	17.3%	15.7%
Insurance requirements	25.4%	26.9%	23.1%
Requirements concerning prior experience	27.0%	23.1%	12.0%
Bid or proposal costs	31.7%	30.8%	14.8%
Projects are too large	42.9%	40.4%	19.4%
Price of supplies or materials	11.1%	17.3%	22.2%
Not being able to get sufficient sources of funding	25.4%	21.2%	9.3%
Prime contractors don't give you enough time to bid	33.3%	36.5%	29.6%
Not having enough experience working for the company, agency or prime contractor to have a chance to work	28.6%	21.2%	13.9%
The cost of completing the paperwork and becoming certified as a Women-owned or Minority-owned Business Enterprise.[(2)]	54.0%	67.3%	0.0%

Note:
The respondents were asked whether they have experienced the above impediments in the past five years. This was not a free response question.

Source:
Surveys conducted by The Henne Group and QSA Research & Strategy, September through October 2006 and July through August 2007.

Table 69: Summary of San Francisco Bay Area Disparity Study Findings

	Firms Bidding on VTA Contracts		
	Minority-Owned Firms [1]	**Woman-Owned Firms [2]**	**Non-Minority Male-Owned Firms [3]**
Personal savings	50.8%	50.0%	27.8%
Friends and family	34.9%	26.9%	9.3%
Commercial bank loans	28.6%	30.8%	31.5%
Credit cards	31.7%	30.8%	16.7%
Bank line of credit	39.7%	44.2%	45.4%
Other	3.2%	1.9%	3.7%

Note:
The respondents were asked to identify the primary sources of funding other than business earnings their firms have used to expand their businesses or meet financial obligations when there is a cash flow problem. This was not a free response question.

Source:
Survey conducted by The Henne Group and QSA Research & Strategy, September through October 2006 and July through August 2007.

D. Summary of Anecdotal Data Collected from In-Depth Interviews

CRA followed up the survey of bidders to VTA with in-depth interviews with bidding firms regarding identified impediments to contracting. Information was collected from a sampling of firms ready, willing and able to do business with public transportation entities including VTA – who indicated during the survey a willingness to provide additional information. These firms expressed several concerns about the difficulties in securing contracts. The group was also questioned about whether these difficulties were related to their race or gender. The average interview time was one hour, although this fluctuated between 45 and 90 minutes. All those interviewed were either the owner or president of their firms.

Overall, the firms expressed the need to maintain some type of race and gender conscious programs, albeit with more compliance enforcement. The need for such programs is evident given that in every DBE interview summarized here, firms stated that they have either never or seldom been asked to participate on a project if there were no MWBE or DBE requirements.

1. Characteristics of Firms Interviewed

Thirteen firms were interviewed in depth. The types of businesses varied and included engineering and architecture, construction and construction related services, electrical contractors, concrete services, real estate services, and supplies such as painting, traffic and electrical supplies. Total revenue for last fiscal year covered a wide range spanning $50,000 to $5 million. Most firms reported that their primary source of revenue was public sector work, though two reported revenue shares of 30% or less attributable to the public sector. Years in business ranged from five to over 25 years. Eleven of the thirteen firms interviewed were minority- or woman-owned and headquartered in California.

Two firms were woman-owned (both minority females), three African American-owned, five Hispanic-owned, one Native American-owned, and one Asian-owned.

2. Findings Based on Interviews

Interviews were structured to address in depth the main topics identified via the first round survey regarding impediments to securing contracts. Firms offered responses that speak both to race and gender neutral issues, e.g. those faced by all SBE firms, and also to issues related specifically to race and gender discrimination faced by MBE and WBE firms alone.

a) Obstacles Related to Race, Ethnicity or Gender

Higher Standards for MBE and WBE Firms

Requirements concerning prior experience were commonly raised as an obstacle to contracting. Some firms indicated that MBEs and WBEs were held to a higher standard than their White male-owned counterparts. Firms indicated that effect the differing standards have on their ability to obtain contracts diminishes only after many years in business allowed them to develop a reputation in a single field of expertise. Further, experienced MBE and WBE firms mentioned that it was more difficult for them to break into work in a related industry (e.g. transit work to airport work) than it was for their White male-owned counterparts.

Cost of Supplies and Materials

The cost of supplies or materials was definitely a concern for those in construction services, and in particular for suppliers. WBE firms noted that they were often given a higher price for materials than their male-owned counterparts, and they believe that the higher prices were related to their gender.

Ability to Obtain Sufficient Sources of Funding

Even for the most established firms interviewed, the ability to obtain sufficient funding to support operations was identified as an issue. This was identified as a crucial obstacle by all firms, including both White male-owned firms. Most interviewees said mainly because of size banks and other financial institutions are not willing to take the risk of funding. Most have said that they have had to rely on their personal finds, credit cards or other measures such as home mortgages as a means for funding. When compared with the evidence presented earlier in this report regarding disparities in access to financial capital (see Section VI), a compelling picture of the higher obstacles faced by minority-owned firms develop. For reasons unexplained by differences in income and assets, minorities have a more difficult time accessing credit, and when they do it comes at higher costs on average. This evidence is of crucial import given the central role funding plays not only in firm formation, but also in the ability to acquire contracts.

