Do Minority-Owned Businesses Get a Fair Share of Government Contracts?

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Executive Summary

Debates over affirmative action have concentrated on the relative success of minorities in three principal areas: employment, education, and government contracting. Of the three, government contracting is perhaps the least studied, despite its importance for minority economic progress. To provide a national picture of how minority-owned firms are doing in the area of government contracting, the Urban Institute carried out a study of the extent to which minority-owned firms receive a representative share of *state and local* government contract dollars. The purpose of the study was to provide information bearing on the need for programs that assist minority-owned firms—including affirmative action in procurement.

The Urban Institute analysis reveals *substantial disparities between the share of contract dollars received by minority-owned firms and the share of all firms that they represent. Based on their number, minority-owned firms received only 57 cents for every dollar they would be expected to receive.*

The Policy Context

Importance of Government Contracting

Procurement—like public employment—provides governments with a potentially powerful tool for promoting minority opportunities and counteracting discrimination. In 1990, procurement at all levels of government represented approximately $450 billion, or almost 10 percent of GNP. State and local government spending accounted for more than half of all procurement—approximately $250 billion. In a time of government downsizing, the share of total government spending that goes to contracting (versus government employment) is likely to rise. Indeed, in 1995, federal spending on contracting exceeded spending for federal employment.

Barriers Encountered by Minority Firms

There are two types of barriers faced by minority firms: (1) barriers to firm formation and growth and (2) barriers to participation in the government contracting process itself. It is important to distinguish between the two for policy purposes because policies that may increase the number or size of minority firms may not necessarily increase those firms' participation in the procurement process.

Barriers to the formation and growth of minority firms

In general, minority-owned firms are smaller in size and fewer in number than majority-owned firms. Major barriers to the formation and development of minority-owned businesses include:

- Lack of financial capital: minorities have lower incomes, fewer assets, and diminished access to business loans.
- Lack of social capital: minorities' access to business networks is limited, and their own family networks may be smaller or less valuable than those of their majority counterparts.
- Lower human capital endowments: minorities have less education and professional training, and their access to union and other apprenticeship programs is more limited.
- Minorities' access to lucrative, nonminority consumer markets is comparatively limited, due in part to historical patterns of residential segregation.

Each of these barriers has been produced and perpetuated, at least in part, by discrimination.

Barriers to minority participation in the government contracting process

Minority firms may turn to government contracts to offset some of the limitations imposed by the private market. But barriers embedded in the contracting process itself can impede minority firms from winning government contracts. These barriers include:

- Failure of government to break large contracts down into smaller projects so that minority firms, which tend to be smaller, can compete.
- Extensive granting of waivers from minority subcontracting requirements to majority contractors.
- Ineffective screening for false minority fronts.
- Limited notice of contract competitions.
- Bid shopping on the part of majority prime contractors, who disclose minority firms' subcontracting bids to their majority competitors so they can be underbid.

Affirmative Action Policies in Contracting

Federal, state, and local governments have addressed these barriers with a wide range of affirmative action programs. These programs fall into two broad cate-

gories. One uses race as a factor in the award of contracts. Examples include the use of sole source contracts, set-asides, price or evaluation advantages, and the use of goals for prime or subcontracting. These policies are intended to directly increase the number of contract and subcontract awards received by minority firms.

A second category of procurement-related policies seeks to expand the number of minority-owned firms contracting with government by increasing their financial, social, or human capital. These initiatives are sometimes referred to as affirmative action programs and sometimes as race-neutral policies. The goal is to put minority firms in a better position to compete as either prime contractors or subcontractors. These policies include lending and bonding help, technical assistance programs, expanded notice requirements, and imposing prompt payment directives on government agencies. In general, these policies are intended to enlarge the pool of potential minority bidders for public contracts. They do not, however, directly affect outcomes in the contractor selection process.

Affirmative action programs in contracting have been directed primarily at assisting minority-owned businesses and not, for the most part, at increasing minority employment.

Shifting Legal Requirements for Affirmative Action Programs in Contracting

The future of affirmative action is being defined in large measure by the rulings of the Supreme Court in two cases that deal with government contracting.

In a 1989 case, *City of Richmond v. J. A. Croson Co.,* the Supreme Court held that *state and local* preference programs would be subject to the Court's rigorous "strict scrutiny standard." Under this standard of review, racial classifications must serve a "compelling interest" and be "narrowly tailored" to suit that purpose. It was in response to *Croson* that many state and local governments commissioned the "disparity studies" analyzed by the Urban Institute for this report. The disparity studies document differences between the share of all firms that minorities own and the share of government contracts they receive. In addition, they often document the role that state and local governments and the private sector have played in perpetuating historical patterns of discrimination through their contracting practices.

In June 1995, the Supreme Court decided *Adarand Constructors v. Pena,* apparently making all *federal* race-conscious, affirmative action programs subject to the same strict scrutiny standard announced in *Croson.* The impact of applying strict scrutiny to affirmative action programs is profound: Proponents of race-based policies intended to help minorities must meet the same high standard of proof required for proponents of race-based practices that disadvantage minorities.

Method

This study examines whether there is disparity in the receipt of state and local government contract dollars between minority-owned and majority-owned

businesses. After screening 95 state and local disparity studies for basic levels of consistency and reliability, the Urban Institute researchers combined the results of 58 studies. Aggregating individual study results provides a national picture of disparity in contracting and more reliable estimates than any individual study.

After the Supreme Court decision in the *Croson* case, the percentage of all government contract dollars received by minority-owned businesses was then compared to the percentage of all businesses "ready, willing, and able" to carry out government contracts that are minority-owned. Where these percentages are similar, there is no disparity in government contracting. For example, if 5 percent of all "ready, willing, and able" firms are minority-owned and 5 percent of government contracting dollars are awarded to minority-owned firms, there is no disparity. If only 2 percent of government dollars went to minority-owned firms, there would be a disparity.

Findings

We find substantial disparity in government contracting. That is, minority-owned businesses receive far fewer government contract dollars than would be expected based on their availability. Minority-owned businesses as a group receive only 57 cents of each dollar they would be expected to receive based on the percentage of all "ready, willing, and able" firms that are minority-owned (figure 1).

Further, there is substantial disparity in government contracting for each minority population group (figure 2). African American-, Latino-, Asian-, Native American-, and women-owned businesses all receive a substantially lower proportion of government contracting dollars than would be expected, given their availability. African American-owned businesses receive only 49 percent of the dollars that would be expected. Latino-, Asian-, and Native American-owned businesses receive 44 percent, 39 percent, and 18 percent, respectively. Women-owned businesses fare especially poorly, receiving only 29 percent of the expected dollars.

Disparity exists in every industry group studied as well. After separating contracts and businesses by broad industry group—construction, goods, professional services, and services other than professional—we find disparity for all minority groups (figure 3). The only exception is in construction subcontracting, where very little disparity is found.

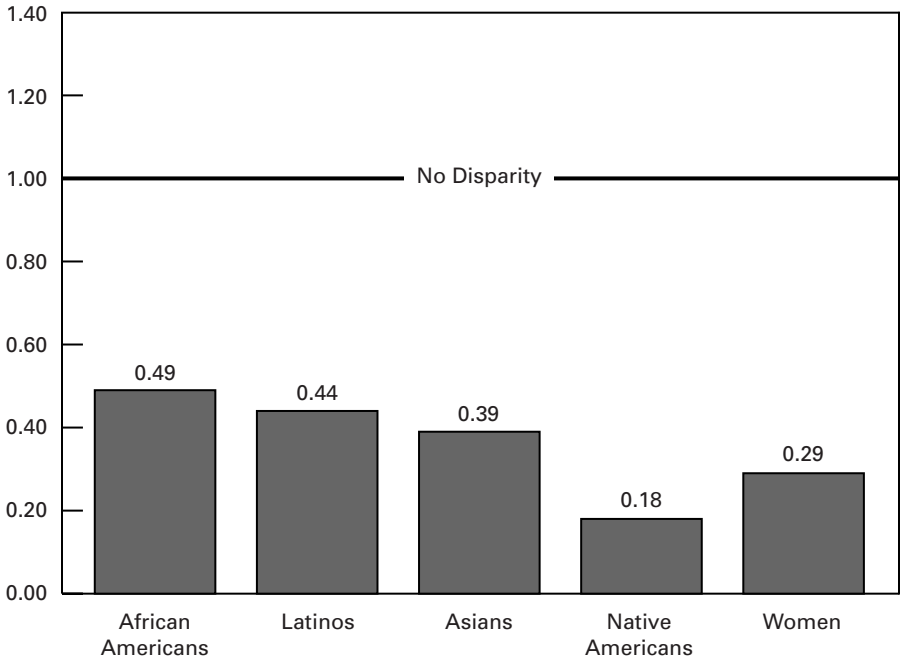
These findings do not differentiate between jurisdictions that had in place state and local affirmative action programs for procurement and those that did not. If these programs are effective, it is expected that disparity levels in jurisdictions with such programs would be lower than in places where no program exists. Therefore, a separate examination was conducted of jurisdictions that had no program in place. This led to an examination of jurisdictions during time periods before a program went into effect and where a goals program was never adopted.

For the purposes of our analysis, a "program" was considered to be in place if there were mandatory or voluntary goals for minority- or women-owned business participation. Because other types of programs, both race-based and non-race-based, can affect disparity ratios and because it is not possible to

Figure 1 *Disparity in State and Local Government Contracting for Minority-Owned Businesses*

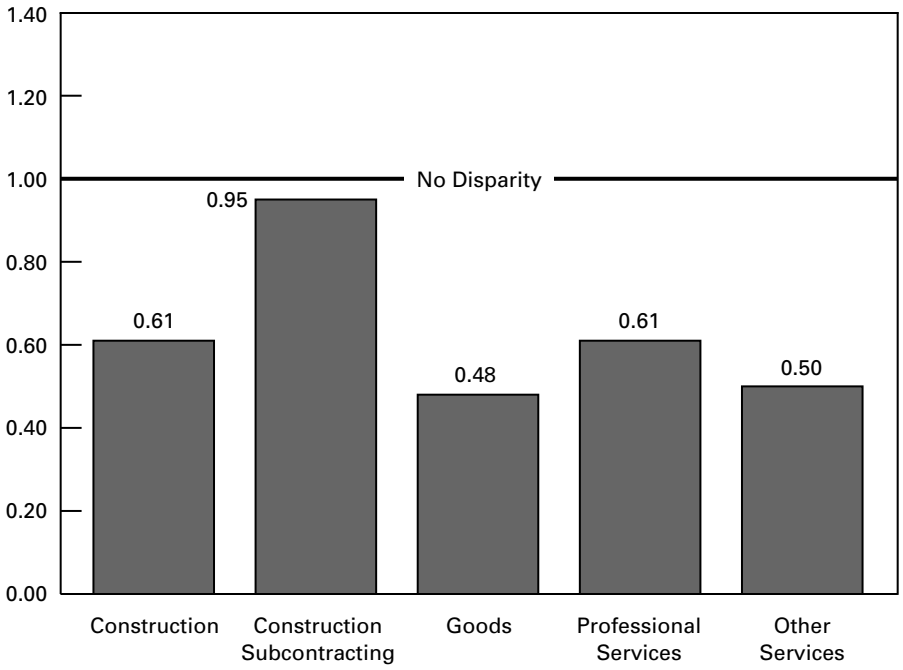
Source: Urban Institute, 1996.

Figure 2 *Disparity in Government Contracting for Minority- and Women-Owned Businesses*



Notes: Disparity figures represent the percent of contract dollars awarded to minorities relative to the share of available firms that are minority-owned. A finding of "1.00" would indicate no disparity.
Source: Urban Institute, 1996.

Figure 3 *Disparity in Government Contracting for Minority-Owned Businesses by Industry*



Notes: Disparity figures represent the percent of contract dollars awarded to minorities relative to the share of available firms that are minority-owned. A finding of "1.00" would indicate no disparity.
Source: Urban Institute, 1996.

determine to what degree goals programs are actually enforced, this is not a perfect measure.

This analysis reveals that disparity is greater in jurisdictions where no goals program is in place. Awards to minority-owned businesses fall from 57 percent of the dollars that would be expected based on availability to 45 percent where no program is in place. While this is not conclusive evidence of what would happen to minority contractors in a particular area if a program were removed, this finding indicates that, overall, affirmative action programs may reduce disparity.

Issues of Interpretation

How does the quality of disparity studies affect our results?

Press accounts and court opinions have questioned the quality of individual disparity studies. The methods used by the Urban Institute researchers seek to limit any potential bias and overcome data deficiencies of the underlying studies. They do so in several ways:

First, the findings are based only on the statistical data contained in the disparity studies—data that we use for conducting new quantitative analysis. The results are, thus, less likely to be affected by the bias of the disparity studies' authors. Second, the analysis does not take into account any of the qualita-

tive information, such as hearing testimony and historical analysis, presented in the disparity studies—information that may have led the studies' authors to different conclusions than those warranted by the disparity numbers alone. Third, the methods used by the disparity study authors in their quantitative analyses are remarkably consistent. Although there are differences across studies in the sources of data used and in the definition of available firms, each study reports on the same outcomes (i.e., the percentage of government contract dollars awarded to minority-owned firms compared to the percentage of all available firms that are minority-owned). While this consistency does not ensure against bias, it does make it less likely.

Finally, by aggregating the findings of all the individual disparity studies, stronger estimates of disparity can be derived than from an individual study. An individual study may have data limitations (it may be based on a small number of contracts, for example) that make its results comparatively unreliable. In this case, cumulating findings across many studies increases the accuracy of the results.

Are our results nationally representative?

The findings provide the best evidence to date on the extent to which state and local governments nationwide contract with minority firms. They include data from some of the largest city and state governments in the country. Findings are included from large state governments such as New York and Texas, large cities such as New York, and smaller jurisdictions such as Asheville, North Carolina. The 58 studies analyzed represent jurisdictions in 18 states and the District of Columbia. They include a variety of governmental units including cities, counties, states, and special districts such as schools, transportation agencies, and water resource authorities.

The studies screened were collected as part of the most comprehensive effort yet undertaken to find and analyze all existing disparity studies. The effort, which was carried out by the Department of Justice, employed existing lists of studies, references found in court cases, articles, other disparity studies, and requests to research firms known to have conducted multiple studies. The studies reviewed, however, were not selected to constitute a nationally representative sample. Because Urban Institute researchers reviewed all studies made available by a certain date, there is no reason to believe that the selection process biased the results in any way.

One difficulty in generalizing these findings to all state and local governments is that it is unclear whether disparities found in jurisdictions that commission studies differ from those that do not. Answering this question would require additional data collection in places that did not commission disparity studies.

Does disparity result from discrimination?

The large disparities documented here in government contract awards can result from government or private discrimination or can be the product of minority-owned firms being, on average, less qualified to win government con-

tracts than majority-owned firms. In the latter case, being less qualified (e.g., having less experience, fewer employees, or lacking access to bonding) may or may not result from past or present discrimination. Due to data limitations, it is not possible to determine the degree to which the findings of disparity result from discrimination.

The problem of linking disparity to discrimination is one that has been, and is being, grappled with by the courts. In the *Croson* case Justice Sandra Day O'Connor noted that "gross statistical disparities" constitute "prima facie proof of a pattern or practice of discrimination" in the employment context. However, it remains to be seen what the courts will accept as adequate proof of statistical disparities in the procurement context.

Policy Implications

Several straightforward conclusions flow from the results of the analysis. First and most important, the results indicate that minority firms are less successful than their majority counterparts in obtaining procurement dollars at the state and local government levels. The wide disparities presented here do not necessarily translate into proof of discrimination on the part of state and local governments. At a minimum, these findings suggest that barriers remain to minority firms' participation in the government contracting process.

Second, wide disparities indicate that adoption of affirmative action and other programs designed to assist minority firms has not led to broad displacement of majority firms in the award of government contracts. That is, the results do not support claims of widespread reverse discrimination in contracting at the state and local government levels.

Third, the results indicate that disparities are greater in those areas where no affirmative action program is in place. While a causal relationship between these facts cannot be established on the basis of this examination alone, the results may indicate that affirmative action programs help to reduce disparities.

The lack of knowledge about the effectiveness of affirmative action programs, coupled with the wide disparities documented in this report, suggest that there is not enough empirical evidence to justify the elimination of public policies that promote minority participation in government contracting. Repealing affirmative action policies would limit the tools available to government to rectify these disparities.

Our findings strongly suggest that the knowledge base that informs the use of race-conscious policies in government contracting needs to be expanded. It is particularly important to evaluate the effectiveness of different race-conscious and race-neutral programs that may expand minority participation in procurement. Such evaluations are routinely conducted in other areas of public policy, such as job training. Along similar lines, policymakers need a better, more empirically based understanding of the pervasiveness and relative importance of the barriers that minority firms face. In particular, data are needed to assess the fairness of business lending practices and the success of minority firms as both prime and subcontractors. Data on both winning and losing bids could also help explain the source of the wide disparities documented in this report.

Chapter 1

Introduction and Overview

This report explores the comparative success of minority firms in government contracting and the affirmative action programs that govern public procurement. The report focuses on the results of the Urban Institute's review of 58 disparity studies conducted after the Supreme Court's 1989 ruling in *City of Richmond v. J. A. Croson Co.,* 488 U.S. 469 (1989). In general, these studies sought to measure and describe the extent to which minority firms received contracts from state and local governments.

The studies' quantitative findings, when taken together, shed new light on the use of minority contractors and the need for programs that assist them. In sum, despite the fact that race-based preference programs were, or had been, in place in many of the jurisdictions examined, the analysis reveals that *minority firms were substantially underutilized by state and local governments, receiving only 57 cents for every dollar they would be expected to receive based on their availability.*

Structure of the Report

The report begins with a brief discussion of recent developments in affirmative action within the courts, the Congress, the executive branch, and the states. We note two divergent trends in policy: one toward affirmative action's reform; the other to its repeal. The next section of the report presents the findings of our analysis of state and local disparity studies as well as a number of the core interpretational issues raised by the results. Having presented the disparity studies' results, we then seek to place the findings in context. To do so, we first provide an overview of the barriers to minority firm formation and development as well as to minority firm participation in the government contracting process. We then sketch the affir-

mative action and other procurement-related policies that have been instituted, at least in part, to help minority firms overcome these barriers. We conclude with a discussion of the implications of our findings for public policy, specifically efforts to eliminate affirmative action in contracting that do not appear to be empirically grounded. An appendix follows describing our research methods more fully.

We have not focused on women in this report to the same degree as we have racial and ethnic minorities because the recent Supreme Court rulings that have changed the landscape of affirmative action have dealt with race- and not gender-based programs. The evidence presented in the report does, however, clearly indicate that women-owned firms are underutilized by state and local governments.

The Policy Environment

The national debate over affirmative action has concentrated principally on three areas of policy: employment, higher education, and government contracting. Of the three, perhaps the least prominent has been the complex and little-understood area of government contracting. Despite its relative lack of visibility, the scale of public contracting is quite large, making it an important source of economic opportunities for historically disadvantaged populations. The area has also been heavily contested, with legal challenges driving a broad judicial reconsideration of the occasions upon which government can take race explicitly into account.

Scale of government contracting

There are two principal areas of government spending: (1) the direct employment of federal, state, and local government employees; and (2) the purchase of goods and services from private vendors (procurement). In 1990, Harvard scholar Steven Kelman estimated procurement at all levels of government to be approximately $450 billion, or almost 10 percent of GNP (Kelman 1990). State and local government spending accounted for more than half, or approximately $250 billion. In a time of government downsizing, the share of total government spending that goes to contracting (versus employment) is likely to rise. Indeed, in 1995, federal spending on contracting exceeded spending for federal employment. Thus, procurement, like public employment, provides governments at all levels with a potentially powerful tool for promoting minority opportunities and counteracting discrimination.

While the overall scale of public spending on contracting is large, the share of total federal contracting dollars that is provided to minority business enterprises through what might be termed affirmative action programs is modest. According to the President's Affirmative Action Report, approximately 6.5 percent of all federal prime contracts were awarded to minority-owned firms in 1994.[1]

Limited number of minority-owned firms

The potential value of using procurement policy to promote minority entrepreneurship is reinforced by the limited number and size of minority firms.

Table 1.1 *Selected Characteristics of 1992 Businesses by Minority Status of Owner (Includes Only Firms with $5,000 or More in Receipts in 1992)*

	African American	Latino	Asian[1]	Female[2]	All Firms
Percent of Population	11.7%	8.8%	0.4%	51.3%	100.0%
Number of Firms	384,190	552,482	473,945	3,578,580	12,026,590
Percent of Total Firms	3.2%	4.6%	3.9%	29.8%	100.0%
Percent of Total Receipts	1.0%	2.2%	3.0%	19.2%	100.0%
Size of Firm by Number of Paid Employees					
None	83.2%	79.2%	71.3%	77.1%	73.9%
Less than 5 employees	13.4%	15.2%	20.4%	15.7%	17.9%
5 to 19 employees	2.7%	4.6%	6.9%	5.6%	6.3%
20 employees or more	0.6%	1.0%	1.4%	1.5%	1.9%
Total	100.0%	100.0%	100.0%	100.0%	100.0%

Source: U.S. Bureau of the Census, 1992 Surveys of Minority- and Women-Owned Business Enterprises.
Notes: Firms may be included in more than one minority group. For example, a firm owned by a black Latino person would be included as both a Latino-owned firm and as an African American-owned firm.
[1] Firms owned by other minorities (Native Americans, Pacific Islanders, Eskimos and Aleuts) are also included in this category, although the vast majority are Asian-owned.
[2] Includes both minority- and white female-owned firms.

Minority-owned businesses are a smaller percentage of all businesses than the percentage of minorities in the population (see table 1.1).[2] While African Americans constituted 12 percent of the population in 1992, they owned only 3 percent of U.S. businesses. Similarly, Latinos represented 9 percent of the population, but owned only 5 percent of businesses. Women-owned firms were also underrepresented compared to population share. Asian and "other minority business owners," however, were overrepresented, given their share of the population.

Minority businesses also capture a disproportionately small share of all business receipts. African American firms receive only 1 percent, and Latino firms only 2 percent of all such revenues. The size disadvantage is also reflected in the relative number of firm employees, particularly for African American firms: 83 percent of African American firms have no employees, compared to 74 percent of all firms.

Legal challenges to affirmative action in contracting

Although the programs authorizing affirmative action in federal procurement historically have been rather routinely approved by the Congress,[3] these contracting programs have been the subject of extensive judicial challenges. Indeed, over the past decade, the two landmark Supreme Court cases that have most restricted the scope of affirmative action have been contracting cases: *City of Richmond v. J. A. Croson Co.,* 488 U.S. 469 (1989) and *Adarand Constructors v. Pena,* 115 S. Ct. 2097 (1995).

In *Croson,* the Court held that *state and local* preference programs would be subject to the Court's rigorous "strict scrutiny standard."[4] Under this stan-

dard of review, racial classifications must serve a "compelling interest"[5] and must be "narrowly tailored" to suit that purpose.[6] The compelling need and narrow tailoring requirements impelled many state and local governments to commission what has come to be known as "disparity studies." These studies document, among other things, the disparity between the share of all firms that minorities own and the share of government contracts they receive; the barriers that minority entrepreneurs have encountered in trying to start or expand firms; and, in some instances, the role that state and local governments and the private sector have played in perpetuating historical patterns of discrimination through their contracting practices.[7] Most studies contain both statistical and anecdotal data that portray public and private contracting outcomes.

In June 1995, the U.S. Supreme Court handed down its decision in *Adarand Constructors v. Pena,* extending the *Croson* strict scrutiny standard to *federal* affirmative action policy and apparently extending strict scrutiny beyond contracting. Indeed, the U.S. Court of Appeals for the Fifth Circuit, relying heavily on *Adarand,* has recently invalidated race-based admissions policies at the University of Texas Law School in the case of *Hopwood v. State of Texas.*[8]

The upshot of applying strict scrutiny to affirmative action programs, as *Croson* and *Adarand* do, is to force proponents of benign, race-based policies (i.e., compensatory policies that benefit minorities) to meet a much higher burden of proof than was previously the case. Indeed, the evidentiary burden that they must now overcome approximates that imposed on proponents of race-based practices that disadvantage minorities.[9] While Justice O'Connor (the author of both *Croson* and *Adarand)* stated that the decisions do not foreclose the use of racial preferences, the conditions under which affirmative action programs will be found constitutional appear to be limited.

The President's review of affirmative action

Searching reappraisals of affirmative action have not been limited to the judiciary. Two weeks after the Court announced its ruling in *Adarand,* President Clinton released the results of his yearlong review with his call to "mend, not end" affirmative action. At the same time he issued a directive that federal agencies reevaluate their policies in light of *Adarand.* The review, directed by the Department of Justice, has led to the termination of a major set-aside program within the Department of Defense.[10] It has also led to new, proposed rules that tie the use and sunset (or termination) of affirmative action programs to certain statistical benchmarks that measure the level of minority underrepresentation in contracting within an industry or a region.[11]

Neither *Croson* nor *Adarand* directly addressed the standard of judicial review that would be applied to preference programs in contracting that are gender-based. The majority of Appeals Court decisions that have considered the issue have held that gender-based affirmative action should be subjected to a less strict form of scrutiny than race-based classifications.[12] As a result, most recently proposed Executive Branch reforms of affirmative action do not directly address women.

Congressional challenges to affirmative action

The recently ended 104th Congress considered two principal legislative vehicles related to affirmative action. The most sweeping of the two bills was known as the Dole/Canady bill, or the Equal Opportunity Act (H.R. 2128). The bill would basically "end, not mend" affirmative action. Dole/Canady would go beyond the limitations imposed by *Adarand,* barring most federal race- and gender-based preferences—even those that respond clearly to identifiable discrimination and are narrowly tailored. (The bill appears to make an exception, however, for outreach and recruitment.) In June 1996 a substitute bill was introduced in the House that would narrow the Dole/Canady bill's broad, government-wide bar to affirmative action to federal contracting and subcontracting, areas where the repeal of federal affirmative action policy would presumably find less political resistance.

The second principal affirmative action bill introduced during the 104th Congress was known as the Meyers bill, or the Entrepreneur Development Program Act of 1996 (H.R. 3994). Among other things, the Meyers bill repeals Section 8(a) of the Small Business Act, the Minority Small Business and Capital Ownership Program, which is intended to provide assistance to firms owned by socially and economically disadvantaged individuals in obtaining federal contracts. In practice, this program has provided assistance predominantly to firms owned by racial minorities. (The Section 8(a) program is discussed in more detail in chapter 3 of this report.) The Meyers bill was much narrower than the Dole/Canady bill. It would repeal the 8(a) program entirely, but unlike the Dole/Canady bill, it would not repeal all federal affirmative action programs.

State challenges to affirmative action

At the state level, the most prominent initiative is the California Civil Rights Initiative (CCRI) or Proposition 209. Proposition 209 eliminates all state and local programs that "grant preferential treatment to any individual or group on the basis of race, sex, color, ethnicity or national origin in the operation of public employment, public education, or public contracting," except where required by federal law.[13] Like the Dole/Canady bill, the initiative eliminates race- or gender-based policies. But unlike Dole/Canady, it could be interpreted to bar outreach and other programs directed toward women and minorities as well as goals and timetables, set-asides, and express quotas.

Policy and Analytic Challenges

The crux of the current debate over affirmative action can be seen in the judicial, administrative, and legislative reforms set out above. Proponents of affirmative action—led by the Clinton administration—would preserve affirmative action policies, tailoring them so that they meet the new strict scrutiny standard of review announced by the Supreme Court. Affirmative action's opponents—including the authors of the California Civil Rights Initiative—would terminate all race-conscious policies.

The burden that the proponents of affirmative action must carry to demonstrate that race-conscious policies meet the Court's exacting strict scrutiny standard should not be discounted. Among the factors that courts will now consider in weighing race-conscious policies are determining whether:

- policymakers can show with some specificity how current practices and the lingering effects of discrimination have diminished minorities' opportunities (it is not enough to demonstrate general patterns of societal discrimination);
- numerical targets set by government for contracting dollars going to minority-owned firms reflect the availability of minority firms that are "ready, willing, and able";
- equivalently effective, race-neutral alternatives exist to set-asides and other race-based policies;
- guidance has been provided on when preference programs should be terminated; and
- the burdens imposed by race-conscious policies on nonbeneficiaries have been minimized.

Taken together, the analytic challenges presented by these criteria raise concerns that affirmative action's reformers may have to meet evidentiary standards that outstrip the capacity of existing data and research. Such standards would not only undermine the *Adarand* Court's assurance that strict scrutiny need *not* be "strict in theory and fatal in fact," they would effectively repeal affirmative action programs ranging from price preferences to simple outreach. This outcome would not be the product of a political choice that affirmative action is no longer necessary or desirable. Rather, it would be the result of inadequate or unavailable data.

Relevance of Findings of State and Local Disparity Studies for Federal Policy

Our findings of wide disparities between the share minority firms represent of all firms and the proportion of state and local contracts they receive have broad implications for federal policymakers. In the first place, spending by state and local governments makes up a substantial share of GNP, thereby influencing the number and size of minority firms. Second, the literature suggests that the barriers faced by *minority* contractors—problems obtaining bonding and insurance, higher supply prices, and the like—are similar at state, local, and federal levels. Third, many of the goods and services purchased by state and local officials are paid for with a mix of federal and local funds. In these instances, federal procurement rules govern state and local activities, and the performance of state and local government officials is a direct regulatory concern of the federal government. In addition, eliminating discrimination on the part of state and local government officials is clearly a constitutional responsibility of the federal government. Finally, the federal government has a responsibility to police discrimination in the private market as well as the passive participation of state and local governments within those markets.

Notes

1. *Affirmative Action Review, Report to the President*, The White House, July 19, 1995, at 62(f).
2. Figures in Table 1.1 are based on the U.S. Census Bureau's 1992 Survey of Minority-Owned Business Enterprises (SMOBE) and Survey of Women-Owned Business Enterprises (SWOBE). These are surveys of small businesses including owners of sole proprietorships, partnerships, and Subchapter S-corporations that have fewer than 35 shareholders.
3. There is an extensive legislative history of congressional approval of programs to aid minority business enterprises. A detailed record is set out at 61 Federal Register at 26042, May 23, 1996.
4. The distinction between the limited power of state and local governments to employ racial classifications and the more expansive authority of the federal government to do so was deemed important in *Croson* and in a number of other Supreme Court rulings addressing affirmative action programs. The scope of the federal government's power to utilize race-conscious alternatives or remedies has been substantially narrowed by the Court's recent opinion in *Adarand v. Pena,* however.
5. *Croson,* 488 U.S. at 505.
6. *Id.* at 508.
7. In a sense, then, the focus on disparity as a measure of discrimination is more a response to the Court's edict than a product of academic inquiry into discrimination and its impacts.
8. U.S.C.A. Fifth Circuit, No. 94-50569, March 18, 1996.
9. In his dissenting opinion in *Adarand,* Justice John Paul Stevens wrote:

   > The Court . . . assumes that there is no significant difference between a decision by the majority to impose a special burden on the members of a minority race and a decision by the majority to provide a benefit to certain members of that minority notwithstanding its incidental burden on some members of the majority. In my opinion that assumption is untenable. There is no moral or constitutional equivalence between a policy that is designed to perpetuate a caste system and one that seeks to eradicate racial subordination.

10. This was a practice known as the "rule of two," which required that whenever a contract officer could identify two or more small disadvantaged businesses that could bid on a project, the contract be set aside for bidding exclusively by minority firms.
11. 61 Federal Register at 26045 (1996).
12. See, generally, Walter Dellinger, Memorandum to General Counsels, U.S. Department of Justice, Office of Legal Counsel, June 28, 1995, p. 8, *found in* Affirmative Action Review, Report to the President of the United States, July 19, 1995.
13. The initiative applies only to the public sector; voluntary affirmative action in the private sector is not considered.

Chapter 2

Evidence of Disparity in Government Contracting

This chapter presents the findings of our analysis of state and local disparity studies as well as a number of the core interpretational issues raised by the results.

Analysis of Disparity Studies

After the Supreme Court's 1989 decision in *Croson,* state and local governments began to commission studies to assess the existence and extent of discrimination in their contracting processes. These studies provide measures of disparity in the use of minority- and women-owned businesses in government procurement. That is, they examine the degree to which the share of contract awards received by minority firms is lower than the proportional representation of minority firms within selected industries. In the analysis presented below, we combine the disparity findings of 58 studies to portray disparities in state and local government contracting across the nation. We conclude that minority- and women-owned businesses are underutilized in government contracting and that the degree of underutilization is substantial. These statistical results hold up when subjected to a variety of sensitivity tests.

Study Approach

This study is the first to present national data on disparities in government contracting by combining the results of the large number of studies done for state and local governments since the *Croson* decision.

Our basic analytic strategy is to aggregate the quantitative evidence on disparity from as many studies as possible to provide a national picture of disparity in state and local contracting. This method seeks to limit any potential bias and overcome data deficiencies of the underlying individual studies in several ways.

First, the findings are based only on the statistical data contained in the studies—data that we use for conducting new quantitative analysis. The results are, thus, less likely to be affected by the bias of the individual authors. Second, the analysis does not take into account any of the qualitative information, such as hearing testimony and historical analysis, presented in the disparity studies—information that may have led their authors to different conclusions than the disparity numbers alone warranted. Third, the methods used by the disparity study authors in their quantitative analyses are remarkably consistent. Although there are differences across studies in the sources of data used and in the definition of available firms, each of the studies reports on the same outcomes (i.e., the percentage of government contract dollars awarded to minority-owned firms compared to the percentage of all available firms that are minority-owned). While this consistency does not ensure against bias, it does make it less likely.

Finally, by aggregating the findings of all the individual disparity studies, deficiencies in the quality of individual studies can be overcome. An individual study may have data limitations (it may be based on a small number of contracts, for example) that make its results comparatively unreliable. In this case, cumulating findings across many studies increases the reliability of the results.

Screening studies

We used a number of criteria to screen each disparity study before including it in our findings. To be included, a study had to (1) present its findings as disparity ratios or provide the data necessary to calculate disparity ratios; (2) report findings separately by industry categories; (3) report the number of contracts in each industry on which the disparity findings were based or report the statistical significance of each disparity finding; and (4) have more than 80 contracts for all years of the study period combined. These criteria were developed to ensure a basic level of consistency and reliability across studies, enabling us to aggregate findings. In addition to applying these clear-cut criteria, some studies were excluded because they did not indicate exactly how key calculations had been performed or because there were significant inconsistencies throughout the study. Of the 95 studies we reviewed, findings from 58 are included in this analysis.[1]

This screening process should not be taken to mean that the disparity studies we excluded were the "worst" or that those included were the "best." Disparity studies typically contain much more information than just the numerical figures we use in this analysis. For example, many studies report statistical analyses on business formation, historical analyses of regional discrimination, the results of contractor surveys, or the findings of hearings held on discrimination in contracting. Since we do not use this information in our analysis, we did not evaluate these parts of the studies. Rather, our inclusion

or exclusion of studies reflects only our ability to use the numerical disparity findings.

Defining disparity

Nearly all of the post-*Croson* studies focus on the disparity between government utilization of minority-owned businesses (i.e., the extent to which they receive government contracts or subcontracts) and the availability of those businesses to perform government work. *Utilization* is typically measured as the proportion of government contract dollars awarded or paid to minority-owned businesses. *Availability* is the minority-owned share of all firms available to do government work. This definition of the availability of minority- and women-owned businesses can be somewhat ambiguous, as there are several ways to define which firms are available to perform government work. Different studies employ different, and sometimes multiple, measures of availability. As will be discussed below, there is no "best" way to define which firms are available to perform government contracting work, although the choice of measure can affect the findings.

The degree of disparity is often expressed as a ratio of utilization to availability, or the disparity ratio. A disparity ratio equal to one means that minority contractors are used exactly in proportion to their availability for government work, while a disparity ratio less than one means that minority firms are being disproportionately underutilized. A disparity ratio close to zero indicates substantial underutilization. If, for example, 10 percent of the available firms in a selected industry were minority-owned and 10 percent of government contract dollars in that industry were awarded to minority contractors, the disparity ratio would be 1. If the availability of minority-owned firms remains at 10 percent, but only 7 percent of government contract dollars go to minority-owned firms, then the disparity ratio would be less than 1 (0.7), indicating underutilization of minority-owned firms. However, a disparity ratio of 1 does not mean that contract dollars are evenly spread within the group of available majority or minority contractors. It is possible to have a disparity ratio of 1 and have all contract dollars awarded to minority firms going to a single firm.

Measuring utilization

Utilization is measured in several ways in the disparity studies. In some studies utilization is based on the dollar amount of contract awards, while in others utilization is based on the dollars actually paid out. If a project is changed or canceled midstream, the amount of dollars actually paid to the winning firm can be less than the award at contract time. Measures of utilization based on contract award data may overstate dollars going to minority firms if, after a contract is awarded, the prime contractor excludes minority subcontractors from the project. On the other hand, measures based on dollars actually paid out often fail to identify dollars going to minority-owned subcontractors because government payments go to the prime contractor and no record is kept of payments to subcontractors.

Several studies calculate an additional measure of utilization based on the proportion of the total *number of contract awards* that go to minority firms. Because the vast majority of studies measured utilization as a proportion of total *dollars,* we refer to our aggregate results as dollars even though we include all measures of utilization.

Measuring availability

The studies reviewed in this analysis also vary in their approaches to measuring availability. Attempting to follow the *Croson* decision, disparity studies compare the share of contracts awarded to minority-owned firms to the share of minority-owned firms that are "ready, willing, and able" or have the "capacity" to undertake government contracting work. However, different approaches to identifying qualified firms lead to different availability measures and, in turn, different levels of disparity.

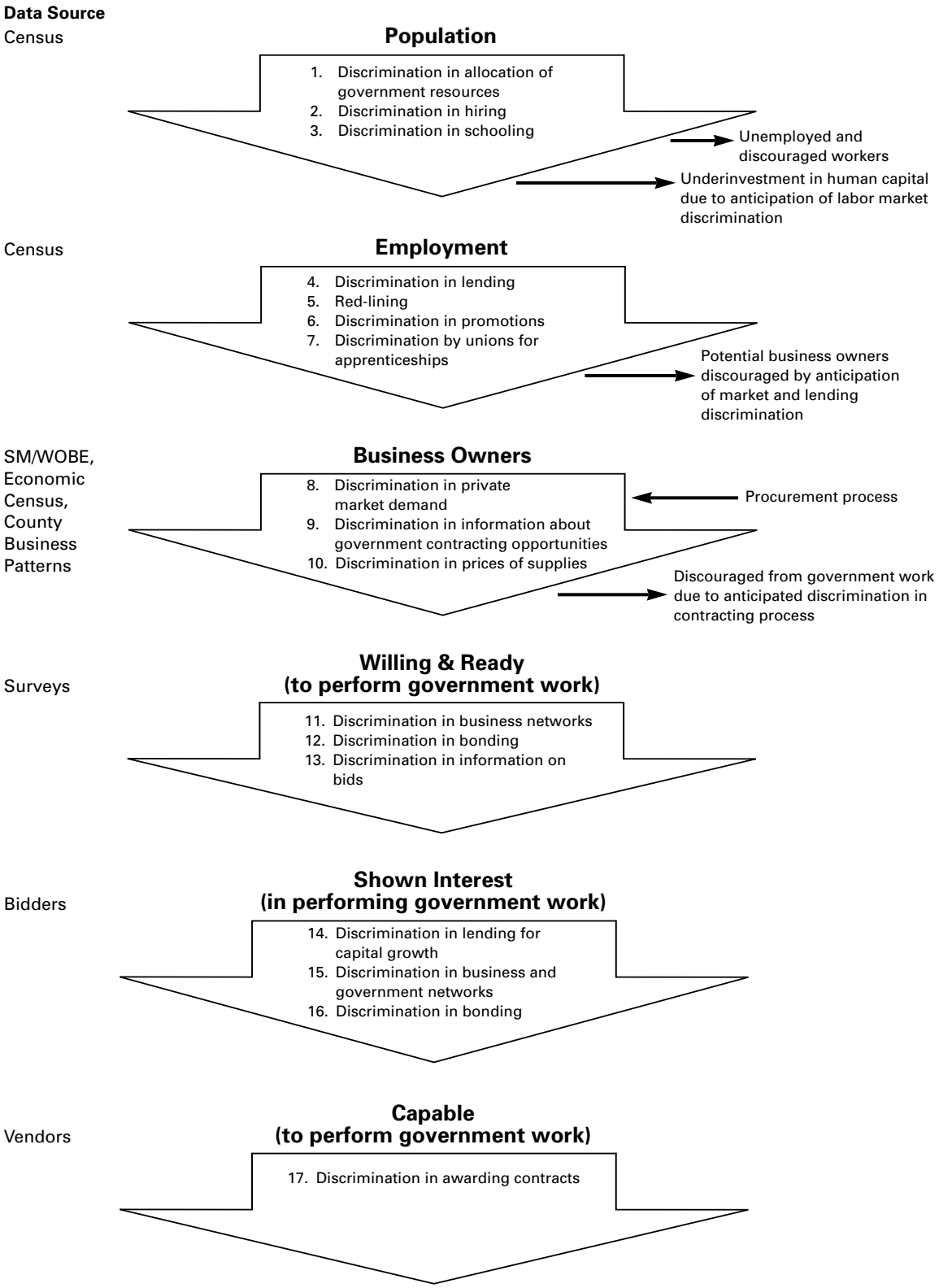
The five most common ways of defining available firms in the studies are:

- firms that have previously won government contracts (i.e., those found on vendors lists);
- firms that have bid on government contracts in the past (i.e., those found on bidders lists) or those that appear on registration or mailing lists of businesses wishing to receive notification of government contract competitions;
- firms that have been certified by a government agency as minority- or women-owned businesses, according to the rules of the jurisdiction;
- firms that express interest in performing government contract work in surveys conducted by the authors of disparity studies; and
- all firms.[2]

These measures reflect different approaches to assessing whether firms have the capacity to conduct government contract work. Including only firms that have previously won government contracts is the narrowest commonly used way of identifying firms that are ready, willing, and able because it assumes firms must have previously worked for the government to be considered capable. Including firms that have bid on contracts, been certified, or appear on registration or mailing lists generates broader measures of availability because they include firms that have expressed an interest in conducting government work, but may or may not have done public sector work in the past. These measures may include firms that are not capable of government work. Finally, the broadest measure of availability attributes to all existing firms the capacity to carry out government work—whether or not they have expressed an interest in government contracting or are qualified to do the work.

Just as these measures differ in the ways they capture firm capacity, they also differ in the extent to which they incorporate the effects of discrimination. There is an apparent tradeoff between accounting for the effects of past and present discrimination and capturing current capacity. There are many stages in the firm formation and procurement process at which discrimination can take place, from deciding to start a business to actually winning a government contract (figure 2.1). The more narrowly a measure screens for capacity, the more prior discrimination it builds in. For example, while firms that appear

Figure 2.1 *Risk Points in the Firm Formation and Procurement Process*



on a vendors list are clearly capable of winning government contracts, these measures may be biased by acts of discrimination that have limited the number of minority-owned firms winning contracts or have discouraged firms from bidding on government contracts. As a result, the availability (and the degree of disparity) of qualified minorities may be understated by using the more restrictive vendors lists.

In contrast, broader availability measures that include all minority firms are less likely to build in past and present discrimination on the part of government or the business community. However, these broader availability measures will include an unknown number of firms that may not be ready, willing, and able to obtain government contracts.

However, taking into account the willingness and ability of firms to carry out government contracts does not always lead to lower measures of minority firm availability. If minority contractors perceive the public sector to be less discriminatory than the private market, they may be more inclined toward government contract work than majority firms. In fact, minority-owned firms receive a larger share of their revenues from the public sector than do majority firms (Bates and Williams 1995). When minority firms are heavily reliant on public sector work, availability measures based on expressed interest in government contracting will exceed measures that include all existing firms.

Aside from interest in carrying out government contracts, the individual disparity studies for the most part do not reflect firms' capacity to carry out government work. For example, one possible indicator of ability to conduct government work is firm size. Most of the availability measures used in the disparity studies do not take firm size into account.[3] Since minority firms tend to be smaller than majority firms, we might conclude that measures that do not take size into account are likely to overstate minority availability. However, this argument relies on the assumption that size is a good predictor of the capacity to perform government contracting work. It could be argued that this assumption discounts the potential dynamism of firms, many of which can expand or subcontract in order to perform large, complex tasks.

Major Findings

We present our disparity findings for all minority-owned and women-owned businesses in table 2.1 and separately for African American-, Latino-, Asian-, and Native American-owned businesses in table 2.2. Within each group, findings are also presented separately for broad industry categories, including construction, construction subcontracting, goods (or commodities), professional services (such as architecture or engineering), and other (nonprofessional), services such as housekeeping or maintenance. We present results using two different measures: the median disparity ratio for all studies[4] and the percent of studies reporting substantial underutilization defined as a disparity ratio less than 0.8. From our results we draw the following conclusions:

- *African American-, Latino-, Asian-, Native American-, and women-owned businesses are underutilized* (i.e., they receive fewer government contract dollars than expected, given their availability).

Table 2.1 *Medians and Distribution of Disparity Ratios for All Minorities and Women by Industry*

	Construction	Construction Subcontract	Goods	Professional Services	Other Services	Total
All Minorities						
Median	0.61 +	0.95	0.48 *	0.61 +	0.50 *	0.57 *
Disparity Ratio of:						
0.0 to 0.8	59%	38%	66%	63%	67%	63%
0.8 to 1.2	24%	46%	26%	11%	7%	18%
1.2 and over	18%	15%	9%	26%	27%	18%
Number of Studies	51	13	47	35	30	163
Women						
Median	0.48 *	0.77	0.30 *	0.17 *	0.31 *	0.29 *
Disparity Ratio of:						
0.0 to 0.8	81%	54%	89%	95%	82%	87%
0.8 to 1.2	10%	8%	11%	3%	7%	8%
1.2 and over	10%	38%	0%	3%	11%	5%
Number of Studies	52	13	47	37	28	164

Source: Urban Institute analysis of disparity studies.