Time to Bid and "Bid Shopping"

Insufficient time allowed by prime contractors to bid was identified as an obstacle by the majority of firms interviewed that do mostly subcontracting. They indicated that their White male-owned competitors are normally given more time to bid or the primes wait until the last minute to ask for a bid from MBEs and WBEs because of "bid shopping". Interviewees that were MBEs, and especially those that were WBEs, felt as though their race and gender was a factor. This indicates that MBE and WBE firms may only have been considered for cosmetic purposes related to compliance with suggested or required good faith efforts.

Effect of Corrective Measures in the Public Sector

Although the interviewed firms felt that obtaining local, state or federal contracts was not a major difficulty, most felt that politics and "who you know" had a lot to do with contract awards. However, some firms stated that because of race conscious goals programs in the public sector, these types of contracts provided opportunities private entities could not. Given difficultly minority- and woman-owned firms face in accessing long established business networks, public contracting is still viewed as more accessible to these firms than private sector opportunities. Private business contracts were noted as more difficult to obtain than government contracts. Interviewees added that this was usually because of the prevalence of the "good ole boy system" and lack of MWBE goals in private contracting.

Disparate Treatment in Bonding Based on Race

Based on the interviews completed, being bonded stands as the top difficulty related to securing contracts in the construction industry. In conjunction with the bonding requirements, the ability to get bonding for smaller firms is an arduous and often insurmountable task. Especially for younger firms, interviewees explained that the bonding agency does not want to take the risk to bond with them at a certain limit that may be necessary to do the contract. Many interviewees commented that costs to receive the necessary bonding were excessive and they felt as though they were being overcharged. Even long established firms stated that despite their reputation of never walking off a job, bonding agencies would not allow the same leniency for bonding for the MWBEs that was offered to their White male-owned competitors regardless of the size of their business. Therefore, many MBEs felt that their race was a factor in this difficulty.

Effects of Long Established "Good Ole Boy" Networks

The WBEs in the interview group as well as some MBEs were especially vocal about the "good ole boy" system. They commented that this clique of the same contractors or firms depends on the industry but usually lead to contracting preferences toward only White male-owned firms for work. These cliques perpetuate the perceptions that only these few White male-owned firms are capable to perform the work and that MBE and WBE firms cannot perform at the same level.

Effects of Pervasive Stereotypes Held by Primes Regarding MBE and WBE Firms

MBEs and WBEs expressed the difficulty associated with trying to break the stereotypes of inferiority and incompetence associated with being a MBE and WBE. Interviewees expressed that the effects of these stereotypes were apparent when attempting to obtain subcontracts from prime contractors. The WBEs stated that despite their female ownership, customers, other contractors and even government agency personnel ask to speak to the "husband" in order to conduct business affairs. These perceptions have made it difficult to get subcontracts from prime contractors. Most firms stated that these perceptions are based on their gender and race which strongly impacts their ability to gain subcontract awards.

Disparate Treatment in Receiving Agreed Upon Share of Work from Primes

Interviewees often reported problems with receiving the agreed up on share of project work from prime contractors. The problem here was reported as twofold. First, interviewees reported that success with receiving the agreed upon share of work was related to the number of years in business by their firm. Those that were more experienced claimed to or were seen to have developed a certain rapport and knowledge about the process to protect their firm against this obstacle. Interviewees from firms in business for less than 10 years expressed this as an important difficulty. However, they expressed that they often had little choice but to accept this treatment by primes. Because of the length of time involved in the typical contracting process and the fact that they often already invested time and resources to the project they usually take what is given to them. Given that WBE and MBE firms tend to be younger, as established earlier in this report, this common behavior by primes may have a disproportionate impact on WBE and MBE firms. Importantly, many MBEs and WBEs interviewed felt as though the primes commonly use their company name to meet a required goal and get awarded the contract. Through the manipulation and lack of enforcement of the "Good Faith Efforts" program, the firms felt that the prime contractors often had no intention to utilize them and just made a call or sent a fax to "justify the Good Faith Effort" program. It was also expressed that when MBE and WBE firms are used it is an "after thought" and comes only at the bare minimum necessary to meet the goal requirement.

b) Contracting Obstacles Not Directly Related to Race or Gender

Inefficient Bonding Requirements

Interviewed bidders working in the construction industry often noted that bonding requirements were too strict and not commensurate with the work being performed. Some mentioned that it was interesting that the bonding levels were only high enough for the "big guys" to bond even where the types of projects with these requirements were not the ones the "big guys" wanted to bid because they are too small. Therefore, bonding requirements may be acting to exclude otherwise qualified SBEs seeking to contract with VTA or other entities.

Inefficient Insurance Requirements

According to interview responses, insurance requirements stood as an obstacle that affected almost everyone. The same complaint was voiced several times regarding the cost and the level of insurance needed for projects at VTA and similar agencies. The costs were seen as excessive compared to the work to be performed. Firms also voiced complaints about the time needed for the insurance. They explained that the requirement to maintain insurance for the length of the project was extremely costly and usually much longer than the brief time the firms were actually working on the project.

Bid and Proposal Costs

Bid and proposal costs were not identified as primary issues for most interviewees because most did their work as subcontractors. However, those that have bid or proposed as primes did state that the few times they have done so, it was extremely cost prohibitive. In fact, some have chosen not to bid prime work especially for public entities. In order to encourage qualified but smaller firms to participate as prime contracts, it will likely be helpful for VTA and other similar agencies to reduce these burdens as much as possible.

Cost of Supplies and Materials – Impact of Project Delays on Smaller Firms

Construction firms mentioned that the time delay and length of public sector contracts with no reasonable allowances for escalation in cost of materials makes it extremely difficult to compete with their larger colleagues.

Receiving Payments Due From Prime Contractors

Based on the interviews completed, getting paid by the prime contractor for work performed stands out as one of, if not *the* top obstacle faced by all contractors. Prime contractors' knowledge that small contractors don't have the "muscle" to fight for payment was explained as the key to this difficulty. The interviewed firms stated that some have waited almost 6 months after submitting invoices for payment. The firms also attributed the difficulty to the lack of enforcement of the prompt payment on the part of the ultimate contracting agencies. Interviewees expressed that the prime contractors know this and take advantage of subcontractors - especially the smaller firms. One firm stated that they know the MWBE laws and has tried to take action to enforce them, but the climate in California regarding MWBE program enforcement makes it very difficult.

E. Additional Anecdotal Evidence from the SF Bay Area

We identified and reviewed anecdotal evidence from four sources developed in the San Francisco Bay Area:

- Survey conducted by the Regional Transit Coordinating Council
- Hearings conducted by the Regional Transit Coordinating Council
- Interviews from a disparity study conducted for Alameda County
- Survey conducted by Asian Inc. and San Francisco State University

Each of these is summarized below.

1. The Regional Transit Coordinating Council (RTCC) Minority Affairs Committee DBE Program Survey

In the spring of 2006, the RTCC conducted a mail-in survey of businesses that have contracted or expressed interest in contracting with the City of San Francisco. Entitled the "Disadvantaged Business Enterprise Program Survey," the survey collected information from 45 businesses on firm characteristics (e.g., primary specialty, revenues, and location), experience with discrimination, and impacts of the DBE program. Specifically, the RTCC survey instrument asks whether respondents have experienced any instance of discrimination in obtaining either public or private sector work.

Of the 45 respondents, 20 answered affirmatively that they had experienced discrimination. Eight additional respondents answered affirmatively to this question, but provided detail that did not directly address discrimination, such as attributing the prohibitive sizes of public contracts to futility of DBE bidding. Several respondents remarked that absent DBE race and gender-conscious programs, their firms would either lose any opportunity to be considered by prime contractors on public contracts or go out of business altogether. Other common responses include the assertion that DBE respondents were only considered where DBE requirements were in place and were not otherwise contacted by prime contractors. Five businesses offered that they were not utilized on work promised when contracts were awarded based in part on their DBE participation. Finally, in identifying the most prominent barriers to obtaining work and business growth, responses included insufficient size to bid on prime contracts, lack of established business networks for DBEs, financing (bank loans and equipment loans), insurance, and performance bonds.

2. RTCC Public Hearings

In addition to the DBE Program Survey, the RTCC Minority Affairs Committee conducted a public participation session to obtain information from businesses and organizations most impacted by the Disadvantaged Business Enterprise (DBE) goals set by the US Department of Transportation. The RTCC held sessions on May 4, 2005, and April 25, 2006. These sessions were attended by representatives from 11 businesses and organizations. The top concern (voiced by 6 of 11 participants) in these two sessions was DBE goal compliance. Participants who were DBE firms cited incidents in which prime contractors dropped them from contracts without reason or gave them less work (and subsequently, payment) than originally specified in the contract. One firm representative said that his firm had agreed to a joint venture with a large firm, but was dropped once it was revealed there was no DBE goal on the contract.

3. Anecdotal Evidence from the 2004 Alameda County Study

Alameda County, within the SJ CSA, sponsored a disparity study in 2004. To understand the barriers faced by minority- and woman-owned businesses, the County's contractor

conducted oral history interviews with 61 Alameda County business owners. Of the 61 participants, 33% were African American, 24% were Asian American, 18% were Hispanic, 2% were Native American, and 23% were Caucasian. Forty-nine of the participants were female. Mason Tillman had a sample of participants from each of the relevant industry groups: 39% provided construction services, 21% provided architecture and engineering services, 17% provided professional services, and 23% provided goods and other services. Thus, many of these firms provide services sought by SFMTA and SFO and operate within the relevant market.

The testimony gathered suggests that discrimination is still pervasive. Race and gender were still cited as a major barrier, particularly for African American and woman business owners. Many participants cited significant hurdles with public contracting and with Alameda County's small business and MWBE programs—from the certification and bidding processes to the delayed payments from prime contractors—but felt that the programs were valuable because they play a significant role in keeping their businesses solvent.

4. Survey of Caltrans' Certified DBEs

In 2006, a survey of firms participating in Caltrans' race- and gender-conscious DBE program was undertaken by Dr. Sheldon Gen and other members of San Francisco State University's Public Administration Program. Their report, "Experiences, Perceptions and Preferences of Caltrans' Certified DBEs,"[50] describes in detail the results of their survey of 226 certified DBE firms. The field for this survey included but was not limited to firms in Professional Services and Construction in the SJ CSA. The results of this survey conform to those found in the more focused survey conducted in concert with this study. Firms surveyed clearly expressed the sentiment that they would be unable to participate in successful public contract bids in the absence of the DBE program. Nearly two-thirds of respondents felt they would be unable to obtain Caltrans or other public works contracts without the DBE program. Furthermore, respondents felt that inquires from prime contractors on contracts with DBE contracts would cease without DBE participation requirements. While 60.5% agreed that their companies receive inquiries from prime contractors when DBE requirements are present, 65.2% indicated there were no inquiries when primes are not required to adhere to DBE participation goals.