Notes: To calculate the median, we (1) calculate the average disparity ratio for each study; and (2) take the median of these averages. Median figures for "Total" industries are calculated by taking the median across all studies for all industries. Figures for construction may include dollars paid to both prime and subcontractors. Number of studies for "Total" industries is greater than the number of studies read, because the individual studies include multiple industries. The data on which this table is based are reported in table A.3.

Tests were conducted for two null hypotheses: the median equals 1; and the median equals 0.8. The tests of statistical significance were conducted using a "sign" test. Each test measures the probability that the observed distribution of studies reporting disparity values below 1 (or below 0.8) could occur by chance, if the true median disparity ratio is equal to l (or 0.8).

Cells for which there is less than a 5 percent chance of the observed underutilization occurring by chance *given a true median of either 0.8 or 1.0* are marked with an asterisk, while cells with a less than 5 percent chance of of the observed underutilization *given a true median of 1.0 (but not 0.8)* are marked with a plus sign. A one-tailed test of significance was used.

- *Minority-owned businesses receive 57 cents of every dollar expected to be allocated to them based on firm availability* (i.e., the median disparity ratio for all minority businesses across all industries is 0.57).[5] This disparity is widespread, with almost two-thirds of all studies finding substantial underutilization of minority-owned businesses.
- *Women-owned businesses receive only 29 cents of every dollar expected to be allocated to them based on firm availability*. This disparity is even more widespread than for minority-owned businesses; 87 percent of all studies find substantial underutilization of women-owned businesses.
- *In each industry category minority-owned and women-owned businesses as a group are underutilized.*
- *All our findings of underutilization are statistically significant with the exception of construction subcontracting and Native Americans in construction.* Statistical significance means that these results are unlikely to be due to chance.[6]

There are some important differences in disparity across industries. We find that:

- *Construction subcontracting has the highest levels of minority- and women-owned business utilization of all industry categories.* This may be due to the

Table 2.2 *Medians and Distribution of Disparity Ratios for Minority Subgroups by Industry*

	Construction	Construction Subcontract	Goods	Professional Services	Other Services	Total
African Americans						
Median	0.56 *	0.72	0.48 +	0.33 +	0.49 +	0.49 *
Disparity Ratio of:						
0.0 to 0.8	64%	62%	59%	63%	65%	63%
0.8 to 1.2	14%	31%	14%	14%	15%	14%
1.2 and over	22%	8%	27%	23%	19%	23%
Number of Studies	50	13	44	35	26	155
Latinos						
Median	0.67 +	0.84	0.24 *	0.60 +	0.26 *	0.44 *
Disparity Ratio of:						
0.0 to 0.8	59%	46%	74%	65%	80%	68%
0.8 to 1.2	18%	15%	10%	24%	12%	16%
1.2 and over	22%	38%	17%	12%	8%	16%
Number of Studies	49	13	42	34	25	150
Asians						
Median	0.60 *	0.90	0.20 *	0.41 *	0.28	0.39 *
Disparity Ratio of:						
0.0 to 0.8	63%	38%	67%	71%	69%	67%
0.8 to 1.2	10%	31%	10%	9%	8%	9%
1.2 and over	27%	31%	24%	21%	23%	24%
Number of Studies	49	13	43	35	26	153
Native Americans						
Median	0.72	2.28	0.18 *	0.01 *	0.16 *	0.18 *
Disparity Ratio of:						
0.0 to 0.8	55%	40%	80%	80%	93%	74%
0.8 to 1.2	13%	0%	0%	4%	0%	5%
1.2 and over	32%	60%	20%	16%	7%	21%
Number of Studies	31	5	25	25	15	96

Source: Urban Institute analysis of disparity studies.

Notes: To calculate the median, we (1) calculate the average disparity ratio for each study; and (2) take the median of these averages. Median figures for total industries are calculated by taking the median across all studies for all industries. Figures for construction may include dollars paid to both prime and subcontractors. Number of studies for "Total" industries is greater than the number of studies read, because the individual studies include multiple industries. The number of studies differs across minority groups, because not all studies report results for all minority groups. The data on which this table is based are reported in table A.3.

Tests were conducted for two null hypotheses: the median equals 1; and the median equals 0.8. The tests of statistical significance were conducted using a "sign" test. Each test measures the probability that the observed distribution of studies reporting disparity values below 1 (or below 0.8) could occur by chance, if the true median disparity ratio is equal to l (or 0.8).

Cells for which there is a less than 5 percent chance of the observed underutilization occurring by chance *given a true median of either 0.8 or 1.0* are marked with an asterisk, while cells with a less than 5 percent chance of of the observed underutilization *given a true median of 1.0 (but not 0.8)* are marked with a plus sign. A one-tailed test of significance was used.

fact that affirmative action programs in construction often encourage minority participation as subcontractors. These disparity ratios are based on relatively few studies and are only statistically significant for African Americans.

- *For all minority groups combined, the goods and other services industries exhibit the most disparity between utilization and availability.*

- *Of all industry groups, professional services has the widest variance in disparity across minority groups.* Latino-owned businesses have the highest utilization relative to the other minority groups. The disparity ratio for Latino-owned businesses in professional services (0.60) is more than three times the ratio for women-owned businesses (0.17) and almost twice the ratio for African American-owned businesses (0.33).

We also find that the pattern of disparity across industries varies within each racial and ethnic group:

- *African American-owned businesses are most underutilized in the professional services industry category.* Underutilization is also relatively high in the goods and other services industries for these businesses.
- *Latino-owned and Asian-owned businesses[7] are most underutilized in the goods and other services industries.* Eighty percent of studies find substantial underutilization of Latino-owned businesses in the other services category. More than two-thirds of studies find substantial underutilization of Asian-owned businesses in both the goods and other services industries.
- *Native American-owned firms are extremely underutilized in the goods, professional services, and other services industries.* More than 80 percent of all studies showed underutilization of Native Americans in professional and other services. Native American-owned firms' utilization rates are the lowest of any group in these industries.
- *Women-owned businesses experience the greatest disparity between the percent of contract dollars received and availability.* Underutilization is particularly high in professional services, *where 95 percent of studies show substantial underutilization.*

There are also differences in disparity across geographic regions in the construction industry, as shown in table 2.3. We only calculated regional disparity ratios for the construction industry because there were not enough studies to support a separate regional analysis in the other industries. We find:

- *The Midwest has the lowest levels of disparity for each minority group in construction.* Disparity ratios for the Midwest range from 1.36 for Asian-owned businesses to 0.88 for Native American-owned businesses.
- *The West has the highest levels of disparity in construction for all minority groups except Asians. The South generally has the second highest levels of disparity for minority-owned firms.*
- *Women-owned construction businesses are substantially underutilized in all regions.* Disparity ratios range from 0.41 to 0.69 for women-owned businesses.

Finally, we present the average level of availability as measured in the studies reviewed. The same level of disparity can exist with very different levels of availability. For example, a disparity ratio of 1 can be consistent with the percentage of businesses that are minority-owned being 2 percent or 40 percent. Obviously, to reach a disparity ratio of 1, minority-owned businesses must win more government dollars if availability is 40 percent than if it is 2 percent. We find:

Table 2.3 *Median Disparity Ratios for Minorities and Women in the Construction Industry by Region*

	West	South	Northeast	Midwest
African Americans				
Median	0.28	0.60	0.53	1.01
Number of Studies	15	19	7	9
Latinos				
Median	0.54	0.60	0.76	0.90
Number of Studies	15	18	7	9
Asians				
Median	0.60	0.34	0.59	1.36
Number of Studies	15	18	7	9
Native Americans				
Median	0.08	0.56	NA	0.88
Number of Studies	11	9	NA	7
All Minorities				
Median	0.51	0.58	0.69	1.02
Number of Studies	16	17	8	10
Women				
Median	0.50	0.58	0.41	0.52
Number of Studies	16	18	8	10

Source: Urban Institute analysis of disparity studies.
Notes: See table 2.1 for explanation of how the medians were calculated.
NA means results for a particular cell were based on less than 5 studies, and therefore not reported.
See table A.1 for full references for the following disparity studies.
Studies for the **West** region include Alameda Co., CA; Albuquerque, NM; Contra Costa Co., CA; Denver Phase II, CO; Denver RTD, CO; Hayward, CA; Las Vegas, NV; Maricopa Co., AZ; New Mexico; Oakland, CA; Phoenix, AZ; Pima Co., AZ; Richmond, CA; Sacramento, CA; San Jose, CA; Tucson, AZ.
Studies for the **South** region include Asheville, NC; Dade Co., FL; Dallas, TX; Dallas/Fort Worth International Airport, TX; District of Columbia; Florida; Fort Worth, TX; Greensboro, NC; Houston, TX; Jacksonville, NC; Jefferson Co., AL; Louisiana; Memphis, TN; New Orleans, LA; Orange Co., FL; St. Petersburg, FL; San Antonio, TX; Tampa, FL; Texas.
Studies for the **Northeast** region include Boston, MA; Massachusetts; New York; New York City, NY; New York City Housing Authority, NY; Port Authority, NY/NJ; S.E. Pennsylvania Transportation, PA; Syracuse, NY.
Studies for the **Midwest** region include Chicago, IL; Cincinnati, OH; Columbus, OH; Dayton, OH; Hennepin Co., MN; Milwaukee, WI; Minneapolis, MN; Ramsey Co., MN; St. Paul, MN; St. Paul School District, MN.

- The median availability for African-American firms is 2.7 percent, for Latino firms is 2.9 percent, for Asian firms is 1.3 percent, for Native American firms is 0.6 percent, and for women-owned firms is 10.5 percent. To place these numbers in context, note that African Americans, Latinos, Asians, and women represent 11.7 percent, 8.8 percent, 0.4 percent, and 51.3 percent of the U.S. population, respectively (table 1.1).

Strength of the Results

It is important to remember that our results combine findings from studies whose methods differ in many ways: They use different measures of availability and utilization; different years of data are used; and construction and other

contracts funded by the federal government are excluded in some studies and included in others. The data used in our estimates are shown in table A.3.

Nonetheless, we believe that our approach to aggregating the disparity studies provides solid evidence of disparity and that differences across the individual studies do not explain our overall disparity findings. This is because we compared our overall findings to studies whose results were:

- based on large numbers of contracts and/or high levels of minority firm availability;
- based on comparatively restrictive measures of minority firm availability;
- based on disparity jurisdictions that did not have a race-based goals program in place for state or local government contracting; and
- drawn from different study authors.

The consistency of the findings across studies when these alternative measures are examined allows us to be more confident of the correctness of the overall findings. Had the findings of disparity weakened after excluding certain groups of studies (those with few contracts or less restrictive measures of availability) or differed appreciably across study authors, we would be inclined to question them. We discuss below the importance of these sensitivity analyses in supporting our overall findings of disparity.

Findings excluding studies with few contracts

We assume that by aggregating disparity findings across studies, the combined data provide accurate estimates of overall disparity. However, some individual studies are more reliable than others, because they are based on greater amounts of data. By examining only those studies with comparatively large numbers of contracts and high levels of availability, we can test the robustness of our results.[8] When we do so we learn that our findings of disparity do not change substantially—disparities for all minorities fall from 0.57 to 0.51 and for women from 0.29 to 0.26 (see table 2.4). Tests of statistical significance confirmed our results across most industries and populations.

Findings by availability measure

As we discussed earlier, there is no "best" way to define which firms are available to perform government contracting work. We expect, though, that some measures will produce stronger evidence of disparity than others. For example, measures that include all minority-owned firms might lead to findings of greater disparity, because they may overstate the number of firms that are ready, willing, and able. However, if we were to find evidence of disparity when only firms that have won government contracts are included, our results should be taken as relatively strong evidence of minority disadvantage in procurement.

Since our findings combine studies using different measures of availability, we conducted a separate analysis to see whether our results changed when we eliminated those that employed the least restrictive measures of availability. We calculated separately the median disparity ratio for measures of availability that in some way reflect firms that are "ready, willing, and able" (labeled

Table 2.4 *Median Disparity Ratios for Minorities and Women by Industry, Using Only Results from Studies With Large Numbers of Contracts or High Availability*

	Construction	Construction Subcontract	Goods	Professional Services	Other Services	Total
African Americans						
Median	0.36 +	0.72	0.75	0.20 *	0.49 *	0.41 *
Number of Studies	20	5	28	17	16	82
Latinos						
Median	0.68 +	0.99	0.19 *	0.71 +	0.36 *	0.36 *
Number of Studies	22	9	26	16	16	80
Asians						
Median	0.59	NA	0.17 *	0.19 *	0.22 *	0.19 *
Number of Studies	9	NA	26	18	14	68
Native Americans						
Median	0.72	NA	0.19 *	0.09	0.23	0.18 *
Number of Studies	5	NA	11	6	6	28
All Minorities						
Median	0.56 *	0.75	0.47 +	0.52 *	0.49 *	0.51 *
Number of Studies	40	10	40	28	28	136
Women						
Median	0.45 *	0.54	0.30 *	0.16 *	0.27 *	0.26 *
Number of Studies	31	9	41	31	26	129

Source: Urban Institute analysis of disparity studies.

Notes: The results presented in this table are based on a subset of studies with large numbers of contracts or high availability of minority- or women-owned firms. The criteria for including these studies was a combination of the following levels of availability and contracts: (1) 1% availability and 1,175 contracts; (2) 1.25% availability and 940 contracts; (3) 1.5% availability and 783 contracts; (4) 2% availability and 587 contracts; (5) 2.5% availability and 470 contracts; (6) 5% availability and 234 contracts; (7) 10% availability and 116 contracts; (8) 20% availability and 45 contracts. If a study had the appropriate combination of number of contracts and availability, it was included in the analysis. No study with availability of less than 0.5% or number of contracts less than 45 was included. If the number of contracts was not reported, the study was included if availability was greater than 10%. For studies with more than one measure of disparity, this criterion was applied to every measure in the study. If a majority of measures met the criterion, all measures from the study were included.

NA means results for a particular cell were based on fewer than 5 studies, and therefore not reported.

Tests were conducted for two null hypotheses: the median equals 1; and the median equals 0.8. The tests of statistical significance were conducted using a "sign" test. Each test measures the probability that the observed distribution of studies reporting disparity values below 1 (or below 0.8) could occur by chance, if the true median disparity ratio is equal to 1 (or 0.8).

Cells for which there is less than 5 percent chance of the observed underutilization occurring by chance *given a true median of either 0.8 or 1.0* are marked with an asterisk, while cells with less than a 5 percent chance of the observed underutilization *given a true median of 1.0 (but not 0.8)* are marked with a plus sign. A one-tailed test of significance was used.

RWA in table 2.5) and the median disparity ratio for measures of availability based on all firms (i.e., uses the Census Bureau's SMOBE/SWOBE data).[9]

As indicated in table 2.5, we *generally find higher levels of disparity when including only measures of availability that are limited to ready, willing, and able firms.* The disparity ratio for all minorities across all industries, for example, falls from 0.57 to 0.42 when we exclude measures of availability based on all firms. In fact, disparity ratios based on all firms are generally higher (reflecting less disparity) than those based on more restrictive measures of availabil-

Table 2.5 *Median Disparity Ratios for Minorities and Women by Industry, Comparing Different Availability Measures*

	Construction		Construction Subcontract		Goods		Professional Services		Other Services		Total	
	All Firms	RWA	All Firms	RWA	All Firms	RWA	All Firms	RWA	All Firms	RWA	All Firms	RWA
African Americans												
Median	0.83	0.52	0.85	0.70	0.69	0.25	0.93	0.11	0.71	0.45	0.80	0.26
Number of Studies	28	36	8	7	31	26	17	24	14	18	90	104
Latinos												
Median	0.77	0.53	0.58	0.99	0.32	0.19	0.45	0.43	0.24	0.20	0.41	0.36
Number of Studies	27	36	8	7	29	26	17	24	13	18	86	104
Asians												
Median	0.86	0.46	1.01	1.07	0.31	0.19	1.13	0.22	0.47	0.24	0.64	0.31
Number of Studies	26	35	8	7	29	26	17	24	14	18	86	103
Native Americans												
Median	2.57	0.48	NA	NA	2.06	0.16	0.00	0.00	NA	0.16	0.90	0.16
Number of Studies	5	30	NA	NA	6	22	7	22	NA	15	20	89
All Minorities												
Median	0.99	0.56	0.97	0.87	0.80	0.35	1.40	0.36	0.99	0.34	0.99	0.42
Number of Studies	28	37	8	7	30	31	17	25	14	22	89	115
Women												
Median	0.59	0.43	1.12	0.97	0.21	0.30	0.21	0.20	0.31	0.33	0.31	0.28
Number of Studies	28	38	8	7	31	30	19	25	13	21	91	114

Source: Urban Institute analysis of disparity studies.

Notes: Median disparity ratios using measures of availability based on data from the Surveys of Minority- and Women-Owned Business Enterprises are included in the "All Firms" columns. Those based upon all measures of availability that are more reflective of "ready, willing and able" firms are included in the columns headed "RWA." Findings from individual studies may be included in both categories if they employed All Firms and RWA measures of availability.

NA means results for a particular cell were based on less than 5 studies, and therefore not reported.

ity. There are several possible explanations for this result. First, the differing availability measures may produce varied outcomes because the underlying data represent different time periods. The SMOBE/SWOBE data used by most of the studies are from 1987. These data are older than those used to calculate most other measures of availability and may not capture the growth that has occurred over time in the numbers of minority-owned firms. Second, it is also possible that limitations in the SMOBE/SWOBE data lead to an underestimate of minority firm availability. For example, some disparity studies fail to adjust for the fact that the 1987 SMOBE/SWOBE undercounts Asian- and Latino-owned firms.[10]

Another possible explanation for the finding of less disparity using measures based on all firms is that minority-owned firms make up a higher *proportion* of firms bidding on, or interested in, government contract work than they represent of all existing firms. As mentioned earlier, a greater percentage of minority-owned firms' revenues come from government sources than do majority-owned firms' revenues. Whether minority firms' reliance on government contracts is due to greater discrimination in the private market, or to the more widespread existence of affirmative action programs in the public sector, it could explain the higher availability of minority-owned firms when using more restrictive measures of availability.

Findings for studies without an affirmative action program in place

Our overall findings from the disparity studies do not differentiate between jurisdictions that had state and local affirmative action programs for procurement in place and those that did not. If these programs are effective, we would expect that disparity levels in jurisdictions with programs would be lower than places where no program exists. Therefore, we examine separately findings from studies of jurisdictions that had no program in place during the study years.

Defining whether a program is in place is difficult because of the differing types of affirmative action programs that exist. For the purposes of our analysis, we considered a "program" to be in place when a jurisdiction had adopted mandatory or voluntary goals for minority- or women-owned business participation.

There were three separate circumstances in which no program was considered to be in place: (1) jurisdictions during a period of time *before* a program went into effect ("pre"); (2) jurisdictions during a period *after* a program was suspended ("post"); and (3) jurisdictions where no program had ever been introduced ("none").[11] Table 2.6 reports the combined results for the "pre" and "none" groups. The "post" group is not included, because these results are more likely to reflect the effects of programs that were recently in place.

Comparing these results to our overall findings in table 2.2 makes clear that *disparity is greater when there are no goals programs in place*. The median disparity ratios are lower—in some cases substantially lower—for 20 out of 24 industry/race groups where no program is in place. For all industries combined, the disparity ratio falls from 0.49 to 0.22 for African Americans and from 0.44 to 0.26 for Latinos when we restrict the sample to disparities calculated "pre" program or in areas without a program. When the results for time periods "post" program are included, we find the same or somewhat lower lev-

Table 2.6 *Median Disparity Ratios for Minorities and Women by Industry, Using Results from Areas **Without** an Affirmative Action Program in Place Before or During Study Years*

	Construction	Construction Subcontract	Goods	Professional Services	Other Services	Total
African Americans						
Median	0.21	NA	0.24	0.11	0.38	0.22
Number of Studies	14	NA	12	11	8	45
Latinos						
Median	0.27	NA	0.16	0.72	0.24	0.26
Number of Studies	14	NA	12	11	8	45
Asians						
Median	0.00	NA	0.16	0.19	0.11	0.13
Number of Studies	14	NA	12	11	8	45
Native Americans						
Median	0.00	NA	0.25	0.04	0.03	0.04
Number of Studies	9	NA	8	7	5	29
All Minorities						
Median	0.43	NA	0.32	0.61	0.50	0.45
Number of Studies	15	NA	12	11	9	47
Women						
Median	0.43	NA	0.21	0.07	0.26	0.24
Number of Studies	15	NA	13	12	9	49

Source: Urban Institute analysis of disparity studies.

Notes: This table is based on findings from areas and time periods where there was no race-based mandatory or voluntary goals program in place at any point up to that time. It does not include findings for time periods after a program had been suspended.

NA means results for a particular cell were based on fewer than 5 studies, and therefore not reported.

els of disparity than we found using only the "pre"/"none" groups (table 2.7). These results, like those in table 2.6, show greater disparity among jurisdictions without programs compared to our overall findings, particularly for construction and construction subcontracting. But as table 2.8 indicates, while there was a clear pattern of greater disparity during periods when no program was in place across almost all groups and industries, the differences were rarely statistically significant.

While this is not conclusive evidence of what would happen to minority contractors in a particular area if a program were removed, it does suggest that, overall, affirmative action programs reduce disparity. However, this finding could also occur if the level of disparity in a jurisdiction were related to the decision to start or eliminate goals programs. For example, governments that adopt affirmative action programs may be less likely to discriminate in the first place and therefore may have lower disparity with or without a program in place than other areas.

Table 2.7 *Median Disparity Ratios for Minorities and Women by Industry, Using Results from Areas* ***Without*** *an Affirmative Action Program in Place During Study Years*

	Construction	Construction Subcontract	Goods	Professional Services	Other Services	Total
African Americans						
Median	0.47	0.51	0.34	0.00	0.46	0.34
Number of Studies	23	6	20	15	15	73
Latinos						
Median	0.42	0.75	0.20	0.74	0.16	0.27
Number of Studies	23	6	20	15	15	73
Asians						
Median	0.28	0.70	0.16	0.19	0.20	0.19
Number of Studies	23	6	20	15	15	73
Native Americans						
Median	0.43	NA	0.15	0.00	0.13	0.13
Number of Studies	16	NA	14	11	11	52
All Minorities						
Median	0.46	0.53	0.41	0.61	0.49	0.47
Number of Studies	24	6	21	15	16	76
Women						
Median	0.43	0.78	0.21	0.12	0.23	0.25
Number of Studies	24	6	22	16	16	78

Source: Urban Institute analysis of disparity studies.

Notes: This table is based on findings from areas and time periods where there was no race-based mandatory or voluntary goals program in place at that time; results are included for an area for study years after a program had been suspended.

NA means results for a particular cell were based on less than 5 studies, and therefore not reported.

Findings across studies by different authors/firms

There are several private research firms that have carried out multiple disparity studies. It has been asserted that these firms have a greater incentive to find disparity than firms or consultants conducting only one or an occasional study.[12] We examined whether contractors conducting multiple studies are more likely to find disparity than others.

We find that *the research firms that have conducted multiple disparity studies are no more likely to find disparity than other firms or authors*. Table 2.9 arrays studies of the construction industry by contractor and results. Results are presented as the number of studies with disparity ratios less than 0.8, between 0.8 and 1.2, and over 1.2.[13] We must be careful in interpreting these numbers because contractors carrying out multiple studies tend to concentrate in certain geographic areas that may have higher or lower levels of disparity. Each major contractor's results are fairly similarly distributed across the three categories of disparity. Moreover, no single contractor consistently finds only substantial underutilization.

Table 2.8 *Median Disparity Ratios for Minorities and Women by Industry, Using Results from Areas **With** an Affirmative Action Program in Place During Each Study Year*

	Construction	Construction Subcontract	Goods	Professional Services	Other Services	Total
African Americans						
Median	0.61	0.95	0.67	0.27	0.49	0.51*
Number of Studies	37	10	30	24	17	108
	(–0.97)	(–0.92)	(–1.28)	(–1.53)	(–0.98)	(–2.11)
Latinos						
Median	0.66*	0.94	0.40	0.45	0.29	0.48*
Number of Studies	35	10	27	23	15	100
	(–1.80)	(–0.92)	(–0.56)	(0.93)	(–1.14)	(–1.72)
Asians						
Median	0.77*	1.07	0.27	0.50	0.39	0.50*
Number of Studies	35	10	28	24	16	102
	(–1.72)	(–0.49)	(–0.96)	(–0.87)	(0.14)	(–1.94)
Native Americans						
Median	0.71	NA	0.19	0.00	0.16	0.16
Number of Studies	21	NA	15	17	8	61
	(–1.33)		(–0.69)	(0.00)	(0.04)	(–0.27)
All Minorities						
Median	0.73	1.01	0.70	0.57	0.36	0.61
Number of Studies	35	10	31	23	19	108
	(–1.35)	(–1.57)	(–1.42)	(0.01)	(–0.31)	(–1.61)
Women						
Median	0.45	0.99	0.35	0.18	0.43	0.29
Number of Studies	36	10	31	25	17	109
	(0.17)	(–0.27)	(–0.91)	(–.41)	(0.85)	(–0.73)

Source: Urban Institute analysis of disparity studies.

Notes: This table is based on findings from areas and time periods when there was a race-based mandatory or voluntary goals program in place.

NA means results for a particular cell were based on fewer than 5 studies, and therefore not reported.

The tests of statistical significance compare the median disparity ratios for areas with and without an affirmative action program in place during the study years. The latter medians are reported in table 2.7. These tests were conducted using the Mann-Whitney-Wilcoxon test of the equality of medians from independent samples. Test statistics are reported in parentheses.

Cells for which there is less than a 5 percent chance that the true medians are equal are denoted with an asterisk. One-tailed tests of statistical significance were used.

Issues in Interpreting the Findings

In interpreting the results of our analysis of state and local data on disparity, three possible critiques arise. First, what do disparity ratios drawn from the 58 studies we analyzed tell us about state and local government disparity nationwide? That is to say, how representative are our results? Second, can

Table 2.9 *Disparity Ratios for Minorities and Women in the Construction Industry, Comparing Distributions of Average Disparity Ratios by Study Author*

	Number of Studies			
	NERA	BBC	D.J. Miller	Other Contractors
African Americans				
Disparity Ratio of:				
0.0 to 0.8	9	7	8	9
0.8 to 1.2	0	2	1	3
1.2 and over	1	5	1	4
Total Number of Studies	*10*	*14*	*10*	*16*
Latinos				
Disparity Ratio of:				
0.0 to 0.8	4	9	5	11
0.8 to 1.2	4	2	3	1
1.2 and over	2	3	2	3
Total Number of Studies	*10*	*14*	*10*	*15*
Asians				
Disparity Ratio of:				
0.0 to 0.8	6	6	8	11
0.8 to 1.2	2	2	0	1
1.2 and over	2	6	2	3
Total Number of Studies	*10*	*14*	*10*	*15*
Native Americans				
Disparity Ratio of:				
0.0 to 0.8	2	9	3	4
0.8 to 1.2	0	2	1	1
1.2 and over	1	3	1	5
Total Number of Studies	*3*	*14*	*5*	*10*
All Minorities				
Disparity Ratio of:				
0.0 to 0.8	7	9	4	11
0.8 to 1.2	4	2	4	1
1.2 and over	0	4	1	4
Total Number of Studies	*11*	*15*	*9*	*16*
Women				
Disparity Ratio of:				
0.0 to 0.8	8	14	6	14
0.8 to 1.2	3	0	2	1
1.2 and over	0	1	2	1
Total Number of Studies	*11*	*15*	*10*	*16*

Source: Urban Institute analysis of disparity studies.

evidence of disparity be interpreted as evidence of discrimination? Finally, do the disparity measures we use capture the effects of past and present discrimination on the number and capacity of minority businesses? We address each separately in this section.

Assessing the National Representativeness of Our Findings

The findings from the disparity studies provide the best evidence to date on the extent to which state and local governments nationwide contract with minority

firms. The studies we reviewed represent a wide range of governments: large state governments such as New York and Texas, large cities such as New York, and smaller governments such as Asheville, North Carolina. The 58 studies represent findings from 18 states and the District of Columbia as well as a variety of governmental units including cities, counties, states, and special districts such as schools, transportation agencies and water resource authorities.

We performed a sensitivity analysis to see how the results changed when only studies with a large number of contracts are included. When we did so, we found that the disparity ratios of places with large numbers of contracts were quite similar to those with fewer. Since studies that are based on small numbers of contracts often examine small jurisdictions, this at least suggests that disparity levels do not vary widely across governments and agencies that differ in size.

One difficulty in trying to extrapolate from these studies to all state and local governments is that we do not know whether disparities in jurisdictions that commission studies differ from those in jurisdictions that do not. If most studies respond to allegations by civil rights groups or others that minority businesses are not receiving their due share of contracts, the studies may generate unrepresentatively high disparity ratios. On the other hand, if agencies with successful minority contracting programs were more likely to commission studies, the studies we examined could overrepresent places where minority groups receive an unusually high proportion of government contracts. This would mean that disparities nationwide exceed those found in this study. In fact, we have no information on the reasons governmental units commissioned disparity studies.

What Is the Relationship Between Disparity and Discrimination?

The large disparities in government contract awards documented in this report can result from government or private market discrimination or they can be the product of minority-owned firms being, on average, less qualified to win government contracts than majority-owned firms. In the latter case, being less qualified (e.g., having less experience or fewer employees or lacking access to bonding) may or may not result from past or present discrimination.

We are interested in understanding both the extent of discrimination by government in the contracting process itself as well as discrimination in the wider private market that may limit minority-owned firms' ability to compete. Government has a clear responsibility to eliminate direct discrimination in the government contracting process. However, government can also play a role in reducing private market discrimination so that it does not end up passively participating in private market discrimination through its contracting process. Due to data limitations, we are unable to determine the degree to which our findings of disparity represent discrimination, either in the government contracting process or the private market.

Little evidence exists, in general, on the extent to which disparity in government contracting may be due to discrimination by government officials or participants in the private market. However, if we compare the contract awards of *similarly qualified* minority-owned and majority-owned firms, we can be more confident that any resulting disparity in awards is due to current dis-

crimination in the contract process and not differences in the qualifications of firms. Unfortunately, few of the disparity studies include the necessary data to carry out this comparison. Even if this were possible, there are two difficulties with this comparison.

First, differences in firm qualifications may themselves result from discrimination. We would need, then, to analyze the extent to which the private market practices that determine firm qualifications (bank lending, for example) are themselves discriminatory.

Second, defining which firms are similarly qualified is not straightforward. Some possible indicators of firm capacity include total revenues, number of employees, bonding levels, and experience. Required qualifications may vary by type of contract. For example, firm size may be more important in winning a highway construction contract than a legal services contract.

Our sensitivity analyses represent a step in trying to determine the extent to which disparity is due to discrimination. For instance, when we focus our analysis only on the subset of minority firms that have demonstrated an interest in performing government contract work, we still find strikingly wide disparities. However, because we have not been able to separately examine disparity among firms with equal capacity using the characteristics listed above (i.e., revenues, employees and the like), we do not know the degree to which our findings of disparity represent discrimination.

The problem of determining whether a disparity can be ascribed to discrimination is also an issue that has been considered—and is still under consideration—by the courts. The Supreme Court announced somewhat ambiguous standards to guide the judiciary in examining the question. In the *Croson* case, when Justice O'Connor drew an analogy between discrimination in government contracting and employment discrimination, she wrote:

> There is no doubt that "[w]here gross statistical disparities can be shown, they alone in a proper case may constitute prima facie proof of a pattern or practice of discrimination" under Title VII. But it is equally clear that "[w]hen special qualifications are required to fill particular jobs, comparisons to the general population (rather than to the smaller group of individuals who possess the necessary qualifications) may have little probative value."[14]

This analysis, and its explicit analogy to the employment context, suggests that the courts can consider statistical disparities—such as those presented in this report—to be evidence of discrimination in the government contracting context.

However, it also makes clear that some disparities (for example, the difference between the minority population share and the government's utilization of minority firms) do not prove discrimination. Justice O'Connor argued that the correct comparison should be between the number of firms "qualified to undertake prime or subcontracting work in public construction contracts" and the number actually receiving such contracts.[15] However, it remains to be seen what the courts will accept as adequate proof of statistical disparities in the procurement context.

Accounting for Past and Present Discrimination in Business Formation

Discrimination can prevent minorities from becoming business owners and hamper the growth of minority-owned businesses and contribute to their failure. In the absence of discrimination, it is likely there would be more minority-owned firms, and existing firms would have greater capacity and experience. The analytic question raised, then, is do the availability measures we use underestimate the share of firms that *in the absence of discrimination* would be prepared to handle government contracts, including those firms that did not form?

As discussed earlier, the differing availability measures used to calculate disparity ratios are affected by past and present discrimination against minorities. But even the most inclusive of all measures of availability used in the disparity studies do not take into account the fact that many minority firms never form because of discriminatory barriers.

Efforts to estimate what the availability of minority-owned firms would be in the absence of race discrimination have been made. This type of "but-for-discrimination" analysis is intended to capture past and present discrimination by the private and government sectors.

The traditional approach to this analysis is to compare the probability that similarly situated minority and nonminority individuals are self-employed. "Similarly situated" refers here to having the same level of education, financial resources, or other characteristics. These analyses also focus on differences in rates of start-up and failure, firm size, or other measures of capacity.[16] The difference in these probabilities by race can then be attributed to the effects of discrimination. The usefulness of this measure depends on how well the studies account for critical factors that affect business formation and failure. Generally speaking, the more factors included, the more the remaining differences can be attributed to discrimination.

Results from these analyses suggest that availability measures based exclusively on existing firms understate the availability of minority-owned businesses (Fairlie and Meyer 1994). A study by Bates (1995) on self-employment rates found that African Americans had a 48 percent lower probability of entering self-employment than white Americans, after factoring in a wide range of characteristics that affect self-employment. New York State's 1992 disparity study (see table A.1) indicates that minority availability would be 30 percent higher in construction if minority-owned businesses had formed at rates comparable to those of majority-owned businesses.

Since our analysis of disparity studies finds wide disparities for *existing* minority-owned firms, building in the "but for" or counterfactual for availability would likely lead us to find even greater levels of disparity. However, it is also likely that if there were greater numbers of minority-owned firms "ready, willing, and able" to perform government contracts, the proportion of dollars going to minority-owned firms (their utilization) would change. Thus, it is not clear what the extent of disparity would be in the absence of discrimination. In the final analysis, the principal value of the but-for calculus is as an additional way of assessing the impacts of discrimination on minority-owned firms.

Notes

1. The studies reviewed were furnished by the Department of Justice through its efforts to collect all existing state and local contracting disparity studies conducted after the *Croson* decision.

2. The main source of data on all firms is the U.S. Census Bureau's Survey of Minority-Owned Business Enterprises and the Survey of Women-Owned Business Enterprises (SMOBE/SWOBE). Sometimes only the number of firms with paid employees is included. There are additional limitations and issues with the SMOBE/SWOBE data that may end up excluding some existing minority-owned firms. However, these are not related to whether firms are "ready, willing, and able." These data issues are discussed in the appendix.

3. The main exception is the occasional exclusion of firms that do not have paid employees.

4. To calculate the median, we first calculate the average disparity ratio for each study. We then take the median of these averages.

5. The median disparity ratio for the "all minorities" category is for the most part greater than the medians for individual groups. This apparent anomaly is due to the fact that the disparity ratio reported for "all minorities" is the median of all the individual studies' disparity ratios for all minorities, not the average of each minority group's median presented in table 2.1. Further discussion of this point is included in the appendix.

6. The tests of statistical significance are conducted using a "sign" test to determine the likelihood that the findings are the result of chance. Each study is considered to be a separate random event (the equivalent of a coin flip) in which the outcome is either above or below a hypothesized median (e.g., 1.0). We then calculate the probability that a finding of underutilization occurs by chance. The calculations are based on the same theory used to determine whether a coin is fair, based on seeing the result of a large number of coin flips.

7. Some of the disparity studies group Asian- and Native American-owned businesses together because of their small numbers. We include findings from these studies in the Asian-owned business category, since the availability of Asian-owned firms is far greater than Native American-owned firms. Furthermore, studies for geographic areas where there are greater numbers of Native American businesses for the most part report disparity separately for these two groups.

8. For a description of how we defined studies that had large enough numbers of contracts or high enough minority-owned firm availability for inclusion in this subanalysis, see notes to table 2.4.

9. We attempted to analyze separately studies that used only bidders or vendors lists, but there was not a sufficient amount of studies to support this analysis.

10. Also, it is not clear that a measure based on all existing firms in a given jurisdiction would necessarily be more restrictive than a measure based on a bidders list in a different jurisdiction. Examination of the studies that included multiple measures of availability for the same geographic area, however, showed the same general pattern within studies as these results: Often the measure of availability based on SMOBE/SWOBE showed less availability of minority-owned firms than more restrictive measures. This suggests that differences across jurisdictions are not likely the reason for these results.

11. Some studies are included in more than one of these groups, because they report findings for several time periods.

12. This assertion assumes that the state and local governments that commissioned disparity studies preferred a finding of disparity, which may not be true.

13. There are 17 different authors of the 58 disparity studies reviewed (see table A.1). In addition to BBC, NERA, and D.J. Miller, several other authors conducted multiple studies. However, the number of studies they conducted were few enough that we include them in the category "other contractors."

14. *Croson,* 488 U.S. at 501 (internal citations omitted).

15. *Id.* at 502.

16. There is some tension between adjusting for undercapacity of minority firms due to discrimination using this type of analysis and creating measures of availability that reflect current firm capacity as a way of representing only firms that are "ready, willing, and able." Because minority firms are on average smaller, the first tends to adjust availability upward while the second adjusts it downward.

Chapter 3

Economic and Policy Context

The measure we use in chapter 1 to assess the relative disadvantage of minority firms in procurement is a disparity ratio. This ratio is defined as the proportion of contracting dollars received by minority firms (utilization) divided by a measure of their relative availability (i.e., the share of all existing firms, or of all firms that are ready, willing, and able that they represent). We demonstrated that state and local governments broadly underutilize minority firms. We also provide data that indicate the low availability and disadvantaged character of minority firms. While minorities account for 21 percent of the population, they own only 12 percent of businesses and receive only 6 percent of all receipts. We also noted that even where no disparity exists, the number and capacity of minority firms can be quite low, with their utilization being commensurately limited.

This chapter places our disparity findings in context. It explores the barriers that prevent minority-owned firms from becoming more numerous, from increasing their capacity, and from obtaining government contracts. The first part of the chapter discusses barriers to the formation and growth of minority firms. The second part describes the contracting process itself and discusses how different steps in the contracting process may prevent the utilization of minority firms. We do not explore barriers to women's business ownership. (Women are excluded from this analysis because recent court challenges to affirmative action address the use of racial- and ethnic-, but not gender-based classifications.[1]) The third section of this chapter provides an overview of affirmative action policies in contracting.

Barriers to Formation and Growth of Minority Firms

Research on minority-owned businesses, along with anecdotal and small survey evidence presented in disparity studies, suggests that the major barriers to formation and development of minority businesses are (1) lack of financial capital; (2) lack of social capital (e.g., business networks and familial resources); (3) human capital deficits; and (4) lack of market access. These barriers affect the savings, borrowing, and bonding capacities of minority business owners as well as their ability to penetrate lucrative markets, to develop stable demand, and to obtain business supplies at competitive prices. Alternative explanations for the low levels of minority entrepreneurship have also been advanced. Perhaps the most common is that Latinos' and African Americans' cultures are not conducive to entrepreneurship. But, as discussed later in this chapter, there is little empirical support for this theory.

Each of the four major barriers to firm formation and development noted above could themselves be the result of discrimination. For example, low levels of personal wealth or education among minorities result in part from historical discrimination. Firm owners, customers, bank officials, or government contract officers may value the same financial or social attributes less when they are held by a minority than when they are held by a nonminority. Discrimination that ascribes membership in a minority group with low productivity, achievement, and quality service can also retard minority firm formation and development. These discriminatory barriers and practices not only prevent minorities from achieving their goals of business ownership, but they may also discourage minorities from even attempting to form businesses. Where obstacles to formation are particularly high, more people may decide to enter salaried sectors where discrimination is perceived to be lower, rather than pursuing self-employment (Boyd 1991).

Our understanding of barriers to business formation is based mostly on research focusing on African Americans. The self-employment experiences of Latinos and Asians have been examined mainly within the context of immigration (Youngert 1995, Kim et al. 1989, Wong 1989, Borjas 1986, Portes and Bach 1985, Min 1984). As a result, we know less about *native-born* Latinos and Asians—populations that are covered by most affirmative action policies.

Limited Financial Capital

It is broadly acknowledged that lack of sufficient income, wealth, and access to financial markets limits the formation of minority firms and restricts their development.

Insufficient income and wealth

Most business owners start with no capital or use their own savings as start-up capital. More than three-fourths of minority-owned businesses, with the exception of Asian-owned firms, are started without any borrowed capital (table 3.1).[2] The importance of one's own resources in starting a business has broad impli-

Table 3.1 *Financial and Social Capital Characteristics of 1987 Business Owners by Minority Status*

	African American	Latino	Asian[1]	Female[2]	Nonminority Male
Source of Borrowed Capital[3]					
None (no capital or did not borrow)	77.2%	75.8%	62.6%	78.7%	70.6%
Family or friends	7.5%	11.3%	24.4%	7.9%	10.4%
Commercial bank loan	10.5%	9.4%	13.0%	11.2%	16.9%
Other	9.9%	8.8%	14.4%	7.2%	8.7%
Family Networks					
Percent who had close relatives who owned a business	29.7%	32.5%	37.6%	49.3%	50.1%
Percent worked for close relatives who owned a business	10.8%	12.9%	14.2%	18.1%	25.1%

Source: U.S. Bureau of the Census, 1987 Economic Censuses, Characteristics of Business Owners.
Notes: Percents are based on the number of owners reporting.
[1] Other minorities (Native Americans, Pacific Islanders, Eskimos and Aleuts) are also included in this category, although the vast majority of business owners in this category are Asian.
[2] Includes both minority and white female business owners.
[3] Percents sum to more than 100, because owners can report more than one source of capital.

cations for Latinos and African Americans, given their lower levels of income and wealth.[3]

Roughly one-third of African Americans and over 30 percent of Latinos live below the poverty level. Minorities also have lower median incomes: black and Latino families have 50 percent and 56 percent, respectively, of the median family income of whites.

Minorities also have lower levels of wealth. They are less likely than whites to own homes or cars or to receive income from investments. Households headed by blacks have, on average, just one-quarter of the assets of white households (Blau and Graham 1990, Meyer 1990). Lower levels of wealth also have a direct effect on intergenerational transfers, as fewer minority parents have much financial capital or other assets to leave to their children. Some analysts call into question the importance of wealth on firm formation given the fact that many firms start with no investment at all (Meyer 1990). However, limited wealth is also a barrier to starting larger firms or financing the growth of a firm over time.

Another potential source of start-up capital is borrowing from friends and family. African Americans use these sources of capital less frequently than do others. As indicated in table 3.1, only 7.5 percent of African American business owners relied upon loans from friends and family for start-up capital, compared to 10.4 percent of nonminority male owners. Asian business owners, by contrast, rely far more heavily on family and friends as sources of start-up capital than do nonminority males.

Minorities' low income and wealth is in part the result of discrimination. African Americans, in particular, have been excluded from institutions of

higher education, received inferior education (Higgs 1989), been denied employment opportunities (Fix and Struyk 1993), received lower wages (Juhn, Murphy, and Pierce 1991), and been denied mortgages to buy homes (Munnell, Tootell, Browne, and McEneaney 1996). Each of these factors has contributed to the high poverty rates and low wealth of African Americans.

Lack of access to financial markets

Despite their greater need for private market loans (due to their relatively low incomes and limited wealth), African Americans and Latinos are less likely than whites to borrow from banks when starting or expanding businesses (table 3.1; Bates 1989). Latino business owners are the least likely to borrow from banks (9.4 percent), followed by African Americans (10.5 percent). Loans may be unobtainable for African Americans and other minorities for a number of reasons. Many have no history of borrowing and are unable to demonstrate creditworthiness. In addition, African Americans' low incomes, low home ownership rates, and poorly capitalized firms mean low collateral to back up business loans.

Furthermore, there is evidence that discrimination may be a factor in the limited access of African Americans and Latinos to lending institutions. African Americans with the same level of financial capital as whites receive about a third of the loan dollars when seeking business loans (Bates 1991). Minorities are also less likely to obtain business loans than are white owners with the same borrowing credentials (Colorado Center for Community Development 1996, Grown and Bates 1992, Ando 1988).

Limited Social Capital

Social capital, that is, networks of business associates, family members, customers, and employees, can also be important in the formation and development of firms (Fratoe 1988). Here again, minorities are at a disadvantage.

Lack of access to business networks

Business networks, which commonly involve membership in formal trade and business organizations, such as the Rotary Club, or informal relationships with other successful business owners, can provide a business owner with introductions to new clients and suppliers, information on upcoming projects, and information on technical developments and the like. Networks can also serve as sources of capital for business owners in need of cash to develop their businesses (Fratoe 1988). As we will discuss further in the review of the contracting process, networks may also play a role in determining the winners of government contracts.