5. Caltrans Disparity Study

The California Department of Transportation, Caltrans conducted a disparity study completed in June 2007. As noted elsewhere in this report, the study found underutilization of minority and woman-owned firms in construction and professional services in the absence of race conscious affirmative action programs. The study's findings regarding firm formation and access to capital were similar to those reported here.

[50] J. Chung, L. McCabe, S. Seigel and S. Gen, *Experiences, Perceptions and Preferences of Caltrans' Certified DBEs*, San Francisco State University Public Administration Program and Asian Inc., June 2006.

6. San Francisco City and County Disparity Study

The City and County of San Francisco recently completed a disparity study for the Metropolitan Transportation Agency and San Francisco International airport. This study also found disparities for most minority and woman-owned firm categories. As discussed elsewhere in this report, the survey conducted for the San Francisco study produced results similar to those reported here.

F. Prior Disparity Findings in the SF Bay Area

We have collected and reviewed 15 disparity studies conducted for various local government agencies operating within the SF Bay Area between 1989 and 2004. The results of these studies are summarized in Table 70 for construction, professional service, and architecture and engineering firms. As shown in these tables, underutilization of most minority firms has been persistent over time and across the region. African American construction firms were underutilized according to 13 of 15 studies addressing this category. Underutilization was found as recently as 2003 and 2004. Asian-owned and Hispanic-owned construction firms were found to be underutilized in 11 of 15 studies. Underutilization was found as recently as 2004. Woman-owned construction firms were found to be underutilized in 13 of 15 studies, most recently in 2004.

African American and Asian professional service firms were found to be underutilized in 10 of 12 studies addressing this category, most recently in 2004. Hispanic professional service firms were found underutilized in all 12 studies. Woman-owned professional service firms were found underutilized in 11 of 12 studies, most recently in 2004. These results are consistent with the literature and buttress our own findings at the market level.

African American architectural and engineering firms were found to be underutilized in seven of eight studies addressing this category including the most recent in 2004. Asian- and woman-owned firms were found to be underutilized in all eight studies. Hispanic firms were found to be underutilized in seven of eight studies.

We also reviewed a recently released availability and utilization study prepared for the California Department of Transportation.[51] This study, prepared to meet the requirements imposed by Western Paving, covered the entire state including the SJ CSA. The study's findings were consistent with the findings of this study. For example, the study reported a 59% disparity index for minority and woman-owned firms in the absence of a race or gender conscious affirmative action programs. The study also found evidence of discrimination with respect to firm formation earnings and business lending.

[51] BBC Research & Consulting, "Availability and Disparity Study," Final Report, June 29, 2007. Prepared for the California Department of Transportation.

Table 70: Summary of San Francisco Bay Area Disparity Study Findings

	Women	African American	Asian	Hispanic
Construction				
Alameda County, 2004	x	x	x	x
San Francisco, 2003		x	x	
San Francisco, 1998	x	x	x	x
San Francisco, 1998	x	x	x	x
Oakland, 1996*	x			x
Oakland, 1996*	x	x	x	x
Oakland, 1996	x	x	x	
Richmond, 1994	x	x		x
SF Regional Transit Assoc., 1993	x	x	x	x
Hayward, 1993	x	x	x	x
Contra Costa County, 1992	x	x		x
SF Redevelopment Agency, 1992	x		x	
San Francisco, 1992		x	x	x
SF Unified School District, 1991	x	x	x	
San Francisco, 1989	x	x	x	x
Architecture & Engineering				
Alameda County, 2004	x	x	x	x
San Francisco, 2003	x	x	x	x
San Francisco, 1998	x		x	
San Francisco, 1998	x	x	x	x
Oakland, 1996	x	x	x	x
Richmond, 1994	x	x	x	x
SF Unified School District, 1991	x	x	x	x
San Francisco, 1992	x	x	x	x
Professional Services				
Alameda County, 2004	x	x	x	x
San Francisco, 2003				x
San Francisco, 1998	x	x	x	x
San Francisco, 1998	x	x	x	x
Richmond, 1994	x	x	x	x
SF Regional Transit Assoc., 1993	x	x	x	x
Hayward, 1993	x	x	x	x
Contra Costa County, 1992	x	x	x	x
SF Redevelopment Agency, 1992	x			x
San Francisco, 1992	x	x	x	x
SF Unified School District, 1991	x	x	x	x
San Francisco, 1989	x	x	x	x

Notes:
1) "x" denotes a disparity ratio of less than 0.80 in prime contracting, which means that minority- and woman-owned businesses are only used at 80% of their availability. (disparity ratio = utilization/availability)
2) * denotes results cited in "Declaration in Support of Ex Parte Application for Temporary Restraining Order to Show Cause re Preliminary Injunction: Coalition fo Economic Equity et al. v. Wilson et al." (October, 1996)
3) Some reports include "Architecture & Engineering" and "General Services" under "Professional Services."
4) The HRC's "MBE/WBE Program Progress Report for FY1994-1995" study was not included above because it did not provide enough information to calculate disparity ratios.

Sources:
1) "Alameda County Availability Study," Mason Tillman, 2004.
2) "Disparity Analysis: MBE/WBE Utilization," San Francisco Human Rights Commission, 2003.
3) "City and County of San Francisco MBE/WBE/LBE Program," Mason Tillman, 1998.
4) "Disparity Study 1996-1997," San Francisco Human Rights Commission.
5) "Declaration in Support of Ex Parte Application for Temporary Restraining Order to Show Cause re Preliminary Injunction: Coalition for Economic Equity et al. v. Wilson et al.," 1996.
6) "Disparity Study, City of Oakland and Redevelopment Agency," Mason Tillman, 1996.
7) "City of Richmond Disparity Study," Mason Tillman, 1994.

8) "The Utilization of MBE/WBE by San Francisco Regional Transit Association," NERA Economic Consulting, 1993.
9) "The Utilization of Minority and Women-Owned Business Enterprises by The City of Hayward," NERA Economic Consulting, 1993.
10) "The Utilization of MBE/WBE by Contra Costa County," NERA Economic Consulting, 1992.
11) "The Utilization of Minority and Woman-Owned Business Enterprises by the San Francisco Redevelopment Agency," NERA Economic Consulting, 1992.
12) "Sunset Report," San Francisco Human Rights Commission, 1992.
13) "MBE/WBE Disparity Study for San Francisco Unified School District," BPA Economics, 1991.
14) "Statistical Support for San Francisco's MBE/WBE/LBE Ordinance," BPA Economics, 1989.

X. Implications for Race and Gender Neutral Methods

A. Overview

The statistical and anecdotal analyses presented here suggest that there are some race neutral remedies that may assist minority and woman owned businesses overcome barriers to successfully operating in the local market. These remedies are consistent with those identified in 49 CFR Part 26.51(b). The Federal Rule lists nine race neutral means to promote disadvantaged businesses. These include:

1. *Arranging solicitations to facilitate disadvantaged business participation.*

This may include unbundling large contracts, revising bid schedules or promoting the use of small businesses by prime contractors.

2. *Providing assistance to overcome limitations such as bonding or financing*.

This may include reduced bonding requirements or assistance in locating bonding or financing.

3. *Providing technical assistance*

No examples are provided in the rule.

4. *Carrying out information and communications programs*

This includes providing notification to potential prime and subcontractor bidders regarding specific bidding opportunities and general contracting procedures. Reliance on multiple languages is encouraged where appropriate.

5. *Implementing support services program*

Support services designed to develop and improve disadvantaged businesses' management, record keeping, and accounting.

6. *Providing services to help disadvantaged businesses to expand capabilities and achieve self sufficiency*

These services should be designed to help businesses become capable of handling more and different types of projects.

7. *Establishing a program to assist start-ups.*

Such programs should be designed in particular to address fields with historically low disadvantaged business participation.

8. Ensuring distribution of DBE directories

Efforts should be made to reach the "widest feasible universe of potential prime contractors" through print and electronic means.

9. Assisting DBEs to develop capabilities to utilize emerging technology and electronic media.

No specific examples were provided.

B. Potential Remedies

This study suggests that three of the means identified in the Rule may be particularly effective: 1) contract changes; 2) improved access to capital; and 3) assistance to start-ups.

1. Contract Changes

The most frequently identified obstacle to obtaining contracts by minority and woman owned firms in our survey was project size. As noted in section IX about 40% of survey respondents made this claim. Consequently, efforts to split large contacts into smaller ones could be helpful to many disadvantaged firms. The recently completed Caltrans study drew a similar conclusion.

Lack of experience was also frequently cited as an impediment in our survey (minority firms reported this 27% of the time, woman-owned firms reported it 23.1 % of the time). VTA may be able to address this several ways. The Authority, for example, could modify the weight it gives to prior experience in selecting contractors. The Authority could also promote a mentor-protégé program similar to the one piloted by Caltrans in its Oakland and Los Angles districts. Similarly, VTA could promote joint ventures between larger non minority firms and smaller less experienced disadvantaged firms. There has already been some success in this area.

Bid expense was raised as an impediment by almost one third of the minority- and woman-owned firms surveyed – twice as often as non minority firms. Thus, streamlining the bidding process could be helpful. VTA already provides on-line access to portions of the bidding process. Further refinements to this could lower bidding costs. These refinements could be coordinated with other changes to improve the tracking of disadvantaged firm bidding.

Problems with prime contractors regarding adequate time to bid were also frequently reported. A third or more of minority and woman owned firms complained about this as

did almost as many non minority firms. This suggests that a more specific schedule regarding subcontracting opportunities may be advisable.

2. Improved Access to Capital

As noted in Section IX, 25% of minority firms report access to capital as an impediment to contracting. Woman owned firms report this at slightly lower frequency. Both groups report this impediment twice as often as non minority firms. As a result minority and woman owned firms rely more frequently on personal savings and friends and family. Our statistical analysis also documented this problem and showed that borrowing is more difficult and more costly to small minority and woman owned firms. (See Section VI. C.) Bonding requirements were reported as a problem by only about 16% percent of survey respondents and not reported more frequently by minority or woman owned firms than non minority firms. Our in depth interviews, however, did indicate that this was a problem for some bidders. Thus, while reducing bonding and surety requirements may help disadvantaged businesses, access to capital appears more critical and may require more aggressive action in the form of loan subsidies, low interest loans and financial counseling. The Caltrans study, for example, identified the California Small Business Loan Guarantee program as a possible source of funding. Federal SBA programs may also be helpful. At a minimum, counseling to make firms more aware of these programs could prove useful.

3. Helping Start-ups

Our statistical analysis demonstrates that minority firm start-up rates are well below what would be expected even controlling for experience, education, and income. (See Section VI.) In addition, the analysis indicated very low availability of firms from most minority categories suggesting that firms find it difficult to survive. Consequently, programs designed to incubate new firms appear attractive. One such approach is the mentor-protégé program that teams larger successful firms with smaller new DBE firms. According to the Caltrans study, pilot programs of this type have initially proven successful in two Caltrans districts (Oakland and Los Angeles). There is also evidence that such programs can be successful at VTA. At least one joint venture between a non minority firm and a DBE firm has won multiple contracts.