There is little empirical work on the extent to which minorities' lack of access to business networks is the result of discrimination. However, minorities historically have had less access than nonminorities to unions, particularly construction unions, which are important sources of networking (Hill 1989).[4]

Given the usefulness of these networks, their inaccessibility can represent an important, if subtle, barrier to firm formation and development. Exclusion from business networks limits minorities' access to information about opportunities that can result in opening a business and may also preclude minority owners from getting information and guidance about areas where their businesses could expand. Several disparity studies report instances in which notices to bid for public projects were publicized through networks dominated by majority businesses. Minorities' difficulty in penetrating majority-dominated business networks may confine the relationship of minority and nonminority contractors to public projects governed by mandatory set-asides.

Family networks

The family is another important element of social capital that can promote business formation and support business growth. On the one hand, the family is a readily available work force from which the business owner can draw. Spouses and children commonly serve as paid or unpaid labor in family businesses (Sanders and Nee 1996, Fratoe 1988). The family can also be a form of business network. Self-employed parents transfer to their children information about business as well as the business itself. Having a relative who is a business owner is highly correlated with entrepreneurship by other family members. In this regard, African Americans' comparatively low marriage rate and high female headship limit their ability to draw on the family as a source of social capital. Fifty percent of white male business owners had close relatives who owned a business. A quarter worked for close relatives who owned a business (table 3.1). African Americans, in contrast, are the least likely of any group to have close relatives who have owned a business or to have worked for close relatives who are business owners.

Human Capital Deficits

Latinos and African Americans are more likely than white Americans to have low levels of education, little experience as business owners, and low overall work experience. Latinos and African Americans are also less likely to participate in apprenticeship programs or unions (Hill 1989).

Education

Education fosters business formation and development, as highly educated individuals have specific training that can be easily converted into business ownership (e.g., lawyers, physicians, accountants). In addition, educated individuals may be better equipped to navigate the business formation process, having better knowledge of lending institutions and government requirements.

Latino and African American business owners have the lowest educational levels of all entrepreneurs (table 3.2). Almost one-third of Latino business owners do not have a high school diploma, and less than 30 percent of both Latinos

Table 3.2 *Human Capital Characteristics of 1987 Business Owners by Minority Status*

	African American (%)	Latino (%)	Asian[1] (%)	Female[2] (%)	Nonminority Male (%)
Educational Attainment					
Elementary/some high school	23.1	32.2	12.5	9.0	13.2
High school degree/ some college	48.1	45.0	35.1	54.6	49.3
College degree or more	28.8	22.6	52.3	36.4	37.4
Total	*100.0*	*100.0*	*100.0*	*100.0*	*100.0*
Self-Employment Experience					
Percent previously owned a business	9.8	11.0	15.6	13.9	21.7
Work Experience					
Less than 2 years	21.5	27.4	31.2	20.7	16.7
2 to 9 years	27.2	31.7	35.7	31.4	28.1
10 to 19 years	26.6	23.0	21.1	27.1	26.5
20 years or more	24.8	18.0	12.0	20.7	28.7
Total	*100.0*	*100.0*	*100.0*	*100.0*	*100.0*

Source: U.S. Bureau of the Census, 1987 Economic Censuses, Characteristics of Business Owners.
Notes: Percents are based on the number of owners reporting.
[1] Other minorities (Native Americans, Pacific Islanders, Eskimos and Aleuts) are also included in this category, although the vast majority of business owners in this category are Asian.
[2] Includes both minority and white female business owners.

and African Americans have college degrees. White male and Asian business owners are more likely to be high school and college graduates, with over half of Asian business owners holding at least a college degree. An additional human capital barrier for many Latinos and Asians is an inability to speak English fluently.

Discrimination has also affected the quality and the quantity of minorities' education. Minorities were categorically excluded from many higher education institutions across the South until the late 1960s. Educational segregation and a lack of interest in educating minorities relegated African Americans in the South to lower quality schools. Latinos and African American men also have lower returns to their education than white non-Hispanic men (Reimers 1983).

Lack of educational attainment does not hamper firm formation equally across all industries. In construction, for example, firm formation depends less on educational levels than on prior experience (Bates 1995).

Experience

Past experience in a related business can be a valuable form of human capital for the potential entrepreneur. It provides hands-on training as well as access to

business networks that can foster interest in business ownership and can increase the probability of business success. One route to adequate hands-on experience, particularly in the trades, is union membership. However, minorities have historically been denied access to union apprenticeships and membership (Hill 1989; U.S. Federal Register 1996). Prior self-employment also increases the likelihood of success in business. Minority business owners are less likely to have previously owned a business themselves than white business owners (table 3.2). Latino and Asian business owners are also at a disadvantage because they have substantially fewer years of work experience than other business owners, reflecting in many cases their recent immigration. Almost 30 percent of these owners have less than two years' work experience.

Supervisory and managerial experience serves as an entry point to the self-employment sector and increases the probability of business success (Ando 1988). But minorities have encountered problems in obtaining high-level supervisory and managerial opportunities. Moreover, African American supervisors and managers are about 10 percent more likely than other groups to be in the government sector. If government supervisory and managerial jobs do not provide workers access to business networks, the private market, and industrial expertise, these positions may be less effective than private market positions in promoting self-employment.

Limited Market Access

Lack of access to white consumers with significant wealth and spending power may also inhibit the formation and development of minority-owned businesses. As noted earlier in this chapter, minority customers frequently have lower incomes than white customers. The inability of minority firms to penetrate the white consumer market can be a significant barrier for minority firms in need of revenue. According to Bates (1989), serving a mixed-race clientele reduces the chance of business failure among African Americans.

The problem, however, is that minority firms often have less access to white customers. This constrained access results from two principal sources. The first is discrimination by white consumers. Consumer discrimination means that some white customers are unwilling to patronize black-owned businesses or are only willing to do so if the price charged is less than that charged by a white owner (Meyer 1990). The second reason for lack of access to the white consumer market is racial segregation in housing. Quite apart from any direct discrimination, residential segregation will mean that minority business owners based in minority communities have little contact with white customers.

Culture and Preferences

Differences in culture and preferences for self-employment have been advanced as explanations for the lower self-employment rates of black Americans vis-à-vis other ethnic groups (Meyer 1990, Sowell 1983, Chiswick 1983). However, there is little empirical support for this position. Opinion polls indicate that young African Americans are more likely than white Americans to want to form their own businesses (Development Associates 1987). Further, the cultural pref-

erence hypothesis fails to explain the large geographic differences in black firm ownership. Looking only at the states of the South, O'Hare (1990) finds that the number of black businesses per thousand black population ranges from 7 in Alabama to 14 in Virginia. In addition, the hypothesis that differences in culture and taste explain the high self-employment rates of other ethnic groups—particularly immigrants—overlooks the contribution of other factors to self-employment patterns. One such factor is the role of social class in the country of origin (Darity 1989). Studies show that the observed advantage of black immigrants over native blacks disappears when human capital characteristics are controlled for (Borjas and Bronars 1989; Fairlie and Meyer 1994; Butcher 1994).

Finally, it is difficult to measure entrepreneurial culture, because a myriad of self-employment activities escape official statistics. These activities tend to be small or sporadic, and complementary to other sources of income. A study of a "Little Village" in Chicago (Tienda and Raijman 1996) documented the prevalence of this type of self-employment activity among Mexican Americans. Similar patterns have been documented among women receiving public assistance (Edin and Jencks 1992).

Barriers to Utilization in Government Contracting

As we discussed above, the barriers minority firms face to formation and development can be linked to their limited access to financial, social, and human capital and to markets. Minority business owners often turn to government contracts to offset some of the limitations posed by the private market. But the contracting process itself presents barriers that prevent minority businesses from winning government contracts. In this section we present a step-by-step sketch of the practices embedded in the contracting process that reduce minority-owned business participation in procurement.

This discussion, for the most part, draws on anecdotal evidence contained in the disparity studies. We have no way of knowing the frequency with which any of these practices occurs, or the share of minority businesses that confront them. Nonetheless, the practices are cited often enough in disparity studies to suggest that their occurrence cannot be dismissed as isolated incidents.

Steps in the Contracting Process

For the purpose of this analysis we can subdivide the contracting process into five more or less discrete steps:

- specifying the design of a particular project and developing contracting requirements;
- defining the scope of the affirmative action program that will govern a specific project;
- soliciting bids;

- submitting bids and awarding contracts; and
- implementing the contract, monitoring post-award compliance, and paying contractors.

Project Design

Government agencies can exercise substantial discretion in the design of projects and contracts that can either promote or inhibit minority firm participation.

Size of contracts

As we indicate above, minority firms tend to be smaller than majority firms. Hence, large contract size may be an obstacle faced by minority firms in pursuing government contracts. The inability or unwillingness to break contracts down into subtasks can have an intentional or unintentional exclusionary effect.

Customizing contracts

Customizing projects so they are "wired" to a designated contractor freezes out minority competition. In practice, this is often achieved by drafting contract announcements with unnecessarily restrictive specifications or designating some types of contracts as sole source.[5] The effects of such tactics are aggravated by minorities' more limited access to networks and government officials in many localities.

Defining the Scope of Affirmative Action Programs

Agencies' and local governments' affirmative action programs can be designed in ways that limit the degree to which they promote minority firm growth and participation in the procurement process.

Emphasis on subcontracts

Because many minority firms are small, one way to increase their utilization is through subcontracts with large nonminority firms. Thus, minority set-asides can be met by encouraging nonminority prime contractors to subcontract to minority-owned firms. While these programs can help small minority firms win awards, they may also lock minority firms into competing as subcontractors. This can limit the experience of minorities in managing and handling large contracts and may promote perceptions that these firms are unable to act as prime contractors. Reliance on subcontracting to meet affirmative action goals is even more problematic given accounts by minority firm owners that they are often relegated to small, low-skilled subcontracting tasks whose only purpose is to meet affirmative action goals.[6]

Liberal grants of waivers

Contract officials can exercise discretion in authorizing exemptions from minority subcontracting requirements. These waivers can be granted on the basis of the nature of the project[7] or by a judgment that the majority contractor has made "good faith efforts" to comply with affirmative action program rules. The disparity studies document numerous instances in which these exemptions have been abused by majority contractors.[8]

Ineffective screening for minority business fronts

Programs vary in the degree to which they screen and sanction fraudulent claims of minority status. Obviously, programs with a high incidence of fraud provide majority rather than minority contractors with the benefits of affirmative action and erode the legitimacy of the program.[9]

The Bid Solicitation Process

Many disparity studies document the exclusion of minority firms from the bidding process. Exclusionary procedures can take a number of forms, including:

- the use of closed, private calls for bids;
- failure to publish contract notices in minority media;
- failure to notify minority firms of calls for bids;
- providing less complete project information to minority than to white contractors; and
- providing white contractors with project information earlier than their minority counterparts, enabling them to spend more time developing bids.[10]

The Submission and Evaluation of Bids

Minority firms also report a number of obstacles in submitting bids and in having them receive impartial evaluation.

Higher supply prices

Minority business owners report being quoted higher supply prices than their majority competitors. In one study, minorities reported 10 to 20 percent higher supply prices. In another, the quoted price was 40 percent higher.[11] Indeed, in some instances minority firms hire white staff to negotiate prices with suppliers.[12]

Bid shopping

The disparity studies report that some majority prime contractors reveal the bids they have received from minority firms to other majority subcontractors, enabling them to underbid and win the subcontract. One minority owner said the practice was so common that she does not submit subcontract bids until 15 minutes before they are due.[13]

Subjectivity in awards

In some types of contracts, procurement awards are not based simply on the bid amount, but on other, more subjective factors (such as the quality of the proposed work or the ability of the contractor to complete the work successfully). When subjective factors play an important role in deciding to whom the contract should be awarded, there is greater room for discrimination.

Manipulation of the award process to favor particular contractors

The award process can be directly manipulated to give a particular contractor, often a nonminority firm, the award. In practice this manipulation often takes the form of rebidding or renegotiating contracts.[14] When renegotiation takes place, requirements of the contracts may be loosened, the description of products may change, and the dollar amount of the contract may be revised.

Execution of the Contract, Monitoring Compliance, and Payment

A number of practices occur during the final stages of the contracting process that reduce minority utilization. Some of the most frequently cited include:

Contract exclusion

Minority subcontractors report that they are dropped from contracts after it is awarded or they are simply not called on to perform any work.[15] In other instances, they are included in a contract bid without their knowledge and never receive work.[16] Presumably, such practices are more common where there is little monitoring or enforcement on the part of government. Unfortunately, there is very little information on the extent to which state and local government police minority subcontracting agreements.

Slow payment

Since minority firms are smaller, slow payment on the part of government can jeopardize a firm's existence, especially when contract performance requires substantial out-of-pocket expenditures.[17] Late payment by prime contractors poses the same threat.

Project sabotage

Finally, expressions of overt hostility have been experienced by minority contractors. Their tools have been stolen, their work destroyed, and signs have been posted with racial slurs and the like. Other, somewhat less overtly hostile actions include failure on the part of the prime contractor to notify the subcontractor of changes in schedule or location of the work and isolation of minority workers on the job site.[18]

Affirmative Action Policies in Contracting: An Overview

Over the past 30 years, governments at the federal, state, and local levels have responded to barriers to minority firm formation, development, and participation in the government contracting process with a wide range of procurement-related initiatives. In general, these initiatives fall into two broad categories. The first category involves policies that seek to include race as a factor in the award of contracts. These policies include the granting of sole source contracts, set-asides, price or evaluation advantages, and the use of goals for prime or subcontracting. In general, this set of policies is intended to directly increase the number of contract and subcontract awards to minority firms.

A second broad category of policies seeks to expand the number of minority firms contracting with government by increasing their financial, social, or human capital. In so doing, they put minority firms in a better position to compete against majority firms as either prime contractors or subcontractors. They do not, though, address directly the contractor selection process *per se.* These policies include lending and bonding help, technical assistance programs, expanded notice requirements regarding bids, and the imposition of prompt payment directives on government agencies. In general, these policies are intended to increase the size of the pool of potential minority bidders on public contracts.

There are basically three tiers of governmental procurement programs and rules to which affirmative action policies apply. One governs the purchase of goods and services by the *federal* government. Another governs the purchase of goods and services by *state and local* governments using their own funds. And a third—essentially a hybrid—governs *state and local procurement financed with federal funds,* to which special federal rules apply. This type of pass-through regulation is most prominent in the transportation area. Federal contracting and pass-through rules were the subject of the 1995 Supreme Court ruling in *Adarand v. Pena.* State and local contracting was the subject of the *Croson* decision in 1989 and of the many disparity studies that were commissioned in its wake.

Goals of Affirmative Action Programs

It appears that policies at all levels of government are premised upon a mix of interrelated remedial, social, and economic goals. Perhaps the most frequently articulated rationale for affirmative action in procurement is to compensate for the present effects of past—and, in some instances, current—discrimination.[19] Government action has sometimes been the source of that discrimination; sometimes it has been the result of private action. It has been argued that government itself can be a passive participant in private discrimination, principally by contracting with firms that discriminate. In fact, Justice O'Connor's decision in *Croson* identifies the problem of passive participation as a potential justification for affirmative action.[20]

Social goals have also animated affirmative action policies in contracting. In the wake of increasing urban violence in the late 1960s, and the warnings of the Kerner Commission, President Lyndon Johnson directed sole source contracts to minority businesses located in the central cities. President Richard Nixon continued on this course, expanding efforts to direct federal contracts to

minority firms. Ultimately, these early efforts were codified by Congress in the Section 8(a) program and various other programs during the 1970s. But while the goals of promoting economic development in distressed areas and reducing minority unemployment have *not,* for the most part, been central goals of procurement policy, a social welfare (or distributional) orientation has remained. This is evident in the programs' terminology, most notably the fact that federal programs are directed at "economically and socially disadvantaged" firms.

Finally, growth and economic goals are also commonly advanced as rationales for affirmative action programs in contracting. These goals have encompassed expanding the economic growth and industrial capability of the United States (by increasing the number of minority and other small businesses), increasing minority entrepreneurship, expanding the market share of minority firms, and moving minorities into sectors of the economy where they were historically underutilized.[21]

These complex and varied goals exist alongside the primary objectives of procurement policy: to promote cost competition, administrative simplicity and transparency, and, of late, decentralization of authority.[22]

Federal Affirmative Action Policies

Federal affirmative action policies in contracting consist of both government-wide directives as well as rules that apply to specific agencies. Here again, a distinction should be drawn between policies that influence the contract award decision and those intended to expand the pool of minority firms and bidders.

Government-wide procurement policies

Perhaps the most prominent affirmative action policy bearing on contract awards is the use of *goals* in awarding contracts to minority-owned business enterprises (MBEs) and women-owned business enterprises (WBEs). Federal law establishes several overall national goals to encourage broader participation in federal procurement: a 20 percent goal for small businesses; a 5 percent goal for small disadvantaged businesses (SDBs); and a 5 percent goal for women-owned firms.[23] Individual federal agencies negotiate their own goals annually with the Small Business Administration. The goals are flexible, as they can be waived when minority firms are not available in a specific region or industry. This flexibility may account for the fact that the federal government did not achieve its 5 percent goal for minority contracting until 1993, 15 years after it was introduced.

The federal government employs other government-wide policy tools that influence the award decision and complement these goals. Perhaps the best known is the Section 8(a) (Minority Small Business and Capital Ownership) program, administered by the SBA. Under this program, the SBA itself serves as a prime contractor, negotiating contracts with individual federal agencies to deliver goods and services.[24] The SBA then subcontracts with individual firms that are owned by individuals who are socially and economically disadvantaged.[25] These subcontracts are usually let in a sole source, noncompetitive fashion.

Unlike other federal affirmative action programs, the goal of the Section 8(a) program is expressly developmental as it is intended to incubate—and graduate—SDBs. As a result, entry into the program is restricted to firms owned by individuals whose net worth is less than $250,000. Participation in the program is restricted to nine years, and continuing participation is conditioned on the firm receiving a diminishing share of its total revenues from government contracts. Importantly, the program also incorporates other elements designed to overcome the barriers to minority firm development, including training and consulting.

In the Section 8(a) program, the SBA subcontracts directly with small disadvantaged businesses. Under another government-wide program, the SBA—again serving as an intermediary between federal agencies and the private sector—requires private, prime contractors to subcontract, or set aside, a share of their federally funded projects for SDBs. This program (the Section 8(d) program) has a less explicitly developmental rationale as it is geared to more mature contractors. Accordingly, the wealth threshold of firms that participate as subcontractors is higher, there is no durational limit imposed on SDB involvement, and the program does not incorporate other developmental features, like technical assistance, to the same degree.[26]

Proposed Government-wide Reforms

In May 1997 the Federal Acquisition Regulation Council issued proposed regulations that would broadly reform the use of affirmative action in federal procurement policy.[27] The proposed rule would, in effect, authorize national disparity studies across 80 differing industries. In industries where a disparity is found between the government's utilization of minority firms and the share of minority-owned businesses represented within the sector, the use of price preferences up to 10 percent or evaluation credits would be authorized. (Under bid preferences, the bids of nonminority contractors are inflated by 10 percent, giving minority firms a price advantage. Evaluation credits increase the scores of proposals submitted by prime contractors whose pre-contract bids commit them to subcontracting to minority firms.) In industries where no such disparity is found, the government can make further inquiry to determine the impact of past discrimination on suppressing the growth and formation of minority firms. Reduction or elimination of the price preferences or evaluation credits would then depend on the result of such a "but-for-past-patterns-of-discrimination" analysis.

One notable feature of the proposed rules is their reliance on price preferences and evaluation credits rather than set-asides or other forms of sheltered competition. While the former do not restrict competition to minority firms, the latter make race a condition of eligibility for bidding on a government contract.

Agency-specific efforts

In addition to these government-wide programs, most federal agencies and departments have developed their own affirmative action programs in procurement.[28] The procurement policies at the Department of Defense (which

accounted for 71 percent of all federal contracting in Fiscal Year 1990) and the Department of Transportation are notable not just for the scale of activity involved but for the tools employed. Both agencies have adopted affirmative action policies that incorporate open competition but provide minority firms with an advantage in the bidding or pricing process.

The Defense Department employs *bid-price preferences,* inflating the bids of nonminority contractors by 10 percent.[29] In 1994 the Congress authorized the use of bid-price preferences government-wide with the passage of the Federal Acquisition and Simplification Act (FASA).

Beyond its own participation in Section 8(a) programs and its efforts to meet selected statutory goals for minority contracting, the Department of Transportation has imposed a contracting requirement on its state and local grant recipients, requiring that state and local governments pay a 1.5 to 2 percent premium to contractors who use women and minority contractors and provide them with technical assistance.[30]

Capital and other assistance programs

These contract-award policies are supplemented by numerous federal programs intended to increase minority firms' financial, social, and human capital. They do so by providing:

- equity capital;[31]
- loan guarantees;[32]
- technical assistance;[33]
- mentoring;[34] and
- guarantees for surety bonds.[35]

State and Local Affirmative Action Programs in Contracting

During the 1970s and 1980s many state and local governments adopted affirmative action policies that paralleled those in place at the federal level. The emergence of these programs appears to be less the result of congressional or judicial imperatives than the product of growing political influence among minorities and women within state and municipal legislatures and a growing awareness of inequities in the contracting process.[36] For the most part, the tools employed (goals, set-asides, bid preferences, technical assistance, loan guarantees, etc.) resemble those in place at the federal level, responding as they do to the same barriers to minority firm formation and development.

Many jurisdictions have adopted goals policies. But these policies vary in a number of common ways:

- Some apply government-wide; others to an agency or department; some to a particular industry, such as construction only; others are developed on a contract-by-contract or project basis.
- Some are voluntary, others are mandatory.[37] Goals that are voluntary perform a scorekeeping function; those that are mandatory function as set-asides.

- In some cases the goals apply to all minorities viewed collectively; in others they are applied to individual racial/ethnic groups. In some jurisdictions goals apply only to racial or ethnic minorities; in others they extend to women and the disabled.
- In some instances goals go beyond the promotion of minority business development to incorporate employment or community development objectives.

Like the federal government, states and localities have employed tools other than goals that affect contract award outcomes. These include bid preferences (see above); evaluation credits (where the use of minority contractors increases the score a proposal receives); and sheltered competition (contracts for which only minority contractors are allowed to bid).

State and local governments have also enacted a wide range of policies that are intended to redress the financial, social, and human capital needs of minority contractors in ways that do not bear directly on contract awards. In some instances the lending, training, or other programs are directed exclusively to minorities; in other instances they are directed to all small businesses.

In the areas of *financial capital,* the programs that aid minority businesses include lending and venture capital programs as well as loan guarantees; bonding assistance in the form of waivers or bond guarantees; insurance assistance; the imposition of prompt payment requirements on government agencies; and policies that promote breaking large contracts into smaller, discrete projects so MBEs can compete for them.

Policies intended to overcome MBEs' limited *social capital*—that is, their limited mainstream corporate networks—include mandates that information about pending contracting opportunities be widely disseminated in the minority media. They also include requirements that a minimum number of MBE bids be received on specific contracts, a strategy intended to force increased outreach. In addition, policies that require use of minority subcontractors are intended to increase the access of smaller minority firms to private-sector networks as well as to government dollars.

In terms of *human capital,* many state and local governments make available subsidized technical assistance to help MBEs navigate bonding, bidding, and other processes that are part of the procurement process. They may also offer training in bid preparation and other relevant business practices.

Sanctions

At federal, state, and local levels of government, government officials have available a number of sanctions that can be invoked by government when contractors fail to meet their MBE contracting goals. In order of severity, these include:

- providing written notice;
- withholding payments;
- recovering amounts from the contractor that are equal to the unmet project goal;
- terminating the contract; and
- debarring the contractor.

Unfortunately, neither the disparity studies nor other sources provide documentation on how frequently or severely these sanctions are invoked. This lack of information may itself suggest that affirmative action programs are not especially vigorously enforced.

Impact of Croson

While we might expect that *Croson* would have changed the character of most state and local affirmative action programs in contracting, that does not appear to be the case. A survey of state minority business enterprise programs conducted by the Council of State Community Development Agencies in 1992 and 1993 found that *Croson* had no effect on 14 of 26 state programs that dealt directly with procurement (i.e., involved goals or policies that directly affect contract awards such as set-asides or price preferences). A small number of jurisdictions (four) shifted from mandatory to voluntary goals; four temporarily suspended their programs; one delayed the promulgation of goals; and two ended their programs. In at least one instance, a state increased its minority contracting goal in the wake of *Croson,* after receiving the results of its disparity study.

Effectiveness of programs in overcoming barriers faced by minority firms

Ideally, we would conclude this chapter by reviewing the literature that explores the impact of both race-conscious and race-neutral programs in overcoming the barriers described in the first part of this chapter. However, our review of the literature and relevant data has found that it is extremely limited. This suggests to us that deepening our knowledge of the frequency with which minority firms encounter differing obstacles (such as discrimination in receiving business loans), and of the effectiveness of different race-neutral and race-conscious programs, is critical if programs are to be effectively targeted and readily defended. We return to this issue in the chapter that follows.

Notes

1. Readers interested in the business-ownership process of women are referred to "Small Business Success Among Men- and Women-Owned Firms in Rural Areas," Leann Tigges and Gary P. Green, *Rural Sociology* 59 (Summer 1994): 289–310; "Self-Employment and Providing Child Care," Rachel Connelly, *Demography* 29 (February 1992): 17–29; "Winner's Circles: Chicago's Experiment in Low-Income Enterprise," Scott Bailey, *Policy Review* 63 (Winter 1993): 82–85; and "Micro-Enterprise and Women: The Viability of Self-Employment as a Strategy for Alleviating Poverty," Roberta Spalter-Roth, Enrique Soto, and Lily Zandniapour, Institute for Women's Policy Research, November 1994.

2. The figures presented in tables 3.1 and 3.2 are drawn from the Census Bureau's 1987 Characteristics of Business Owners (CBO). The data are from a 1991 survey of more than 125,000 business owners whose firms were operational in 1987. Unlike SMOBE/SWOBE, these data represent *owners* rather than firms, so there can be multiple entries per firm. The survey is restricted to owners of small businesses. The "Asian" category also includes Pacific Islanders, Native Americans, and Alaskan Natives. References in the text to Asians refer to this category.

3. However, Bates (1996) notes that of African American firms started in the previous 10 years with more than $5,000 in receipts, only 30 percent started with no capital.

4. Contemporary evidence about discrimination by unions can be found in 61 Federal Register 26054–26057, May 23, 1996.

5. See table A.1 for complete references for the following disparity studies: Tucson, ch. 9, p. 21; Albuquerque, ch. 6, p. 15; and Hennepin County, ch. 6, p. 28.

6. See table A.1 for complete references for the following disparity studies: North Carolina Institute of Minority Economic Development, "City of Greensboro Minority and Women Business Enterprise Capacity Study," 1992, p. 14; and BBC, "The City of Tucson Disparity Study," 1994, pp. ix–10.

7. For an instance of the degree to which contract dollars are exempted from meeting affirmative action, see the study of the City of Baltimore, pp. 31–36 (see table A.2 for complete reference).

8. A document circulated among contractors in Milwaukee, for example, instructed contractors on exploiting the good faith efforts exemption to hiring minority subcontractors. Among other things, the document recommended that prime contractors (1) send certified letters to minority businesses they know have ceased operations or changed addresses; (2) leave messages on minority firms' answering machines but do not return their calls; (3) do not give information about when a bid is due; and (4) do not lend drawings of the project to minority subcontractors. Affirmative Action Consulting Ltd. and Ralph G. Moore and Associates (AAC/RGMA), "M/WBE Disparity Study for the County of Milwaukee, City of Milwaukee, and Milwaukee Public Schools," 1992.

9. Instances of fraud related to minority fronts as reported by minority business owners can be found in NERA, "The Utilization of Minority- and Women-Owned Business Enterprises by the Regional Transportation District" (Denver, Colorado), September 1992, p. 14; North Carolina Institute of Minority Economic Development, "City of Greensboro Minority and Women Business Enterprise Capacity Study," 1992, p. 17; and BBC, "The City of Tucson Disparity Study," 1994, pp. ix–17. See table A.1 for complete references for these disparity studies.

10. Instances of these practices can be found in BBC, "Disparity Study: City of Albuquerque," December 1995, pp. vi–13; Mason Tillman, "The Maricopa County Minority- and Woman-Owned Business Enterprise Program Study," 1989, p. 84; NERA, "The Utilization of Minority- and Woman-Owned Business Enterprises by Alameda County," June 1992, p. 187; and D.J. Miller, "Memphis/Shelby County Intergovernmental Consortium Disparity Study," October 1994, pp. vii–6-20. See table A.1 for complete references for these disparity studies.

11. See, for example, NERA, "The Utilization of Minority- and Woman-Owned Business Enterprises by the City of Hayward," March 1993, p. 23; and D. J. Miller, "Memphis/Shelby County Intergovernmental Consortium Disparity Study," October 1994, pp. vii–10. See table A.1 for complete references for these disparity studies.

12. See, for example, MGT of America, "Final Report: City of Tallahassee MBE Disparity Fact-Finding Study," January 1990; and BBC, "The City of Tucson Disparity Study," 1994, pp. ix–24. See tables A.1 and A.2 for complete references for these disparity studies.

13. For instances of this practice see Mason Tillman, "The Maricopa County Minority- and Woman-Owned Business Enterprise Program Study," 1989, p. 72; BBC, "Disparity Study: City of Albuquerque," December 1995, pp. vi–14; and Mason Tillman, "City of San Jose Disparity Study: Professional Services and Procurement," April 1995, pp. iii–9. The case of the minority woman who waits until 15 minutes prior to the due time to submit the bid is in Mason Tillman's study of the City of San Jose. See table A.1 for complete references for these disparity studies.

14. See, for example, NERA, "The Utilization of Minority- and Women-Owned Business Enterprises by the Regional Transportation District" (Denver, Colorado), September 1992, p. 32; NERA, "The Utilization of Minority- and Woman-Owned Business Enterprises by the City of Hayward," March 1993, pp. v–65; Affirmative Action Consulting Ltd. and Ralph G. Moore and Associates (AAC/RGMA), "M/WBE Disparity Study for the County of Milwaukee, City of Milwaukee, and Milwaukee Public Schools," 1992, p. 7. See table A.1 for complete references for these disparity studies.

15. These practices are documented in the following studies: NERA, "The Utilization of Minority- and Women-Owned Business Enterprises by the Regional Transportation District" (Denver, Colorado), September 1992, p. 27; and NERA, "The Utilization of Minority- and Woman-Owned Business Enterprises by Alameda County," June 1992, p. 180. In 14 of the 97 contracts examined in the Alameda study, the minority subcontractor was not used on the project. See table A.1 for complete references for these disparity studies.

16. Instances in which the minority subcontractor is not aware of his/her inclusion in a bid are reported in Mason Tillman, "The Maricopa County Minority and Woman-Owned Business Enterprise Program Study," p. 72, and BBC, "The Disparity Study of Women/Minority Business Enterprises: Hennepin County," June 1995, pp. vii–17. See table A.1 for complete references for these disparity studies.

17. See the studies BBC, "Disparity Study: City of Albuquerque," December 1995, pp. i–16; Mason Tillman, "City of San Jose Disparity Study: Professional Services and Procurement," April 1995, pp. iii–22; and Mason Tillman, "The Maricopa County Minority- and Woman-Owned Business Enterprise Program Study," p. 79. See table A.1 for complete references for these disparity studies.

18. These practices are documented in BBC, "Disparity Study: City of Albuquerque," December 1995, pp. i–27; D.J. Miller, "Memphis/Shelby County Intergovernmental Consortium Disparity Study," October 1994, pp. vii–9; and NERA, "The Utilization of Minority and Woman-Owned Business Enterprises by the City of Hayward," March 1993, pp. vi–23. See table A.1 for complete references for these disparity studies.

19. Chief Justice Warren Burger's 1979 decision in *Fullilove v. Klutznick,* upholding a Department of Transportation set-aside program, captures this remedial purpose:

> Congress had before it, among other data, evidence of a long history of marked disparity in the percentage of public contracts awarded to small business enterprises. This disparity was considered to result not from any lack of capable or qualified minority businesses, but from the existence and maintenance of barriers to competitive access, which had their roots in racial discrimination, and which continue today, even absent any intentional discrimination or other unlawful conduct. *Fullilove v. Klutznick,* 448 U.S. 448, 478 (1979).

20. *Croson,* 488 U.S. at 492.

21. See, generally, *The Final Report of the U.S. Commission on Minority Business Development,* 1992.

22. See *From Red Tape to Results: Creating a Government that Works Better and Costs Less,* Report of the National Performance Review, September 7, 1993, p. 26.

23. See, generally, *Affirmative Action Review, Report to the President,* The White House, July 19, 1995, p. 60.

24. The reason for inserting the SBA as the prime contractor is to ensure that neophyte minority firms are not taken advantage of by government contract officers.

25. Under the relevant law, the Small Business Administration presumes that Black Americans, Hispanic Americans, Native Americans, and Asian Pacific Americans are socially disadvantaged. This presumptive eligibility does not extend to firms owned by white women. Only firms owned by U.S. citizens are eligible for Section 8(a) program participation. Even firms owned by legal permanent residents are not eligible for the program. 13 CFR §124.105(b).

26. Testimony of Philip Lader, Administrator, the Small Business Administration, "The Small Business Administration's §8(a) Minority Business Development Program," Hearing before the Committee on Small Business, U.S. Senate, April 4, 1995, p. 27.

27. See, generally, 62 Federal Register 25648–25453, May 9, 1997.

28. See Charles Dale, *A Brief Legal Overview of Federal Affirmative Action Statutes and Executive Orders,* American Law Division Memorandum, the Congressional Reference Service, March 8, 1995.

29. Citation to §1207 Program.

30. 15 U.S.C. § 644(g).

31. Through, for example, the SBA's Small Business Investment Companies.

32. *Id.*

33. Through, for example, the Commerce Department's Minority Business Development Administration.

34. Through mentor-protégé efforts that have been developed by a number of federal agencies.

35. Through the SBA's surety bond program.

36. Programs in Ohio were spurred by the Black Elected Democrats; in Michigan, by the legislative Black Caucus; and in Illinois, by the Black Caucus of the General Assembly, for example. See, generally, *National Directory of State Minority Business Enterprise Programs,* The Council of State Community Development Agencies, 1993. Interview of William Taylor, attorney, Washington, D.C., June 26, 1996.

37. This aspect of the policy is often determined by the way in which the "good faith effort" clause that frequently accompanies the goals is written or whether this clause is enforced.

Chapter 4

Minorities and Contracting: A Research Agenda

In this study we find that minority firms receive 57 cents for every dollar they would be expected to receive based on their number, in state and local government contracts. These wide disparities exist across all minority groups and industries examined.

While these findings do not tell us the sources of the disparities, or what policies would increase the ability of minority-owned firms to win government contracts, they do call into question current efforts to eliminate affirmative action programs in contracting. At the same time, our limited understanding of the sources of, and remedies for, existing disparities makes clear that new data are needed to design and efficiently target public sector investments, regulations, and antidiscrimination enforcement. Indeed, we are struck by how little national research there is that documents the barriers faced by minority firms and that evaluates the policies designed to eliminate them.

In this chapter we identify some of the research issues that emerge from our meta-analysis of disparity studies. These issues include understanding the sources of disparities, the barriers faced by minority firms, how those barriers have changed over time, and the effectiveness of public policies intended to promote minority business. We propose a research agenda that not only begins to fill these gaps, but can be readily implemented.

I(A) Research *Issue:* What Are the Sources of Disparity?

Standing alone, findings of disparity—or differences in the proportions of government contracts received by minority and majority firms—will always be sub-

ject to differing interpretations and debate. This owes to the fact that, in the absence of further research, the results can be interpreted in two differing ways. On the one hand, findings of wide disparities can be taken as evidence that minority firms are treated unfairly in the private market or in the government contracting process. On the other hand, disparities can be interpreted as a reflection of the diminished size, capacity, and qualifications of minority firms, and not as evidence of *current* unfair practices. This does not rule out the possibility that disparities are the product of unfair *past* practices in the private market or in the government contracting process.

A key research question, then, is whether disparity results from systematic differences in the qualifications of minority and majority firms. If disparities disappear when firms with equivalent qualifications are compared, this could mean that minority firms' failure to win contracts owes to their limited size, expertise, or capitalization. Such a finding could also be viewed as establishing that government procurement practices are fair. But even if we find that there are no disparities among equally qualified firms, the fact that minority firms do less well than majority firms in obtaining government contracts raises other questions regarding (a) the barriers minority firms currently face in the private market; (b) the historical practices that account for their disadvantaged character; and (c) the government interventions that might increase their qualifications.

But what if it turns out that disparities persist when we control for qualifications such as size and experience? This finding would strongly suggest that minority firms are unfairly treated, raising a second set of questions: Are disparities the result of barriers that minority firms face *in the private market:* in access to loans, bonds, or business networks, for example? Or do they result from barriers that minority firms encounter *in the contracting process itself:* from restricted access to information on available contracts, from biased evaluation of bids, from the exclusion of minority firms from contract awards, or from a government's over-reliance on sole source contracts? Are disparities the product of *both* private and public sector actions?

This discussion suggests the importance of distinguishing between private market and governmental sources of barriers that minority firms confront. Policies that address private market barriers will not efficiently reduce disparities that are rooted in governmental practices. At the same time, regulating the government contracting processes will not efficiently eliminate disparities if minority firms typically lose government contracts because they cannot obtain loans, business contacts, or performance bonds in the private sector.

Once we identify the source of disparities (whether they are the product of barriers in the private market or the government contracting process, or both), we then need to identify the barriers that have the largest impacts on minority firm formation and growth. A related policy issue is whether barriers are erected to purposefully discriminate against minorities. That is, are the barriers confronted by minorities the result of neutral practices that have a disproportionate impact on minority firms (e.g., an unwillingness to break large procurement contracts down so that smaller firms can bid on them)? Or are they the result of an intent to exclude minority firms from awards? In the case of the latter, the goals of policymakers might not only be to eliminate barriers, but to sanction and deter illegal behavior.

I(B) Research *Approach:* What Are the Sources of Disparity?

The role of qualifications in disparity

To determine whether disparity in government contracting is due to differences in qualifications of minority- and majority-owned firms, disparity ratios for firms of similar size or experience should be developed. If disparity is due to unequal treatment of equals by government or the private market, we expect to see disparity among equally qualified firms.

The use of differing measures of disparity can help us understand whether minority firms are being treated equitably. For instance, the availability of minority firms can be calculated as the share of all workers that are employed by minority-owned businesses rather than the share of all businesses that minority-owned businesses represent. Using this measure one would conclude that minority firms were being treated equitably if the number of dollars received per employee is the same for minority- and majority-owned firms.[1]

The success rates of minority- and majority-owned firms in obtaining government contracts should be compared within a multivariate statistical framework that more completely controls for the qualifications of the firms involved. One source of data for such an analysis is the Census Bureau's Characteristics of Business Owners (CBO) survey, which provides detailed data on firm and owner characteristics. The CBO data can be matched to administrative records of each firm's receipt of federal contracts and, if possible, to data on whether firms had bid for government contracts. The resulting data file would then enable examination of the qualifications of firms bidding on, and receiving, government contracts.

What role do barriers play in disparity?

New data collection efforts will be required to understand how specific barriers disadvantage minority-owned firms in the procurement process. Existing surveys and administrative sources provide few data on the barriers faced by small businesses or on whether firms bid for contract work. The Census Bureau's Characteristics of Business Owners should be augmented by questions on access to lending, bonding, competitive supply prices and other barriers, as well as questions on whether firms have bid for or won government contracts. These data would make possible a comparison of the relative success of minority and majority firms in obtaining government contracts, where the firms appear to have equal access to loans, bonds, and supplies. By calculating disparity ratios for government contracting among firms with comparable access to private sector financing and supplies, one can make a convincing case that this disparity reflects government decisions.

Our understanding of the barriers minority firms face could also be advanced by collecting quantitative data on the bid solicitation process and the outcomes of minority firms. Data could be systematically collected on (a) the share of solicited minority- (and majority-) owned firms that bid; (b) the share of firms making bids that win; and (c) the dollar differences between the winning majority and minority bids.

Finally, detailed case studies of the contracting process can help us understand why minority firms are not winning government contracts. Interviews

could be conducted with procurement officers overseeing contracts that qualified minority firms lost to comparably qualified majority-owned firms. Interviews probing the perceived barriers faced by minority firms could also be conducted with representatives of the firms involved. Qualified minority firms that chose not to bid on government contracts could also be interviewed to learn why they chose not to participate. We assume that interviews with procurement officers and other participants in the contracting process could identify specific contracting practices and requirements that repeatedly work to the disadvantage of minority firms. The identification of such practices and requirements could help target remedial actions.

The contribution of discrimination to the differing barriers faced by minority- and majority-owned firms

More needs to be known about whether minority-owned firms are discriminated against in trying to obtain loans, bonding, and competitively priced supplies. Anecdotal evidence suggests that a problem exists in each area, but there is little quantitative evidence to describe the prevalence of each problem.

Analysis of Community Reinvestment Act data

Effective studies of discrimination in lending could be modeled on studies in mortgage lending. Since 1990, banks have been required to keep records on mortgage applications, which are then analyzed by government agencies and others to evaluate whether minority and majority loan-seekers are treated equitably. Recent changes in record-keeping requirements for commercial loans under a May 1995 amendment to the Community Reinvestment Act should generate data that will shed light on differential treatment in commercial lending. Under the amendment, large banks are required to make available records on the number and size of commercial loans made by Census tract. Such data would permit us to examine for the first time comparative lending patterns in minority versus majority neighborhoods with similar commercial bases.

Paired tests

Paired testing could be used to measure the role of race in access to loans, bonds, or competitively priced supplies. In these studies, testers who have similar qualifications except for their race would be sent to request a commercial loan or the prices of materials. Differences in success rates or quoted prices would provide credible evidence on race-based differential treatment. Such tests have been used successfully to study applications for employment, for housing, and in pilot studies of home mortgages.

II(A) Research *Issue:* Have the Barriers Minority Firms Face Declined Over Time?

Another key policy issue is whether recent cohorts of minority firms are faring better than older firms. If newer minority firms are more qualified than older

firms, what accounts for this change over time: Reduced discrimination in private markets and government contracting? The adoption of government set-aside and other affirmative action programs? Increases in human, financial, and social capital among minorities?

An analysis of different cohorts of minority firms would inform whether the disadvantaged status of minority firms owes to current or historical practices. If recent cohorts of minority firms fare as well as their majority counterparts, it would appear that the practices that have led to minority firm disadvantage are largely in the past. As a result, policy interventions could be targeted to older firms, and current government contracting practices could be retained.

II(B) Research *Approach:* Changes in Minority Firms' Qualifications Over Time

If the treatment of minority firms in the market has improved over time, we should see fewer differences in the qualifications of minority- and majority-owned firms in more recent cohorts of firms. Data on start-up and failure rates of minority versus majority businesses as well as changes in revenues can be obtained by linking data on minority status (from the Survey of Minority-Owned Business Enterprises) with longitudinal data on firm revenues, employment, births, and deaths. Such data are readily available for manufacturing firms; more limited data are available for other industries. By examining these indicators for newer and older cohorts of firms and comparing them to similar cohorts from previous years, we can learn whether new cohorts of minority firms continue to have lower average levels of qualifications.

III(A) Research *Issue:* How Effective Are Different Policy Interventions?

The disparity studies commissioned by state and local governments have primarily focused on whether local set-aside or other programs satisfy shifting legal requirements and whether affirmative action policies are needed. But these studies rarely address a different, equally fundamental policy question: What policies might reduce disparities the most? One result has been that programs designed to assist minority businesses have not been rigorously evaluated in the same way as other social welfare initiatives such as employment and training programs. Accordingly, we know little about exemplary practices, and have little systematic knowledge about the relative impacts that differing interventions such as set-asides, price preferences, or expanded outreach have had on minority firm formation and growth.

III(B) Research *Approach:* How Effective Are Different Policy Interventions?

Documentation of existing programs

State and local government officials could be surveyed to document the programs and policies intended to assist minority-owned businesses and the histories of such programs and policies. These include set-aside programs, lending assistance, bonding waivers for small contracts, technical assistance, and other

programs. The survey should examine the scope and legal authority of differing programs including, for example, their funding, mechanisms for enforcement, and staffing. Such a survey should be administered to state and local governments that do and do not have programs to assist minority-owned businesses.

The survey could focus on the states and 28 large metropolitan areas that were surveyed by Tim Bates and the Council of State Community Development Agencies, and the Joint Center for Political and Economic Studies.[2] To date, there has been no follow-up of these data collection efforts. As a result, no systematic description of programs exists in localities other than the 28 metropolitan areas originally studied, and no follow-up tracks how the original programs have changed over time. Such a follow-up effort would enable us to learn how programs have evolved in response to the political and legal challenge to race-based programs and in response to administrators' sense of the programs' effectiveness.

Evaluating program effectiveness

The above survey data can provide the basis for evaluating the effectiveness of differing minority-business assistance programs. As there is little or no systematic analysis of the effectiveness of minority-business assistance programs and set-asides, even rudimentary research is worthwhile. Results of the survey, in combination with existing data, can begin to address such basic questions as how differing interventions affect minority (and nonminority) business start-up and subsequent success and the relative effectiveness of set-asides and other policies.

The evaluation would compare the success of minority-owned firms in jurisdictions with differing types of minority-assistance programs. For example, one could compare the success of minority firms in areas with set-aside programs to that of firms in areas with no programs at all. The success of firms (i.e., their size, growth, death rates, and receipt of government contracts) would be measured using data on minority- and nonminority-owned businesses from sources such as Characteristics of Business Owners and the Economic Census. Program characteristics would come from the survey and data gathered by Bates and the Joint Center. Regression analysis would be used to determine whether specific programs appear to reduce disadvantage for minority businesses.