XI. Conclusions

A. Statistical Evidence

In this section we consider our findings with respect to both statistical and anecdotal evidence and discuss their implications for re-establishing a race and gender conscious program for federally funded transportation projects.

Table 71 summarizes the results of our statistical analyses by race and gender group and industry. In brief, these analyses provide evidence that minority- and woman-owned firms in both construction and related professional services face discrimination in the SJ CSA and relevant surrounding areas. This is the case from several perspectives: the market as a whole, the private sector market, and the contracting opportunities provided by VTA. Similar to the Equal Employment Opportunity Commission's Uniform Guidelines, we consider any ratio at or below 80% to have practical significance. That criterion was met by 45 of the 60 disparity ratios presented here. However, all of those exceeding 80% were influenced by race and gender conscious corrective measures. As a consequence, these ratios may mask evidence of discrimination that would arise absent such measures. In addition, ratios exceeding 100 do not necessarily reflect over-utilization. Only ratios at or above 120 should be considered of practical significance.

A discussion of the results from each perspective by industry and group follows.

Table 71: Statistical Evidence of Discrimination in SJ CSA and Surrounding Areas

		Firm Formation Disparity Ratio[1]	Private Sector Disparity Ratio[2]	Disparity Ratio Using SBO Potential Availability[3]	Disparity Ratio Using Unadjusted SBO Availability[4]	Disparity Ratio Using SBO > $50K Availability[5]
CONSTRUCTION						
Women	contracts with DBE Requirements	48	56	20	36	46
	contracts with SBE Requirements			26	47	60
African Americans	contracts with DBE Requirements	42	32	25	52	81
	contracts with SBE Requirements			0	0	0
Asian/Pacific Islander	contracts with DBE Requirements	83		9	10	12
	contracts with SBE Requirements			4	4	5
Hispanics	contracts with DBE Requirements	63		63	87	102
	contracts with SBE Requirements			51	70	82
PROFESSIONAL SERVICES						
Women	contracts with DBE Requirements	57	29	14	18	25
	contracts with SBE Requirements			11	14	19
African Americans	contracts with DBE Requirements	37	36	35	70	123
	contracts with SBE Requirements			42	84	148
Asian/Pacific Islander	contracts with DBE Requirements	51		75	107	136
	contracts with SBE Requirements			98	141	179
Hispanics	contracts with DBE Requirements	59		64	78	115
	contracts with SBE Requirements			54	66	97

Notes:
Please see Tables 43, 49, 55 and 59 for additional notes and sources.
Disparity ratios were calculated for two sets of contracts - delineated by whether bidding requirements were race and gender conscious or neutral. The first contract grouping covers contracting when VTA was employing a race and gender conscious disadvantaged business enterprise (DBE) program. Prime contractors who bid on contracts with DBE requirements were required to hire a certain portion of DBE (including minority-owned business enterprises, or MBEs, and woman-owned business enterprises, or WBEs) subcontractors to fulfill contract obligations. The second contract grouping covers contracting when VTA was employing a race and gender neutral small business enterprise (SBE) program. Prime contractors who bid on contracts with SBE requirements are required to hire a certain portion of SBE subcontractors to fulfill contract obligations.
1) The firm formation disparity ratio is calculated as the ratio of actual new firm formation rate to the predicted firm formation rate, mutliplied by 100.
2) The private sector disparity ratio is calculated as the ratio of private sector utilization to SBO availability, multiplied by 100.
3) The SBO potential availability disparity ratio is calculated as the ratio of VTA utilization to the discrimination-adjusted measure of SBO availability. The discrimination-adjusted SBO availability accounts for the difference between actual and predicted availability rates.
4) The Unadjusted SBO availability disparity ratio if calculated as the ratio of VTA utilization to the SBO availability for all firms.
5) The SBO >$50K availability disparity ratio is calculated as the ratio of VTA utilization to the >$50K SBO availability. The SBO >$50K availability excludes firms with less than $50,000 annual revenue.

Construction

Woman-Owned Firms

The statistical analyses taken together provide evidence that woman-owned firms face discrimination in the SJ CSA and surrounding areas construction market. Firm formation is only 48% of what is predicted in a gender-neutral environment, and firms operating in private sector of the market within the SJ CSA and surrounding areas are significantly underutilized relative to available woman-owned construction firms (56%). Using either SBO-based potential availability or actual availability with or without a firm size restriction, woman-owned construction firms have been significantly underutilized. Disparity ratios do not exceed 60%. Disparity ratios are also low whether or not a race and gender conscious affirmative action program is in place. Ratios are higher when VTA contracts employ a race and gender conscious disadvantaged business enterprise (DBE) program compared with a race and gender neutral small business enterprise (SBE) program, but still remain well below the 80% threshold.

Woman-owned firms account for only 5.6% of firms operating in the relevant market according to SBO data and only 4.3% of those reporting annual income greater than $50,000. This low availability is consistent with our finding of low woman-owned firm formation rates. Taken as a whole, our data strongly support the conclusion that woman-owned construction firms suffer discrimination in the private and public contracting market in the SJ CSA and relevant surrounding areas.

African American-Owned Firms

The combined statistical measures provide evidence that African American-owned construction firms also face discrimination in the SJ CSA and relevant surrounding areas. These firms suffer from low firm formation, which is only 42% of what is predicted in a race-neutral environment. Minority firms including African American-owned firms operating in the private sector of the market within the SJ CSA and surrounding areas are also significantly underutilized (32%) relative to the availability of minority-owned firms. Importantly, disparity ratios for African American firms decline notably when analysis of VTA contracting is based on contracts employing a race and gender neutral SBE program rather than a race and gender conscious DBE program. This is the case regardless of the availability measure used. Even using the most restrictive availability measure – SBO firms with revenues in excess of $50,000—the disparity ratio falls from 81% to zero.

African American-owned firms of any size account for only 2.0% of firms operating in the market according to SBO data. African American firms with annual revenues in excess of $50,000 account for only 1.3% of the market. These statistics are consistent with our finding of low firm formation among African Americans. Thus, overall, the evidence indicates that African American-owned construction firms face discrimination in the local private and public markets, and that remarkably few of them even exist.

Asian American-Owned Firms

Taken together, the statistical analyses also indicate that Asian American-owned construction firms face discrimination in the construction market with the SJ CSA and relevant surrounding areas. Firm formation is 83% of what would be expected in a race-neutral environment. Minority-owned firms including Asian American-owned firms operating in the private sector are significantly underutilized (32%) relative to their availability in the market. Asian American-owned construction firms were underutilized on VTA construction contracts using all three availability measures. Calculating availability using SBO-based potential availability revealed a disparity ratio of 9%; SBO-based availability restricted by firm size shows a disparity ratio of 12%; and SBO-based availability regardless of firm size shows a disparity ratio of only 10% when contracting employed a DBE program. These values all decline to between 4% and 5% when VTA contracts employ an SBE program. These results strongly suggest that Asian American-owned construction firms face discrimination in the private and public markets within the SJ CSA and relevant surrounding areas.

Hispanic-Owned Firms

Hispanic-owned firms also appear to face discrimination in the SJ CSA and surrounding areas construction market. Firm formation is only 63% of what is predicted for a race-neutral market. Moreover, private-sector utilization of minority-owned firms represents only 32% of their share of available firms. Even when VTA contracts employ a DBE program, Hispanic-owned firms are underutilized (63%) relative to SBO-based potential availability measures. These firms do not appear underutilized compared with SBO-based availability restricted by firm size (102%), or SBO based availability unrestricted by firm size (87%) under a DBE program. However, when VTA contracts instead employ an SBE program, Hispanic-owned firms are largely underutilized. Disparity ratios fall to 51% based on potential availability, 70% based on SBO availability unconstrained by firm size and to 82% based on SBO availability restricted to firms reporting revenue above $50,000.

Professional Services

The results of our study of the professional services market in the SJ CSA and relevant surrounding areas yield similar patterns of evidence supporting a finding of discrimination for some groups.

Woman-Owned Firms

Woman-owned professional service firm disparity ratios were below 80% using all five disparity measurements. Woman-owned firms were determined to be at 57% of their expected firm formation rate in a gender-neutral marketplace. Their private sector contracting disparity ratio stands at only 29%. Disparity ratios based on VTA contracting were at or below 25% regardless of the availability measure used. Disparity ratios are found even lower when analysis focuses on VTA contracts employing a gender-neutral SBE program rather than a gender conscious DBE program. Disparity ratios based on contracts awarded under an SBE program fall to between 11% and 19%.

African American Owned Firms

African American-owned firm contracting disparity ratios were below 80% based on contracts award under a DBE program relative to both the SBO-based potential availability measure and the SBO based availability measure reflecting firms regardless of size. While the disparity ratio was over 100% when the SBO based availability measure is restricted to firms with revenues in excess of $50,000, African American-owned professional services firms meeting the size cutoff account for only 1.4% of such firms operating in the SJ CSA and relevant surrounding areas according to SBO data. This low availability is consistent with our finding of low African American-owned firm formation rates (37%). Disparity ratios do not fall, however, when analysis switches to VTA contracts awarded under and SBE program rather than a DBE program. This may simply reflect that these firms continued to benefit as SBE firms.

Asian American-Owned Firms

Asian American-owned professional services firms also appear to suffer from discrimination in the SJ CSA and surrounding areas under some measures. They face significant disparities in firm formation (51%), in the private sector (36%) along with other minority groups, and when their utilization on VTA contracts is compared with their potential availability in a race-neutral marketplace (75%). The disparity ratio measures using SBO availability with or without size restrictions show no disparity (107% and 136%). The disparity ratios do not fall when VTA when analysis focuses on contracts awarded under an SBE program rather than a DBE program.

Hispanic-Owned Firms

Hispanic-owned professional service firms were also found substantially underutilized under most measures. They face large disparities in firm formation (59%) and in the private sector together with other minorities (36%). Disparity ratios for Hispanic-owned firms in VTA contracting are found even when contracts are awarded under a DBE program. These ratios were under 80% using either SBO based potential availability and SBO without firm size restriction availability. The disparity ratio exceeded 100% when SBO size restricted availability is used. However, when VTA contracts employ a race neutral SBE program, the disparity ratios fall under all availability measures. The disparity ratio using the SBO size restricted availability measure fell 18 percentage points, but was still above 80%.

Anecdotal Analyses

We relied on three sources for our review of anecdotal evidence. First, we conducted a survey of construction and professional service firms operating in the SJ CSA and relevant surrounding areas. The survey sample included firms that have bid on VTA contracts as well as those that have not and firms owned by all minority and gender groups considered in this study. Second, we collected and reviewed several public hearing and interview transcripts from other recent discrimination studies conducted in the SJ CSA. Finally, we reviewed the results of previous disparity studies conducted in the SJ CSA. All three sources provided information to support the statistical findings of discrimination.