Bates and Williams (1993) performed a similar analysis using data from the Bates/Joint Center's survey and the Characteristics of Business Owners survey. That research can be advanced by using longitudinal data on both program and business characteristics and by examining a larger number of metropolitan areas. With longitudinal data, we can directly control for minority firm success prior to program implementation. Increasing the number of jurisdictions will allow more precise estimates than could be obtained in earlier work.

A more rigorous approach to evaluating the effectiveness of programs designed to assist minority-owned business would include random assignment. In random assignment, potential participants are assigned at random to one of two programs. The two programs are alternative policy options that the evaluator wishes to compare. For example, minority-owned businesses might qualify for either a program providing capital, bonding, and other assistance *or* a pro-

gram providing these types of assistance as well as a points advantage when applying for government contracts. The relative effectiveness of the two approaches would be measured as the difference in outcomes for the firms in the two programs and provide a means of assessing whether the points program is narrowly tailored. These sorts of evaluations have been quite influential in affecting welfare policy, and a variant of the model could usefully be applied to minority business development and set-aside programs.

Conclusion

While substantial evidence has been collected over the past decade on disparities in procurement between majority and minority contractors, few data have been systematically collected on the sources of those disparities, how the barriers facing minority firms have changed over time, and the effectiveness of differing policies designed to promote minority businesses. We believe that information on each is needed to pick the right policy tools, to target them, and to justify the choice of any race-conscious measure in the face of a skeptical judiciary and electorate. We believe that the research agenda advanced here goes some distance toward illuminating the sources of disparity and the effectiveness of different policies. Further, most of the proposed research can be accomplished with existing data or limited additional data collection and, as a result, at modest cost.

Notes

1. While measures of availability that account for employment might better reflect capacity than measures based simply on the number of minority firms, they could also bias results more heavily in favor of firms that have historically benefited from discrimination in the public and private sectors.

2. See Council of State Community Development Agencies, *National Directory of State Minority Business Enterprise Programs; Report to the U.S. Department of Commerce Minority Business Development Agency*, 1993; and Joint Center for Political and Economic Studies, *Assessment of Minority Business Development Programs, Report to the U.S. Department of Commerce Minority Business Development Agency*, 1994.

Chapter 5

Conclusions

This report documents for the first time clear, nationwide patterns of disparity in minority contracting at the state and local government levels. We found that minority-owned businesses win only 57 cents of every dollar they would be expected to win based on the share of all firms they represent. Almost two-thirds of the jurisdictions included in this study reported substantial disparity (a disparity ratio below 0.8) in government dollars going to minority-owned businesses. Moreover, these low utilization rates occur despite the limited number (or availability) of minority firms. These pronounced disparities occur across *all* minority groups. They are, however, particularly aggravated among women: women receive 29 cents of every dollar they would be expected to receive based on the share of firms they represent, and 87 percent of jurisdictions report substantial disparities for women-owned firms.

These disparity results are quite robust, holding up when they are subjected to a number of sensitivity tests designed to gauge their accuracy. For example, they stand up when we limit our analysis to studies that only have large numbers of contracts and a large number of available minority contractors (i.e., studies that generate the most reliable results). And they remain valid when we employ only restrictive measures of minority firm availability.

Several straightforward conclusions flow from the results of the analysis. First and most important, the results indicate that minority firms are less successful than their majority counterparts in obtaining procurement dollars at the state and local government levels. The wide disparities presented here do not necessarily translate into proof of discrimination on the part of state and local governments. At a minimum, these findings suggest that barriers to minority firms' participation in the government contracting process remain and that the introduction of race-neutral policies could simply perpetuate current patterns of disparity that are observed in receipt of government contracts.

Second, wide disparities indicate that adoption of affirmative action and other programs designed to assist minority firms has not led to broad displacement of majority firms in the award of government contracts. That is, the results do not support claims of widespread reverse discrimination in contracting at the state and local government levels.

Third, the results also indicate that disparities are greater in those areas in which there is no affirmative action program in place. While a causal relationship between these facts cannot be established on the basis of this examination alone, the results may indicate that affirmative action programs help to reduce disparities.

The lack of knowledge about the effectiveness of affirmative action programs, coupled with the wide disparities documented in this report, suggest that there is not enough empirical evidence to justify the elimination of public policies that promote minority participation in government contracting. Repealing affirmative action policies would limit the policy tools available to government aimed at rectifying disparities.

Our findings and analysis strongly suggest that the knowledge base in this policy area needs to be deepened. In the first place, the measurement of disparities needs to be improved so we can better distinguish between disparity due to discrimination and due to differences in the qualifications of minority- and majority-owned firms. We need to understand what characteristics identify firms that are qualified to do government work, including the role of firm size and experience.

In addition to distinguishing the sources of disparity, we need a better understanding of the most important and commonly encountered barriers that minority firms confront. To ascertain the pervasiveness and relative importance of these barriers, we need to develop indicators of how minority versus majority firms fare at crucial stages in the contracting process. That is, we need better answers to questions such as: Do comparable minority and majority firms have different access to bonding or business loans? Are minority-owned firms quoted higher prices by suppliers than majority-owned firms? How often are minority versus majority subcontractors cut out of a contract after the prime wins?

The bidding process warrants special consideration. Governments at all levels could easily and systematically collect data on the number of minority and nonminority bid solicitations, the number and type of unsolicited bids received, etc., making it possible to analyze the differences between winning and losing bids. Examination of these data could prove very helpful in understanding why minority firms are losing out in the contracting process. They could also be instrumental in setting price preferences that are fair and effective in industries where minority firms are disadvantaged.

Finally, broadening our understanding of how effective different programs are in objective terms will be crucial to making them work better. A starting point would be to evaluate the effectiveness of current programs for minority business. To date, there has been little systematic evaluation of the ability of set-aside and other minority business programs to meet program goals. Such evaluations are routinely conducted in other policy areas, such as employment and training programs, and they have played a major role in shaping federal policy.

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Appendix: Study Methods

This appendix discusses several issues related to the methods used in conducting the analysis discussed in chapter 2. Our analysis is based on a review of 95 disparity studies. Disparity ratios from 58 of these studies were included in our findings. A complete list of these studies is given in table A.1. We do not, however, know what percentage of all existing disparity studies were reviewed because there is no systematic collection or list of disparity studies undertaken across the country.

Study selection criteria

To be included in our analysis, a study had to (1) present disparity findings for government contracting (alternatively, it could present the availability and utilization figures necessary to calculate disparity ratios); (2) report findings separately by industry category; (3) report the number of contracts in each industry on which disparity findings were based or report the statistical significance of each disparity finding; and (4) have more than 80 contracts for all years of the study period combined. These criteria were developed to ensure a basic level of consistency and reliability across studies to enable us to aggregate findings. In addition to these clear-cut criteria, some studies were excluded because they did not indicate exactly how key calculations had been performed or because there were significant inconsistencies throughout the study. Of the 95 studies we reviewed, findings from 58 are included in this analysis. A list of the 37 studies that were not included in the analysis and reasons for their exclusion are given in table A.2.[1]

The actual disparity findings on which our analysis is based are reported in tables A.3a–d. These tables list percentage availability, disparity ratios, and statistical significance for African Americans, Latinos, Asians, Native Americans, all minorities, and women. These tables also include the jurisdic-

tion of the study, the type of availability measure used, the number of contracts included, and the years examined. A separate table is included for several industry categories: construction, goods, professional services, and "other" (i.e., nonprofessional) services. Not all studies report findings for all of these industries or for all groups. In some cases, we had to calculate the disparity ratio (when a study only reports availability and utilization separately) or calculate the inverse of reported ratios (when a study reported the ratio of availability to utilization). When a study only reported data for African Americans, Latinos, and Asians separately, we calculated the disparity ratio for "all minorities."

Many individual study findings in table A.3 are not statistically significant. This means that the study does not have strong evidence of disparity for that particular industry and ethnic group. This could occur either because no disparity exists or because the evidence presented is not very reliable, and therefore we cannot tell whether or not there is a disparity. The studies do not typically provide enough information to distinguish between these two possibilities. If few contracts are examined or if the availability of minority-owned firms is very low, a study typically provided less reliable evidence on the question of disparity. In that case, only if the observed disparity ratio is very far from 1 can we claim that the study shows under- or overutilization. However, combining a large number of individual studies, as our study does, provides stronger evidence than any individual study.

Calculating average disparity ratios for each study

When studies present several different measures of disparity, we take the mean of these measures to provide one disparity ratio per study for each industry/minority group.

Some disparity studies present disparity measures for several agencies or contracting authorities in the geographic area. For example, a single study done for Jacksonville, Florida, presents separate disparity ratios for the city, the electric authority, the port authority, and the school board. We average all of these measures together to get a better measure of disparity in government contracting for the Jacksonville area. This approach also increases the amount of data on which our disparity ratio is based because the number of contracts for a single agency may be small. In some cases, separate disparity studies were commissioned for different agencies within the same geographic area. For example, separate disparity studies were conducted for the city of Dallas and the Dallas/Fort Worth International Airport. In cases like these, we include a separate average for each study. Aggregating these studies would be problematic because they may use data from different time periods, may use different methods, and are conducted by different authors.

We calculated the average disparity ratio for the construction industry in a slightly different way. The disparity ratio is intended to reflect the share of dollars received by minority- or women-owned businesses as either prime or subcontractors. Some studies allocate all contract dollars awarded to the race/ethnicity of the prime contractor, ignoring payments to subcontractors. For these studies, if separate data on subcontracts are available, we average all of the disparity ratios for prime and subcontractor utilization to calculate the average disparity ratio. If subcontract data are not available, we average the data

for the prime contractors alone. If a study appropriately allocates total dollars awarded to the prime and subcontractors, we use that data to calculate the average disparity ratio for the study.

Calculating median disparity ratios

To obtain the overall disparity ratio for a set of studies, we calculate the median of the average disparity ratios. For example, the disparity ratio for African American-owned businesses in the goods industry is the median of the average disparity for African Americans in goods in each study. We use the median because while the disparity ratio cannot fall below 0, there is no limit to how high it can be. This means that measures of underutilization are limited to a range between 0 and 1, but overutilization is unlimited. This aspect of the disparity ratios means that simple averages can give disproportionate weight to measures of overutilization. For example, if there were five disparity ratios, 0.1, 0.3, 0.5, 0.5, and 17.3, the median disparity is 0.5, but the average disparity is 3.1. This median disparity more accurately reflects the overall disparity for the studies we examine than does the average disparity.

In some cases the median disparity ratio for the "all minorities" category is larger than most or all of the median disparity ratios for the individual minority groups. This is a counterintuitive result, though it is correct. We believe it comes from the presence of outliers—studies in which the disparity ratio is very high (e.g., 10) for individual racial groups—and the fact that these outliers rarely occur for more than one minority group in an individual study. The example following will make clear how this can happen.

Suppose we have two racial groups, A and B, and we analyze three studies. The disparity findings from the studies for the two groups are as follows:

	Racial Group	
	A	B
Study 1	10	0.5
Study 2	0.5	10
Study 3	0.8	0.8
Median	0.8	0.8

The median for both racial group A and B is 0.8 (because half the studies have values less than or equal to 0.8 and half have values greater than or equal to 0.8). Now, let's suppose that the minority population is made up equally of A's and B's. The overall averages for each study are then

	Racial Group		
	A	B	Overall Average
Study 1	10	0.5	5.25
Study 2	0.5	10	5.25
Study 3	0.8	0.8	0.80
Median	0.8	0.8	5.25

The overall median of the sample averages is 5.25, which is greater than the median values for either group A or B. Note that 5.25 gives a better sense of

the overall average findings than does 0.8 (the average of the outcomes for the two racial groups). Two of the studies show very high disparity ratios, a fact that would be totally lost if we relied on the average of the outcomes for the two racial groups.

Limitations of Census SMOBE/SWOBE data

Many of the studies make use of data from the U.S. Census Bureau's Survey of Minority-Owned Business Enterprises (SMOBE) and Survey of Women-Owned Business Enterprises (SWOBE). Of the 58 studies included in the analysis above, more than half use data from these surveys (SMOBE/SWOBE) for at least one of their measures of availability. Data from SMOBE/SWOBE are used so frequently in part because they are readily available and in part because they provide an estimate of the minority share of all firms. However, these data have several weaknesses that need to be accounted for by researchers.

First, the data include as small businesses all persons who filed a tax return indicating that they are self-employed. These data are known to overcount the number of very small businesses, since the data include large numbers of persons with small amounts of self-employment income. Many of these small businesses are unlikely to have the capacity to carry out government contracts. Although some disparity studies adjust the data by excluding firms without employees or firms with less than a minimum amount of revenues, in many cases they do not. If MBE's are overrepresented among small firms, and if small firms are unable to carry out government contracts, then studies that do not exclude them will overstate MBE availability.

Second, prior to 1992 both the SMOBE and SWOBE data excluded C-corporations. C-corporations are defined by tax status and include all corporations with more than 35 shareholders and many smaller corporations for whom there is a tax advantage to filing under this status. Roughly half of the studies included in our analysis adjust for the missing C-corporations, so that availability reflects all firms within an industry. Studies that do not adjust for the exclusion of C-corporations are expected to overstate availability, as minority-owned businesses are less likely to be represented among these larger firms. Some recent evidence on this issue comes from a supplement to the 1992 SWOBE, which was intended to measure the availability of C-corporations among women-owned businesses and all businesses. According to this data, women-owned corporations are less likely to be C-corporations than other firms. This suggests that studies using data prior to 1992 that ignored this issue were likely to overstate the availability of women-owned businesses. However, we have no comparable data on minority-owned firms.

A third problem with the SMOBE/SWOBE data is that they undercount Hispanic- and Asian-owned firms to a significant degree. In 1982, for example, approximately one-sixth of Hispanic-owned firms were not counted. The census provides adjustments to correct for this undercount, but these adjustments were applied in only half of the disparity studies included in our analysis. Although the adjustments for undercounts themselves are not very precise, it is clear that the estimated availability of Hispanic- and Asian-owned firms is understated when these adjustments are not made.[2]

Finally, SMOBE/SWOBE are available only every five years and are typically not available until several years after the time of the survey. Therefore, using this data for availability generally meant a difference of at least several years between the date of availability and utilization for these disparity studies. One-third of the studies using SMOBE/SWOBE made some adjustment for this difference, usually by assuming the growth rate of minority-owned firms using data on self-employment and the growth rate between 1982 and 1987. Studies that did not make an adjustment may understate minority business availability, if the number of minority businesses was growing faster than the number of businesses overall. Earlier studies are less likely to adjust for the growth in the number of businesses over time, but this is less of a problem for them since their utilization data is from a time period closer to the 1987 SMOBE/SWOBE availability data.

Notes

1. We are aware of at least an additional 19 disparity studies that were not received in time to be reviewed for this study.
2. The undercount was due to the particular method used in SMOBE and SWOBE to identify Hispanic- and Asian-owned firms. A change in methodology in 1992 eliminated this problem for partnerships and S-corporations. Hispanic- and Asian-owned sole proprietorships are still undercounted in the 1992 data.

Table A.1
Disparity Studies Included in Analysis

Alabama, Birmingham-Jefferson County Transit Authority, "Final Report of a Study to Support a Disadvantaged Business Enterprise Set-Aside Program," MGT of America, August 17, 1992.

Arizona, "Disparity Study: City of Phoenix," BBC, July 1993.

Arizona, "The City of Tucson Disparity Study," BBC, June 3, 1994.

Arizona, "Pima County Disparity Study," BBC, June 1994.

Arizona, "The Maricopa County Minority- and Woman-Owned Business Enterprise Program Study," Mason Tillman (publication date not given—report commissioned in September 1989).

California, "The Utilization of Minority- and Woman-Owned Business Enterprises by Alameda County," NERA, June 1992.

California, "The Utilization of Minority- and Woman-Owned Business Enterprises by Contra Costa County," NERA, May 1992.

California, "The Utilization of Minority- and Woman-Owned Business Enterprises by the City of Hayward," NERA, March 1993.

California, "Sacramento Municipal Utility District: M/WBE Disparity Study," Mason Tillman, October 1992.

California, "Oakland Unified School District Disparity Study," Mason Tillman, November 1994.

California, "City of Richmond Disparity Study," Mason Tillman, March 1994.

California, "City of San Jose Disparity Study: Professional Services and Procurement," Mason Tillman, April 1995.

California, "MBE/WBE Disparity Study For the City of San Jose" (Construction), BPA Economics, Mason Tillman, and Boasberg and Norton, 1990.

Colorado, "Denver Disparity Study: Goods, Services and Remodeling" (Phase II of an earlier study), BBC, June 27, 1991.

Colorado, Denver, "The Utilization of Minority- and Women-Owned Business Enterprises by the Regional Transportation District," NERA, September 14, 1992.

District of Columbia, "Discrimination Study on Minority Business Enterprises: Final Report," District of Columbia Department of Human Rights and Minority Business Development, A.D. Jackson Consultants, Inc., July 1, 1994.

Florida, "State of Florida: Minority/Women Business Study," Phases I–II, TEM Associates, Inc., December 1990.

Florida, "A Minority- and Women-Owned Business Discrimination Study," prepared for Metropolitan Dade County, Parts I–IV, MRD Consulting, November 29, 1993.

Florida, "City of Jacksonville Disparity Study," D.J. Miller, November 1990.

Florida, "Disparity Study for the Orange County Consortium," D.J. Miller, February 24, 1993.

Florida, "City of St. Petersburg Disparity Study," D.J. Miller, June 1990.

Florida, "City of Tampa Disparity Study," D.J. Miller, November 1990.

Illinois, City of Chicago, "Report of the Blue Ribbon Panel to the Honorable Richard M. Daley, Mayor of the City of Chicago," March 29, 1990.

Louisiana, "Discrimination in New Orleans: An Analysis of the Effects of Discrimination On Minority and Female Employees and Business Owners," NERA, September 13, 1994.

Louisiana, "State of Louisiana Disparity Study, Volume II: An Analysis of Disparity and Possible Discrimination in the Louisiana Construction Industry and State Procurement System and its Impact on Minority- and Women-Owned Firms Relative to the Public Works Arena," D.J. Miller & MBELDEF, June 1991.

Maryland, "The Utilization of Minority-Business Enterprises by the State of Maryland," prepared for the State of Maryland Department of Transportation, NERA, December 6, 1994.

Maryland, "State of Maryland Minority Business Utilization Study, Final Report," Vols. I & II, A.D. Jackson Consultants, Inc., and Coopers & Lybrand, March 15, 1990.

Maryland, "An Examination of Prince George's County's Minority Business Program," Parts I–III, February 1991.

Massachusetts, "Executive Office of Transportation and Construction, Disparity Study, Phase I: Final Report," D.J. Miller, March 16, 1994.

Massachusetts, "The Utilization of Minority- and Woman-Owned Business Enterprises in the Boston Metropolitan Area," NERA, June 1994.

Minnesota, "The Disparity Study of Women/Minority Business: City of Minneapolis," BBC, June 1995.

Minnesota, "The Multi-Jurisdictional Disparity Study of Minority/Women Business Enterprises: City of Saint Paul," BBC, September 1995.

Minnesota, "The Multi-Jurisdictional Disparity Study of Minority/Women Business Enterprises: Ramsey County," BBC, September 1995.

Minnesota, "The Disparity Study of Women/Minority Business Enterprises: Hennepin County," BBC, June 1995.

Minnesota, "Multi-Jurisdictional Disparity Study of Minority/Women Business Enterprises: Independent School District No. 625," BBC, September 1995.

Nevada, "Regional Economic Disparity Study: City of Las Vegas," and Las Vegas Area Local Governments (including: City of Las Vegas, Clark County Department of Aviation, Clark County Department of General Services, Clark County Regional Flood Control District, Clark County Sanitation District, Clark County School District, Housing Authority of the City of Las Vegas, Housing Authority of the County of Clark, Las Vegas–Clark County Library District, Las Vegas Convention and Visitors Authority, Las Vegas Valley Water District, Regional Transportation Commission, University Medical Center, the University of Nevada, Las Vegas, and the Community College of Southern Nevada), BBC, July 1994.

New Mexico, "Disparity Study: City of Albuquerque," BBC, December 1995.

New Mexico, "New Mexico State Highway & Transportation Department Disparity Study," Vols. I & II, BBC, January 1995.

New York, "A Study of Disparity and Utilization of Minority- and Women-Owned Businesses by the Port Authority of NY & NJ," Office of Business and Job Opportunity and the Office of Economic Policy Analysis, June 1993.

New York, "Utilization of Minority- and Woman-Owned Business Enterprises by the New York City Housing Authority," NERA, September 28, 1993.

New York, "Opportunities Denied! A Study of Racial and Sexual Discrimination Related to Government Contracting in New York State," Executive Summary and Appendices A–E, New York State Division of Minority and Women Development, 1992.

New York, "The Utilization of Minority- and Women-Owned Business Enterprises by the City of New York," NERA, January 24, 1992.

New York, "City of Syracuse Report of Local Public Works Contracting," Knowledge Systems & Research, January 1991.

North Carolina, "City of Greensboro Minority and Women Business Enterprise Capacity Study," and "City of Greensboro Minority and Women Business Enterprise Disparity Study," North Carolina Institute of Minority Economic Development, January/July 1992.

North Carolina, "Final Report: Minority Business Disparity Study to Support City of Asheville Minority Business Plan," Research and Evaluation Associates and MGT of America, October 29, 1993.

Ohio, "City of Cincinnati *Croson* Study," Vols. I & II, Institute for Policy Research, University of Cincinnati, April 17, 1992.

Ohio, City of Columbus, "Predicate Study," BBC and MBELDEF, August 1992; and "City of Columbus Predicate Study Second Supplemental Report: Construction, Goods and Services," BBC, January 1995.

Ohio, "City of Dayton Disparity Study," D.J. Miller, March 1991.

Pennsylvania, "The Utilization of Minority- and Women-Owned Business Enterprises by the Southeastern Pennsylvania Transportation Authority," NERA, September 29, 1993.

Tennessee, "Memphis/Shelby County Intergovernmental Consortium Disparity Study," D.J. Miller, October 1994.

Texas, "The State of Texas Disparity Study: A Report to the Texas Legislature as Authorized by H.B. 2626, 73rd Legislature," NERA, December 27, 1994.

Texas, "Availability/Disparity Study: Forth Worth Transportation Authority," BBC, November 1993.

Texas, "Availability/Disparity Study: Dallas/Fort Worth International Airport," BBC, November 1993.

Texas, "Disparity Study: City of Fort Worth," BBC, November 1993.

Texas, "Disparity Report for Houston City Government," D.J. Miller, November 1994.

Texas, "Availability and Disparity Study for the City of Dallas," D.J. Miller, February 1995.

Texas, San Antonio, "The Utilization of Minority- and Women-Owned Business Enterprises in Bexar County," NERA, April 15, 1992.

Wisconsin, "M/WBE Disparity Study for the County of Milwaukee, City of Milwaukee, and Milwaukee Public Schools," Affirmative Action Consulting Ltd., and Ralph G. Moore and Associates (AAC/RGMA), April 1992.

Table A.2
Disparity Studies Excluded from Analysis and Reasons for Exclusion

California, "Alameda County Transportation Authority Disparity Study: Final Report," Mason Tillman, June 1994:

> Utilization data is for Alameda County—not the transportation authority. The utilization data is taken directly from the NERA study on Alameda County, which is included. This study was not included, in order to avoid duplication.

California, "City of Los Angeles, Department of Airports: MBE/WBE Utilization Study," Executive Summary, Mason Tillman, January 1993:

> No calculation of availability is performed. The study demonstrates extremely low levels of utilization which may be useful by themselves or if availability data were compiled.

Colorado, "Denver Disparity Study Phase I: Construction and Professional Design Services," BBC, June 22, 1990:

> The study does not test findings for statistical significance and does not provide number of contracts by industry. In addition, it is poorly organized and unclear.

Colorado, "Analysis of Minority- and Women-Owned Businesses in the Denver Metropolitan Area: Goods and Services Marketplace," BBC, 1995:

> Study examines disparity in the private sector, not in government contracting.

Colorado, "Analysis of Minority- and Women-Owned Businesses in the Denver Metropolitan Area Construction and Professional Design Marketplace," BBC, 1995:

> Study examines disparity in the private sector, not in government contracting.

Colorado, Denver, "Potential Annual Goal Setting Methodology for General Services," BBC, 1995:

> This is not a disparity study, but a set of recommendations about how Denver should set goals in the General Services area.

Connecticut, "The New Connecticut: Toward Equal Opportunity in State Contracting," Hendersen, Hyman & Howard (date unclear):

> This study does not provide estimates of availability. The study does contain extensive legislative history and ample evidence of a historical trend of non-compliance with legislated set-aside goals.

Connecticut, "Committee Report: Special Committee on Section 12 1/2 Review, New Haven, Board of Aldermen: Minority and Women Participation in the New Haven Construction Industry," with appended report by Jaynes Assoc., May 23, 1990:

> Only scant information is provided on utilization and availability. What information is provided does not necessarily match up in terms of time periods. The study contains an excellent analysis of historical discrimination in the New Haven construction trades.

District of Columbia, "Availability and Utilization of Minority- and Women-Owned Business Enterprises at the Metropolitan Washington Airports Authority," NERA, February 14, 1990:

> The method used to calculate utilization appears to be flawed. Utilization appears to be based on the required goal for each contract rather than an examination of the actual dollars received by minority businesses. It is also unclear how the estimates of the disparities in the number of awards are calculated.

District of Columbia, "The Metropolitan Washington Airports Authority, Local Disadvantaged Business Enterprise (LDBE) Program: An Examination of its Effectiveness in Improving Contract Access for Minority and Women Business Enterprises," MBELDEF, April 22, 1992:

> This is not a disparity study. Instead this document is an attempt by MBELDEF to evaluate the "race-neutral" LDBE program which was put in place after the Metro Airports Authority disbanded its MBE program in the wake of *Croson.* For the most part this study consists of surveys and interviews with MBEs, attempting to determine what changes in access have accompanied changes in the program. The only data provided regard utilization before and after the program was shut off. [The study reports that M/WBE utilization was 33 percent under the previous mandatory preference program and that M/WBE participation fell to 9–15 percent under the new LDBE program.]

District of Columbia, "An Examination of [Washington Suburban Sanitary Commission's] WSSC's Minority Business Program," Summary and Recommendations, Part I: Legal Analysis, MBELDEF, March 1988:

> The key part of this study (Part II) was not received. That section probably contains whatever data analysis was performed by the authors. A review of the executive summary suggests that this report does not appear to calculate availability in a usable way.

Florida, Dade County Public Schools, "Minority Business Enterprises Utilization Study Recommendations and Administrative Responses," Bureau of Management and Accountability Division of Minority Business Enterprises, April 24, 1991:

> This study did not include the necessary data for calculating disparity ratios.

Florida, Hillsborough County, "Hillsborough County Disparity Study," D.J. Miller (date unclear; pre-*Croson)*:

> Organization of data in the study makes it impossible to determine number of contracts in each industry category. No disparity ratios are calculated and therefore no standard error tests are conducted. The study pre-dates the Supreme Court's decision in *Croson.*

Florida, "Final Report: City of Tallahassee MBE Disparity Fact-Finding Study," MGT of America, Inc., January 11, 1990:

> The study does not test findings for statistical significance and does not provide number of contracts by industry.

Georgia, "Public Policy and Promotion of Minority Economic Development: City of Atlanta and Fulton County, Georgia," Brimmer and Marshall, Vols. I–VIII, June 29, 1990:

> While study provides a huge amount of information, it does not present any appropriately paired data on utilization and availability to calculate disparity in government contracting. In most cases availability and utilization data are not presented by industry or broken down by racial groups or gender. Where such data are presented (e.g., for construction), the availability data is presented for "all minorities" while the utilization data are presented for minorities and women combined, and thus calculation of disparity ratios are not possible. The study focuses on disparity in the private market.

Georgia, "Unequal Access: Minority Contracting and Procurement with the Atlanta Board of Education," Thomas Boston, August 8, 1991:

> Study does not calculate statistical significance or report number of contracts by industry. The study shows that 50 percent of the firms listed as minority-owned by the school board are in fact owned by white men. The study also finds that minority-owned businesses that had applied to be included on the list of potential bidders were not included.

Illinois, "Report Concerning Consideration and Adoption of the Revised Remedial Plan for Minority and Women Business Enterprise Economic Participation," Board of Education of the City of Chicago, January 30, 1991:

> Study does not calculate statistical significance or report number of contracts by industry.

Illinois, "Predicate Study for the Cook County Minority- and Women-Owned Business Enterprise Program," by Thomas G. Abram and James J. Zuehl, Vedder, Price, Kaufman & Kammholz, September 2, 1993:

> Study does not break down disparity results by industry.

Louisiana, "State of Louisiana Disparity Study: Volume I of An Analysis of Disparity and Possible Discrimination in the Louisiana Construction Industry and State Procurement System and Its Impact on Minority- and Women-Owned Firms Relative to the Public Works Arena," LSU and Southern University, April 1990:

> The study does not provide disparity results in a form consistent with the other studies in our analysis. The study provides an interesting regression analysis of disparity, controlling for a number of factors that could affect the award of government contracts including experience, bonding, and revenues.

Louisiana, "An Analysis, Critique and Chronicle of the Audubon Park Commission Minority Business Enterprise Plan," Xavier University of Louisiana (date unclear):

> This study has no availability measurements—it deals exclusively with minority participation. It does include a good deal of anecdotal evidence and an interesting discussion of "fronting" and other plan "management" issues.

Louisiana, "Basic Findings, Conclusions and Recommendations on The Audubon Park Commission Minority Business Enterprise Plan," Xavier University of Louisiana, August 8, 1990:

> This was simply a summary of the above study. Again, no availability measures were included.

Maryland, City of Baltimore, "Notice of Public Comment Period and Assessment of Baltimore City's Minority and Women's Business Enterprise Program in Light of *Croson:* Draft Report," by Michael Millemann and Maxwell Chibundu, Maryland School of Law, November 1989:

> This study provides very sketchy information about availability and (especially) about utilization. It also does not provide either the number of contracts or tests for statistical significance.

Maryland, National Capital Parks and Planning Commission, "Minority, Female, Disabled Business Utilization Study," A.D. Jackson Consultants, Inc. November 4, 1992:

> The study does not test findings for statistical significance and does not provide number of contracts by industry.

Massachusetts, "Blueprint of Tasks for Massachusetts MBE/WBE Disparity Studies," Marcus Weiss & Affiliates, and D.J. Miller, July 1990:

> This is not a disparity study. Instead it is a strategy for compiling a disparity study.

Massachusetts, Brief of Defendant MBTA in *Perini v. MBTA* (date unclear):

> This is a legal brief and not a disparity study. Data on government utilization and appropriate measures of availability are extremely sparse.

Massachusetts, "Availability and Utilization of Minority- and Women-Owned Business Enterprises at the Massachusetts Water Resources Authority," NERA, November 21, 1990:

> Availability and utilization measures are not compatible. Specifically, utilization combines construction and architecture/engineering services, while availability is calculated for each industry separately. This makes it impossible to calculate disparity ratios by industry.

Minnesota, "A Study of Discrimination Against Women- and Minority-Owned Businesses and of Other Small-Business Topics," by the Minnesota Department of Administration, Management Analysis Division, January 1990:

> Findings reported only for three-digit industry categories.

North Carolina, "A Preliminary Report: An Examination of Marketplace Discrimination in Durham County," MBELDEF, July 1, 1991:

> Preliminary report (not a disparity study) containing no data on utilization or availability.

North Carolina, "State of North Carolina, North Carolina General Assembly: Study of Minority and Women Business Participation in Highway Construction," MGT of America, Inc., January 26, 1993:

> The study does not test findings for statistical significance and does not provide number of contracts by industry.

Ohio, "City of Columbus, Construction Supplemental Report," BBC, September 1993:

> The information in this study was actually provided in a more detailed form in the Second Supplemental Report, issued in January 1995. Therefore the data from that report were used instead.

Ohio, City of Columbus, "Employment Predicate Study," BBC, August 1992:

> This study evaluates their program requiring contractors to meet certain minority employment goals. It does not deal with disparity in contract dollars awarded.

South Carolina, State, "Report to the General Assembly: A Limited-Scope Review of the SC Department of Highways and Public Transportation Minority Goals Program," by the South Carolina Legislative Audit Council, May 1991:

> The study does not test findings for statistical significance and does not provide number of contracts by industry.

Texas, Tarrant County, "Availability Study," BBC, November 1993:

> This is not a disparity study. It covers only availability. No data on utilization were provided.

Washington, City of Seattle/Pierce and King Counties, "Study of Minority/Women Business Participation in Purchasing and Concessions," Washington Consulting Group, July 9, 1990:

> Study does not provide usable availability information. Statistics are provided about the number of minority firms which are available, but no information is provided about the number of all available firms and therefore a ratio cannot be calculated.

Wisconsin, "A Study to Identify Discriminatory Practices in the Milwaukee Construction Marketplace," Consta & Assoc., February 1990:

> Study did not include required disparity information. It focused on a historical review of discrimination in the Milwaukee construction marketplace.

Table A.3a. *Evidence of Disparity in the Construction Industry*

	BACKGROUND			AFRICAN AMERICANS			LATINOS			ASIANS			NATIVE AMERICANS			ALL MINORITIES			WOMEN		
	Source	# of Contracts	Year	Avail.	Disp. Ratio	Stat. Sig.	Avail.	Disp. Ratio	Stat. Sig.	Avail.	Disp. Ratio	Stat. Sig.	Avail.	Disp. Ratio	Stat. Sig.	Avail.	Disp. Ratio	Stat. Sig.	Avail.	Disp. Ratio	Stat. Sig.
CONSTRUCTION																					
Alameda County, CA–Large Contract $	SM/WOBE	66	1985–87	1.3	1.90	N.S.	3.2	1.01	N.S.	1.5	0.00	N.S.				6.0	0.95	C	2.3	0.00	N.S.
Alameda County, CA–Large Contract #	SM/WOBE	66	1985–87	1.3	2.20	N.S.	3.4	2.20	N.S.	1.4	0.00	N.S.				6.1	1.70	C	2.4	0.00	N.S.
Alameda County, CA–Large Contract $	SM/WOBE	18	1989–90	3.8	0.00	N.S.	6.2	0.67	N.S.	10.5	0.02	N.S.				20.5	0.21	C	9.3	0.00	N.S.
Alameda County, CA–Large Contract #	SM/WOBE	18	1989–90	3.3	0.00	N.S.	5.7	1.90	N.S.	6.0	0.91	Under				15.0	1.09	C	7.1	0.00	N.S.
Alameda County, CA–Small Contract $	SM/WOBE	62	1987–90	4.2	0.00	N.S.	6.6	0.92	N.S.	4.0	0.02	N.S.				14.8	0.42	C	7.0	0.95	N.S.
Alameda County, CA–Small Contract #	SM/WOBE	62	1987–90	4.0	0.00	N.S.	6.3	0.76	N.S.	4.3	0.37	N.S.				14.6	0.44	C	7.7	0.62	N.S.
Alameda Co., CA–Federal–Lrg Contract $	NS	10	1985–87	1.1	0.00	N.S.	2.8	1.80	N.S.	0.4	0.00	N.S.				4.2	1.19	C	1.6	0.00	N.S.
Alameda Co., CA–Federal–Lrg Contract #	NS	10	1985–87	1.1	0.00	N.S.	2.9	3.30	N.S.	0.5	0.00	Under				4.5	2.13	C	1.7	0.00	N.S.
Alameda Co., CA–Federal–Lrg Contract $	NS	5	1989–90	2.4	0.00	N.S.	4.4	0.00	N.S.	3.1	0.00	N.S.				9.9	0.00	C	4.9	0.00	N.S.
Alameda Co., CA–Federal–Lrg Contract #	NS	5	1989–90	2.4	0.00	N.S.	4.4	0.00	N.S.	2.8	0.00	N.S.				9.6	0.00	C	4.8	0.00	N.S.
Albuquerque, NM $	SM/WOBE	1,116	1989–93	0.4	0.02	Under	25.6	0.44	Under	0.4	1.11	N.S.	0.6	1.38	N.S.	27.0	0.46	Under	5.1	0.38	Under
Albuquerque, NM $	SM/WOBE—Empl.	1,116	1989–93	0.3	0.02	N.S.	23.6	0.48	Under	0.2	1.97	N.S.	0.4	2.08	Over	24.4	0.51	Under	3.5	0.56	Under
Albuquerque, NM $	Survey—Interest	1,116	1989–93	0.0	NA	NA	21.1	0.53	Under	0.4	1.01	N.S.	1.7	0.44	Under	23.3	0.53	Under	9.8	0.20	Under
Albuquerque, NM $	Survey—Attempt	1,116	1989–93	0.0	NA	NA	20.9	0.54	Under	0.4	1.10	N.S.	1.4	0.55	N.S.	22.7	0.55	Under	9.4	0.21	Under
Albuquerque, NM $	Registered	1,116	1989–93	1.3	0.01	Under	16.9	0.66	Under	0.6	0.78	N.S.	3.5	0.22	Under	22.3	0.56	Under	9.9	0.20	Under
Albuquerque, NM $	SM/WOBE	473	1994–95	0.4	0.57	N.S.	25.6	0.35	Under	0.4	0.01	N.S.	0.6	2.72	Over	27.0	0.39	Under	5.1	0.39	Under
Albuquerque, NM $	SM/WOBE—Empl.	473	1994–95	0.3	0.85	N.S.	23.6	0.38	Under	0.2	0.02	N.S.	0.4	4.09	Over	24.4	0.43	Under	3.5	0.58	N.S.
Albuquerque, NM $	Survey—Interest	473	1994–95	0.0	NA	NA	21.1	0.42	Under	0.4	0.01	N.S.	1.7	0.87	N.S.	23.3	0.46	Under	9.8	0.21	Under
Albuquerque, NM $	Survey—Attempt	473	1994–95	0.0	NA	NA	20.9	0.42	Under	0.4	0.01	N.S.	1.4	1.09	N.S.	22.7	0.47	Under	9.4	0.21	Under
Albuquerque, NM $	Registered	473	1994–95	1.3	0.20	N.S.	16.9	0.53	Under	0.6	0.01	N.S.	3.5	0.42	Under	22.3	0.48	Under	9.9	0.20	Under
Asheville, NC $	SM/WOBE	153	1985–92	2.3	0.15	Under	0.3	0.53	N.S.	0.2	1.52	N.S.				2.8	0.28	C	5.2	0.03	Under
Boston–Exec Off of Envir Affairs $	SM/WOBE—Empl.	226	1977–81													0.6	0.67	NC			
Boston–Massport Authority $	SM/WOBE—Empl.	NS	1969–78													0.6	0.04	NC	1.4	0.43	NC
Chicago–City $	Bidders list	197	1989													44.5	0.24	NC	6.6	0.21	NC
Chicago–City $	Bidders list	197	1989													44.5	0.64	NC			
Chicago–City #	Bidders list	197	1989													44.5	0.81	NC	6.6	0.70	NC
Cincinnati–All Bidders #	Cert./Registered	1058	1990–91	6.2	0.98	N.S.	0.9	4.43	Over	0.9	2.38	Over	0.1	0.81	N.S.						
Cincinnati–All Bidders #	Registered	1058	1990–91													26.0	0.54	Under	1.3	0.07	Under
Cincinnati–CMSA #	Cert./Registered	881	1990–91	6.4	1.04	N.S.	0.8	5.80	Over	1.0	2.39	Over	0.1	1.41	N.S.						
Cincinnati–CMSA #	Registered	881	1990–91													26.2	0.56	Under	1.2	0.07	Under

Continued

Table A.3a. *Evidence of Disparity in the Construction Industry (Continued)*

	BACKGROUND			AFRICAN AMERICANS			LATINOS			ASIANS			NATIVE AMERICANS			ALL MINORITIES			WOMEN		
	Source	# of Contracts	Year	Avail.	Disp. Ratio	Stat. Sig.	Avail.	Disp. Ratio	Stat. Sig.	Avail.	Disp. Ratio	Stat. Sig.	Avail.	Disp. Ratio	Stat. Sig.	Avail.	Disp. Ratio	Stat. Sig.	Avail.	Disp. Ratio	Stat. Sig.
Columbus, OH $	Mailing list	NS	1990–91													23.7	0.30	Under	10.9	0.23	Under
Columbus, OH $	SM/WOBE	NS	1990–91													3.0	2.33	Over	4.8	0.52	Under
Columbus, OH $	SM/WOBE	155	1991	2.3	4.08	Over	0.5	0.67	N.S.	0.3	0.54	N.S.				3.1	3.17	Over	4.5	0.41	N.S.
Columbus, OH $	SM/WOBE—Empl.	155	1991	3.8	2.47	Over	0.6	0.59	N.S.	0.3	0.51	N.S.				4.7	2.10	Over	5.0	0.36	N.S.
Columbus, OH $	Survey—Interest	155	1991	2.5	3.79	Over	0.3	1.31	N.S.	0.4	0.00	N.S.	0.5	0.33	N.S.	3.5	2.77	Over	11.3	0.16	Under
Columbus, OH $	Registered	155	1991	11.2	0.83	N.S.	0.7	0.48	N.S.	3.0	0.00	Under	0.7	0.20	N.S.	16.0	0.61	Under	6.0	0.31	Under
Columbus, OH $	SM/WOBE	384	1992	2.3	0.62	N.S.	0.5	0.07	N.S.	0.3	4.11	Over				3.1	0.85	N.S.	4.5	1.49	Over
Columbus, OH $	SM/WOBE—Empl.	384	1992	3.8	0.37	Under	0.6	0.06	N.S.	0.3	3.92	Over				4.7	0.56	N.S.	5.0	1.33	N.S.
Columbus, OH $	Survey—Interest	384	1992	2.5	0.57	N.S.	0.3	0.13	N.S.	0.4	0.16	N.S.	0.5	2.38	N.S.	3.5	0.74	N.S.	11.3	0.59	Under
Columbus, OH $	Registered	384	1992	11.2	0.13	Under	0.7	0.05	N.S.	3.0	0.02	Under	0.7	1.45	N.S.	16.0	0.16	Under	6.0	1.12	N.S.
Columbus, OH $	SM/WOBE	108	1993	2.3	0.60	N.S.	0.5	1.44	N.S.	0.3	NC	NC				3.1	0.70	N.S.	4.5	0.61	N.S.
Columbus, OH $	SM/WOBE—Empl.	108	1993	3.8	0.37	N.S.	0.6	1.28	N.S.	0.3	NC	NC				4.7	0.46	N.S.	5.0	0.55	N.S.
Columbus, OH $	Survey—Interest	108	1993	2.5	0.56	N.S.	0.3	2.83	N.S.	0.4	NC	NC	0.5	0.00	N.S.	3.5	0.61	N.S.	11.3	0.24	Under
Columbus, OH $	Registered	108	1993	11.2	0.12	Under	0.7	1.03	N.S.	3.0	NC	NC	0.7	0.00	N.S.	16.0	0.13	Under	6.0	0.46	N.S.
Contra Costa Co., CA–Small Contract $	SM/WOBE—Empl.	1235	1987–88	1.4	0.11	Under	3.7	0.51	Under	2.3	0.42	Under				7.4	0.41	C	4.9	0.18	Under
Contra Costa Co., CA–Small Contract #	SM/WOBE—Empl.	1235	1987–88	1.7	0.14	Under	1.1	0.29	Under	3.5	0.23	Under				6.3	0.22	C	5.2	0.29	Under
Contra Costa Co., CA–Fed–Lrg Contract $	SM/WOBE—Empl.	48	1989–90	1.6	0.00	N.S.	2.9	1.96	N.S.	1.0	0.00	N.S.				5.5	1.02	C	5.8	0.00	N.S.
Contra Costa Co., CA–Fed–Lrg Contract #	SM/WOBE—Empl.	48	1989–90	1.7	0.00	N.S.	4.1	4.05	N.S.	2.1	0.00	N.S.				8.0	2.10	C	7.7	0.00	N.S.
Contra Costa Co., CA–Nonfed–Lrg Cont $	SM/WOBE—Empl.	76	1989–90	2.5	0.00	N.S.	5.2	0.05	N.S.	5.9	1.19	N.S.				13.6	0.54	C	8.4	0.00	N.S.
Contra Costa Co., CA–Nonfed–Lrg Cont #	SM/WOBE—Empl.	76	1989–90	2.4	0.00	N.S.	4.6	1.22	N.S.	3.7	1.52	N.S.				10.6	1.04	C	7.4	0.00	N.S.
Dade County, FL–Procurement #	Registered	33	1989–91	13.0	2.08	NC	24.0	0.71	NC	1.0	0.00	NC				38.0	1.16	C	9.2	0.18	NC
Dade County, FL–Procurement $	Registered	33	1989–91	13.0	4.83	NC	24.0	0.21	NC	1.0	0.00	NC				38.0	1.79	C	9.2	0.11	NC
Dade County, FL–Nonprocurement #	Registered	48	1989–91	13.0	0.48	NC	24.0	1.48	NC	1.0	0.00	NC				38.0	1.10	C	9.2	0.00	NC
Dade County, FL–Nonprocurement $	Registered	48	1989–91	13.0	0.02	NC	24.0	0.53	NC	1.0	0.00	NC				38.0	0.34	C	9.2	0.00	NC
Dallas–City $	Vendors list	NS	1990–93	9.4	1.43	Over	3.7	2.62	Over	0.8	0.78	Under	0.2	0.75	N.S.	14.2	1.69	Over	1.9	2.91	Over
Dallas–PMSA $	Vendors list	NS	1990–93	6.5	1.60	Over	4.5	2.05	Over	1.4	0.34	Under	0.8	0.36	Under	13.1	1.55	Over	3.3	1.76	Over
Dallas/Fort Worth Airport $	SM/WOBE	NS	1987													8.3	0.08	NC	5.4	0.07	NC
Dallas/Fort Worth Airport $	Survey—Interest	NS	1987													12.4	0.06	NC	13.8	0.03	NC
Dallas/Fort Worth Airport $	Mailing list	NS	1987													22.5	0.03	NC	9.1	0.01	NC
Dallas/Fort Worth Airport $	SM/WOBE	106	1986–87	2.2	2.05	NC	5.3	0.00	NC	0.7	0.00	NC	0.0	0.00	NC	8.3	0.58	NC	5.4	1.05	NC
Dallas/Fort Worth Airport $	Survey—Interest	106	1986–87	1.9	2.50	NC	6.5	0.00	NC	0.8	0.00	NC	2.9	0.00	NC	12.4	0.39	NC	13.8	0.41	NC
Dallas/Fort Worth Airport $	Mailing list	106	1986–87	10.6	0.44	NC	7.2	0.00	NC	1.4	0.00	NC	0.4	0.00	NC	22.5	0.21	NC	9.1	0.62	NC

Dallas/Fort Worth Airport $	SM/WOBE	110	1992–93	2.2	2.27	NC	5.3	0.02	NC	0.7	0.04	NC	0.0	3.00	NC	8.3	0.64	NC	5.4	1.42	NC
Dallas/Fort Worth Airport $	Survey—Interest	110	1992–93	1.9	2.75	NC	6.5	0.02	NC	0.8	0.04	NC	2.9	0.02	NC	12.4	0.43	NC	13.8	0.56	NC
Dallas/Fort Worth Airport $	Mailing list	110	1992–93	10.6	0.48	NC	7.2	0.01	NC	1.4	0.02	NC	0.4	0.17	NC	22.5	0.24	NC	9.1	0.84	NC
Dayton, OH $	Cert./Bidders list	66	1977	7.9	0.47	N.S.	0.0	NA	NA	0.0	NA	NA				8.4	0.44	N.S.	2.2	1.47	N.S.
Dayton, OH $	Cert./Bidders list	45	1978	7.8	0.82	N.S.	0.0	NA	NA	0.0	NA	NA				8.3	0.77	N.S.	0.0	NA	NA
Dayton, OH $	Cert./Bidders list	55	1981	7.8	1.92	Over	0.5	0.60	N.S.	0.0	NA	NA				8.3	1.82	N.S.	2.2	0.01	N.S.
Dayton, OH $	Cert./Bidders list	98	1982	8.6	NC	NC	0.3	0.00	NC	0.3	0.00	NC				9.2	2.27	Over	2.5	0.81	N.S.
Dayton, OH $	Cert./Bidders list	78	1984	16.1	NC	NC	0.3	0.00	NC	0.6	0.00	NC				17.0	1.27	N.S.	3.9	0.60	N.S.
Dayton, OH $	Cert./Bidders list	84	1985	19.4	NC	NC	0.7	0.00	NC	1.4	0.00	NC				21.5	0.64	N.S.	4.4	0.45	N.S.
Dayton, OH $	Cert./Bidders list	72	1986	21.1	0.68	N.S.	0.6	0.11	N.S.	1.6	3.23	Over				23.3	0.84	N.S.	4.4	0.32	N.S.
Dayton, OH $	Cert./Bidders list	56	1987	27.0	0.67	N.S.	1.0	3.13	N.S.	2.0	0.00	NC				30.0	0.70	N.S.	6.3	0.14	Under
Dayton, OH $	Cert./Bidders list	62	1988	22.5	0.77	N.S.	1.2	0.77	N.S.	1.5	2.56	N.S.				25.2	0.88	N.S.	4.4	0.27	N.S.
Dayton, OH $	Cert./Bidders list	78	1989	24.0	0.51	Under	1.3	0.26	N.S.	1.8	0.45	N.S.				27.1	0.49	Under	5.3	2.63	Over
Dayton, OH $	Cert./Bidders list	23	1990													27.4	0.14	Under	4.5	1.32	N.S.
Denver Phase II–Remodeling #	Survey—Interest	1786	1989													6.3	0.83	N.S.	12.2	0.46	Under
Denver Phase II–Remodeling $	Survey—Interest	1786	1989													6.3	0.14	Under	12.2	0.47	Under
Denver Phase II–Remodeling #	Survey—Interest	3033	1990													6.3	0.62	Under	12.2	0.57	Under
Denver Phase II–Remodeling $	Survey—Interest	3033	1990													6.3	0.19	Under	12.2	1.36	N.S.
Denver RTD #	SM/WOBE—Empl.	839	1987–91	1.7	0.70	N.S.	16.7	0.26	Under	1.8	0.07	Under				20.2	0.28	C	23.5	0.06	Under
Denver RTD $	SM/WOBE—Empl.	839	1987–91	0.7	3.59	NC	10.2	0.68	N.S.	0.8	0.00	N.S.				11.7	0.82	C	19.1	0.43	N.S.
Denver RTD–Federal #	SM/WOBE—Empl.	41	1987–91	1.7	4.28	NC	16.7	0.44	N.S.	1.8	0.00	N.S.				20.2	0.73	C	23.5	0.31	Under
Denver RTD–Federal $	SM/WOBE—Empl.	41	1987–91	0.7	4.65	NC	10.2	0.07	N.S.	0.8	0.00	N.S.				11.7	0.35	C	0.2	0.08	N.S.
District of Columbia $	SMOBE	158	1989–91	13.4	2.16	Over	7.3	5.40	Over	12.3	0.14	Under				33.3	2.19	Over			
Florida–Road/Transportation $	SM/WOBE	3,268	1985–89	1.4	0.45	N.S.	3.0	0.82	N.S.	0.1	1.60	N.S.	0.1	3.42	N.S.	4.6	0.78	N.S.	3.8	0.20	Under
Florida–Road/Transportation #	SM/WOBE	3,268	1985–89	1.4	2.80	Over	3.0	1.04	N.S.	0.1	15.30	Over	0.1	8.26	Over	4.6	2.07	Over	3.8	0.68	Under
Fort Worth–City $	SM/WOBE	NS	1988–93	2.2	0.83	NC	5.3	0.43	NC	0.7	1.08	NC	0.0	10.50	NC	8.3	0.81	NC	5.4	0.83	NC
Fort Worth–City $	Survey—Interest	NS	1988–93	1.9	1.00	NC	6.5	0.35	NC	0.8	0.95	NC	2.9	0.07	NC	12.4	0.54	NC	13.8	0.33	NC
Fort Worth–City $	Mailing list	NS	1988–93	7.0	0.27	NC	5.1	0.45	NC	1.5	0.53	NC	1.5	0.14	NC	17.3	0.39	NC	4.7	0.96	NC
Greensboro, NC–MSA $	SM/WOBE	NS	1987	3.4	1.08	N.S.													5.3	1.28	N.S.
Hayward, CA–Small contract $	SM/WOBE	316	1986–92	3.0	0.91	N.S.	5.4	1.40	N.S.	3.1	0.00	N.S.				11.5	0.89	C	7.3	1.13	N.S.
Hayward, CA–Small contract #	SM/WOBE	316	1986–92	5.1	0.30	Under	7.7	0.24	Under	4.6	0.00	Under				17.4	0.19	C	8.3	0.41	Under
Hennepin County, MN–Acct Payable $	SM/WOBE	7,646	1981–86	0.3	0.21	Under	0.3	0.08	Under	0.2	2.67	Over				0.9	0.84	N.S.	5.7	0.07	Under
Hennepin County, MN–Acct Payable $	Survey—Interest	7,646	1981–86	0.7	0.09	Under	0.3	0.10	Under	0.3	0.35	Under	0.8	0.69	Under	2.0	0.36	Under	14.4	0.03	Under
Hennepin County, MN–Acct Payable $	Survey—Attempt	7,646	1981–86	0.7	0.09	Under	0.1	0.19	Under	0.6	0.17	Under	1.1	0.48	Under	2.5	0.29	Under	13.4	0.03	Under
Hennepin County, MN–Acct Payable $	Registered	7,646	1981–86	4.3	0.01	Under	0.7	0.04	Under	1.5	0.06	Under	1.9	0.28	Under	9.5	0.08	Under	7.5	0.05	Under

Continued

Table A.3a. *Evidence of Disparity in the Construction Industry (Continued)*

	BACKGROUND			AFRICAN AMERICANS			LATINOS			ASIANS			NATIVE AMERICANS			ALL MINORITIES			WOMEN		
	Source	# of Contracts	Year	Avail.	Disp. Ratio	Stat. Sig.	Avail.	Disp. Ratio	Stat. Sig.	Avail.	Disp. Ratio	Stat. Sig.	Avail.	Disp. Ratio	Stat. Sig.	Avail.	Disp. Ratio	Stat. Sig.	Avail.	Disp. Ratio	Stat. Sig.
Hennepin County, MN–Acct Payable $	SM/WOBE	3,034	1987–93	0.3	11.14	Over	0.3	0.00	Under	0.2	24.81	Over	0.9	10.62	Over				5.7	0.18	Under
Hennepin County, MN–Acct Payable $	Survey—Interest	3,034	1987–93	0.7	4.85	Over	0.3	0.00	Under	0.3	22.37	Over	0.8	0.01	Under	2.0	4.61	Over	14.4	0.07	Under
Hennepin County, MN–Acct Payable $	Survey—Attempt	3,034	1987–93	0.7	4.87	Over	0.1	0.00	Under	0.6	10.53	Over	1.1	0.01	Under	2.5	3.70	Over	13.4	0.08	Under
Hennepin County, MN–Acct Payable $	Registered	3,034	1987–93	4.3	0.79	Under	0.7	0.00	Under	1.5	4.00	Over	1.9	0.00	Under	9.5	0.97	N.S.	7.5	0.14	Under
Hennepin County, MN–Primes&Subs $	SM/WOBE	31	1990–91	0.3	18.29	Over	0.3	0.00	N.S.	0.2	94.71	Over	0.9	32.06	Over				5.7	0.03	N.S.
Hennepin County, MN–Primes&Subs $	Survey—Interest	31	1990–91	0.7	7.97	Over	0.3	0.00	N.S.	0.3	85.52	Over	0.8	0.00	N.S.	2.0	13.93	Over	14.4	0.01	Under
Hennepin County, MN–Primes&Subs $	Survey—Attempt	31	1990–91	0.7	8.00	Over	0.1	0.00	N.S.	0.6	40.24	Over	1.1	0.00	N.S.	2.5	11.16	Over	13.4	0.01	Under
Hennepin County, MN–Primes&Subs $	Registered	31	1990–91	4.3	1.30	N.S.	0.7	0.00	N.S.	1.5	15.31	Over	1.9	0.00	N.S.	9.5	2.94	Over	7.5	0.02	N.S.
Hennepin County, MN–Primes&Subs $	SM/WOBE	114	1992–94	0.3	9.37	Over	0.3	5.50	Over	0.2	64.23	Over	0.9	23.15	Over	5.7	0.83	N.S.			
Hennepin County, MN–Primes&Subs $	Survey—Interest	114	1992–94	0.7	4.08	Over	0.3	6.96	Over	0.3	56.98	Over	0.8	0.34	N.S.	2.0	10.06	Over	14.4	0.33	Under
Hennepin County, MN–Primes&Subs $	Survey—Attempt	114	1992–94	0.7	4.09	Over	0.1	13.09	Over	0.6	26.81	Over	1.1	0.24	N.S.	2.5	8.06	Over	13.4	0.35	Under
Hennepin County, MN–Primes&Subs $	Registered	114	1992–94	4.3	0.67	N.S.	0.7	2.49	N.S.	1.5	10.20	Over	1.9	0.14	N.S.	9.5	2.12	Over	7.5	0.62	N.S.
Houston $	Cert./Bidders list	137	1987–93	5.3	0.60	Under	7.8	0.96	N.S.	1.3	1.82	N.S.	0.2	1.96	N.S.	14.6	0.92	C	4.1	0.95	N.S.
Jacksonville–City $	Cert./Bidders list	NS	1986	16.8	0.07	Under	0.8	0.00	NC	1.0	0.00	NC				18.6	0.06	C	5.3	0.23	Under
Jacksonville–City $	Cert./Bidders list	NS	1987	15.7	0.08	Under	0.7	0.00	NC	0.9	0.00	NC				17.3	0.07	C	4.9	2.27	N.S.
Jacksonville–City $	Cert./Bidders list	NS	1988	13.8	0.10	Under	0.6	0.01	N.S.	0.8	0.00	NC				15.2	0.09	C	4.3	0.16	Under
Jacksonville–City $	Cert./Bidders list	NS	1989	13.2	0.13	Under	0.6	0.17	N.S.	0.8	0.00	NC				14.6	0.12	C	4.1	0.02	Under
Jacksonville–Electric Authority $	Cert./Bidders list	NS	1986	28.0	0.00	NC	1.3	0.00	NC	1.6	0.00	NC				30.9	0.00	C	8.8	0.01	Under
Jacksonville–Electric Authority $	Cert./Bidders list	NS	1987	23.4	0.00	NC	1.1	0.00	NC	1.4	0.00	NC				25.9	0.00	C	7.3	0.00	NC
Jacksonville–Electric Authority $	Cert./Bidders list	NS	1988	26.6	0.00	NC	1.2	0.00	NC	1.6	0.00	NC				29.4	0.00	C	8.4	0.93	N.S.
Jacksonville–Electric Authority $	Cert./Bidders list	NS	1989	35.1	0.00	NC	1.6	0.00	NC	2.0	0.00	NC				38.7	0.00	C	11.0	0.00	NC
Jacksonville–Port Authority $	Cert./Bidders list	NS	1986	34.8	0.00	NC	12.4	0.00	NC	1.1	1.01	N.S.				48.3	0.02	C	20.2	0.19	N.S.
Jacksonville–Port Authority $	Cert./Bidders list	NS	1987	24.4	0.08	Under	8.7	0.03	Under	0.8	7.14	N.S.				33.9	0.23	C	14.2	0.29	N.S.
Jacksonville–Port Authority $	Cert./Bidders list	NS	1988	20.4	0.48	N.S.	7.2	0.35	N.S.	0.7	16.67	N.S.				28.3	0.85	C	11.8	0.48	N.S.
Jacksonville–Port Authority $	Cert./Bidders list	NS	1989	17.8	0.15	Under	6.3	0.59	N.S.	0.6	0.00	NC				24.7	0.26	C	10.3	0.43	N.S.
Jacksonville–School Board $	Cert./Bidders list	NS	1986	32.2	0.01	Under	1.8	0.00	NC	2.5	0.58	N.S.				36.5	0.05	C	11.5	1.61	N.S.
Jacksonville–School Board $	Cert./Bidders list	NS	1987	26.1	0.08	Under	1.4	0.91	N.S.	2.0	0.00	NC				29.5	0.11	C	9.4	2.08	N.S.
Jacksonville–School Board $	Cert./Bidders list	NS	1988	16.8	0.04	Under	0.9	1.05	N.S.	1.3	1.79	N.S.				19.0	0.21	C	6.0	0.70	N.S.
Jacksonville–School Board $	Cert./Bidders list	NS	1989	26.8	0.02	Under	1.5	0.00	NC	2.0	0.13	N.S.				30.3	0.03	C	9.6	0.01	Under
Jefferson County, AL #	SM/WOBE	NS	1986–90	5.7	15.46	Over	0.2	0.00	Under	0.1	0.00	Under				6.0	14.68	C	6.0	0.00	Under

Las Vegas–City $	SM/WOBE	142	1988–92	1.4	2.28	N.S.	3.8	0.39	N.S.	1.2	0.08	N.S.								
Las Vegas–City $	Survey—Interest	142	1988–92	0.6	5.42	Over	5.4	0.28	Under	0.9	0.12	N.S.	1.0	0.00	N.S.					
Las Vegas–City $	Mailing list	142	1988–92	3.3	0.94	N.S.	6.8	0.22	Under	0.0	NA	NA	0.3	0.00	N.S.					
Las Vegas–City $	License	142	1988–92	1.2	2.53	Over	1.4	1.10	N.S.	0.2	0.63	N.S.	0.4	0.00	N.S.					
Las Vegas–City $	SM/WOBE	382	1993	1.4	0.24	N.S.	3.8	0.10	Under	1.2	0.05	Under								
Las Vegas–City $	Survey—Interest	382	1993	0.6	0.58	N.S.	5.4	0.07	Under	0.9	0.07	N.S.	1.0	0.00	N.S.					
Las Vegas–City $	Mailing list	382	1993	3.3	0.10	Under	6.8	0.06	Under	0.0	NA	NA	0.3	0.00	N.S.					
Las Vegas–City $	License	382	1993	1.2	0.27	N.S.	1.4	0.29	N.S.	0.2	0.36	N.S.	0.4	0.00	N.S.					
Las Vegas–City $	SM/WOBE	62	1993													6.4	0.57	N.S.	4.8	0.55	N.S.
Las Vegas–City $	Survey—Interest	62	1993													7.8	0.46	N.S.	10.8	0.24	Under
Las Vegas–City $	Mailing list	62	1993													9.6	0.38	Under	11.1	0.24	Under
Las Vegas–City $	License	62	1993													3.2	1.13	N.S.	3.1	0.84	N.S.
Las Vegas–Local Area Gvts $	SM/WOBE	566	NS	1.4	2.31	Over	3.8	0.21	Under	1.2	0.20	Under				6.4	0.65	Under	4.8	0.93	N.S.
Las Vegas–Local Area Gvts $	Survey—Interest	566	NS	0.6	5.50	Over	5.4	0.15	Under	0.9	0.23	N.S.	1.0	0.05	Under	7.8	0.54	Under	10.8	0.41	Under
Las Vegas–Local Area Gvts $	Mailing list	566	NS	2.1	1.49	N.S.	4.0	0.20	Under	0.2	0.93	N.S.	0.5	0.09	N.S.	7.5	0.56	Under	4.9	0.90	N.S.
Las Vegas–Local Area Gvts $	License	566	NS	1.2	2.57	Over	1.4	0.59	N.S.	0.2	1.25	N.S.	0.4	0.11	N.S.	3.2	1.30	N.S.	3.1	1.43	N.S.
Louisiana $	Cert./Bidders list	166	1987	20.5	0.26	Under	2.7	0.06	Under	1.5	0.03	N.S.	1.2	0.12	N.S.	25.9	0.22	C	4.2	0.29	Under
Louisiana $	Cert./Bidders list	172	1988	16.4	0.29	Under	2.2	0.16	N.S.	1.6	0.00	N.S.	0.5	0.00	N.S.	20.7	0.24	C	3.8	0.58	Under
Louisiana $	Cert./Bidders list	176	1989	18.2	0.31	Under	2.7	1.20	N.S.	1.6	0.04	N.S.	0.8	0.00	N.S.	23.3	0.38	C	4.8	0.37	Under
Louisiana $	Cert./Bidders list	214	1990	15.8	0.17	Under	2.3	1.25	N.S.	1.6	0.03	N.S.	0.7	0.00	N.S.	20.4	0.27	C	4.2	0.22	Under
Maricopa County, AZ $	Direcs./Regist.	45	1987–88	5.6	0.00	N.S.	23.7	0.00	Under	0.8	0.00	N.S.	5.5	0.00	N.S.	35.7	0.00	Under	10.3	0.00	Under
Maricopa County, AZ $	Direcs./Regist.	61	1988–89	5.6	0.00	N.S.	23.7	0.04	Under	0.8	0.00	N.S.	5.5	0.02	N.S.	35.7	0.03	Under	10.3	0.27	Under
Massachusetts–Highway $	Cert./Bidders list	1126	1983–91	15.5	0.23	Under	4.9	0.12	Under	2.2	0.52	Under	0.6	0.00	N.S.	23.2	0.22	C	9.8	0.11	Under
Massachusetts–Aero Comm $	Cert./Bidders list	56	1981–91	24.8	0.04	Under	7.8	0.07	Under	3.6	0.11	N.S.	1.0	0.08	N.S.	37.2	0.05	C	15.7	0.05	Under
Massachusetts–MBTA $	Cert./Bidders list	310	1981–91	19.7	0.35	Under	5.7	0.01	Under	2.8	0.60	N.S.	0.8	2.78	N.S.	29.0	0.38	C	12.5	0.11	Under
Massachusetts–Massport $	Cert./Bidders list	335	1983–91	18.2	0.40	Under	6.2	0.23	Under	2.6	0.38	N.S.	0.7	1.45	N.S.	27.7	0.39	C	11.5	0.21	Under
Massachusetts–MTA $	Cert./Bidders list	171	1981–91	20.5	0.34	Under	6.4	0.12	Under	2.9	0.31	N.S.	0.8	1.47	N.S.	30.6	0.32	C	13.0	0.06	Under
Memphis–Airport $	Cert./Bidders list	70	1988	7.8	0.55	N.S.	0.0	NA	NA	0.3	0.00	N.S.	0.3	0.00	N.S.	10.5	0.43	N.S.	2.3	0.00	N.S.
Memphis–Airport $	Cert./Bidders list	70	1990	7.8	0.47	N.S.	0.0	NA	NA	0.3	0.00	N.S.	0.3	0.54	N.S.	10.5	0.37	N.S.	2.3	0.00	N.S.
Memphis–Airport $	Cert./Bidders list	70	1992	7.8	0.40	N.S.	0.0	NA	NA	0.3	0.00	N.S.	0.3	33.30	Over	10.5	0.40	N.S.	2.3	0.51	N.S.
Memphis–City $	Cert./Bidders list	215	1988	11.1	0.21	N.S.	0.2	0.00	N.S.	1.3	0.00	N.S.	0.2	0.00	N.S.	16.9	0.12	Under	4.5	0.00	N.S.
Memphis–City $	Cert./Bidders list	215	1990	11.1	0.00	N.S.	0.2	0.00	N.S.	1.3	0.00	N.S.	0.2	0.00	N.S.	16.9	1.02	N.S.	4.5	0.00	N.S.
Memphis–City $	Cert./Bidders list	215	1992	11.1	0.00	N.S.	0.2	0.00	N.S.	1.3	0.00	N.S.	0.2	0.00	N.S.	16.9	0.17	N.S.	4.5	0.00	N.S.
Memphis–City Schools $	Cert./Bidders list	50	1988	13.8	0.00	N.S.	0.1	0.00	N.S.	0.4	0.00	N.S.	0.4	0.00	N.S.	17.0	0.00	N.S.	1.6	0.00	N.S.
Memphis–City Schools $	Cert./Bidders list	50	1990	13.8	0.00	N.S.	0.1	0.00	N.S.	0.4	0.00	N.S.	0.4	0.00	N.S.	17.0	3.80	Over	1.6	50.00	Over
Memphis–City Schools $	Cert./Bidders list	50	1992	13.8	0.00	N.S.	0.1	0.00	N.S.	0.4	0.00	N.S.	0.4	0.00	N.S.	17.0	2.70	Over	1.6	33.30	Over

Continued

Table A.3a. *Evidence of Disparity in the Construction Industry (Continued)*

	BACKGROUND			AFRICAN AMERICANS			LATINOS			ASIANS			NATIVE AMERICANS			ALL MINORITIES			WOMEN		
	Source	# of Contracts	Year	Avail.	Disp. Ratio	Stat. Sig.	Avail.	Disp. Ratio	Stat. Sig.	Avail.	Disp. Ratio	Stat. Sig.	Avail.	Disp. Ratio	Stat. Sig.	Avail.	Disp. Ratio	Stat. Sig.	Avail.	Disp. Ratio	Stat. Sig.
Memphis–Gas,Water,Light $	Cert./Bidders list	46	1988	11.7	0.00	N.S.	0.3	0.00	N.S.	0.5	0.00	N.S.	0.5	0.00	N.S.	17.6	0.00	N.S.	3.1	0.00	N.S.
Memphis–Gas,Water,Light $	Cert./Bidders list	46	1990	11.7	0.20	N.S.	0.3	11.10	N.S.	0.5	0.00	N.S.	0.5	0.36	N.S.	17.6	0.36	N.S.	3.1	0.19	N.S.
Memphis–Gas,Water,Light $	Cert./Bidders list	46	1992	11.7	0.81	N.S.	0.3	0.00	N.S.	0.5	0.00	N.S.	0.5	0.02	N.S.	17.6	0.55	N.S.	3.1	0.00	N.S.
Memphis–Shelby County $	Cert./Bidders list	136	1988	19.1	4.50	Over	0.0	NA	NA	0.0	NA	NA	0.0	NA	NA	19.1	4.50	Over	0.0	0.00	NA
Memphis–Shelby County $	Cert./Bidders list	136	1990	19.1	0.17	N.S.	0.0	NA	NA	0.0	NA	NA	0.0	NA	NA	19.1	0.21	N.S.	0.0	0.00	NA
Memphis–Shelby County $	Cert./Bidders list	136	1992	19.1	0.01	N.S.	0.0	NA	NA	0.0	NA	NA	0.0	NA	NA	19.1	0.67	Under	0.0	0.00	NA
Milwaukee–City $	SM/WOBE	406	1990	2.9	0.00	Under	0.6	0.00	N.S.	0.4	1.13	N.S.				3.9	0.10	C	10.4	0.10	Under
Milwaukee–County $	SM/WOBE	731	1987	3.2	0.13	Under	0.7	0.66	N.S.	0.4	1.19	N.S.				4.3	0.31	C	11.4	0.09	Under
Milwaukee–County $	SM/WOBE	639	1990	2.9	0.02	Under	0.6	0.65	N.S.	0.4	0.93	N.S.				3.9	0.21	C	10.4	0.07	Under
Milwaukee–Public Schools $	SM/WOBE	246	1990	2.9	0.02	N.S.	0.6	2.30	N.S.	0.4	0.03	N.S.				3.9	0.39	C	10.4	0.20	N.S.
Minneapolis $	SM/WOBE	169	1990–91	0.3	0.00	Under	0.3	0.00	Under	0.2	0.00	Under				0.9	0.00	Under	5.7	0.18	Under
Minneapolis $	SM/WOBE—Empl.	169	1990–91	0.2	0.00	Under	0.2	0.00	Under	0.1	0.00	Under				0.6	0.00	Under	7.2	0.15	Under
Minneapolis $	Survey—Interest	169	1990–91	0.7	0.00	Under	0.3	0.00	Under	0.3	0.00	Under	0.8	0.00	Under	2.0	0.00	Under	14.4	0.07	Under
Minneapolis $	Survey—Attempt	169	1990–91	0.8	0.00	Under	0.1	0.00	Under	0.6	0.00	Under	1.1	0.00	Under	2.6	0.00	Under	13.5	0.08	Under
Minneapolis $	Registered	169	1990–91	0.9	0.00	Under	0.2	0.00	Under	0.7	0.00	Under	0.3	0.00	Under	2.4	0.00	Under	3.7	0.28	Under
Minneapolis $	SM/WOBE	2,089	1992–94	0.3	0.44	N.S.	0.3	0.18	Under	0.2	7.97	Over	0.9				2.82	Over	5.7	0.48	Under
Minneapolis $	SM/WOBE—Empl.	2,089	1992–94	0.2	0.62	N.S.	0.2	0.30	N.S.	0.1	13.58	Over	0.6				4.47	Over	7.2	0.37	Under
Minneapolis $	Survey—Interest	2,089	1992–94	0.7	0.19	Under	0.3	0.23	N.S.	0.3	7.25	Over	0.8	0.00	Under	2.0	1.24	N.S.	14.4	0.19	Under
Minneapolis $	Survey—Attempt	2,089	1992–94	0.8	0.16	Under	0.1	0.43	N.S.	0.6	3.41	Over	1.1	0.00	Under	2.6	0.94	N.S.	13.5	0.20	Under
Minneapolis $	Registered	2,089	1992–94	0.9	0.14	Under	0.2	0.28	N.S.	0.7	2.66	Over	0.3	0.00	Under	2.4	1.03	N.S.	3.7	0.73	Under
Minneapolis–Large Contract $	SM/WOBE	125	1990–91	0.3	5.43	Over	0.3	3.36	N.S.	0.2	38.43	Over	0.9				13.59	Over	5.7	1.53	N.S.
Minneapolis–Large Contract $	SM/WOBE—Empl.	125	1990–91	0.2	7.70	Over	0.2	5.63	Over	0.1	65.45	Over	0.6				21.51	Over	7.2	1.20	N.S.
Minneapolis–Large Contract $	Survey—Interest	125	1990–91	0.7	2.38	N.S.	0.3	4.28	N.S.	0.3	8.01	Over	0.8	8.97	Over	2.0	5.94	Over	14.4	0.60	N.S.
Minneapolis–Large Contract $	Survey—Attempt	125	1990–91	0.8	1.99	N.S.	0.1	8.05	Over	0.6	3.77	Over	1.1	6.32	Over	2.6	4.51	Over	13.5	0.64	N.S.
Minneapolis–Large Contract $	Registered	125	1990–91	0.9	1.79	N.S.	0.2	5.12	Over	0.7	2.95	N.S.	0.3	21.44	Over	2.4	4.95	Over	3.7	2.35	Over
Minneapolis–Large Contract $	SM/WOBE	249	1992–94	0.3	2.48	N.S.	0.3	0.04	N.S.	0.2	15.95	Over	0.9				5.75	Over	5.7	1.96	Over
Minneapolis–Large Contract $	SM/WOBE—Empl.	249	1992–94	0.2	3.52	N.S.	0.2	0.06	N.S.	0.1	27.17	Over	0.6				9.10	Over	7.2	1.54	Over
Minneapolis–Large Contract $	Survey—Interest	249	1992–94	0.7	1.09	N.S.	0.3	0.05	N.S.	0.3	1.32	N.S.	0.8	4.40	Over	2.0	2.52	Over	14.4	0.77	N.S.
Minneapolis–Large Contract $	Survey—Attempt	249	1992–94	0.8	0.91	N.S.	0.1	0.09	N.S.	0.6	0.62	N.S.	1.1	3.10	Over	2.6	1.91	Over	13.5	0.82	N.S.
Minneapolis–Large Contract $	Registered	249	1992–94	0.9	0.82	N.S.	0.2	0.06	N.S.	0.7	0.48	N.S.	0.3	10.50	Over	2.4	2.10	Over	3.7	3.01	Over
Minneapolis Comm Devel Agency $	SM/WOBE	59	1990–91	0.3	0.00	N.S.	0.3	0.00	N.S.	0.2	0.00	N.S.	0.9				0.00	N.S.	5.7	0.00	N.S.
Minneapolis Comm Devel Agency $	SM/WOBE—Empl.	59	1990–91	0.2	0.00	N.S.	0.2	0.00	N.S.	0.2	0.00	N.S.	0.6				0.00	N.S.	7.5	0.00	Under
Minneapolis Comm Devel Agency $	Survey—Interest	59	1990–91	0.8	0.00	N.S.	0.3	0.00	N.S.	0.3	0.00	N.S.	0.8	0.00	N.S.	2.1	0.00	N.S.	14.0	0.00	Under
Minneapolis Comm Devel Agency $	Survey—Attempt	59	1990–91	0.9	0.00	N.S.	0.2	0.00	N.S.	0.6	0.00	N.S.	1.1	0.00	N.S.	2.8	0.00	N.S.	13.4	0.00	Under

Minneapolis Comm Devel Agency $	SM/WOBE	119	1992–94	0.3	0.00	N.S.	0.3	0.00	N.S.	0.2	0.01	N.S.	0.9				0.00	N.S.	5.7	0.07	Under
Minneapolis Comm Devel Agency $	SM/WOBE—Empl.	119	1992–94	0.2	0.00	N.S.	0.2	0.00	N.S.	0.2	0.02	N.S.	0.6				0.00	N.S.	7.5	0.05	Under
Minneapolis Comm Devel Agency $	Survey—Interest	119	1992–94	0.8	0.00	N.S.	0.3	0.00	N.S.	0.3	0.01	N.S.	0.8	0.00	N.S.	2.1	0.00	N.S.	14.0	0.03	Under
Minneapolis Comm Devel Agency $	Survey—Attempt	119	1992–94	0.9	0.00	N.S.	0.2	0.00	N.S.	0.6	0.00	N.S.	1.1	0.00	N.S.	2.8	0.00	N.S.	13.4	0.03	Under
New Mexico–Federal $	SM/WOBE	1630	1990–94	0.1	0.39	N.S.	9.5	1.22	Over	0.9	2.67	Over	1.5	0.81	N.S.	12.0	1.27	Over	5.1	0.18	Under
New Mexico–Federal $	Survey—Interest	1630	1990–94	0.3	0.13	Under	20.4	0.57	Under	0.6	4.32	Over	3.2	0.36	Under	24.5	0.62	Under	5.9	0.16	Under
New Mexico–Federal $	Survey—Attempt	1630	1990–94	0.1	0.53	N.S.	22.7	0.51	Under	1.1	2.12	Over	1.2	0.97	N.S.	25.1	0.60	Under	3.8	0.27	Under
New Mexico–State $	SM/WOBE	814	1990–94	0.1	1.83	N.S.	8.1	1.10	N.S.	0.9	2.44	Over	1.4	0.77	N.S.	10.5	1.17	N.S.	5.2	0.23	Under
New Mexico–State $	Survey—Interest	814	1990–94	0.3	0.38	N.S.	19.6	0.45	Under	0.6	3.66	Over	3.3	0.33	Under	23.8	0.51	Under	5.7	0.20	Under
New Mexico–State $	Survey—Attempt	814	1990–94	0.1	2.47	N.S.	22.0	0.40	Under	1.2	1.74	Over	1.0	1.07	N.S.	24.3	0.50	Under	3.4	0.32	Under
New Orleans $	SM/WOBE—Empl.	342	1986–89	10.4	0.02	N.S.	2.0	0.08	N.S.	0.1	1.52	NC	12.5	0.03	N.S.	9.6	0.27	N.S.			
New Orleans $	SM/WOBE—Empl.	1,285	1989–92	17.2	0.10	Under	2.2	0.10	N.S.	0.1	0.14	N.S.	19.5	0.10	Under	16.4	0.17	Under			
New York City $	SM/WOBE—Empl.	2868	1989–90	3.9	0.17	Under	2.3	1.09	N.S.	6.3	0.14	Under				12.5	0.32	C	12.8	0.21	Under
New York City #	SM/WOBE—Empl.	2868	1989–90	5.5	1.16	Over	3.4	0.57	Under	6.9	0.36	Under				15.8	0.68	C	13.0	0.40	Under
New York City–Large Contracts $	SM/WOBE—Empl.	2090	1989–90	3.9	0.16	Under	2.3	1.09	N.S.	6.3	0.14	Under				12.5	0.32	C	12.8	0.21	Under
New York City–Large Contracts #	SM/WOBE—Empl.	2090	1989–90	5.5	0.61	Under	3.4	0.64	Under	6.9	0.37	Under				15.8	0.51	C	13.0	0.41	Under
NYC Housing $	SM/WOBE—Empl.	2,540	1988–92	6.0	0.49	Under	3.7	0.64	N.S.	5.0	0.39	Under	0.7	0.04	N.S.	15.4	0.47	Under	12.6	0.30	Under
NYC Housing #	SM/WOBE—Empl.	2,540	1988–92	5.9	0.97	N.S.	3.7	1.33	NC	5.1	0.93	N.S.	0.7	0.23	Under	15.3	1.01	N.S.	13.0	0.50	Under
NYC Housing–Small Contracts $	SM/WOBE—Empl.	1,640	1988–92	5.7	0.42	Under	3.6	3.73	NC	5.9	0.79	N.S.	0.8	0.00	Under	16.1	1.28	NC	11.9	0.22	Under
NYC Housing–Small Contracts #	SM/WOBE—Empl.	1,640	1988–92	5.6	0.79	Under	3.4	4.07	NC	5.8	1.50	NC	0.9	0.00	Under	15.7	1.72	NC	11.8	0.24	Under
New York State $	Bidders list	NS	FY90–91	6.8	0.49	Under	3.6	0.46	Under	1.9	0.59	Under	0.7	2.46	Over	13.0	0.61	Under	9.7	0.39	Under
Oakland–Schools $	Survey—Interest	1904	1991–92	19.1	0.07	Under	8.8	0.18	N.S.	4.5	0.04	N.S.	0.9	0.00	N.S.	33.3	0.09	C	9.2	0.17	N.S.
Oakland–Schools $	Survey—Interest	2661	1992–93	19.1	0.08	Under	8.8	0.30	N.S.	4.5	0.01	N.S.	0.9	0.00	N.S.	33.3	0.13	C	9.2	0.16	N.S.
Oakland–Schools $	Survey—Interest	4565	1991–93	19.1	0.07	Under	8.8	0.25	Under	4.5	0.02	Under	0.9	0.00	N.S.	33.3	0.11	C	9.2	0.17	Under
Orange County, FL $	Cert./Bidders list	54	1988	8.7	0.22	N.S.	3.1	3.29	N.S.	NS	0.27	N.S.	NS	0.17	N.S.				4.3	0.33	N.S.
Orange County, FL $	Cert./Bidders list	64	1989	8.7	0.82	N.S.	3.1	2.06	N.S.	NS	0.03	N.S.	NS	0.61	N.S.				4.3	2.65	N.S.
Orange County, FL $	Cert./Bidders list	76	1990	8.7	0.66	N.S.	3.1	2.81	N.S.	NS	0.13	N.S.	NS	0.00	Under				4.3	0.40	N.S.
Orange County, FL $	Cert./Bidders list	50	1991	8.7	0.39	N.S.	3.1	2.03	N.S.	NS	1.25	N.S.	NS	0.00	Under				4.3	1.23	N.S.
Orange County, FL $	Cert./Bidders list	94	1992	8.7	0.85	N.S.	3.1	3.13	N.S.	NS	0.15	N.S.	NS	0.00	Under				4.3	0.93	N.S.
Orange County, FL–Aviation Authority $	Cert./Bidders list	9	1987	21.9	0.82	N.S.	7.7	0.24	N.S.	NS	0.16	N.S.	NS	0.00	Under				10.7	0.07	N.S.
Orange County, FL–Aviation Authority $	Cert./Bidders list	9	1988	21.9	0.17	N.S.	7.7	1.48	N.S.	NS	0.01	N.S.	NS	1.16	N.S.				10.7	0.68	N.S.
Orange County, FL–Aviation Authority $	Cert./Bidders list	18	1989	21.9	0.06	N.S.	7.7	0.05	N.S.	NS	1.19	N.S.	NS	2.56	N.S.				10.7	0.24	N.S.
Orange County, FL–Aviation Authority $	Cert./Bidders list	15	1990	21.9	0.14	N.S.	7.7	0.56	N.S.	NS	0.00	Under	NS	0.00	Under				10.7	1.16	N.S.
Orange County, FL–Aviation Authority $	Cert./Bidders list	41	1991	21.9	0.06	N.S.	7.7	0.27	N.S.	NS	1.61	N.S.	NS	0.30	N.S.				10.7	0.87	N.S.
Orange County, FL–Aviation Authority $	Cert./Bidders list	32	1992	21.9	0.05	N.S.	7.7	0.62	N.S.	NS	0.00	Under	NS	0.00	Under				10.7	0.86	N.S.