B. Anecdotal Evidence

We conducted a telephone survey of 626 construction and professional service firms operating within the SJ CSA and surrounding areas. (The survey respondents included 202 bidders on VTA contracts and 424 other construction and professional service firms operating in the SJ CSA and surrounding areas selected from Dun & Bradstreet data.) This survey asked, among other things, about several commonly identified obstacles to

minority firms, including access to capital, insurance, and bonding as well as treatment by prime contractors. Our findings, with respect to bidders on VTA contracts, are summarized in Table 72. The survey showed, for example, that minority-owned firms report funding as an impediment to contracting nearly three times as often as White male-owned firms.

Woman-owned firms report funding as an impediment twice as often as White male-owned firms. Minority- and woman-owned firms also report difficultly accessing important prime contractor networks. Minority- and woman-owned firms working as subcontractors report problems with gaining experience with prime contractors almost twice as often as their White male counterparts.

Both minority and woman owned firms reported experience requirements as an impediment twice as often as their white male counterparts. Similar differences were observed for bid costs and project size.

Table 72: Relative Frequency of Reporting Impediments to Contracting, Bidder List Survey Respondents

	Non-Minority Male-Owned Firms	Minority-Owned Firms		Woman-Owned Firms	
	% Reported	% Reported	Relative Frequency(3)	% Reported	Relative Frequency(4)
	[1]	[2]	[3] = [2]/[1]	[4]	[5] = [4]/[1]
Not being able to get sufficient sources of funding	9.3%	25.4%	2.7	21.2%	2.3
Bonding requirements	15.7%	15.9%	1.0	17.3%	1.1
Insurance requirements	23.1%	25.4%	1.1	26.9%	1.2
Requirements concerning prior experience	12.0%	27.0%	2.2	23.1%	1.9
Bid or proposal costs	14.8%	31.7%	2.1	30.8%	2.1
Projects are too large	19.4%	42.9%	2.2	40.4%	2.1
Price of supplies or materials	22.2%	11.1%	0.5	17.3%	0.8
Prime contractors don't give you enough time to bid	29.6%	33.3%	1.1	36.5%	1.2
Not having enough experience working for the company, agency or prime contractor to have a chance to work	13.9%	28.6%	2.1	21.2%	1.5

Notes:
1) The respondents were asked whether they have experienced the above impediments in the past five years. This was not a free response question.
2) Tabulations cover respondents identified as bidding on VTA construction or professional service contracts.
3) Minority-owned firm frequency relative to non-minority male-owned firm frequency.
4) Woman-owned firm frequency relative to non-minority male-owned firm frequency.

Source:
Survey conducted by The Henne Group and QSA Research & Strategy, July through August 2007.

Table 73: Discrimination in Contracting Reported by Bidder List Respondents

	Minority-Owned Firms	Woman-Owned Firms
Getting business loans from a bank	7.9%	3.8%
Getting local, state, or federal government contract	14.3%	13.5%
Getting contracts from private businesses	14.3%	11.5%
Attracting customers generally	12.7%	15.4%
Being bonded	4.8%	1.9%
Trying to join trade or professional associations	0.0%	0.0%
Getting subcontracts from prime contractors	22.2%	19.2%
Getting paid on time by prime contractors	12.7%	9.6%
Getting the agreed upon share of project work from prime contractors	22.2%	7.7%

Note:
1) The respondents were asked whether they have experienced discrimination based on their race or gender in the above situations in the past five years. This was not a free response question.
2) Tabulations cover respondents identified as bidding on VTAconstruction or professional service contracts.

Source:
Survey conducted by The Henne Group and QSA Research & Strategy, July through August 2007.

Other Anecdotal Evidence

In addition to the survey we conducted, we reviewed anecdotal evidence from surveys, interviews, and public hearings conducted within the Bay Area over the past several years, including a Regional Transit Coordinating Council (RTCC) Disadvantaged Business Enterprise (DBE) program survey, a survey conducted by San Francisco State University researchers on behalf of Asian Inc. and disparity studies for the City and County of San Francisco and Caltrans. These efforts provide further anecdotal evidence of discrimination.

Studies covering all or portions of the local market present anecdotal evidence consistent with these findings. These include recent studies for Caltrans and the City and County of San Francisco.

In addition, a review of disparity studies conducted in the relevant market over the past 15 years also demonstrates persistent disparities between minority- and woman-owned business utilization and availability in construction and professional services. A recently completed study for the California Department of Transportation that was designed to meet the requirements imposed by the *Western States Paving* decision provided results consistent with this study. This California study reported a disparity ratio of 59% for minority and woman-owned firms absent a race conscious affirmative action program. Statistical evidence regarding firm formation and earnings was also similar to the

evidence developed here. This study also provided supporting anecdotal evidence in the form of testimony at public hearings. Finally, recent analyses of national data and academic studies indicate that the continued presence of discrimination in the relevant market is likely.

C. Summary

The statistical and anecdotal evidence reported here indicates that minority and woman-owned firms continue to face obstacles in obtaining public and private contracts while race neutral remedies may serve to reduce these obstacles, race and gender conscious programs have improved minority and woman-owned firm utilization in the past. The absence of these programs has resulted in notable reductions in utilization for most minority categories.