Continued

Table A.3a. *Evidence of Disparity in the Construction Industry (Continued)*

	BACKGROUND			AFRICAN AMERICANS			LATINOS			ASIANS			NATIVE AMERICANS			ALL MINORITIES			WOMEN		
	Source	# of Contracts	Year	Avail.	Disp. Ratio	Stat. Sig.	Avail.	Disp. Ratio	Stat. Sig.	Avail.	Disp. Ratio	Stat. Sig.	Avail.	Disp. Ratio	Stat. Sig.	Avail.	Disp. Ratio	Stat. Sig.	Avail.	Disp. Ratio	Stat. Sig.
Orange Co., FL–Valencia Comm Coll $	Cert./Bidders list	19	1990	26.2	0.00	Under	9.3	0.00	Under	NS	0.00	Under	NS	0.00	Under				12.8	0.00	Under
Orange Co., FL–Valencia Comm Coll $	Cert./Bidders list	23	1991	26.2	0.00	Under	9.3	0.00	Under	NS	0.00	Under	NS	0.00	Under				12.8	0.00	N.S.
Orange Co., FL–Valencia Comm Coll $	Cert./Bidders list	38	1992	26.2	0.00	Under	9.3	0.00	Under	NS	0.00	Under	NS	0.00	Under				12.8	6.61	N.S.
Orange County, FL–Public Schools $	Cert./Bidders list	23	1990	14.0	0.00	Under	4.9	0.06	N.S.	NS	0.00	Under	NS	0.00	Under				6.8	0.00	Under
Orange County, FL–Public Schools $	Cert./Bidders list	80	1991	14.0	0.01	N.S.	4.9	0.00	N.S.	NS	0.00	Under	NS	0.00	Under				6.8	0.00	N.S.
Orange County, FL–Public Schools $	Cert./Bidders list	103	1992	14.0	0.02	N.S.	4.9	0.05	N.S.	NS	0.00	Under	NS	0.09	Under				6.8	0.09	N.S.
Pennsylvania (SEPTA)–Lrg Contr $	SM/WOBE—Empl.	253	1988–92	3.1	0.01	Under	0.4	0.00	N.S.	0.2	25.57	NC				3.8	1.66	NC	8.8	0.68	N.S.
Pennsylvania (SEPTA)–Lrg Contr #	SM/WOBE—Empl.	253	1988–92	4.0	0.01	Under	0.5	0.00	N.S.	0.4	0.92	N.S.				5.0	0.16	Under	9.0	1.30	N.S.
Pennsylvania (SEPTA)–Sml Contr $	SM/WOBE—Empl.	522	1988–92	5.8	1.14	NC	0.8	0.00	N.S.	0.7	0.00	N.S.				7.3	0.90	N.S.	9.7	1.30	NC
Pennsylvania (SEPTA)–Sml Contr #	SM/WOBE—Empl.	522	1988–92	6.5	0.44	Under	0.8	0.23	N.S.	0.8	0.00	Under				8.1	0.38	Under	10.0	0.81	N.S.
Phoenix–Men $	Registered	2,302	FY87–93	2.8	0.07	Under	5.8	0.15	Under	1.3	0.00	Under	1.2	0.22	Under	12.9	0.12	Under			
Phoenix–Women $	Registered	2,302	FY87–93	0.3	0.00	Under	1.3	0.00	Under	0.0	NA	NA	0.0	NA	NA	2.0	0.01	Under	12.4	0.17	Under
Phoenix–Men $	Survey—Interest	2,302	FY87–93	0.4	0.53	N.S.	3.5	0.25	Under	0.2	0.00	Under	0.9	0.27	Under	5.0	0.32	Under			
Phoenix–Women $	Survey—Interest	2,302	FY87–93	0.1	0.00	N.S.	0.9	0.00	Under	0.1	0.00	N.S.	0.4	0.00	Under	1.6	0.01	Under	12.6	0.17	Under
Phoenix–Men $	Mailing list	2,302	FY87–93	3.7	0.05	Under	3.4	0.26	Under	0.5	0.00	Under	0.7	0.37	Under	12.2	0.13	Under			
Phoenix–Women $	Mailing list	2,302	FY87–93	0.3	0.00	Under	0.9	0.00	Under	0.1	0.00	N.S.	0.0	NA	NA	2.6	0.00	Under	10.3	0.21	Under
Phoenix–Men and Women $	SM/WOBE	2,302	FY87–93	0.5	0.41	N.S.	4.1	0.21	Under							5.0	0.32	Under	5.6	0.39	Under
Pima County, AZ $	SM/WOBE	95	1992–94	0.4	0.00	N.S.	8.4	0.41	Under				0.7	0.00	N.S.	9.5	0.37	Under	5.3	2.28	NC
Pima County, AZ $	Survey—Interest	95	1992–94	0.4	0.00	N.S.	12.4	0.28	Under	1.0	0.00	Under	0.7	0.00	N.S.	14.5	0.24	Under	9.9	1.21	NC
Pima County, AZ $	Mailing list	95	1992–94	1.2	0.00	Under	7.4	0.47	N.S.	0.9	0.00	N.S.	0.3	0.00	N.S.	9.9	0.35	Under	9.5	1.27	NC
Pima County, AZ $	License	95	1992–94	0.2	0.00	N.S.	5.0	0.70	N.S.	0.3	0.00	N.S.	0.4	0.00	N.S.	5.8	0.60	Under	4.2	2.86	NC
Port Authority NY/NJ $	Bid/Vend	1,192	1988–92	7.7	0.23	NC	3.6	0.10	NC	2.5	0.28	NC	0.2	3.55	NC	14.0	0.26	NC	2.4	0.22	NC
Port Authority NY/NJ #	Bid/Vend	1,192	1988–92	7.7	0.82	NC	3.6	0.76	NC	2.5	0.50	NC	0.2	0.40	NC	14.0	0.74	NC	2.4	0.70	NC
Port Authority NY/NJ $	Bid attempts	1,192	1988–92	6.0	0.30	NC	2.9	0.13	NC	2.8	0.25	NC	0.1	8.88	NC	11.8	0.30	NC	2.3	0.23	NC
Port Authority NY/NJ #	Bid attempts	1,192	1988–92	6.0	1.05	NC	2.9	0.93	NC	2.8	0.45	NC	0.1	1.00	NC	11.8	0.87	NC	2.3	0.72	NC
Port Authority NY/NJ–SBE Prog $	Bid attempts	70	1990–92	17.0	1.80	NC	8.6	1.06	NC	4.1	1.38	NC	29.5	1.50	NC	6.4	0.51	NC			
Port Authority NY/NJ–SBE Prog #	Bid attempts	70	1990–92	17.0	1.68	NC	8.6	1.50	NC	4.1	1.05	NC	29.5	1.55	NC	6.4	0.45	NC			
Ramsey County, MN–Acct Payable $	SM/WOBE	4,515	1985–89	0.3	0.40	Under	0.3	0.08	Under	0.2	7.99	Over				0.9	2.73	Over	5.7	0.28	Under
Ramsey County, MN–Acct Payable $	Survey—Interest	4,515	1985–89	0.7	0.17	Under	0.3	0.10	Under	0.3	0.99	N.S.	0.8	2.08	Over	2.2	1.09	N.S.	14.4	0.11	Under
Ramsey County, MN–Acct Payable $	Survey—Attempt	4,515	1985–89	0.7	0.17	Under	0.1	0.20	Under	0.6	0.47	Under	1.1	1.47	Over	2.6	0.90	N.S.	13.4	0.12	Under
Ramsey County, MN–Acct Payable $	Registered	4,515	1985–89	1.8	0.07	Under	0.5	0.05	Under	1.3	0.20	Under	0.6	2.91	Over	4.8	0.49	Under	7.9	0.20	Under
Ramsey County, MN–Acct Payable $	SM/WOBE	4,733	1990–94	0.3	0.18	Under	0.3	0.22	Under	0.2	1.68	Over				0.9	0.60	Under	5.7	0.59	Under
Ramsey County, MN–Acct Payable $	Survey—Interest	4,733	1990–94	0.7	0.08	Under	0.3	0.27	Under	0.3	0.28	Under	0.8	0.41	Under	2.2	0.24	Under	14.4	0.23	Under
Ramsey County, MN–Acct Payable $	Survey—Attempt	4,733	1990–94	0.7	0.08	Under	0.1	0.51	N.S.	0.6	0.13	Under	1.1	0.29	Under	2.6	0.20	Under	13.4	0.25	Under
Ramsey County, MN–Acct Payable $	Registered	4,733	1990–94	1.8	0.03	Under	0.5	0.14	Under	1.3	0.06	Under	0.6	0.58	Under	4.8	0.11	Under	7.9	0.42	Under

Ramsey County, MN–Primes & Subs $	SM/WOBE	151	1991–94	0.3	1.30	N.S.	0.3	0.25	N.S.	0.2	3.28	N.S.				0.9	1.44	N.S.	5.7	1.62	N.S.
Ramsey County, MN–Primes & Subs $	Survey—Interest	151	1991–94	0.7	0.57	N.S.	0.3	0.32	N.S.	0.3	0.05	N.S.	0.8	0.97	N.S.	2.2	0.58	N.S.	14.4	0.64	N.S.
Ramsey County, MN–Primes & Subs $	Survey—Attempt	151	1991–94	0.7	0.57	N.S.	0.1	0.60	N.S.	0.6	0.02	N.S.	1.1	0.68	N.S.	2.6	0.47	N.S.	13.4	0.68	N.S.
Ramsey County, MN–Primes & Subs $	Registered	151	1991–94	1.8	0.23	N.S.	0.5	0.16	N.S.	1.3	0.01	N.S.	0.6	1.36	N.S.	4.8	0.26	Under	7.9	1.16	N.S.
Richmond, CA $	Survey—Interest	152	1990–92	23.8	0.18	N.S.	11.1	0.54	N.S.	4.7	0.73	N.S.	1.2	0.08	N.S.	40.8	0.34	N.S.	10.4	0.09	N.S.
Sacramento $	Direcs./Mailing list	47	1990	8.3	0.00	N.S.	18.3	0.00	N.S.	3.3	0.00	N.S.	1.7	0.00	N.S.	31.7	0.00	Under	16.7	0.00	N.S.
Sacramento $	Direcs./Mailing list	51	1991	8.3	0.00	N.S.	18.3	0.00	N.S.	3.3	0.00	N.S.	1.7	0.00	N.S.	31.7	0.00	Under	16.7	0.06	N.S.
St. Paul, MN $	Registered	401	1991–94	1.8	0.77	N.S.	0.5	0.16	N.S.	1.3	0.15	N.S.	0.6	1.02	N.S.	4.8	0.45	Under	7.9	0.67	N.S.
St. Paul, MN $	Survey—Interest	401	1991–94	0.7	1.93	N.S.	0.3	0.33	N.S.	0.3	0.72	N.S.	0.8	0.73	N.S.	2.2	1.01	N.S.	14.4	0.36	Under
St. Paul, MN $	SM/WOBE	401	1991–94	0.3	4.42	Over	0.3	0.26	N.S.	0.2	3.22	Over				0.9	2.51	Over	5.7	0.93	N.S.
St. Paul, MN–School District 625 $	SM/WOBE	178	1989–91	0.3	0.21	N.S.	0.3	5.23	Over	0.2	1.32	N.S.				0.9	3.13	Over	5.7	0.45	N.S.
St. Paul, MN–School District 625 $	SM/WOBE—Empl.	178	1989–91	0.2	0.32	N.S.	0.2	8.43	Over	0.1	2.16	N.S.				0.6	4.92	Over	7.4	0.34	Under
St. Paul, MN–School District 625 $	Survey—Interest	178	1989–91	0.7	0.09	N.S.	0.3	6.28	Over	0.3	0.73	N.S.	0.7	0.15	N.S.	2.2	1.24	N.S.	14.9	0.17	Under
St. Paul, MN–School District 625 $	Survey—Attempt	178	1989–91	0.7	0.09	N.S.	0.2	11.66	Over	0.6	0.34	N.S.	1.0	0.11	N.S.	2.7	1.02	N.S.	13.9	0.18	Under
St. Paul, MN–School District 625 $	SM/WOBE	797	1992–94	0.3	0.91	N.S.	0.3	0.88	N.S.	0.2	22.50	Over				0.9	6.75	Over	5.7	1.14	N.S.
St. Paul, MN–School District 625 $	SM/WOBE—Empl.	797	1992–94	0.2	1.35	N.S.	0.2	1.42	N.S.	0.1	36.90	Over				0.6	10.61	Over	7.4	0.87	N.S.
St. Paul, MN–School District 625 $	Survey—Interest	797	1992–94	0.7	0.38	N.S.	0.3	1.06	N.S.	0.3	18.93	Over	0.7	0.13	Under	2.2	2.67	Over	14.9	0.43	Under
St. Paul, MN–School District 625 $	Survey—Attempt	797	1992–94	0.7	0.37	N.S.	0.2	1.96	N.S.	0.6	8.79	Over	1.0	0.09	Under	2.7	2.20	Over	13.9	0.46	Under
St. Petersburg, FL $	Cert./Bidders list	NS	1984–85	15.3	0.06	Under	11.7	0.01	Under	0.4	0.00	NC	0.4	0.00	NC	27.7	0.04	C	13.5	0.01	Under
St. Petersburg, FL $	Cert./Bidders list	NS	1985	15.1	0.24	Under	11.6	0.10	Under	0.4	0.00	NC	0.4	0.00	NC	27.4	0.17	C	13.3	0.08	Under
St. Petersburg, FL $	Cert./Bidders list	NS	1986	15.3	0.39	N.S.	11.7	0.18	Under	0.4	0.00	NC	0.4	1.02	N.S.	27.7	0.31	C	13.5	0.07	Under
St. Petersburg, FL $	Cert./Bidders list	NS	1987	16.1	0.22	Under	12.4	0.05	Under	0.4	0.00	NC	0.4	0.00	NC	29.2	0.14	C	14.2	0.23	Under
St. Petersburg, FL $	Cert./Bidders list	NS	1988	14.5	0.43	N.S.	11.2	0.14	Under	0.3	0.00	NC	0.3	0.96	N.S.	26.4	0.31	C	12.8	0.08	Under
St. Petersburg, FL $	Cert./Bidders list	NS	1989	18.6	0.27	Under	14.3	0.61	N.S.	0.4	0.00	NC	0.4	0.00	NC	33.8	0.41	C	16.5	0.23	Under
St. Petersburg, FL $	Cert./Bidders list	NS	1990	18.6	0.00	Under	14.3	0.80	N.S.	0.4	0.00	NC	0.4	0.00	NC	33.8	0.34	C	16.5	0.52	N.S.
San Antonio–Bexar Co.–VIA Metro Trans $	Directories	27	1986–90	1.7	0.00	N.S.	18.1	0.67	N.S.	1.1	0.00	N.S.				20.9	0.58	C	9.3	2.75	N.S.
San Antonio–Bexar Co.–VIA Metro Trans #	Directories	27	1986–90	1.8	0.00	N.S.	20.3	0.91	N.S.	1.0	0.00	N.S.				23.0	0.80	C	10.6	1.05	N.S.
San Antonio–City Water Board $	Directories	60	1986–90	1.6	0.00	N.S.	19.3	0.01	Under	0.9	0.80	N.S.				21.8	0.04	C	13.2	0.06	N.S.
San Antonio–City Water Board #	Directories	60	1986–90	1.5	0.00	N.S.	19.8	0.08	Under	0.9	1.80	N.S.				22.3	0.15	C	13.5	0.25	Under
San Antonio–City $	Directories	499	1986–87	1.5	0.00	N.S.	17.8	0.06	Under	1.0	0.00	N.S.				20.3	0.05	C	12.9	0.32	Under
San Antonio–City #	Directories	499	1986–87	1.5	0.00	Under	17.4	0.30	Under	1.0	0.00	Under				19.9	0.26	C	12.0	0.84	N.S.
San Antonio–City $	Directories	285	1989–90	1.6	0.00	N.S.	18.1	0.26	Under	0.9	0.13	N.S.				20.6	0.23	C	14.3	0.21	Under
San Antonio–City #	Directories	285	1989–90	1.5	0.00	Under	17.8	0.81	N.S.	0.9	1.52	N.S.				20.2	0.78	C	12.6	0.44	Under
San Jose, CA–Construction $	Cert./Bidders list	184	1987–89	4.9	0.08	Under	17.9	0.11	N.S.	4.6	0.03	N.S.	0.1	0.00	N.S.	28.8	0.09	Under	10.7	0.22	Under
San Jose, CA–Construction #	Cert./Bidders list	184	1987–89	4.9	0.11	Under	17.9	0.51	Under	4.6	0.46	Under	0.1	0.00	N.S.	28.8	0.43	Under	10.7	0.91	N.S.
Syracuse, NY–High $	Cert./Registered	822	1982–90	8.9	0.92	NC	1.6	1.69	NC	1.1	0.18	NC	1.9	1.16	NC	12.7	1.17	NC	6.5	0.42	NC
Syracuse, NY–Low $	Cert./Registered	822	1982–90	7.0	1.17	NC	1.3	2.08	NC	0.9	0.22	NC	1.4	1.57	NC	11.0	1.35	NC	5.7	0.47	NC

Continued

Table A.3a. *Evidence of Disparity in the Construction Industry (Continued)*

	BACKGROUND			AFRICAN AMERICANS			LATINOS			ASIANS			NATIVE AMERICANS			ALL MINORITIES			WOMEN		
	Source	# of Contracts	Year	Avail.	Disp. Ratio	Stat. Sig.	Avail.	Disp. Ratio	Stat. Sig.	Avail.	Disp. Ratio	Stat. Sig.	Avail.	Disp. Ratio	Stat. Sig.	Avail.	Disp. Ratio	Stat. Sig.	Avail.	Disp. Ratio	Stat. Sig.
Tampa $	Cert./Bidders list	47	1986	3.8	0.67	N.S.	2.8	2.17	N.S.	1.0	0.00	N.S.				7.6	1.14	C	3.6	0.04	N.S.
Tampa $	Cert./Registered	47	1986	8.1	0.12	Under	6.2	0.75	N.S.	2.1	0.00	N.S.				16.4	0.34	C	4.6	0.02	N.S.
Tampa $	Cert./Bidders list	79	1987	4.2	1.64	N.S.	2.9	2.38	N.S.	0.6	0.00	N.S.				7.7	1.79	C	3.9	0.81	N.S.
Tampa $	Cert./Registered	79	1987	9.6	0.71	N.S.	6.7	1.03	N.S.	1.1	0.00	Under				17.4	0.79	C	5.6	0.56	N.S.
Tampa $	Cert./Bidders list	63	1988	5.0	1.54	N.S.	4.0	3.03	Over	0.7	0.37	N.S.				9.7	2.07	C	4.1	0.24	N.S.
Tampa $	Cert./Registered	63	1988	12.7	0.61	N.S.	11.2	1.10	N.S.	1.6	0.16	N.S.				25.5	0.80	C	7.3	0.14	N.S.
Tampa $	Cert./Bidders list	22	1989	3.7	0.17	N.S.	4.1	1.59	N.S.	0.5	0.31	N.S.				8.3	0.88	C	4.3	0.41	N.S.
Tampa $	Cert./Registered	22	1989	8.8	0.07	N.S.	11.0	0.60	N.S.	0.9	0.17	N.S.				20.7	0.35	C	7.6	0.23	N.S.
Tampa $	Cert./Bidders list	66	1990	3.7	0.80	N.S.	4.1	1.85	N.S.	0.5	0.11	N.S.				8.2	1.28	C	4.3	0.34	N.S.
Tampa $	Cert./Registered	66	1990	8.8	0.34	N.S.	11.0	0.68	N.S.	0.8	0.06	Under				20.7	0.51	C	7.6	0.19	Under
Tampa–Excluding EPA $	Cert./Bidders list	39	1986	3.8	0.93	N.S.	2.8	1.85	N.S.	1.0	0.00	N.S.				7.6	1.15	C	3.6	0.06	N.S.
Tampa–Excluding EPA $	Cert./Registered	39	1986	8.1	0.17	Under	6.2	0.64	N.S.	2.1	0.00	N.S.				16.4	0.33	C	4.6	0.03	N.S.
Tampa–Excluding EPA $	Cert./Bidders list	78	1987	4.2	2.08	Over	2.9	2.78	N.S.	0.6	0.00	N.S.				7.7	2.18	C	3.9	1.10	N.S.
Tampa–Excluding EPA $	Cert./Registered	78	1987	9.6	0.90	N.S.	6.7	1.19	N.S.	1.1	0.00	N.S.				17.4	0.96	C	5.6	0.77	N.S.
Tampa–Excluding EPA $	Cert./Bidders list	54	1988	5.0	1.69	N.S.	4.0	3.57	Over	0.7	0.46	N.S.				9.7	2.38	C	4.1	0.28	N.S.
Tampa–Excluding EPA $	Cert./Registered	54	1988	12.7	0.66	N.S.	11.2	1.28	N.S.	1.6	0.20	N.S.				25.5	0.91	C	7.3	0.16	N.S.
Tampa–Excluding EPA $	Cert./Bidders list	20	1989	3.7	0.74	N.S.	4.1	2.63	N.S.	0.5	0.00	N.S.				8.3	1.63	C	4.3	1.20	N.S.
Tampa–Excluding EPA $	Cert./Registered	20	1989	8.8	0.31	N.S.	11.0	0.95	N.S.	0.9	0.00	N.S.				20.7	0.64	C	7.6	0.68	N.S.
Tampa–Excluding EPA $	Cert./Bidders list	61	1990	3.7	0.50	N.S.	4.1	1.15	N.S.	0.5	0.19	N.S.				8.3	0.80	C	4.3	0.54	N.S.
Tampa–Excluding EPA $	Cert./Registered	61	1990	8.8	0.21	Under	11.0	0.43	N.S.	0.9	0.11	Under				20.8	0.32	C	7.6	0.31	N.S.
Texas $	SM/WOBE—Empl.	NS	9/88–8/91	1.5	0.01	N.S.	8.2	0.24	N.S.	0.2	0.48	N.S.				9.9	0.21	N.S.	5.6	0.89	N.S.
Texas #	SM/WOBE—Empl.	NS	9/88–8/91	2.5	0.11	Under	20.3	0.17	Under	1.1	0.26	Under				23.8	0.16	Under	10.5	0.51	Under
Texas $	SM/WOBE—Empl.	NS	9/91–8/93	1.6	0.03	N.S.	8.4	0.22	Under	0.3	0.66	N.S.				10.3	0.21	Under	5.7	0.99	N.S.
Texas #	SM/WOBE—Empl.	NS	9/91–8/93	2.5	0.23	Under	20.5	0.17	Under	1.0	0.23	Under				24.0	0.18	Under	10.5	0.58	Under
Tucson $	SM/WOBE	361	1991–94	0.4	0.38	N.S.	8.4	1.13	N.S.	0.7	0.93	N.S.				9.5	1.08	N.S.	5.3	1.14	N.S.
Tucson $	Survey—Interest	361	1991–94	0.4	0.40	N.S.	12.4	0.77	N.S.	1.0	0.40	N.S.	0.7	0.36	N.S.	14.5	0.71	N.S.	9.9	0.61	N.S.
Tucson $	Mailing list	361	1991–94	0.9	0.19	N.S.	7.7	1.23	N.S.	1.2	0.31	N.S.	0.9	0.28	N.S.	10.7	0.96	N.S.	7.9	0.76	N.S.
Tucson $	License	361	1991–94	0.2	1.06	N.S.	5.0	1.92	N.S.	0.3	1.31	N.S.	0.4	0.59	N.S.	5.8	1.76	N.S.	4.2	0.69	N.S.

SUBCONTRACTORS ONLY

Alameda County, CA–Large Contract $	NS	91	1985–87	1.9	0.00	N.S.	4.7	0.46	N.S.	2.4	3.40	N.S.				9.0	1.15	C	3.9	0.34	N.S.
Alameda County, CA–Large Contract #	NS	91	1985–87	1.9	0.00	N.S.	4.7	0.93	N.S.	2.4	0.89	N.S.				9.0	0.72	C	4.0	0.81	N.S.
Alameda County, CA–Large Contract $	NS	59	1989–90	3.2	4.80	N.S.	5.8	1.30	N.S.	6.3	0.62	N.S.				15.3	1.75	C	8.7	1.03	N.S.
Alameda County, CA–Large Contract #	NS	59	1989–90	4.1	0.80	N.S.	7.6	2.00	N.S.	6.5	1.04	N.S.				18.2	1.39	C	9.2	2.03	N.S.
Alameda Co., CA–Federal–Lrg Contract $	NS	28	1985–87	2.0	1.00	N.S.	5.1	1.30	N.S.	2.4	0.75	N.S.				9.5	1.10	C	4.0	1.30	N.S.
Alameda Co., CA–Federal–Lrg Contract #	NS	28	1985–87	1.9	1.80	N.S.	4.7	0.76	N.S.	2.5	1.40	N.S.				9.1	1.15	C	3.9	4.50	N.S.
Alameda Co., CA–Federal–Lrg Contract $	NS	8	1989–90	4.4	0.00	N.S.	9.1	0.00	N.S.	11.8	0.91	N.S.				25.3	0.42	C	13.2	0.15	N.S.
Alameda Co., CA–Federal–Lrg Contract #	NS	8	1989–90	4.1	0.00	N.S.	8.4	0.00	N.S.	10.5	1.18	N.S.				23.0	0.54	C	12.0	1.03	N.S.
Contra Costa County, CA–Federal $	SM/WOBE—Empl.	68	1985–87	1.8	0.00	N.S.	4.6	0.29	N.S.	1.9	0.12	N.S.				8.4	0.19	C	4.2	1.87	N.S.
Contra Costa County, CA–Federal #	SM/WOBE—Empl.	68	1985–87	1.6	0.00	N.S.	4.3	1.02	N.S.	2.1	0.71	N.S.				8.0	0.73	C	4.2	4.94	N.S.
Contra Costa County, CA–Federal $	SM/WOBE—Empl.	36	1989–90	2.6	4.21	N.S.	4.8	0.13	N.S.	3.9	5.23	N.S.				11.3	2.83	C	7.8	2.94	N.S.
Contra Costa County, CA–Federal #	SM/WOBE—Empl.	36	1989–90	2.7	2.03	N.S.	5.8	0.48	N.S.	4.6	1.20	N.S.				13.2	1.05	C	9.0	2.16	N.S.
Contra Costa County, CA–Nonfederal $	SM/WOBE—Empl.	104	1985–87	1.7	0.69	N.S.	4.6	0.12	N.S.	2.1	3.00	N.S.				8.4	0.96	C	4.6	0.74	N.S.
Contra Costa County, CA–Nonfederal #	SM/WOBE—Empl.	104	1985–87	1.5	1.28	N.S.	4.1	0.47	N.S.	2.1	2.78	N.S.				7.7	1.25	C	4.4	1.53	N.S.
Contra Costa County, CA–Nonfederal $	SM/WOBE—Empl.	58	1989–90	3.3	0.01	N.S.	6.5	1.14	N.S.	4.5	0.03	N.S.				14.3	0.53	C	9.0	0.07	N.S.
Contra Costa County, CA–Nonfederal #	SM/WOBE—Empl.	58	1989–90	3.1	0.55	N.S.	6.4	0.81	N.S.	4.6	0.75	N.S.				14.1	0.73	C	8.9	0.19	N.S.
Denver RTD #	SM/WOBE—Empl.	125	1987–91	1.7	0.00	N.S.	16.7	0.67	N.S.	1.8	1.37	NC				20.2	0.67	C	23.5	0.27	Under
Denver RTD $	SM/WOBE—Empl.	125	1987–91	0.7	0.00	N.S.	10.2	1.82	NC	0.8	1.17	NC				11.7	1.66	C	19.1	0.41	N.S.
Denver RTD–Construction Supplies #	SM/WOBE—Empl.	86	1987–91	0.2	0.00	N.S.	0.3	6.84	NC	0.3	3.52	NC				0.8	4.20	C	4.8	0.00	Under
Denver RTD–Construction Supplies $	SM/WOBE—Empl.	86	1987–91	0.3	0.00	N.S.	1.2	0.01	N.S.	0.9	0.00	N.S.				2.5	0.01	C	10.2	0.00	N.S.
Florida Road/Transportation $	SM/WOBE	7,450	1985–89	6.3	1.09	N.S.	16.1	0.70	Under	0.7	1.01	N.S.	0.3	14.86	Over	23.5	1.01	N.S.	13.9	0.42	Under
Florida Road/Transportation #	SM/WOBE	7,450	1985–89	6.3	1.52	Over	16.1	0.50	Under	0.7	0.67	Under	0.3	13.32	Over	23.5	0.96	Under	13.9	1.11	Over
Las Vegas–Local Area Gvts $	SM/WOBE	527	NS	1.4	0.00	Under	3.8	0.39	Under	1.2	0.38	N.S.				6.4	0.30	Under	4.8	1.67	Over
Las Vegas–Local Area Gvts $	Survey—Interest	527	NS	0.6	0.00	N.S.	5.4	0.28	Under	0.9	0.42	N.S.	1.0	0.09	Under	7.8	0.25	Under	10.8	0.74	Under
Las Vegas–Local Area Gvts $	Mailing list	527	NS	3.7	0.00	Under	4.4	0.34	Under	0.7	0.49	N.S.	0.7	0.12	N.S.	9.6	0.20	Under	11.1	0.72	Under
Las Vegas–Local Area Gvts $	License	527	NS	1.2	0.00	Under	1.4	1.09	N.S.	0.2	2.30	N.S.	0.4	0.21	N.S.	3.2	0.61	N.S.	3.1	2.58	Over
New Mexico–Federal $	SM/WOBE	1427	1990–94	0.4	0.41	N.S.	21.0	2.11	Over	1.1	7.98	Over	1.8	2.47	Over	24.3	2.37	Over	4.6	1.02	N.S.
New Mexico–Federal $	Survey—Interest	1427	1990–94	0.3	0.54	N.S.	27.1	1.63	Over	0.3	27.62	Over	2.5	1.72	Over	30.2	1.90	Over	7.4	0.63	Under
New Mexico–Federal $	Survey—Attempt	1427	1990–94	0.3	0.56	N.S.	28.3	1.57	Over	0.3	28.62	Over	2.7	1.59	Over	31.6	1.82	Over	6.7	0.70	Under
New Mexico–Federal #	SM/WOBE	1427	1990–94	0.4	0.17	Under	21.0	2.19	Over	1.1	3.60	Over	1.8	3.86	Over	24.3	2.34	Over	4.6	2.16	Over
New Mexico–Federal #	Survey—Interest	1427	1990–94	0.3	0.22	N.S.	27.1	1.70	Over	0.3	12.45	Over	2.5	2.70	Over	30.2	1.88	Over	7.4	1.34	Over
New Mexico–Federal #	Survey—Attempt	1427	1990–94	0.3	0.23	N.S.	28.3	1.63	Over	0.3	12.90	Over	2.7	2.49	Over	31.6	1.80	Over	6.7	1.49	Over
New Mexico–State $	SM/WOBE	590	1990–94	0.4	1.88	N.S.	21.0	1.37	Over	1.1	10.13	Over	1.8	3.52	Over	24.3	1.93	Over	4.6	1.25	N.S.
New Mexico–State $	Survey—Interest	590	1990–94	0.3	2.44	Over	27.1	1.07	N.S.	0.3	35.05	Over	2.5	2.46	Over	30.2	1.55	Over	7.4	0.78	N.S.
New Mexico–State $	Survey—Attempt	590	1990–94	0.3	2.53	Over	28.3	1.02	N.S.	0.3	36.32	Over	2.7	2.27	Over	31.6	1.48	Over	6.7	0.86	N.S.

Continued

Table A.3a. *Evidence of Disparity in the Construction Industry (Continued)*

	BACKGROUND			AFRICAN AMERICANS			LATINOS			ASIANS			NATIVE AMERICANS			ALL MINORITIES			WOMEN		
	Source	# of Contracts	Year	Avail.	Disp. Ratio	Stat. Sig.	Avail.	Disp. Ratio	Stat. Sig.	Avail.	Disp. Ratio	Stat. Sig.	Avail.	Disp. Ratio	Stat. Sig.	Avail.	Disp. Ratio	Stat. Sig.	Avail.	Disp. Ratio	Stat. Sig.
New Mexico–State #	SM/WOBE	590	1990–94	0.4	1.24	N.S.	21.0	2.10	Over	1.1	3.11	Over	1.8	1.83	Over	24.3	2.11	Over	4.6	1.47	Over
New Mexico–State #	Survey—Interest	590	1990–94	0.3	1.62	N.S.	27.1	1.63	Over	0.3	10.76	Over	2.5	1.28	N.S.	30.2	1.70	Over	7.4	0.92	N.S.
New Mexico–State #	Survey—Attempt	590	1990–94	0.3	1.68	N.S.	28.3	1.57	Over	0.3	11.15	Over	2.7	1.18	N.S.	31.6	1.62	Over	6.7	1.01	N.S.
New Orleans $	SM/WOBE—Empl.	NS	1989–92	17.5	0.13	Under	3.8	0.00	N.S.	0.5	0.00	N.S.				21.8	0.10	Under	15.1	0.29	Under
New York City $	Survey	797	1989–90	3.9	0.67	N.S.	2.3	1.18	N.S.	6.3	0.32	Under				12.5	0.59	C	12.8	0.40	Under
New York City #	Survey	797	1989–90	5.5	0.77	N.S.	3.5	1.30	N.S.	6.9	0.34	Under				15.9	0.70	C	13.0	0.45	Under
NYC Housing $	SM/WOBE—Empl.	769	1988–92	6.0	1.00	N.S.	3.3	1.85	NC	4.3	0.66	N.S.	0.7	0.00	N.S.	14.4	1.04	N.S.	11.7	0.55	N.S.
NYC Housing #	SM/WOBE—Empl.	769	1988–92	6.5	0.95	N.S.	4.0	0.89	N.S.	4.9	0.88	N.S.	0.7	0.00	Under	16.1	0.87	N.S.	12.4	0.54	Under
Port Authority NY/NJ $	Bidders list	NS	1988–92	7.7	0.38	NC	3.7	0.85	NC	2.5	0.25	NC	0.2	0.30	NC	14.0	0.48	NC	2.4	0.33	NC
San Antonio–City $	Directories	761	1986–87	1.5	0.02	N.S.	17.8	0.34	Under	1.0	0.30	N.S.				20.3	0.31	C	12.9	0.06	Under
San Antonio–City #	Directories	761	1986–87	1.5	0.18	Under	17.4	0.55	Under	1.0	0.13	Under				19.9	0.50	C	12.0	0.11	Under
San Antonio–City $	Directories	412	1989–90	1.6	0.12	N.S.	18.1	0.66	N.S.	0.9	0.00	N.S.				20.6	0.59	C	14.3	0.18	Under
San Antonio–City #	Directories	412	1989–90	1.5	0.32	N.S.	17.8	0.83	N.S.	0.9	0.00	Under				20.2	0.75	C	12.6	0.52	Under
San Jose, CA–Construction $	Bidders list	590	1987–89	4.9	0.10	Under	17.9	0.88	N.S.	4.6	1.02	N.S.	0.1	4.70	Over	28.8	0.75	Under	10.7	1.90	Under
San Jose, CA–Construction #	Bidders list	590	1987–89	4.9	0.41	Under	17.9	1.10	N.S.	4.6	1.30	Over	0.1	1.30	N.S.	28.8	0.98	N.S.	10.7	1.02	N.S.
Tampa $	Cert./Bidders list	39	1986	3.8	0.36	N.S.	2.8	1.82	N.S.	1.0	0.00	N.S.				7.6	0.85	C	3.6	0.04	N.S.
Tampa $	Cert./Registered	39	1986	8.1	0.17	Under	6.2	0.83	N.S.	2.1	0.00	N.S.				16.4	0.40	C	4.6	0.03	N.S.
Tampa $	Cert./Bidders list	79	1987	4.2	1.64	N.S.	2.9	2.27	N.S.	0.6	0.00	N.S.				7.7	1.75	C	4.5	0.96	N.S.
Tampa $	Cert./Registered	79	1987	9.6	0.66	N.S.	6.7	0.99	N.S.	1.1	0.00	Under				17.4	0.74	C	3.9	0.76	N.S.
Tampa $	Cert./Bidders list	63	1988	5.0	1.54	N.S.	4.0	3.03	Over	0.7	0.37	N.S.				9.7	2.07	C			
Tampa $	Cert./Registered	63	1988	12.7	0.61	N.S.	11.2	1.09	N.S.	1.6	0.16	N.S.				25.5	0.79	C	4.5	0.32	Under
Tampa $	Cert./Bidders list	22	1989	3.7	0.17	N.S.	4.1	1.52	N.S.	0.5	0.31	N.S.				8.3	0.84	C	7.3	0.14	N.S.
Tampa $	Cert./Registered	22	1989	8.8	0.07	N.S.	11.0	1.30	N.S.	0.9	0.17	N.S.				20.7	0.73	C			
Tampa $	Cert./Bidders list	66	1990	3.7	0.80	N.S.	4.1	1.02	N.S.	0.5	0.11	N.S.				8.2	0.87	C	4.3	0.39	N.S.
Tampa $	Cert./Registered	66	1990	8.8	0.34	N.S.	11.0	0.38	N.S.	0.8	0.06	Under				20.7	0.35	C	7.6	0.22	N.S.
Tampa–Excluding EPA $	Cert./Bidders list	31	1986	3.8	0.37	N.S.	2.8	1.20	N.S.	1.0	0.00	N.S.				7.6	0.63	C	3.1	0.47	Under
Tampa–Excluding EPA $	Cert./Registered	31	1986	8.1	0.17	Under	6.2	0.55	N.S.	2.1	0.00	N.S.				16.4	0.29	C	4.3	0.34	N.S.

Tampa–Excluding EPA $	Cert./Bidders list	78	1987	4.2	2.04	N.S.	2.9	2.63	Over	0.6	0.00	N.S.	7.7	2.10	C			
Tampa–Excluding EPA $	Cert./Registered	78	1987	9.6	0.90	N.S.	6.7	1.12	N.S.	1.1	0.00	N.S.	17.4	0.93	C	4.5	0.06	N.S.
Tampa–Excluding EPA $	Cert./Bidders list	54	1988	5.0	1.69	N.S.	4.0	3.57	Over	0.7	0.46	N.S.	9.7	2.38	C	4.6	0.04	N.S.
Tampa–Excluding EPA $	Cert./Registered	54	1988	12.7	0.66	N.S.	11.2	1.27	N.S.	1.6	0.20	N.S.	25.5	0.90	C			
Tampa–Excluding EPA $	Cert./Bidders list	20	1989	3.7	0.74	N.S.	4.1	2.50	N.S.	0.5	0.00	N.S.	8.3	1.57	C	3.9	1.04	N.S.
Tampa–Excluding EPA $	Cert./Registered	20	1989	8.8	0.31	N.S.	11.0	0.93	N.S.	0.9	0.00	N.S.	20.7	0.62	C	5.6	0.61	N.S.
Tampa–Excluding EPA $	Cert./Bidders list	61	1990	3.7	0.50	N.S.	4.1	0.57	N.S.	0.5	0.19	N.S.	8.3	0.51	C	4.5	0.38	N.S.
Tampa–Excluding EPA $	Cert./Registered	61	1990	8.8	0.21	Under	11.0	0.21	N.S.	0.9	0.11	N.S.	20.8	0.21	C	4.1	0.28	N.S.
Texas–DOT $	SM/WOBE—Empl.	NS	9/88–8/91	2.1	0.16	N.S.	17.4	0.37	N.S.	0.7	2.17	N.S.	20.1	0.41	N.S.	8.2	1.69	N.S.
Texas–DOT #	SM/WOBE—Empl.	NS	9/88–8/91	2.2	0.27	Under	18.3	0.28	Under	0.8	0.66	N.S.	21.2	0.29	Under	9.9	2.19	Over
Texas–DOT $	SM/WOBE—Empl.	NS	9/91–8/93	2.4	2.81	N.S.	16.4	0.91	N.S.	0.9	1.31	N.S.	19.7	1.16	N.S.	8.3	1.68	N.S.
Texas–DOT #	SM/WOBE—Empl.	NS	9/91–8/93	2.6	0.93	N.S.	15.1	0.38	Under	0.8	1.36	N.S.	18.5	0.50	Under	11.5	2.19	Over
Texas–5 agencies #	SM/WOBE—Empl.	~2300	9/88–8/91	1.5	0.21	Under	10.7	0.27	Under	0.9	0.37	N.S.	13.0	0.27	Under	7.9	0.59	Under
Texas–5 agencies #	SM/WOBE—Empl.	~1500	9/91–8/93	1.4	0.33	Under	9.9	0.37	Under	0.8	1.21	N.S.	12.1	0.42	Under	7.5	0.67	Under

Notes: Unless otherwise indicated, "Women" includes minority women and "All Minorities" does not include white women. A "$" after the study name indicates disparity refers to the dollar value of contracts awarded; a "#" indicates disparity refers to the number of contracts awarded. "Under", "Over", and "N.S." in the "Stat Sig." column indicates statistically significant underutilization, statistically significant overutilization, and not significantly different from one, respectively. NC stands for statistical significance not calculated in study. C stands for availability and disparity ratio calculated by authors. "NA" stands for no availability, therefore cannot calculate disparity ratio. A blank indicates study did not report this figure.

The availability measure "SM/WOBE"—Empl only includes firms with paid employees. See also study–specific notes at end of table.

Table A.3b. *Evidence of Disparity in the Goods Industry*

	BACKGROUND			AFRICAN AMERICANS			LATINOS			ASIANS			NATIVE AMERICANS			ALL MINORITIES			WOMEN		
	Source	# of Contracts	Year	Avail.	Disp. Ratio	Stat. Sig.	Avail.	Disp. Ratio	Stat. Sig.	Avail.	Disp. Ratio	Stat. Sig.	Avail.	Disp. Ratio	Stat. Sig.	Avail.	Disp. Ratio	Stat. Sig.	Avail.	Disp. Ratio	Stat. Sig.
GOODS																					
Alameda County, CA $	SM/WOBE	22,531	1987–90	0.8	1.90	N.S.	1.3	0.23	N.S.	8.3	0.04	N.S.				10.4	0.21	C	9.3	0.22	N.S.
Alameda County, CA #	SM/WOBE	22,531	1987–90	1.2	1.80	N.S.	1.4	0.06	Under	7.5	0.06	Under				10.1	0.27	C	9.2	0.20	Under
Albuquerque, NM $	SM/WOBE	115,487	1989–93	0.5	0.05	Under	11.5	0.59	Under	0.9	0.05	Under	1.0	1.65	Over	14.0	0.63	Under	13.5	0.29	Under
Albuquerque, NM $	SM/WOBE—Empl.	115,487	1989–93	0.0	NA	NA	4.6	1.48	Over	0.1	0.47	Under	0.1	18.18	Over	4.8	1.86	Over	3.2	1.19	Over
Albuquerque, NM $	Survey—Interest	115,487	1989–93	0.1	0.19	Under	16.5	0.41	Under	0.8	0.05	Under	1.5	1.14	Over	19.0	0.47	Under	13.4	0.29	Under
Albuquerque, NM $	Survey—Attempt	115,487	1989–93	0.0	NA	NA	14.6	0.46	Under	1.0	0.05	Under	1.0	1.83	Over	16.5	0.54	Under	14.8	0.26	Under
Albuquerque, NM $	Registered	115,487	1989–93	1.3	0.05	Under	9.3	0.73	Under	1.2	0.04	Under	2.8	0.62	Under	14.8	0.60	Under	10.3	0.37	Under
Albuquerque, NM $	SM/WOBE	37,092	1994–95	0.5	1.95	Over	11.5	0.52	Under	0.9	0.05	Under	1.0	1.07	N.S.	14.0	0.59	Under	13.5	0.30	Under
Albuquerque, NM $	SM/WOBE—Empl.	37,092	1994–95	0.0	NA	NA	4.6	1.31	Over	0.1	0.52	Under	0.1	11.70	Over	4.8	1.74	Over	3.2	1.24	Over
Albuquerque, NM $	Survey—Interest	37,092	1994–95	0.1	7.25	Over	16.5	0.36	Under	0.8	0.06	Under	1.5	0.73	Under	19.0	0.44	Under	13.4	0.30	Under
Albuquerque, NM $	Survey—Attempt	37,092	1994–95	0.0	NA	NA	14.6	0.41	Under	1.0	0.05	Under	1.0	1.17	Over	16.5	0.50	Under	14.8	0.27	Under
Albuquerque, NM $	Registered	37,092	1994–95	1.3	0.76	Under	9.3	0.64	Under	1.2	0.04	Under	2.8	0.40	Under	14.8	0.56	Under	10.3	0.39	Under
Asheville, NC $	SM/WOBE	1,438	1988–92	2.5	0.11	Under	0.2	0.00	Under	0.3	0.00	Under				3.0	0.09	C	9.6	0.81	Under
Chicago–City $	Bidders list	1,264	1989													21.5	0.68	NC	5.3	0.62	NC
Chicago–City #	Bidders list	1,264	1989													21.5	1.01	NC	5.3	1.20	NC
Cincinnati–All Bidders #	Cert./Registered	12619	1990–91	1.1	2.40	Over	0.1	3.55	Over	0.2	8.42	Over	0.1	8.63	Over						
Cincinnati–All Bidders #	Registered	12619	1990–91													8.0	0.76	Under	1.6	0.57	Under
Cincinnati–CMSA #	Cert./Registered	8243	1990–91	1.7	2.10	Over	0.2	3.26	Over	0.3	9.40	Over	0.1	10.83	Over						
Cincinnati–CMSA #	Registered	8243	1990–91													10.0	0.84	Under	1.7	0.80	Under
Columbus, OH $	Mailing list	NS	1983–91													8.7	0.17	Under	8.1	0.26	Under
Columbus, OH $	SM/WOBE	NS	1983–91													2.8	0.54	Under	15.9	0.13	Under
Columbus, OH $	SM/WOBE	10550	1991–93	1.8	0.42	Under	0.3	1.59	Over	0.7	0.02	Under	See Asian			2.8	0.42	Under	13.8	0.13	Under
Columbus, OH $	SM/WOBE—Empl.	10550	1991–93	0.3	2.51	Over	0.0	NA	NA	0.0	NA	NA	See Asian			0.3	4.05	Over	1.8	0.98	N.S.
Columbus, OH $	Survey—Interest	10550	1991–93	0.5	1.46	Over	0.1	3.41	Over	0.6	0.03	Under	0.5	0.00	Under	1.8	0.68	Under	6.3	0.29	Under
Columbus, OH $	Registered	10550	1991–93	4.5	0.16	Under	0.6	0.76	N.S.	0.6	0.03	Under	0.1	0.00	Under	5.9	0.20	Under	4.5	0.41	Under
Contra Costa County, CA $	SM/WOBE—Empl.	7076	1987–88	0.5	1.44	NC	1.0	0.08	N.S.	5.8	0.02	Under				7.2	0.12	C	6.7	0.24	Under
Contra Costa County, CA #	SM/WOBE—Empl.	7076	1987–88	0.5	6.44	Over	1.0	0.36	Under	4.2	0.41	Under				5.7	0.90	C	6.7	1.15	Over
Contra Costa County, CA $	SM/WOBE—Empl.	8070	1989–90	0.6	1.90	NC	1.3	0.11	N.S.	8.7	0.05	Under				10.6	0.17	C	9.6	0.22	Under
Contra Costa County, CA #	SM/WOBE—Empl.	8070	1989–90	0.6	4.98	Over	1.3	0.47	Under	6.4	0.26	Under				8.3	0.65	C	9.5	0.70	Under

Dade County, FL–Procurement #	Registered	371	1989–91	6.4	0.75	NC	13.3	0.53	NC	1.1	1.55	NC				20.8	0.65	C	11.0	0.93	NC
Dade County, FL–Procurement $	Registered	371	1989–91	6.4	0.56	NC	13.3	0.12	NC	1.1	0.91	NC				20.8	0.30	C	11.0	0.59	NC
Dallas–City $	Vendors list	NS	1990–93	4.3	1.01	Over	1.5	1.63	Over	0.9	0.78	Under	0.0	10.02	Over	6.7	1.17	C	2.6	0.81	Under
Dallas–PMSA $	Vendors list	NS	1990–93	2.9	0.70	Under	1.3	0.80	Under	0.8	0.70	Under	0.2	0.93	Under	5.2	0.73	C	2.4	1.05	Over
Dallas/Fort Worth Airport $	SM/WOBE	2,869	1986–87	0.9	2.15	NC	0.8	0.84	NC	1.7	0.13	NC	0.1	15.83	NC	3.6	1.14	NC	16.9	0.18	NC
Dallas/Fort Worth Airport $	Survey—Interest	2,869	1986–87	2.1	0.93	NC	3.3	0.21	NC	4.4	0.05	NC	1.9	0.51	NC	12.0	0.34	NC	12.7	0.24	NC
Dallas/Fort Worth Airport $	Mailing list	2,869	1986–87	11.3	0.18	NC	5.9	0.12	NC	3.2	0.07	NC	2.1	0.46	NC	22.7	0.18	NC	15.6	0.19	NC
Dallas/Fort Worth Airport $	SM/WOBE	2,414	1992–93	0.9	3.92	NC	0.8	2.54	NC	1.7	0.36	NC	0.1	4.50	NC	3.6	2.02	NC	16.9	0.17	NC
Dallas/Fort Worth Airport $	Survey—Interest	2,414	1992–93	2.1	1.70	NC	3.3	0.64	NC	4.4	0.14	NC	1.9	0.15	NC	12.0	0.60	NC	12.7	0.23	NC
Dallas/Fort Worth Airport $	Mailing list	2,414	1992–93	11.3	0.32	NC	5.9	0.36	NC	3.2	0.19	NC	2.1	0.13	NC	22.7	0.32	NC	15.6	0.19	NC
Dayton, OH $	Cert./Bidders list	NS	1984													11.8	0.11	Under	4.0	0.11	Under
Dayton, OH $	Cert./Bidders list	NS	1985													12.9	0.21	Under	4.2	0.25	Under
Dayton, OH $	Cert./Bidders list	NS	1986													14.2	0.19	Under	4.2	0.17	Under
Dayton, OH $	Cert./Bidders list	NS	1987													15.8	0.24	Under	4.5	0.22	Under
Dayton, OH $	Cert./Bidders list	NS	1988													16.9	0.16	Under	4.6	0.19	Under
Dayton, OH $	Cert./Bidders list	NS	1989													16.4	0.11	Under	4.5	0.17	Under
Dayton, OH $	Cert./Bidders list	NS	1990													16.5	0.13	Under	12.2	0.12	Under
Denver Phase II #	Survey—Interest	3031	1989													6.3	1.56	N.S.	18.5	0.56	Under
Denver Phase II $	Survey—Interest	3031	1989													6.3	0.89	N.S.	18.5	0.66	Under
Denver Phase II #	Survey—Interest	4631	1990													6.3	1.32	N.S.	18.5	0.58	Under
Denver Phase II $	Survey—Interest	4631	1990													6.3	0.73	Under	18.5	0.83	Under
Denver RTD #	SM/WOBE—Empl.	25,455	1987–91	0.2	5.13	?	0.3	9.15	?	0.3	0.88	N.S.	0.8	5.08	C	4.8	0.64	Under			
Denver RTD $	SM/WOBE—Empl.	25,455	1987–91	0.3	1.97	?	1.2	0.80	N.S.	0.9	0.34	N.S.	2.5	0.77	C	10.2	0.83	N.S.			
Denver RTD–Federal #	SM/WOBE—Empl.	138	1987–91	0.2	9.06	?	0.3	8.53	?	0.3	0.00	N.S.	0.8	5.24	C	4.8	0.15	Under			
Denver RTD–Federal $	SM/WOBE—Empl.	138	1987–91	0.3	0.17	N.S.	1.2	0.48	?	0.9	0.00	N.S.	2.5	0.26	C	10.2	0.20	N.S.			
District of Columbia $	SMOBE	415	1989–91	4.5	5.96	N.S.	1.4	1.00	N.S.	12.7	0.02	Under	18.6	1.57	N.S.						
Fort Worth–City $	SM/WOBE	3,416	1986	0.9	0.11	NC	0.8	0.57	NC	1.7	0.01	NC	0.1	1.67	NC	3.6	0.22	NC	16.9	0.04	NC
Fort Worth–City $	Survey—Interest	3,416	1986	2.1	0.05	NC	3.3	0.14	NC	4.4	0.00	NC	1.9	0.05	NC	12.0	0.06	NC	12.7	0.06	NC
Fort Worth–City $	Mailing list	3,416	1986	1.2	0.08	NC	0.8	0.62	NC	0.3	0.03	NC	0.4	0.24	NC	3.2	0.24	NC	2.2	0.34	NC
Fort Worth–City $	SM/WOBE	3,954	1992–93	0.9	0.18	NC	0.8	0.20	NC	1.7	0.01	NC	0.1	0.33	NC	3.6	0.15	NC	16.9	0.04	NC
Fort Worth–City $	Survey—Interest	3,954	1992–93	2.1	0.08	NC	3.3	0.05	NC	4.4	0.00	NC	1.9	0.01	NC	12.0	0.04	NC	12.7	0.06	NC
Fort Worth–City $	Mailing list	3,954	1992–93	1.2	0.14	NC	0.8	0.22	NC	0.3	0.06	NC	0.4	0.05	NC	3.2	0.17	NC	2.2	0.34	NC
Fort Worth–Transportation $	SM/WOBE	1,169	91–93	3.6	1.45	Over													16.9	0.16	Under
Fort Worth–Transportation #	SM/WOBE	1,169	91–93	3.6	0.60	Under													16.9	0.21	Under
Fort Worth–Transportation $	Survey—Interest	1,169	91–93	12.0	0.43	Under													12.7	0.21	Under
Fort Worth–Transportation #	Survey—Interest	1,169	91–93	12.0	0.18	Under													12.7	0.28	Under
Fort Worth–Transportation $	Mailing list	1,169	91–93	8.0	0.64	Under													3.2	0.86	N.S.
Fort Worth–Transportation #	Mailing list	1,169	91–93	8.0	0.27	Under													3.2	1.11	N.S.

Continued

Table A.3b. *Evidence of Disparity in the Goods Industry (Continued)*

	BACKGROUND			AFRICAN AMERICANS			LATINOS			ASIANS			NATIVE AMERICANS			ALL MINORITIES			WOMEN		
	Source	# of Contracts	Year	Avail.	Disp. Ratio	Stat. Sig.	Avail.	Disp. Ratio	Stat. Sig.	Avail.	Disp. Ratio	Stat. Sig.	Avail.	Disp. Ratio	Stat. Sig.	Avail.	Disp. Ratio	Stat. Sig.	Avail.	Disp. Ratio	Stat. Sig.
Greensboro, NC–MSA $	SM/WOBE	NS	1987	4.5	0.69	Under													42.7	0.18	Under
Hayward, CA $	SM/WOBE	1,486	1986–89	1.0	0.18	N.S.	1.3	0.77	N.S.	8.3	0.02	Under				10.6	0.13	C	7.3	0.33	N.S.
Hayward, CA #	SM/WOBE	1,486	1986–89	1.1	0.57	N.S.	1.5	0.13	Under	9.5	0.02	Under				12.1	0.08	C	9.2	0.36	Under
Hayward, CA $	SM/WOBE	2,575	1990–92	1.2	0.13	N.S.	1.3	0.08	N.S.	11.9	0.01	Under				14.4	0.02	C	10.3	0.17	Under
Hayward, CA #	SM/WOBE	2,575	1990–92	1.4	0.30	Under	1.5	0.10	Under	14.3	0.01	Under				17.2	0.04	C	12.9	0.16	Under
Hennepin County, MN–Acct Payable $	SM/WOBE	8,836	1981–86	0.5	0.11	Under	0.4	0.01	Under	0.7	0.30	Under				1.5	0.19	Under	15.9	0.04	Under
Hennepin County, MN–Acct Payable $	Survey—Interest	8,836	1981–86	0.8	0.07	Under	0.9	0.00	Under	1.6	0.12	Under	0.4	0.02	Under	3.6	0.08	Under	10.7	0.06	Under
Hennepin County, MN–Acct Payable $	Survey—Attempt	8,836	1981–86	0.8	0.06	Under	0.8	0.00	Under	1.5	0.13	Under	0.5	0.02	Under	3.7	0.08	Under	10.5	0.06	Under
Hennepin County, MN–Acct Payable $	Registered	8,836	1981–86	1.8	0.03	Under	0.5	0.01	Under	0.8	0.23	Under	0.6	0.02	Under	3.8	0.08	Under	4.5	0.13	Under
Hennepin County, MN–Acct Payable $	SM/WOBE	6,407	1987–93	0.5	0.17	Under	0.4	0.04	Under	0.7	5.82	Over				1.5	2.76	Over	15.9	0.11	Under
Hennepin County, MN–Acct Payable $	Survey—Interest	6,407	1987–93	0.8	0.10	Under	0.9	0.02	Under	1.6	2.44	Over	0.4	0.41	Under	3.6	1.17	Over	10.7	0.16	Under
Hennepin County, MN–Acct Payable $	Survey—Attempt	6,407	1987–93	0.8	0.09	Under	0.8	0.02	Under	1.5	2.61	Over	0.5	0.35	Under	3.7	1.16	Over	10.5	0.16	Under
Hennepin County, MN–Acct Payable $	Registered	6,407	1987–93	1.8	0.04	Under	0.5	0.03	Under	0.8	4.64	Over	0.6	0.31	Under	3.8	1.10	N.S.	4.5	0.37	Under
Houston–All Purchase Orders $	SM/WOBE	NS	1989–93	0.9	2.63	Over	4.7	0.33	Under	1.4	0.51	Under	0.0	5.00	Over	7.0	0.68	C	11.3	0.17	Over
Houston–Large Purchase Orders $	SM/WOBE	NS	1989–93	0.9	3.57	Over	4.7	0.31	Under	1.4	0.24	Under	0.0	1.25	N.S.	7.0	0.72	C	11.3	0.18	Under
Jacksonville–City $	Cert./Bidders list	NS	1986	1.3	0.78	Under	0.2	0.36	Under	0.0	0.03	Under				1.5	0.71	C	0.8	0.05	Under
Jacksonville–City $	Cert./Bidders list	NS	1987	1.3	0.53	Under	0.2	0.06	Under	0.0	0.05	Under				1.5	0.46	C	0.8	0.02	Under
Jacksonville–City $	Cert./Bidders list	NS	1988	1.3	0.78	Under	0.2	0.18	Under	0.0	0.04	Under				1.5	0.69	C	0.8	0.06	Under
Jacksonville–City $	Cert./Bidders list	NS	1989	1.3	0.13	Under	0.2	0.08	Under	0.0	0.03	Under				1.5	0.12	C	0.8	0.03	Under
Jacksonville–Electric Authority $	Cert./Bidders list	NS	1988	1.3	0.08	Under	0.2	0.18	N.S.	0.0	0.07	N.S.				1.5	0.09	C	0.8	0.62	N.S.
Jacksonville–Port Authority $	Cert./Bidders list	NS	1989	1.9	0.14	Under	0.8	0.22	N.S.	0.0	0.00	Under				2.7	0.16	C	2.0	0.27	Under
Jacksonville–Port Authority $	Cert./Bidders list	NS	1990	NS	0.11	Under	NS	0.09	Under	NS	0.00	N.S.							NS	0.14	Under
Jacksonville–School Board $	Cert./Bidders list	NS	1986	1.3	0.13	Under	0.2	0.08	Under	0.0	5.00	Over				1.5	0.22	C	0.8	2.38	Over
Jacksonville–School Board $	Cert./Bidders list	NS	1987	1.3	0.45	Under	0.2	0.58	N.S.	0.0	50.00	Over				1.5	1.44	C	0.8	2.86	Over
Jacksonville–School Board $	Cert./Bidders list	NS	1988	1.3	0.94	N.S.	0.2	3.13	N.S.	0.0	12.50	Over				1.5	1.45	C	0.8	2.22	Over
Jacksonville–School Board $	Cert./Bidders list	NS	1989	1.3	0.47	Under	0.2	0.67	N.S.	0.0	100.00	Over				1.5	2.45	C	0.8	3.57	Over
Jefferson County, AL #	SM/WOBE	NS	1986–90	6.0	0.02	Under	0.1	0.00	Under	0.8	0.00	Under				6.8	0.01	NC	29.8	0.03	Under
Las Vegas–City $	SM/WOBE	139	1988–92	0.9	0.00	N.S.	2.5	3.17	Over	1.6	1.25	N.S.				4.9	1.99	Over	18.2	0.10	Under
Las Vegas–City $	Survey—Interest	139	1988–92	2.5	0.00	N.S.	4.4	1.77	N.S.	0.6	3.11	N.S.	1.2	0.21	N.S.	8.6	1.14	N.S.	14.2	0.13	Under
Las Vegas–City $	Mailing list	139	1988–92	0.8	0.00	N.S.	0.9	8.87	Over	0.6	3.28	Over	0.3	0.87	N.S.	3.0	3.24	Over	5.1	0.37	N.S.

Las Vegas–City $	SM/WOBE	3,331	1993	0.9	1.07	N.S.	2.5	0.36	Under	1.6	1.02	N.S.				4.9	0.70	Under	18.2	0.27	Under
Las Vegas–City $	Survey—Interest	3,331	1993	2.5	0.37	Under	4.4	0.20	Under	0.6	2.24	Over	1.2	0.33	Under	8.6	0.40	Under	14.2	0.34	Under
Las Vegas–City $	Mailing list	3,331	1993	0.8	1.22	N.S.	0.9	1.00	N.S.	0.6	2.36	Over	0.3	1.38	N.S.	3.0	1.15	N.S.	5.1	0.95	N.S.
Las Vegas–Local Area Gvts $	SM/WOBE	5,683	1988–92	0.9	0.21	Under	2.5	0.56	Under	1.6	0.53	Under				4.9	0.59	Under	18.2	0.13	Under
Las Vegas–Local Area Gvts $	Survey—Interest	5,683	1988–92	2.5	0.07	Under	4.4	0.31	Under	0.6	1.41	Over	1.2	0.04	Under	8.6	0.34	Under	14.2	0.16	Under
Las Vegas–Local Area Gvts $	Mailing list	5,683	1988–92	1.0	0.18	Under	1.3	1.05	N.S.	0.6	1.41	Over	0.4	0.14	Under	3.7	0.79	Under	6.0	0.39	Under
Las Vegas–Local Area Gvts $	SM/WOBE	23,983	1990–93	0.9	0.27	Under	2.5	0.24	Under	1.6	0.37	Under				4.9	0.29	Under	18.2	0.14	Under
Las Vegas–Local Area Gvts $	Survey—Interest	23,983	1990–93	2.5	0.09	Under	4.4	0.13	Under	0.6	0.96	N.S.	1.2	0.04	Under	8.6	0.17	Under	14.2	0.18	Under
Las Vegas–Local Area Gvts $	Mailing list	23,983	1990–93	1.0	0.23	Under	1.3	0.45	Under	0.6	0.96	N.S.	0.4	0.13	Under	3.7	0.39	Under	6.0	0.42	Under
Maricopa County, AZ $	Direcs./Regist.	8,048	1987–88	5.3	0.00	N.S.	9.2	0.01	N.S.	1.0	0.37	N.S.	1.2	0.00	N.S.	16.7	0.03	N.S.	10.3	0.01	N.S.
Maricopa County, AZ $	Direcs./Regist.	8,281	1988–89	5.3	0.03	N.S.	9.2	0.10	N.S.	1.0	0.00	N.S.	1.2	0.00	N.S.	16.7	0.07	N.S.	10.3	0.11	N.S.
Maryland–Primes&Subs $	SM/WOBE	241	1985–89	1.0	0.70	NC				1.2	0.00	NC				7.5	0.27	NC	5.2	0.19	NC
Maryland & Environs–Primes&Subs $	SM/WOBE	241	1985–89	0.6	0.00	NC				0.6	0.00	NC	7.0	0.29	NC				5.7	0.16	NC
Maryland DOT–Primes only $	SM/WOBE—Empl.	NS	FY91–93	2.7	0.34	Under	0.5	1.30	N.S.	1.5	2.17	N.S.				4.7	1.04	N.S.	8.6	0.47	Under
Maryland DOT–Primes and subs $	SM/WOBE—Empl.	NS	FY92–93	2.7	0.39	NC	0.5	0.32	NC	1.5	0.34	NC				4.7	0.36	NC	8.6	0.32	Under
Massachusetts–MBTA $	SM/WOBE	773	1981–91	0.9	1.45	N.S.	1.6	0.09	Under	0.5	0.78	N.S.	0.5	0.02	N.S.	3.5	0.53	C	15.8	0.02	N.S.
Massachusetts–MTA $	SM/WOBE	287	1981–91	0.1	6.25	N.S.	0.0	0.00	N.S.	0.0	50.00	N.S.	0.0	0.00	N.S.	0.2	10.55	C	4.5	0.06	N.S.
Memphis–Airport $	Cert./Bidders list	36	1988	24.1	0.00	N.S.	1.2	0.00	N.S.	1.2	0.00	N.S.	0.0	NA	NA	37.3	0.00	N.S.	10.8	0.00	N.S.
Memphis–Airport $	Cert./Bidders list	36	1990	24.1	1.30	N.S.	1.2	0.00	N.S.	1.2	0.00	N.S.	0.0	NA	NA	37.3	0.89	N.S.	10.8	0.00	N.S.
Memphis–Airport $	Cert./Bidders list	36	1992	24.1	0.00	N.S.	1.2	0.00	N.S.	1.2	0.00	N.S.	0.0	NA	NA	37.3	0.00	N.S.	10.8	0.00	N.S.
Memphis–City $	Cert./Bidders list	183	1988	29.6	0.19	Under	1.6	0.00	N.S.	2.3	0.00	N.S.	1.0	0.00	N.S.	60.2	0.09	Under	23.7	0.00	Under
Memphis–City $	Cert./Bidders list	183	1990	29.6	0.00	N.S.	1.6	0.00	N.S.	2.3	0.00	N.S.	1.0	0.00	N.S.	60.2	0.00	N.S.	23.7	0.00	N.S.
Memphis–City $	Cert./Bidders list	183	1992	29.6	0.00	N.S.	1.6	0.00	N.S.	2.3	0.00	N.S.	1.0	0.00	N.S.	60.2	0.00	N.S.	23.7	0.00	N.S.
Memphis–Gas,Water,Light $	Cert./Bidders list	24	1988	29.6	0.01	N.S.	1.6	0.00	N.S.	2.3	0.28	N.S.	1.0	0.00	N.S.	60.2	0.03	Under	23.7	0.00	N.S.
Memphis–Gas,Water,Light $	Cert./Bidders list	24	1990	29.6	0.03	N.S.	1.6	0.00	N.S.	2.3	0.38	N.S.	1.0	0.00	N.S.	60.2	0.05	Under	23.7	0.00	N.S.
Memphis–Gas,Water,Light $	Cert./Bidders list	24	1992	29.6	0.80	N.S.	1.6	0.00	N.S.	2.3	0.41	N.S.	1.0	0.00	N.S.	60.2	0.41	N.S.	23.7	0.00	N.S.
Memphis–Shelby County $	Cert./Bidders list	147	1988	18.2	0.00	N.S.	0.0	NA	NA	0.0	NA	NA	0.0	NA	NA	18.2	0.00	N.S.	0.0	NA	NA
Memphis–Shelby County $	Cert./Bidders list	147	1990	18.2	0.56	N.S.	0.0	NA	NA	0.0	NA	NA	0.0	NA	NA	18.2	0.64	Under	0.0	NA	NA
Memphis–Shelby County $	Cert./Bidders list	147	1992	18.2	0.09	Under	0.0	NA	NA	0.0	NA	NA	0.0	NA	NA	18.2	0.09	Under	0.0	NA	NA
Memphis–Transportation Authority $	Cert./Bidders list	28	1988	19.3	0.00	N.S.	1.1	0.00	N.S.	3.4	0.00	N.S.	0.0	NA	NA	38.6	0.00	N.S.	38.6	0.00	N.S.
Memphis–Transportation Authority $	Cert./Bidders list	28	1990	19.3	0.18	Under	1.1	0.00	N.S.	3.4	0.06	Under	0.0	NA	NA	38.6	0.15	Under	38.6	0.17	Under
Memphis–Transportation Authority $	Cert./Bidders list	28	1992	19.3	0.02	Under	1.1	0.00	N.S.	3.4	0.00	Under	0.0	NA	NA	38.6	0.03	Under	38.6	0.04	Under
Minneapolis $	SM/WOBE	315	1990–91	0.5	1.04	N.S.	0.4	0.00	Under	0.7	0.08	Under				1.5	0.35	Under	15.9	0.03	Under
Minneapolis $	SM/WOBE—Empl.	315	1990–91	0.2	2.80	N.S.	0.1	0.00	Under	0.2	0.28	Under				0.5	1.18	N.S.	4.4	0.11	Under
Minneapolis $	Survey—Interest	315	1990–91	0.8	0.63	N.S.	0.9	0.00	Under	1.6	0.01	Under	0.4	0.11	Under	3.6	0.15	Under	10.7	0.04	Under
Minneapolis $	Survey—Attempt	315	1990–91	0.8	0.57	N.S.	0.8	0.00	Under	1.5	0.01	Under	0.5	0.09	Under	3.7	0.14	Under	10.5	0.04	Under
Minneapolis $	Registered	315	1990–91	0.7	0.68	N.S.	0.1	0.00	Under	0.5	0.02	Under	0.2	0.21	Under	1.7	0.31	Under	2.3	0.21	Under

Continued

Table A.3b. *Evidence of Disparity in the Goods Industry (Continued)*

	BACKGROUND			AFRICAN AMERICANS			LATINOS			ASIANS			NATIVE AMERICANS			ALL MINORITIES			WOMEN		
	Source	# of Conrtacts	Year	Avail.	Disp. Ratio	Stat. Sig.	Avail.	Disp. Ratio	Stat. Sig.	Avail.	Disp. Ratio	Stat. Sig.	Avail.	Disp. Ratio	Stat. Sig.	Avail.	Disp. Ratio	Stat. Sig.	Avail.	Disp. Ratio	Stat. Sig.
Minneapolis $	SM/WOBE	7,635	1992–94	0.5	0.22	Under	0.4	0.09	Under	0.7	0.34	Under				1.5	0.24	Under	15.9	0.12	Under
Minneapolis $	SM/WOBE—Empl.	7,635	1992–94	0.2	0.59	N.S.	0.1	0.46	N.S.	0.2	1.14	N.S.				0.5	0.83	N.S.	4.4	0.45	Under
Minneapolis $	Survey—Interest	7,635	1992–94	0.8	0.13	Under	0.9	0.04	Under	1.6	0.12	Under	0.4	0.11	Under	3.6	0.10	Under	10.7	0.18	Under
Minneapolis $	Survey—Attempt	7,635	1992–94	0.8	0.12	Under	0.8	0.04	Under	1.5	0.13	Under	0.5	0.09	Under	3.7	0.10	Under	10.5	0.19	Under
Minneapolis $	Registered	7,635	1992–94	0.7	0.14	Under	0.1	0.28	Under	0.5	0.36	Under	0.2	0.21	Under	1.7	0.22	Under	2.3	0.87	N.S.
Minneapolis Comm Devel Agency $	SM/WOBE	7	1990–91	0.5	0.00	N.S.	0.4	0.00	N.S.	0.7	0.00	N.S.				1.5	0.00	N.S.	15.9	0.00	N.S.
Minneapolis Comm Devel Agency $	SM/WOBE—Empl.	7	1990–91	0.2	0.00	N.S.	0.1	0.00	N.S.	0.2	0.00	N.S.				0.5	0.00	N.S.	4.5	0.00	N.S.
Minneapolis Comm Devel Agency $	Survey—Interest	7	1990–91	0.7	0.00	N.S.	1.0	0.00	N.S.	2.3	0.00	N.S.	0.7	0.00	N.S.	4.6	0.00	N.S.	12.4	0.00	N.S.
Minneapolis Comm Devel Agency $	Survey—Attempt	7	1990–91	0.8	0.00	N.S.	0.8	0.00	N.S.	2.3	0.00	N.S.	0.8	0.00	N.S.	4.6	0.00	N.S.	12.5	0.00	N.S.
Minneapolis Comm Devel Agency $	SM/WOBE	253	1992–94	0.5	0.25	N.S.	0.4	0.00	N.S.	0.7	0.26	N.S.				1.5	0.26	N.S.	15.9	0.00	Under
Minneapolis Comm Devel Agency $	SM/WOBE—Empl.	253	1992–94	0.2	0.70	N.S.	0.1	0.00	N.S.	0.2	0.87	N.S.				0.5	0.86	N.S.	4.5	0.00	Under
Minneapolis Comm Devel Agency $	Survey—Interest	253	1992–94	0.7	0.17	N.S.	1.0	0.00	N.S.	2.3	0.00	Under	0.7	0.28	N.S.	4.6	0.09	Under	12.4	0.00	Under
Minneapolis Comm Devel Agency $	Survey—Attempt	253	1992–94	0.8	0.15	N.S.	0.8	0.00	N.S.	2.3	0.00	Under	0.8	0.24	N.S.	4.6	0.09	Under	12.5	0.00	Under
New Orleans $	SM/WOBE—Empl.	3,178	1986–89	0.9	9.85	NC	0.9	0.00	N.S.	1.2	0.05	N.S.				3.0	2.94	NC	7.3	1.23	NC
New Orleans $	SM/WOBE—Empl.	14,428	1989–92	1.1	2.32	NC	0.8	0.09	N.S.	1.9	0.14	N.S.				3.8	0.76	N.S.	10.3		
New York City $	SM/WOBE—Empl.	2868	1989–90	0.7	4.00	Over	1.5	0.55	N.S.	3.8	0.65	Under				6.0	1.04	C	12.8	0.34	Under
New York City #	SM/WOBE—Empl.	2868	1989–90	0.8	2.80	Over	1.3	1.80	Over	3.8	0.90	Under				5.9	1.35	C	12.9	0.72	Under
NYC Housing $	SM/WOBE—Empl.	22,713	1988–92	3.9	0.48	N.S.	2.1	0.72	N.S.	3.3	0.33	Under				10.4	0.65	N.S.	12.0	0.18	Under
NYC Housing #	SM/WOBE—Empl.	22,713	1988–92	1.3	1.34	NC	1.6	0.86	Under	2.7	0.74	Under				6.9	0.93	Under	12.7	0.68	Under
NYC Housing–Small Purchases $	SM/WOBE—Empl.	75,230	1988–92	2.4	1.42	NC	2.5	2.10	NC	3.4	0.72	Under				9.5	1.26	NC	14.3	0.45	Under
NYC Housing–Small Purchases #	SM/WOBE—Empl.	75,230	1988–92	1.9	1.39	NC	2.2	1.94	NC	3.4	0.63	Under				8.8	1.13	NC	14.3	0.66	Under
New York State $	Bidders list	NS	FY90–91	5.3	0.10	Under	2.7	0.23	Under	2.3	0.16	Under	0.7	0.01	Under	11.0	0.14	Under	14.3	0.10	Under
Oakland–Schools $	Survey—Interest	8077	1991–92	22.2	0.04	Under	8.4	0.11	Under	12.9	0.13	Under	2.1	0.00	Under	45.5	0.08	C	12.6	0.22	Under
Oakland–Schools $	Survey—Interest	9984	1992–93	22.2	0.04	Under	8.4	0.06	Under	12.9	0.28	Under	2.1	0.00	Under	45.5	0.11	C	12.6	0.38	Under
Oakland–Schools $	Survey—Interest	18061	1991–93	22.2	0.04	Under	8.4	0.08	Under	12.9	0.23	Under	2.1	0.00	Under	45.5	0.10	C	12.6	0.32	Under
Orange County, FL $	SM/WOBE	31	1990	1.3	0.38	N.S.	2.3	0.13	N.S.	NS	0.27	N.S.	NS	0.19	N.S.				20.0	0.01	N.S.
Orange County, FL $	SM/WOBE	63	1991	1.3	0.23	N.S.	2.3	0.09	N.S.	NS	0.19	N.S.	NS	0.14	N.S.				20.0	0.02	N.S.
Orange County, FL $	SM/WOBE	70	1992	1.3	0.38	N.S.	2.3	0.13	N.S.	NS	0.27	N.S.	NS	0.27	N.S.				20.0	0.04	N.S.
Orange County, FL–Public Schools $	SM/WOBE	11	1990	1.3	0.00	Under	2.3	0.00	Under	NS	0.00	Under	NS	0.00	Under				20.0	0.00	Under
Orange County, FL–Public Schools $	SM/WOBE	29	1991	1.3	0.00	Under	2.3	0.00	Under	NS	0.00	Under	NS	0.00	Under				20.0	0.17	N.S.
Orange County, FL–Public Schools $	SM/WOBE	36	1992	1.3	0.00	Under	2.3	0.00	Under	NS	0.00	Under	NS	0.00	Under				20.0	0.00	Under

Orange Co., FL–Valencia Comm Coll $	SM/WOBE	26	1990	1.3	0.00	Under	2.3	0.00	Under	NS	0.00	Under	NS	0.00	Under				20.0	0.00	N.S.
Orange Co., FL–Valencia Comm Coll $	SM/WOBE	46	1991	1.3	0.02	N.S.	2.3	0.01	N.S.	NS	0.00	Under	NS	0.00	Under				20.0	0.00	Under
Orange Co., FL–Valencia Comm Coll $	SM/WOBE	58	1992	1.3	0.00	Under	2.3	0.00	Under	NS	0.00	Under	NS	0.00	Under				20.0	0.05	??
Pennsylvania (SEPTA)–Lrg Contr $	SM/WOBE—Empl.	1883	1988–92	0.8	1.09	NC	0.2	0.81	N.S.	0.7	1.26	NC				1.7	1.13	NC	8.8	0.02	N.S.
Pennsylvania (SEPTA)–Lrg Contr #	SM/WOBE—Empl.	1883	1988–92	0.7	0.70	N.S.	0.2	1.04	N.S.	0.7	0.55	N.S.				1.6	0.68	N.S.	7.5	0.94	N.S.
Pennsylvania (SEPTA)–Sml Contr $	SM/WOBE—Empl.	68530	1988–92	0.8	1.01	NC	0.2	3.08	NC	0.8	0.35	Under				1.7	0.96	N.S.	8.0	0.75	Under
Pennsylvania (SEPTA)–Sml Contr #	SM/WOBE—Empl.	68530	1988–92	0.9	1.30	Over	0.2	4.21	Over	0.8	0.34	Under				2.0	1.23	Over	9.1	1.04	Over
Phoenix–Men $	Registered	40,959	FY87–93	1.7	0.11	Under	0.7	0.12	Under	0.1	0.36	Under	0.1	0.08	Under	3.2	0.23	Under			
Phoenix–Women $	Registered	40,959	FY87–93	0.3	0.00	Under	0.5	0.13	Under	0.1	1.13	N.S.	0.0	0.00	Under	1.0	0.19	Under	5.6	0.38	Under
Phoenix–Men $	Survey—Interest	40,959	FY87–93	0.3	0.55	Under	1.4	0.06	Under	1.0	0.04	Under	0.3	0.03	Under	3.2	0.22	Under			
Phoenix–Women $	Survey—Interest	40,959	FY87–93	0.1	0.00	Under	1.0	0.06	Under	0.4	0.21	Under	0.2	0.00	Under	1.8	0.11	Under	14.4	0.15	Under
Phoenix–Men $	Mailing list	40,959	FY87–93	1.8	0.10	Under	1.0	0.09	Under	0.2	0.25	Under	0.3	0.04	Under	4.9	0.14	Under			
Phoenix–Women $	Mailing list	40,959	FY87–93	0.0	0.00	Under	0.4	0.16	Under	0.1	1.00	N.S.	0.1	0.00	Under	1.1	0.18	Under	6.6	0.32	Under
Phoenix–Men and Women $	SM/WOBE	40,959	FY87–93	0.3	0.56	Under	1.6	0.09	Under							2.5	0.36	Under	17.9	0.12	Under
Pima County, AZ $	SM/WOBE	3,856	FY90–93	0.3	0.23	N.S.	6.3	0.12	Under	1.0	0.32	Under				7.6	0.15	Under	15.0	0.42	Under
Pima County, AZ $	Survey—Interest	3,856	FY90–93	0.7	0.10	Under	6.5	0.11	Under	0.9	0.07	Under	0.5	0.50	N.S.	8.6	0.13	Under	14.2	0.44	Under
Pima County, AZ $	Mailing list	3,856	FY90–93	0.7	0.09	Under	2.3	0.32	Under	0.6	0.10	Under	0.4	0.69	N.S.	4.0	0.28	Under	6.9	0.92	N.S.
Prince George's County, MD $	Survey	12200	1988													30.0	0.28	NC			
Prince George's County, MD #	Survey	12200	1988													30.0	0.65	NC			
Ramsey County, MN $	SM/WOBE	11,526	1985–89	0.5	1.54	Over	0.4	0.09	Under	0.7	0.98	N.S.				1.5	0.94	N.S.	15.9	0.04	Under
Ramsey County, MN $	Survey—Interest	11,526	1985–89	0.7	0.94	N.S.	0.9	0.04	Under	1.6	0.41	Under	0.4	0.07	Under	3.9	0.37	Under	10.6	0.06	Under
Ramsey County, MN $	Survey—Attempt	11,526	1985–89	0.8	0.85	N.S.	0.8	0.04	Under	1.5	0.44	Under	0.5	0.06	Under	4.0	0.36	Under	10.4	0.06	Under
Ramsey County, MN $	Registered	11,526	1985–89	1.5	0.47	Under	0.6	0.06	Under	1.0	0.66	Under	0.6	0.05	Under	4.3	0.34	Under	6.3	0.10	Under
Ramsey County, MN $	SM/WOBE	13,674	1990–94	0.5	0.45	Under	0.4	1.12	N.S.	0.7	0.94	N.S.				1.5	0.84	Under	15.9	0.05	Under
Ramsey County, MN $	Survey—Interest	13,674	1990–94	0.7	0.28	Under	0.9	0.50	Under	1.6	0.41	Under	0.4	0.01	Under	3.9	0.33	Under	10.6	0.07	Under
Ramsey County, MN $	Survey—Attempt	13,674	1990–94	0.8	0.25	Under	0.8	0.51	Under	1.5	0.44	Under	0.5	0.01	Under	4.0	0.32	Under	10.4	0.07	Under
Ramsey County, MN $	Registered	13,674	1990–94	1.5	0.14	Under	0.6	0.75	Under	1.0	0.66	Under	0.6	0.01	Under	4.3	0.30	Under	6.3	0.12	Under
Richmond, CA $	Survey—Interest	1681	1990–92	7.9	1.01	N.S.	8.4	0.02	Under	7.1	0.07	Under	1.3	0.00	N.S.	24.8	0.35	Under	6.9	0.03	Under
Sacramento $	Direcs./Mailing list	5874	1990	2.6	0.02	Under	6.1	0.07	Under	4.8	0.23	Under	0.4	0.77	N.S.	14.0	0.14	Under	18.9	0.26	Under
Sacramento $	Direcs./Mailing list	7634	1991	2.6	0.10	Under	6.1	0.09	Under	4.8	0.17	Under	0.4	0.77	N.S.	14.0	0.14	Under	18.9	0.13	Under
St. Paul, MN $	Registered	22,272	1990–94	1.5	0.16	Under	0.6	0.20	Under	1.0	0.62	Under	0.6	0.15	Under	4.3	0.25	Under	6.3	0.31	Under
St. Paul, MN $	Survey—Interest	22,272	1990–94	0.7	0.32	Under	0.9	0.13	Under	1.6	0.38	Under	0.4	0.23	Under	3.9	0.27	Under	10.6	0.18	Under
St. Paul, MN $	SM/WOBE	22,272	1990–94	0.5	0.52	Under	0.4	0.29	Under	0.7	1.01	N.S.				1.5	0.70	Under	15.9	0.12	Under
St. Paul, MN–School Dist. 625 $	SM/WOBE	10901	1988–91	0.5	0.90	N.S.	0.4	0.03	Under	0.7	1.90	Over				1.5	1.18	Over	15.9	0.14	Under
St. Paul, MN–School Dist. 625 $	SM/WOBE—Empl.	10901	1988–91	0.2	2.42	Over	0.1	0.18	Under	0.2	6.39	Over				0.5	4.01	Over	4.4	0.53	Under
St. Paul, MN–School Dist. 625 $	Survey—Interest	10901	1988–91	0.8	0.55	Under	0.9	0.01	Under	1.6	0.80	Under	0.4	0.12	Under	3.9	0.46	Under	10.7	0.22	Under
St. Paul, MN–School Dist. 625 $	Survey—Attempt	10901	1988–91	0.8	0.49	Under	0.8	0.02	Under	1.5	0.86	N.S.	0.5	0.10	Under	4.0	0.45	Under	10.4	0.22	Under

Continued

Table A.3b. *Evidence of Disparity in the Goods Industry (Continued)*

	BACKGROUND			AFRICAN AMERICANS			LATINOS			ASIANS			NATIVE AMERICANS			ALL MINORITIES			WOMEN		
	Source	# of Contracts	Year	Avail.	Disp. Ratio	Stat. Sig.	Avail.	Disp. Ratio	Stat. Sig.	Avail.	Disp. Ratio	Stat. Sig.	Avail.	Disp. Ratio	Stat. Sig.	Avail.	Disp. Ratio	Stat. Sig.	Avail.	Disp. Ratio	Stat. Sig.
St. Paul, MN–School Dist. 625 $	SM/WOBE	13007	1992–94	0.5	0.49	Under	0.4	0.19	Under	0.7	0.91	N.S.				1.5	0.63	Under	15.9	0.15	Under
St. Paul, MN–School Dist. 625 $	SM/WOBE—Empl.	13007	1992–94	0.2	1.32	N.S.	0.1	1.01	N.S.	0.2	3.07	Over				0.5	2.16	Over	4.4	0.54	Under
St. Paul, MN–School Dist. 625 $	Survey—Interest	13007	1992–94	0.8	0.30	Under	0.9	0.09	Under	1.6	0.39	Under	0.4	0.03	Under	3.9	0.25	Under	10.7	0.22	Under
St. Paul, MN–School Dist. 625 $	Survey—Attempt	13007	1992–94	0.8	0.27	Under	0.8	0.09	Under	1.5	0.42	Under	0.5	0.02	Under	4.0	0.24	Under	10.4	0.23	Under
San Antonio–Bexar Co.–VIA Metro Trans $	Directories	21,269	1986–90	1.4	0.23	N.S.	14.2	0.37	Under	0.9	0.53	N.S.				16.5	0.37	C	12.9	0.46	Under
San Antonio–Bexar Co.–VIA Metro Trans #	Directories	21,269	1986–90	0.9	1.24	Over	14.4	0.66	Under	1.0	0.54	Under				16.3	0.69	C	12.1	0.77	Under
San Antonio–City Water Board $	Directories	349	1986–90	0.9	3.21	N.S.	13.4	0.47	N.S.	0.8	0.18	N.S.				15.1	0.62	C	12.9	0.34	Under
San Antonio–City Water Board #	Directories	349	1986–90	1.0	0.84	N.S.	13.9	0.60	Under	0.9	1.34	N.S.				15.8	0.65	C	11.5	0.72	N.S.
San Antonio–City $	Directories	13,026	1986–87	1.0	5.26	Over	16.1	0.49	N.S.	0.9	1.29	N.S.				18.0	0.80	C	9.4	1.21	N.S.
San Antonio–City #	Directories	13,026	1986–87	1.0	0.22	Under	14.6	1.22	Over	1.0	0.73	Under				16.6	1.13	C	12.2	1.13	Over
San Antonio–City $	Directories	11,508	1989–90	1.1	0.30	N.S.	16.1	1.82	Over	1.1	0.55	N.S.				18.3	1.66	C	9.5	1.18	N.S.
San Antonio–City #	Directories	11,508	1989–90	1.0	1.47	Over	14.2	1.21	Over	1.0	0.52	Under				16.2	1.18	C	11.9	1.07	Over
San Jose, CA–Procurement & Prof Serv $	Survey—Interest	1387	1990–93	6.2	0.06	Under	10.5	0.13	Under	12.2	0.15	Under	0.5	0.65	N.S.	29.4	0.13	C	13.7	0.45	Under
Tampa $	Cert./Bidders list	12,507	1988	3.8	0.11	Under	3.9	0.03	Under	1.1	0.00	Under				8.8	0.06	C	12.4	0.05	Under
Tampa $	Cert./Registered	12,507	1988	1.7	0.24	Under	1.1	0.10	Under	0.3	0.00	Under				3.1	0.17	C	1.3	0.49	Under
Tampa $	Cert./Bidders list	12,984	1989	3.3	0.08	Under	4.1	0.03	Under	1.2	0.02	Under				8.6	0.05	C	12.5	0.04	Under
Tampa $	Cert./Registered	12,984	1989	1.0	0.26	Under	1.3	0.11	Under	0.3	0.07	Under				2.6	0.16	C	1.5	0.36	Under
Tampa $	Cert./Bidders list	9,138	1990	3.3	0.04	Under	4.1	0.03	Under	n/p	0.00	Under							45.5	0.01	Under
Tampa $	Cert./Registered	9,138	1990	1.0	0.14	Under	1.3	0.11	Under	n/p	0.00	Under							5.5	0.11	Under
Texas $	SM/WOBE—Empl.	NS	9/88–8/91	0.8	0.88	N.S.	2.9	0.62	Under	1.2	0.51	N.S.				4.9	0.64	Under	7.5	0.63	Under
Texas #	SM/WOBE—Empl.	NS	9/88–8/91	1.1	0.36	Under	5.3	0.45	Under	1.3	0.39	Under				7.6	0.43	Under	10.3	0.55	Under
Texas $	SM/WOBE—Empl.	NS	9/91–8/93	0.8	0.33	Under	3.1	0.56	Under	1.1	1.75	N.S.				5.0	0.79	N.S.	7.6	0.78	Under
Texas #	SM/WOBE—Empl.	NS	9/91–8/93	1.1	0.44	Under	5.8	0.46	Under	1.4	0.53	Under				8.3	0.47	Under	10.8	0.57	Under
Tucson $	SM/WOBE	2160	1991–94	0.3	0.53	N.S.	6.3	0.09	Under	1.0	0.16	N.S.				7.6	0.12	Under	15.0	0.26	Under
Tucson $	Survey—Interest	2160	1991–94	0.7	0.24	Under	6.5	0.08	Under	0.9	0.07	N.S.	0.5	0.20	N.S.	8.6	0.10	Under	14.2	0.28	Under
Tucson $	Mailing list	2160	1991–94	0.7	0.25	N.S.	3.0	0.18	Under	0.9	0.06	Under	0.7	0.15	Under	5.3	0.17	Under	7.3	0.54	Under

Notes: Unless otherwise indicated, "Women" includes minority women and "All Minorities" does not include white women. A "$" after the study name indicates disparity refers to the dollar value of contracts awarded; a "#" indicates disparity refers to the number of contracts awarded. "Under", "Over", and "N.S." in the "Stat Sig." column indicates statistically significant underutilization, statistically significant overutilization, and not significantly different from one, respectively. NC stands for statistical significance not calculated in study. C stands for availability and disparity ratio calculated by authors. NA stands for no availability, therefore cannot calculate disparity ratio. A blank indicates study did not report this figure.

The availability measure "SM/WOBE—Empl" only includes firms with paid employees. See also study-specific notes at end of table."

Table A.3c. *Evidence of Disparity in the Professional Services Industry*

	BACKGROUND			AFRICAN AMERICANS			LATINOS			ASIANS			NATIVE AMERICANS			ALL MINORITIES			WOMEN		
	Source	# of Contractors	Year	Avail.	Disp. Ratio	Stat. Sig.	Avail.	Disp. Ratio	Stat. Sig.	Avail.	Disp. Ratio	Stat. Sig.	Avail.	Disp. Ratio	Stat. Sig.	Avail.	Disp. Ratio	Stat. Sig.	Avail.	Disp. Ratio	Stat. Sig.
PROFESSIONAL SERVICES																					
Alameda County, CA–Large Contract $	SM/WOBE	426	1987–90	4.5	2.70	N.S.	2.3	0.51	N.S.	5.6	0.73	N.S.				12.4	1.40	C	21.3	0.79	N.S.
Alameda County, CA–Large Contract #	SM/WOBE	426	1987–90	4.3	1.10	N.S.	2.4	0.88	N.S.	6.3	0.67	N.S.				13.0	0.85	C	19.3	1.71	N.S.
Alameda County, CA–Small Contract $	SM/WOBE	10,685	1987–90	4.4	1.20	N.S.	2.9	0.29	N.S.	10.7	0.11	N.S.				18.0	0.41	C	27.1	0.30	N.S.
Alameda County, CA–Small Contract #	SM/WOBE	10,685	1987–90	5.6	1.00	N.S.	5.4	0.13	Under	13.1	0.13	Under				24.1	0.33	C	22.7	0.24	Under
Albuquerque, NM–Prof Design $	SM/WOBE	1,182	1989–93	0.0	NA	NA	5.1	3.25	Over	0.4	0.91	N.S.	0.8	0.00	Under	6.3	2.70	Over	4.3	0.43	Under
Albuquerque, NM–Prof Design $	Survey—Interest	1,182	1989–93	0.0	NA	NA	10.7	1.54	Over	1.3	0.27	Under	6.0	0.00	Under	18.1	0.94	N.S.	6.7	0.28	Under
Albuquerque, NM–Prof Design $	Survey—Attempt	1,182	1989–93	0.0	NA	NA	9.5	1.75	Over	2.1	0.17	Under	3.2	0.00	Under	14.7	1.15	Over	6.3	0.29	Under
Albuquerque, NM–Prof Design $	Registered	1,182	1989–93	2.5	0.00	Under	16.6	1.00	N.S.	2.1	0.17	Under	3.4	0.00	Under	24.5	0.69	Under	13.6	0.14	Under
Albuquerque, NM–Prof Design $	CIP Bidders list	1,182	1989–93	0.0	NA	NA	12.2	1.36	Over	2.2	0.17	Under	1.4	0.00	Under	15.8	1.07	N.S.	7.2	0.26	Under
Albuquerque, NM–Prof Design $	Case Study	1,182	1989–93	0.0	NA	NA	12.9	1.28	Over	1.8	0.20	Under	0.2	0.00	N.S.	14.9	1.14	Over	3.9	0.47	Under
Albuquerque, NM–Prof Design $	SM/WOBE	197	1994–95	0.0	NA	NA	5.1	2.27	Over	0.4	8.18	Over	0.8	0.00	N.S.	6.3	2.35	Over	4.3	0.43	N.S.
Albuquerque, NM–Prof Design $	Survey—Interest	197	1994–95	0.0	NA	NA	10.7	1.08	N.S.	1.3	2.39	Over	6.0	0.00	Under	18.1	0.81	N.S.	6.7	0.28	Under
Albuquerque, NM–Prof Design $	Survey—Attempt	197	1994–95	0.0	NA	NA	9.5	1.22	N.S.	2.1	1.52	N.S.	3.2	0.00	Under	14.7	1.00	N.S.	6.3	0.29	Under
Albuquerque, NM–Prof Design $	Registered	197	1994–95	2.5	0.00	Under	16.6	0.70	N.S.	2.1	1.53	N.S.	3.4	0.00	Under	24.5	0.60	Under	13.6	0.14	Under
Albuquerque, NM–Prof Design $	CIP Bidders list	197	1994–95	0.0	NA	NA	12.2	0.94	N.S.	2.2	1.49	N.S.	1.4	0.00	N.S.	15.8	0.93	N.S.	7.2	0.26	Under
Albuquerque, NM–Prof Design $	Case Study	197	1994–95	0.0	NA	NA	12.9	0.89	N.S.	1.8	1.82	N.S.	0.2	0.00	N.S.	14.9	0.99	N.S.	3.9	0.47	N.S.
Albuquerque, NM–Other Prof Service $	SM/WOBE	909	1989–93	0.3	0.98	N.S.	4.9	0.03	Under	0.2	0.00	N.S.	0.3	0.00	N.S.	5.6	0.07	Under	6.5	0.25	Under
Albuquerque, NM–Other Prof Service $	Survey—Interest	909	1989–93	1.1	0.22	Under	14.5	0.01	Under	1.4	0.00	Under	1.1	0.00	Under	18.2	0.02	Under	15.1	0.11	Under
Albuquerque, NM–Other Prof Service $	Survey—Attempt	909	1989–93	0.0	NA	NA	12.6	0.01	Under	1.5	0.00	Under	0.7	0.00	Under	14.8	0.03	Under	19.3	0.08	Under
Albuquerque, NM–Other Prof Service $	Registered	909	1989–93	2.6	0.10	Under	8.2	0.02	Under	1.6	0.00	Under	1.8	0.00	Under	14.3	0.03	Under	12.4	0.13	Under
Albuquerque, NM–Other Prof Service $	SM/WOBE	339	1994–95	0.3	0.00	N.S.	4.9	0.11	Under	0.2	0.15	N.S.	0.3	0.00	N.S.	5.6	0.10	Under	6.5	0.72	N.S.
Albuquerque, NM–Other Prof Service $	Survey—Interest	339	1994–95	1.1	0.00	Under	14.5	0.04	Under	1.4	0.02	Under	1.1	0.00	Under	18.2	0.03	Under	15.1	0.31	Under
Albuquerque, NM–Other Prof Service $	Survey—Attempt	339	1994–95	0.0	NA	NA	12.6	0.04	Under	1.5	0.02	Under	0.7	0.00	N.S.	14.8	0.04	Under	19.3	0.24	Under
Albuquerque, NM–Other Prof Service $	Registered	339	1994–95	2.6	0.00	Under	8.2	0.07	Under	1.6	0.02	Under	1.8	0.00	Under	14.3	0.04	Under	12.4	0.37	Under
Cincinnati–All Bidders #	Cert./Registered	1245	1990–91	5.7	0.21	Under	2.1	0.11	Under	1.0	0.57	N.S.	0.5	0.00	N.S.						
Cincinnati–All Bidders #	Registered	1245	1990–91													31.5	0.15	Under	6.7	0.08	Under
Cincinnati–CMSA #	Cert./Registered	1205	1990–91	6.1	0.20	Under	2.2	0.11	Under	0.9	0.63	N.S.	0.6	0.00	N.S.						
Cincinnati–CMSA #	Registered	1205	1990–91													31.9	0.15	Under	7.2	0.08	Under

Continued

Table A.3c. *Evidence of Disparity in the Professional Services Industry (Continued)*

	BACKGROUND			AFRICAN AMERICANS			LATINOS			ASIANS			NATIVE AMERICANS			ALL MINORITIES			WOMEN		
	Source	# of Contracts	Year	Avail.	Disp. Ratio	Stat. Sig.	Avail.	Disp. Ratio	Stat. Sig.	Avail.	Disp. Ratio	Stat. Sig.	Avail.	Disp. Ratio	Stat. Sig.	Avail.	Disp. Ratio	Stat. Sig.	Avail.	Disp. Ratio	Stat. Sig.
Contra Costa County, CA $	SM/WOBE—Empl.	6769	1987–89	3.7	0.43	Under	4.6	0.20	Under	7.8	0.11	Under				16.0	0.21	C	23.2	0.21	Under
Contra Costa County, CA #	SM/WOBE—Empl.	6769	1987–89	3.9	0.22	Under	5.2	0.15	Under	7.9	0.11	Under				17.1	0.15	C	22.3	0.28	Under
Contra Costa County, CA $	SM/WOBE—Empl.	2166	1989–90	6.0	0.04	N.S.	6.2	0.07	N.S.	11.8	0.29	N.S.				23.9	0.17	C	43.5	0.18	Under
Contra Costa County, CA #	SM/WOBE—Empl.	2166	1989–90	5.3	0.11	Under	5.6	0.07	Under	11.1	0.09	Under				22.0	0.09	C	34.2	0.24	Under
Dallas–City–Arch & Eng $	Vendors list	NS	1990–93	7.8	1.05	Over	6.6	2.76	Over	1.9	0.87	Under	0.0	NA	NA	16.3	1.73	C	6.1	0.13	Under
Dallas–City–Other Prof Service $	Vendors list	NS	1990–93	8.0	0.22	Under	4.9	1.35	Over	1.3	0.26	Under	0.2	0.01	Under	14.3	0.61	C	6.8	0.19	Under
Dallas–PMSA–Arch & Eng $	Vendors list	NS	1990–93	6.5	0.81	Under	6.2	1.76	Over	3.4	0.73	Under	0.3	2.47	Over	16.4	1.19	C	7.6	0.29	Under
Dallas–PMSA–Other Prof Service $	Vendors list	NS	1990–93	6.0	0.35	Under	3.4	1.01	Over	2.3	0.39	Under	0.3	0.69	Under	11.9	0.55	C	6.0	0.44	Under
Dallas/Fort Worth Airport $	SM/WOBE	NS	1987													9.3	1.97	NC	11.2	0.00	NC
Dallas/Fort Worth Airport $	SM/WOBE	NS	1988–92													20.5	1.63	NC			
Denver RTD #	SM/WOBE—Empl.	2282	1987–91	2.8	0.68	Under	4.4	0.96	N.S.	4.0	0.23	Under				11.2	0.63	C	35.0	0.14	Under
Denver RTD $	SM/WOBE—Empl.	2282	1987–91	1.6	0.63	N.S.	2.5	0.88	N.S.	2.2	2.08	?				6.3	1.24	C	23.8	0.38	N.S.
Denver RTD–Federal #	SM/WOBE—Empl.	49	1987–91	2.8	0.00	N.S.	4.4	0.92	N.S.	4.0	2.05	?				11.2	1.09	C	35.0	0.17	Under
Denver RTD–Federal $	SM/WOBE—Empl.	49	1987–91	1.6	0.00	N.S.	2.5	0.07	N.S.	2.2	2.23	?				6.3	0.81	C	23.8	0.03	N.S.
Florida–Road/Transportation–Primes $	SM/WOBE	1,022	1985–89	1.4	0.09	N.S.	8.0	1.64	Over	2.6	0.00	Under	0.0	0.00	N.S.	12.1	1.10	N.S.	25.2	0.00	Under
Florida–Road/Transportation–Primes #	SM/WOBE	1,022	1985–89	1.4	0.14	Under	8.0	1.13	N.S.	2.6	0.04	Under	0.0	0.00	N.S.	12.1	0.77	Under	25.2	0.00	Under
Florida–Road/Transportation–Subs $	SM/WOBE	298	1985–89	1.4	0.00	N.S.	8.0	0.25	N.S.	2.6	0.00	N.S.	0.0	0.00	N.S.	12.1	0.17	Under	25.2	0.00	Under
Florida–Road/Transportation–Subs #	SM/WOBE	298	1985–89	1.4	0.00	Under	8.0	0.29	Under	2.6	0.25	Under	0.0	0.00	N.S.	12.1	0.25	Under	25.2	0.00	Under
Fort Worth–City $	Survey—Interest	NS	1988–93	3.0	0.98	N.S.	2.8	2.11	Over	1.7	1.97	Over	1.3	1.48	Over	9.3	1.54	Over	11.2	0.10	Under
Fort Worth–City $	Mailing list	NS	1988–93	3.2	0.91	NC	2.2	2.69	NC	1.2	2.74	NC	1.0	1.91	NC	8.6	1.65	NC	4.7	0.24	NC
Fort Worth–Transportation $	Survey—Interest	103	1991–93													13.1	0.00	Under	10.7	0.61	Under
Fort Worth–Transportation #	Survey—Interest	103	1991–93													13.1	0.07	Under	10.7	0.64	Under
Fort Worth–Transportation $	Mailing list	103	1991–93													5.6	0.00	N.S.	2.4	2.72	N.S.
Fort Worth–Transportation #	Mailing list	103	1991–93													5.6	0.17	N.S.	2.4	2.83	N.S.
Greensboro, NC–MSA $	SM/WOBE	NS	1987	6.8	2.30	Over													25.7	0.16	Under
Hayward, CA $	SM/WOBE	3,939	1986–92	3.4	0.57	N.S.	5.9	0.01	N.S.	12.5	0.21	Under				21.8	0.21	C	17.5	0.05	Under
Hayward, CA #	SM/WOBE	3,939	1986–92	5.8	0.12	Under	8.4	0.02	Under	15.4	0.06	Under				29.6	0.06	C	26.7	0.03	Under
Hennepin County, MN–Acct Payable $	Survey—Interest	1,332	1981–86	1.6	0.00	Under	0.4	0.00	Under	0.9	0.00	Under	1.0	0.00	Under	4.0	0.00	Under	15.3	0.06	Under
Hennepin County, MN–Acct Payable $	Survey—Attempt	1,332	1981–86	2.1	0.00	Under	0.7	0.00	Under	1.1	0.00	Under	0.7	0.00	Under	4.6	0.00	Under	16.1	0.06	Under
Hennepin County, MN–Acct Payable $	Survey—Interest	1,425	1987–93	1.6	0.12	Under	0.4	0.26	N.S.	0.9	0.18	Under	1.0	0.02	Under	4.0	0.12	Under	15.3	0.08	Under
Hennepin County, MN–Acct Payable $	Survey—Attempt	1,425	1987–93	2.1	0.09	Under	0.7	0.16	Under	1.1	0.15	Under	0.7	0.03	Under	4.6	0.11	Under	16.1	0.08	Under

Houston–Arch & Eng $	Cert./Bidders list	NS	1986–93	4.7	1.61	Over	8.0	1.25	Over	10.8	0.72	Under	1.1	0.96	N.S.	24.7	1.08	C	3.6	0.94	N.S.
Houston–Other Prof Service $	SM/WOBE	186	1986–93	8.5	3.57	Over	4.4	0.40	Under	4.5	0.51	Under	0.0	3.03	Over	17.4	1.98	C	16.3	0.34	Under
Jacksonville–City $	Cert./Bidders list	NS	1986	4.9	0.02	Under	2.4	0.79	N.S.	3.7	0.00	NC				12.8	0.15	Under	1.8	0.00	NC
Jacksonville–City $	Cert./Bidders list	NS	1987	4.6	0.00	NC	2.3	0.60	N.S.	3.5	0.00	NC				12.1	0.11	Under	1.7	0.00	NC
Jacksonville–City $	Cert./Bidders list	NS	1988	4.6	0.00	NC	2.3	0.86	N.S.	3.5	0.27	N.S.				12.1	0.24	Under	1.7	0.00	NCA
Jacksonville–City $	Cert./Bidders list	NS	1989	4.6	0.45	N.S.	2.3	2.50	N.S.	3.5	0.33	N.S.				12.1	0.74	N.S.	1.7	0.00	NC
Jacksonville–Electric Authority $	Cert./Bidders list	NS	1986	4.9	0.00	NC	2.4	0.00	NC	3.7	0.00	NC				NS	0.00	NC	1.8	0.00	NC
Jacksonville–Electric Authority $	Cert./Bidders list	NS	1987	4.6	0.00	NC	2.3	0.00	NC	3.5	0.00	NC				NS	0.00	NC	1.7	0.00	NC
Jacksonville–Electric Authority $	Cert./Bidders list	NS	1988	4.6	0.00	NC	2.3	0.00	NC	3.5	0.00	NC				NS	0.00	NC	1.7	0.00	NC
Jacksonville–Electric Authority $	Cert./Bidders list	NS	1989	4.6	0.00	NC	2.3	0.00	NC	3.5	0.00	NC				NS	0.00	NC	1.7	0.00	NC
Jacksonville–Port Authority $	Cert./Bidders list	NS	1986	6.4	0.00	NC	14.9	0.00	NC	2.1	0.00	NC				44.7	0.00	NC	21.3	0.00	NC
Jacksonville–Port Authority $	Cert./Bidders list	NS	1987	9.1	0.00	N.S.	21.2	0.00	NC	3.0	0.00	NC				63.6	0.00	Under	30.3	0.00	NC
Jacksonville–Port Authority $	Cert./Bidders list	NS	1988	9.4	0.06	N.S.	21.9	0.06	N.S.	3.1	0.06	N.S.				65.7	0.03	Under	31.3	0.01	Under
Jacksonville–Port Authority $	Cert./Bidders list	NS	1989	8.1	0.00	NC	18.9	0.28	N.S.	2.7	0.00	NC				56.7	0.09	Under	27.0	0.00	NC
Jacksonville–School Board $	Cert./Bidders list	NS	1986	5.7	0.00	NC	5.2	0.88	N.S.	3.4	10.00	N.S.				NS	2.22	N.S.	3.4	0.00	NC
Jacksonville–School Board $	Cert./Bidders list	NS	1987	5.5	0.81	N.S.	4.9	0.65	N.S.	3.3	0.00	NC				NS	0.45	N.S.	3.3	0.00	NC
Jacksonville–School Board $	Cert./Bidders list	NS	1988	5.5	0.84	N.S.	4.9	0.64	N.S.	3.3	0.00	NC				NS	0.46	N.S.	3.3	0.00	NC
Jacksonville–School Board $	Cert./Bidders list	NS	1989	5.5	0.41	N.S.	4.9	0.00	NC	3.3	0.00	NC				NS	0.13	Under	3.3	0.00	NC
Jefferson County, AL #	SM/WOBE	NS	1986–90	6.0	1.40	Over	0.5	0.00	Under	0.9	0.00	Under				7.3	2.62	NC	32.8	0.16	Under
Las Vegas–City $	Survey—Interest	167	1988–92	1.6	0.00	N.S.	3.1	0.53	N.S.	2.4	0.00	Under	0.5	2.36	N.S.	7.6	0.41	Under	10.7	0.11	Under
Las Vegas–City $	Mailing list	167	1988–92	1.6	0.00	N.S.	1.3	1.30	N.S.	0.5	0.00	N.S.	0.6	1.92	N.S.	5.6	0.56	N.S.	3.9	0.32	N.S.
Las Vegas–City $	Survey—Interest	952	1993	1.6	0.20	Under	3.1	0.28	Under	2.4	0.04	Under	0.5	7.37	Over	7.6	0.68	Under	10.7	0.17	Under
Las Vegas–City $	Mailing list	952	1993	1.6	0.20	Under	1.3	0.68	N.S.	0.5	0.18	N.S.	0.6	6.00	Over	5.6	0.92	N.S.	3.9	0.49	Under
Las Vegas–Local Area Gvts $	Survey—Interest	1,268	1988–92	1.6	0.00	Under	3.1	0.78	N.S.	2.4	0.13	Under	0.5	0.65	N.S.	7.6	0.41	Under	10.7	0.05	Under
Las Vegas–Local Area Gvts $	Mailing list	1,268	1988–92	2.3	0.00	Under	2.7	0.90	N.S.	0.8	0.37	Under	0.8	0.41	N.S.	7.6	0.41	Under	4.1	0.14	Under
Las Vegas–Local Area Gvts $	Survey—Interest	3,248	1990–93	1.6	0.11	Under	3.1	0.60	Under	2.4	0.46	Under	0.5	0.82	N.S.	7.6	0.48	Under	10.7	0.11	Under
Las Vegas–Local Area Gvts $	Mailing list	3,248	1990–93	2.3	0.07	Under	2.7	0.69	Under	0.8	1.31	N.S.	0.8	0.52	Under	7.6	0.48	Under	4.1	0.27	Under
Maricopa County, AZ $	Direcs./Regist.	58	1987–88	3.6	0.00	N.S.	8.9	1.23	N.S.	10.6	0.41	N.S.	4.7	0.00	N.S.	27.9	0.58	N.S.	13.4	0.03	Under
Maricopa County, AZ $	Direcs./Regist.	102	1988–89	3.6	0.00	N.S.	8.9	0.60	N.S.	10.6	0.50	N.S.	4.7	0.00	N.S.	27.9	0.41	N.S.	13.4	0.00	N.S.
Maryland DOT–Arch & Eng $	Self–employed	NS	FY91–93	2.6	0.31	N.S.	1.0	0.21	N.S.	2.3	1.36	N.S.				5.9	0.70	N.S.	9.0	0.08	N.S.
Maryland DOT–Arch & Eng $	Self–employed	NS	FY92–93	2.6	1.55	NC	1.0	1.85	NC	2.3	2.18	NC				5.9	1.85	NC	9.0	0.35	NC
Massachusetts–EOTC $	SM/WOBE	45	1981–91	1.0	0.00	N.S.	0.5	0.00	N.S.	0.3	0.00	N.S.	0.3	0.00	N.S.	2.2	0.00	C	20.3	0.06	N.S.
Massachusetts–MassHighway $	SM/WOBE	27	1983–91	1.0	5.88	Over	0.5	0.00	N.S.	0.3	0.00	N.S.	0.3	0.00	N.S.	2.2	2.64	C	20.3	0.00	N.S.
Massachusetts–MassHighway A&E $	Cert./Bidders list	18	1983–91	8.6	0.00	N.S.	2.7	0.00	N.S.	12.3	0.21	N.S.	0.4	0.00	N.S.	24.0	0.11	C	16.3	0.00	N.S.
Massachusetts–Mass Aero Comm. $	SM/WOBE	28	1981–91	1.0	0.00	N.S.	0.5	0.00	N.S.	0.3	0.00	N.S.	0.3	0.00	N.S.	2.2	0.00	C	20.3	0.18	Under

Continued

Table A.3c. *Evidence of Disparity in the Professional Services Industry (Continued)*

	BACKGROUND			AFRICAN AMERICANS			LATINOS			ASIANS			NATIVE AMERICANS			ALL MINORITIES			WOMEN		
	Source	# of Contracts	Year	Avail.	Disp. Ratio	Stat. Sig.	Avail.	Disp. Ratio	Stat. Sig.	Avail.	Disp. Ratio	Stat. Sig.	Avail.	Disp. Ratio	Stat. Sig.	Avail.	Disp. Ratio	Stat. Sig.	Avail.	Disp. Ratio	Stat. Sig.
Massachusetts–MBTA $	SMOBE/WOBE	69	1981–91	1.5	4.35	Over	1.4	0.82	N.S.	0.7	0.67	N.S.	0.7	0.00	N.S.	4.3	1.91	C	14.7	0.09	Under
Massachusetts–MBTA, A&E $	Certif. & Bidders	116	1981–91	8.6	0.55	N.S.	2.7	0.42	N.S.	12.3	0.27	Under	0.4	0.00	N.S.	24.0	0.38	C	16.3	0.19	Under
Massachusetts–Massport $	SMOBE/WOBE	506	1981–91	0.8	14.29	N.S.	0.4	0.00	N.S.	0.3	0.11	N.S.	0.3	0.00	N.S.	1.7	6.65	C	13.4	0.27	N.S.
Massachusetts–Massport A&E $	Certif. & Bidders	139	1983–91	8.6	0.11	Under	2.7	0.00	Under	12.3	0.17	Under	0.4	0.00	N.S.	24.0	0.13	C	16.3	0.60	Under
Massachusetts–MTA $	SMOBE/WOBE	35	1981–91	1.5	0.00	N.S.	1.4	0.00	N.S.	0.7	0.00	N.S.	0.7	0.00	N.S.	4.3	0.00	C	14.7	0.00	N.S.
Memphis–Airport $	Cert./Bidders list	147	1988	4.2	4.50	Over	0.5	0.00	N.S.	3.1	0.00	N.S.	0.0	NA	NA	10.5	1.80	N.S.	2.6	0.00	N.S.
Memphis–Airport $	Cert./Bidders list	147	1990	4.2	0.13	N.S.	0.5	0.00	N.S.	3.1	0.00	N.S.	0.0	NA	NA	10.5	0.33	N.S.	2.6	0.11	N.S.
Memphis–Airport $	Cert./Bidders list	147	1992	4.2	9.10	Over	0.5	0.00	N.S.	3.1	0.00	N.S.	0.0	NA	NA	10.5	3.70	Over	2.6	0.00	N.S.
Memphis–City $	Cert./Bidders list	189	1988	11.1	0.21	N.S.	0.2	0.00	N.S.	1.3	0.00	N.S.	0.2	0.00	N.S.	17.7	0.12	Under	4.5	0.00	N.S.
Memphis–City $	Cert./Bidders list	189	1990	11.1	0.00	N.S.	0.2	0.00	N.S.	1.3	0.00	N.S.	0.2	0.00	N.S.	17.7	1.02	N.S.	4.5	0.00	N.S.
Memphis–City $	Cert./Bidders list	189	1992	11.1	0.00	N.S.	0.2	0.00	N.S.	1.3	0.00	N.S.	0.2	0.00	N.S.	17.7	0.17	N.S.	4.5	0.00	N.S.
Memphis–City Schools $	Cert./Bidders list	66	1988	11.1	0.00	N.S.	0.2	0.10	N.S.	1.2	0.01	N.S.	0.0	NA	NA	17.3	0.01	N.S.	4.3	0.02	N.S.
Memphis–City Schools $	Cert./Bidders list	66	1990	11.1	0.01	N.S.	0.2	0.17	N.S.	1.2	0.01	N.S.	0.0	NA	NA	17.3	0.01	N.S.	4.3	0.02	N.S.
Memphis–City Schools $	Cert./Bidders list	66	1992	11.1	0.01	N.S.	0.2	0.10	N.S.	1.2	0.02	N.S.	0.0	NA	NA	17.3	0.02	N.S.	4.3	0.06	N.S.
Memphis–Gas,Water,Light $	Cert./Bidders list	54	1988	10.9	0.00	N.S.	0.3	0.00	N.S.	1.9	0.55	N.S.	0.3	0.00	N.S.	19.8	0.05	N.S.	6.0	0.00	N.S.
Memphis–Gas,Water,Light $	Cert./Bidders list	54	1990	10.9	3.20	Over	0.3	0.00	N.S.	1.9	0.00	N.S.	0.3	0.00	N.S.	19.8	1.70	N.S.	6.0	0.00	N.S.
Memphis–Gas,Water,Light $	Cert./Bidders list	54	1992	10.9	0.92	N.S.	0.3	0.00	N.S.	1.9	0.00	N.S.	0.3	0.00	N.S.	19.8	0.51	N.S.	6.0	0.00	N.S.
Memphis–Shelby County $	Cert./Bidders list	205	1988	3.0	1.20	N.S.	0.0	NA	NA	0.0	NA	NA	0.0	NA	NA	3.0	1.22	N.S.	0.0	NA	NA
Memphis–Shelby County $	Cert./Bidders list	205	1990	3.0	1.20	N.S.	0.0	NA	NA	0.0	NA	NA	0.0	NA	NA	3.0	1.60	N.S.	0.0	NA	NA
Memphis–Shelby County $	Cert./Bidders list	205	1992	3.0	1.40	N.S.	0.0	NA	NA	0.0	NA	NA	0.0	NA	NA	3.0	2.10	N.S.	0.0	NA	NA
Memphis–Shelby County Schools $	Cert./Bidders list	31	1988	11.1	0.00	N.S.	0.2	0.00	N.S.	1.2	0.00	N.S.	0.0	NA	NA	17.3	0.00	N.S.	4.3	0.00	N.S.
Memphis–Shelby County Schools $	Cert./Bidders list	31	1990	11.1	0.00	N.S.	0.2	0.00	N.S.	1.2	0.00	N.S.	0.0	NA	NA	17.3	0.79	N.S.	4.3	0.00	N.S.
Memphis–Shelby County Schools $	Cert./Bidders list	31	1992	11.1	0.00	N.S.	0.2	0.00	N.S.	1.2	0.00	N.S.	0.0	NA	NA	17.3	0.00	N.S.	4.3	0.00	N.S.
Memphis–Transportation Authority $	Cert./Bidders list	45	1988	19.2	0.00	N.S.	0.0	NA	NA	5.5	0.00	N.S.	0.0	NA	NA	33.0	0.00	N.S.	8.2	0.00	N.S.
Memphis–Transportation Authority $	Cert./Bidders list	45	1990	19.2	0.00	N.S.	0.0	NA	NA	5.5	0.00	N.S.	0.0	NA	NA	33.0	0.00	N.S.	8.2	0.00	N.S.
Memphis–Transportation Authority $	Cert./Bidders list	45	1992	19.2	0.00	N.S.	0.0	NA	NA	5.5	0.00	N.S.	0.0	NA	NA	33.0	0.16	N.S.	8.2	0.65	N.S.
Minneapolis $	SM/WOBE	71	1990–91	0.3	11.25	N.S.	0.1	5.59	Over	0.1	0.00	Under				0.4	8.13	N.S.	5.4	0.70	N.S.
Minneapolis $	Survey—Interest	71	1990–91	1.6	1.88	N.S.	0.4	1.02	Over	0.9	0.00	Under	1.0	0.00	Under	4.0	0.88	N.S.	15.3	0.25	Under
Minneapolis $	Survey—Attempt	71	1990–91	2.1	1.45	N.S.	0.7	0.64	Under	1.1	0.00	Under	0.7	0.00	Under	4.6	0.77	N.S.	16.1	0.23	Under
Minneapolis $	Registered	71	1990–91	1.5	2.01	N.S.	0.4	1.18	Over	1.1	0.00	Under	0.4	0.00	Under	3.4	1.03	N.S.	6.0	0.62	N.S.

Minneapolis $	SM/WOBE	1,230	1992–94	0.3	2.58	Over	0.1	2.48	N.S.	0.1	1.68	N.S.				0.4	2.39	Over	5.4	0.68	Under
Minneapolis $	Survey—Interest	1,230	1992–94	1.6	0.43	Under	0.4	0.45	N.S.	0.9	0.10	Under	1.0	0.05	Under	4.0	0.26	Under	15.3	0.24	Under
Minneapolis $	Survey—Attempt	1,230	1992–94	2.1	0.33	Under	0.7	0.28	Under	1.1	0.08	Under	0.7	0.07	Under	4.6	0.23	Under	16.1	0.23	Under
Minneapolis $	Registered	1,230	1992–94	1.5	0.46	Under	0.4	0.53	N.S.	1.1	0.08	Under	0.4	0.12	N.S.	3.4	0.30	Under	6.0	0.60	Under
Minneapolis Comm Devel Agency $	SM/WOBE	96	1990–91	0.3	0.00	N.S.	0.1	0.00	N.S.	0.1	12.19	Over				0.4	2.24	N.S.	5.4	1.67	N.S.
Minneapolis Comm Devel Agency $	Survey—Interest	96	1990–91	1.6	0.00	N.S.	0.4	0.00	N.S.	0.9	0.97	N.S.	1.0	0.10	N.S.	4.0	0.24	N.S.	15.3	0.59	N.S.
Minneapolis Comm Devel Agency $	Survey—Attempt	96	1990–91	2.1	0.00	N.S.	0.7	0.00	N.S.	1.1	0.81	N.S.	0.7	0.15	N.S.	4.6	0.21	N.S.	16.1	0.56	N.S.
Minneapolis Comm Devel Agency $	Registered	96	1990–91	0.0	0.0		3.7	0.23	N.S.	0.0	NA	NA				3.7	0.26	N.S.	5.6	1.61	N.S.
Minneapolis Comm Devel Agency $	SM/WOBE	297	1992–94	0.3	0.00	N.S.	0.1	0.00	N.S.	0.1	1.63	N.S.				0.4	0.30	N.S.	5.4	0.99	N.S.
Minneapolis Comm Devel Agency $	Survey—Interest	297	1992–94	1.6	0.00	Under	0.4	0.00	N.S.	0.9	0.15	N.S.	1.0	0.00	N.S.	4.0	0.03	Under	15.3	0.35	Under
Minneapolis Comm Devel Agency $	Survey—Attempt	297	1992–94	2.1	0.00	Under	0.7	0.00	N.S.	1.1	0.12	N.S.	0.7	0.00	N.S.	4.6	0.03	Under	16.1	0.33	Under
Minneapolis Comm Devel Agency $	Registered	297	1992–94	0.0	NA	NA	0.0	NA	NA	3.7	0.03	Under	0.0	NA	NA	3.7	0.03	Under	5.6	0.95	N.S.
New Mexico $	SM/WOBE	223	1989–94	0.0	NA	NA	5.0	1.63	Over	0.3	25.74	Over	0.4	0.00	N.S.	5.7	2.66	Over	4.8	0.27	Under
New Mexico $	Survey—Interest	223	1989–94	3.0	0.00	Under	20.2	0.40	Under	1.6	4.47	Over	3.4	0.00	Under	28.2	0.53	Under	6.3	0.20	Under
New Mexico $	Survey—Attempt	223	1989–94	3.2	0.00	Under	18.9	0.43	Under	1.9	3.71	Over	2.2	0.00	Under	26.2	0.58	Under	6.9	0.19	Under
NYC Housing $	SM/WOBE—Empl.	1,051	1988–92	1.9	2.55	N.S.	1.1	2.73	NC	2.8	1.36	NC	0.1	34.17	NC	6.0	2.64	NC	17.2	0.48	N.S.
NYC Housing #	SM/WOBE—Empl.	1,051	1988–92	3.0	0.70	N.S.	1.6	0.97	N.S.	2.4	1.47	NC	0.2	5.28	NC	7.1	1.17	NC	14.8	0.25	Under
Oakland–Schools $	Survey—Interest	1355	1991–92	33.4	0.15	Under	7.4	0.92	N.S.	18.1	0.29	Under	0.7	0.00	N.S.	59.5	0.28	C	21.1	0.00	Under
Oakland–Schools $	Survey—Interest	1205	1992–93	33.4	0.07	Under	7.4	0.61	N.S.	18.1	0.07	Under	0.7	0.00	N.S.	59.5	0.13	C	21.1	0.00	Under
Oakland–Schools $	Survey—Interest	2560	1991–93	33.4	0.09	Under	7.4	0.70	N.S.	18.1	0.13	Under	0.7	0.00	N.S.	59.5	0.18	C	21.1	0.00	Under
Orange County, FL $	SM/WOBE	15	1990	3.3	0.42	N.S.	4.1	0.01	N.S.	1.0	0.90	N.S.	NS	0.00	Under				36.5	0.04	N.S.
Orange County, FL $	SM/WOBE	36	1991	3.3	2.30	N.S.	4.1	0.17	N.S.	0.7	10.00	N.S.	0.8	0.05	N.S.				36.5	0.13	N.S.
Orange County, FL $	SM/WOBE	56	1992	3.3	4.12	N.S.	4.1	0.37	N.S.	NS	0.00	Under	NS	0.00	Under				36.5	0.43	N.S.
Orange County, FL–Public Schools $	SM/WOBE	5	1990	3.3	0.00	Under	4.1	0.00	Under	0.8	0.71	N.S.	NS	0.00	Under				36.5	0.11	N.S.
Orange County, FL–Public Schools $	SM/WOBE	18	1991	3.3	0.00	Under	4.1	2.39	N.S.	NS	0.00	Under	NS	??	Under				36.5	0.00	Under
Orange County, FL–Public Schools $	SM/WOBE	8	1992	3.3	0.00	Under	4.1	0.00	Under	NS	0.00	Under	NS	0.00	Under				36.5	0.72	N.S.
Phoenix–Arch & Eng–Men $	Registered	1,348	FY87–93	3.5	0.52	Under	5.5	0.17	Under	8.7	0.23	Under	1.2	0.22	Under	20.5	0.26	Under			
Phoenix–Arch & Eng–Women $	Registered	1,348	FY87–93	0.4	0.08	Under	1.2	0.15	Under	0.0	NA	NA	0.0	NA	NA	1.6	0.13	Under	15.0	0.04	Under
Phoenix–Arch & Eng–Men $	Survey—Interest	1,348	FY87–93	0.5	3.73	Under	3.2	0.28	Under	2.0	1.00	N.S.	1.2	0.21	Under	8.2	0.65	Under			
Phoenix–Arch & Eng–Women $	Survey—Interest	1,348	FY87–93	0.0	NA	NA	0.3	0.72	N.S.	0.0	NA	NA	0.0	NA	NA	0.3	0.84	N.S.	6.4	0.10	Under
Phoenix–Arch & Eng–Men $	Mailing list	1,348	FY87–93	3.1	0.59	Under	2.9	0.31	Under	0.7	2.91	Over	0.6	0.45	N.S.	9.9	0.53	Under			
Phoenix–Arch & Eng–Women $	Mailing list	1,348	FY87–93	0.2	0.16	N.S.	0.9	0.21	Under	0.0	NA	NA	0.0	NA	NA	2.5	0.08	Under	12.0	0.05	Under
Phoenix–Other Prof Service–Men $	Registered	3,573	FY87–93	3.9	0.37	Under	2.6	0.24	Under	2.4	0.05	Under	0.9	0.02	Under	10.9	0.23	Under			
Phoenix–Other Prof Service–Women $	Registered	3,573	FY87–93	1.5	0.00	Under	1.5	0.20	Under	0.6	0.00	Under	0.2	0.00	Under	3.8	0.08	Under	22.7	0.05	Under
Phoenix–Other Prof Service–Men $	Survey—Interest	3,573	FY87–93	1.0	1.40	Over	2.8	0.23	Under	0.9	0.15	Under	0.2	0.12	Under	5.2	0.48	Under			
Phoenix–Other Prof Service–Women $	Survey—Interest	3,573	FY87–93	0.0	NA	NA	0.5	0.58	N.S.	0.0	NA	NA	0.0	NA	NA	0.9	0.35	Under	12.6	0.09	Under
Phoenix–Other Prof Service–Men $	Mailing list	3,573	FY87–93	2.8	0.51	Under	1.7	0.36	Under	1.1	0.11	Under	0.0	NA	NA	6.8	0.36	Unde			
Phoenix–Other Prof Service–Women $	Mailing list	3,573	FY87–93	0.6	0.00	Under	2.3	0.13	Under	0.0	NA	NA	0.0	NA	NA	2.8	0.11	Under	11.4	0.10	Under

Continued

Table A.3c. *Evidence of Disparity in the Professional Services Industry (Continued)*

	BACKGROUND			AFRICAN AMERICANS			LATINOS			ASIANS			NATIVE AMERICANS			ALL MINORITIES			WOMEN		
	Source	# of Contracts	Year	Avail.	Disp. Ratio	Stat. Sig.	Avail.	Disp. Ratio	Stat. Sig.	Avail.	Disp. Ratio	Stat. Sig.	Avail.	Disp. Ratio	Stat. Sig.	Avail.	Disp. Ratio	Stat. Sig.	Avail.	Disp. Ratio	Stat. Sig.
Pima County, AZ $	Survey—Interest	2,779	FY90–93	0.4	2.98	NC	6.0	0.46	Under	2.3	0.17	Under	0.9	0.08	Under	9.6	0.46	Under	12.8	0.18	Under
Pima County, AZ $	Mailing list	2,779	FY90–93	0.7	1.70	NC	2.8	0.98	N.S.	1.9	0.20	Under	0.4	0.20	Under	5.8	0.76	Under	10.0	0.23	Under
Ramsey County, MN $	Survey—Interest	654	1985–89	1.6	0.00	Under	0.4	0.00	N.S.	0.9	0.00	Under	1.0	0.01	Under	4.0	0.00	Under	15.3	0.42	Under
Ramsey County, MN $	Survey—Attempt	654	1985–89	2.1	0.00	Under	0.7	0.00	Under	1.1	0.00	Under	0.7	0.02	Under	4.6	0.00	Under	16.1	0.40	Under
Ramsey County, MN $	Registered	654	1985–89	0.6	0.00	N.S.	0.3	0.00	N.S.	2.3	0.00	Under	0.6	0.02	N.S.	4.0	0.00	Under	5.7	1.15	N.S.
Ramsey County, MN $	Survey—Interest	794	1990–94	1.6	0.00	Under	0.4	1.46	N.S.	0.9	0.00	Under	1.0	0.00	Under	4.0	0.16	Under	15.3	0.13	Under
Ramsey County, MN $	Survey—Attempt	794	1990–94	2.1	0.00	Under	0.7	0.92	N.S.	1.1	0.00	Under	0.7	0.00	Under	4.6	0.14	Under	16.1	0.12	Under
Ramsey County, MN $	Registered	794	1990–94	0.6	0.00	Under	0.3	2.27	N.S.	2.3	0.00	Under	0.6	0.00	Under	4.0	0.16	Under	5.7	0.34	Under
Richmond, CA–Engineering $	Survey—Interest	210	1990–92	19.0	0.21	Under	8.0	0.24	N.S.	25.5	0.13	Under	0.5	0.00	N.S.	53.0	0.17	Under	18.0	0.21	Under
Richmond, CA–Other Prof Serv $	Survey—Interest	150	1990–92	34.7	0.01	N.S.	9.7	0.00	N.S.	15.9	0.00	N.S.	1.3	0.00	N.S.	61.7	0.00	Under	23.4	0.21	N.S.
Sacramento $	Direcs./Mailing list	93	1990	9.8	0.00	N.S.	7.1	0.00	N.S.	14.3	0.00	N.S.	0.9	0.00	N.S.	32.1	0.00	Under	15.2	0.00	N.S.
Sacramento $	Direcs./Mailing list	87	1991	9.8	0.00	N.S.	7.1	0.00	N.S.	14.3	0.00	N.S.	0.9	0.00	N.S.	32.1	0.00	N.S.	15.2	0.00	N.S.
St. Paul, MN $	Registered	4,717	1990–94	0.6	0.16	Under	0.3	0.08	Under	2.3	0.24	Under	0.6	1.21	N.S.	4.0	0.34	Under	5.7	1.18	Over
St. Paul, MN $	Survey—Interest	4,717	1990–94	1.6	0.06	Under	0.4	0.05	Under	0.9	0.61	Under	1.0	0.67	Under	4.0	0.34	Under	15.3	0.44	Under
St. Paul, MN $	SM/WOBE—Empl.	4,717	1990–94	0.3	0.33	Under	0.1	0.28	N.S.	0.1	15.55	Over				0.4	3.17	Over	5.4	1.24	Over
St. Paul, MN–School Dist. 625 $	SM/WOBE—Empl.	170	1988–91	0.3	0.00	N.S.	0.1	0.00	N.S.	0.1	0.00	N.S.				0.4	2.41	N.S.	5.4	0.10	Under
St. Paul, MN–School Dist. 625 $	Survey—Interest	170	1988–91	1.6	0.00	N.S.	0.4	0.00	N.S.	0.9	0.00	N.S.	1.0	0.00	N.S.	4.0	0.26	N.S.	15.3	0.03	Under
St. Paul, MN–School Dist. 625 $	Survey—Attempt	170	1988–91	2.1	0.00	N.S.	0.7	0.00	N.S.	1.1	0.00	N.S.	0.7	0.00	N.S.	4.6	0.23	Under	16.1	0.03	Under
St. Paul, MN–School Dist. 625 $	SM/WOBE—Empl.	146	1992–94	0.3	0.00	N.S.	0.1	0.00	N.S.	0.1	0.00	N.S.				0.4	0.39	N.S.	5.4	0.02	Under
St. Paul, MN–School Dist. 625 $	Survey—Interest	146	1992–94	1.6	0.00	N.S.	0.4	0.00	N.S.	0.9	0.00	N.S.	1.0	0.00	N.S.	4.0	0.04	Under	15.3	0.01	Under
St. Paul, MN–School Dist. 625 $	Survey—Attempt	146	1992–94	2.1	0.00	N.S.	0.7	0.00	N.S.	1.1	0.00	N.S.	0.7	0.00	N.S.	4.6	0.04	Under	16.0	0.01	Under
San Jose, CA–Procurement & Prof Serv $	Survey—Interest	780	1990–93	14.6	0.04	Under	11.0	0.09	Under	20.3	0.01	Under	1.8	0.00	N.S.	47.6	0.03	C	20.9	0.00	Under
Tampa–A&E $	Cert./Bidders list	213	1986	1.3	0.00	N.S.	3.2	4.00	Over	1.3	0.00	N.S.				5.8	2.21	C	5.0	0.00	Under
Tampa–A&E $	Cert./Registered	213	1986	0.9	0.00	N.S.	5.3	2.44	Over	2.6	0.00	Under				8.8	1.47	C	1.8	0.00	Under
Tampa–A&E $	Cert./Bidders list	170	1987	2.0	0.50	N.S.	4.1	0.44	N.S.	1.3	0.05	N.S.				7.4	0.39	C	5.6	0.04	N.S.
Tampa–A&E $	Cert./Registered	170	1987	9.6	0.30	N.S.	8.1	0.22	Under	2.4	0.03	N.S.				20.1	0.24	C	4.1	0.06	N.S.
Tampa–A&E $	Cert./Bidders list	158	1988	2.8	0.06	Under	3.5	1.69	N.S.	1.8	0.00	N.S.				8.1	0.75	C	5.6	0.06	Under
Tampa–A&E $	Cert./Registered	158	1988	5.3	0.03	Under	6.0	0.98	N.S.	3.7	0.00	Under				15.0	0.40	C	4.5	0.08	Under

Tampa–A&E $	Cert./Bidders list	157	1989	1.8	0.00	N.S.	3.8	2.56	Over	2.5	0.00	Under				8.1	1.20	C	5.8	0.03	Under
Tampa–A&E $	Cert./Registered	156	1989	2.3	0.00	N.S.	7.0	1.41	N.S.	6.3	0.00	N.S.				15.6	0.63	C	5.5	0.03	Under
Texas $	SM/WOBE—Empl.	NS	9/88–8/91	1.4	0.47	N.S.	5.0	0.44	N.S.	1.8	1.51	N.S.				8.2	0.68	N.S.	11.5	0.10	Under
Texas #	SM/WOBE—Empl.	NS	9/88–8/91	1.3	0.41	Under	6.3	0.20	Under	3.4	0.14	Under				11.0	0.20	Under	10.2	0.06	Under
Texas $	SM/WOBE—Empl.	NS	9/91–8/93	1.4	0.40	N.S.	5.1	0.36	N.S.	1.9	2.75	N.S.				8.4	0.91	N.S.	11.6	0.34	Under
Texas #	SM/WOBE—Empl.	NS	9/91–8/93	1.3	0.45	Under	6.5	0.21	Under	3.5	0.14	Under				11.3	0.21	Under	10.1	0.07	Under
Tucson $	Survey—Interest	1386	1991–94	0.4	1.38	N.S.	6.0	0.98	N.S.	2.3	0.10	Under	0.9	0.03	Under	9.6	0.70	Under	12.8	0.19	Under
Tucson $	Mailing list	1386	1991–94	1.0	0.57	N.S.	5.4	1.09	N.S.	2.4	0.10	Under	0.7	0.05	Under	9.4	0.72	Under	8.3	0.29	Under

Notes: "Unless otherwise indicated, "Women" includes minority women and "All Minorities" does not include white women. A "$" after the study name indicates disparity refers to the dollar value of contracts awarded; a "#" indicates disparity refers to the number of contracts awarded. "Under", "Over", and "N.S." in the "Stat Sig." column indicates statistically significant underutilization, statistically significant overutilization, and not significantly different from one, respectively. "NC" stands for statistical significance not calculated in study. C stands for availability and disparity ratio calculated by authors. NA stands for no availability, therefore cannot calculate disparity ratio. A blank indicates study did not report this figure.

The availability measure "SM/WOBE—Empl" only includes firms with paid employees. See also study-specific notes at end of table.

Table A.3d. *Evidence of Disparity in the Other Services Industry*

	BACKGROUND			AFRICAN AMERICANS			LATINOS			ASIANS			NATIVE AMERICANS			ALL MINORITIES			WOMEN		
	Source	# of Contracts	Year	Avail.	Disp. Ratio	Stat. Sig.	Avail.	Disp. Ratio	Stat. Sig.	Avail.	Disp. Ratio	Stat. Sig.	Avail.	Disp. Ratio	Stat. Sig.	Avail.	Disp. Ratio	Stat. Sig.	Avail.	Disp. Ratio	Stat. Sig.
OTHER SERVICES																					
Albuquerque, NM $	SM/WOBE	13,179	1989–93	0.8	0.02	Under	17.4	0.56	Under	0.7	0.29	Under	0.9	0.60	Under	19.7	0.53	Under	8.4	2.36	Over
Albuquerque, NM $	Survey—Interest	13,179	1989–93	1.9	0.01	Under	25.0	0.39	Under	0.2	1.14	N.S.	1.5	0.35	Under	28.5	0.37	Under	16.5	1.20	Over
Albuquerque, NM $	Survey—Attempt	13,179	1989–93	1.3	0.01	Under	25.0	0.39	Under	0.6	0.31	Under	1.3	0.43	Under	28.1	0.37	Under	16.6	1.20	Over
Albuquerque, NM $	Registered	13,179	1989–93	2.2	0.01	Under	14.2	0.69	Under	1.2	0.16	Under	2.9	0.18	Under	20.6	0.51	Under	13.7	1.44	Over
Albuquerque, NM $	SM/WOBE	4,865	1994–95	0.8	0.05	Under	17.4	0.23	Under	0.7	0.09	Under	0.9	0.84	N.S.	19.7	0.26	Under	8.4	0.64	Under
Albuquerque, NM $	Survey—Interest	4,865	1994–95	1.9	0.02	Under	25.0	0.16	Under	0.2	0.36	N.S.	1.5	0.48	Under	28.5	0.18	Under	16.5	0.33	Under
Albuquerque, NM $	Survey—Attempt	4,865	1994–95	1.3	0.03	Under	25.0	0.16	Under	0.6	0.10	Under	1.3	0.59	Under	28.1	0.18	Under	16.6	0.33	Under
Albuquerque, NM $	Registered	4,865	1994–95	2.2	0.02	Under	14.2	0.28	Under	1.2	0.05	Under	2.9	0.25	Under	20.6	0.25	Under	13.7	0.39	Under
Chicago–City $	Bidders list	965	1989										41.1	0.31	NC	10.4	0.15	NC			
Chicago–City #	Bidders list	965	1989										41.1	0.86	NC	10.4	0.87	NC			
Columbus, OH $	Mailing list	NS	1983–91													14.3	0.29	Under	11.8	0.24	Under
Columbus, OH $	SM/WOBE	NS	1983–91													5.4	0.78	Under	34.6	0.08	Under
Columbus, OH $	SM/WOBE	4009	1991–93	4.1	0.67	Under	0.4	0.18	Under	1.1	3.14	Over				5.6	1.13	N.S.	32.8	0.24	Under
Columbus, OH $	SM/WOBE—Empl.	4009	1991–93	2.0	1.38	Over	0.3	0.29	Under	0.3	10.15	Over				2.6	2.44	Over	6.7	1.16	Over
Columbus, OH $	Survey—Interest	4009	1991–93	2.8	1.00	Parity	0.5	0.15	Under	1.4	2.41	Over	0.6	0.00	Under	5.3	1.20	Over	6.5	1.19	Over
Columbus, OH $	Registered	4009	1991–93	8.3	0.34	Under	0.7	0.10	Under	2.0	1.75	Over	0.3	0.00	Under	11.5	0.55	Under	5.9	1.32	Over
Dade County, FL–Procurement #	Registered	405	1989–91	8.9	0.67	NC	12.3	0.99	NC	1.5	0.00	NC				22.7	0.80	C	11.7	0.74	NC
Dade County, FL–Procurement $	Registered	405	1989–91	8.9	0.33	NC	12.3	0.62	NC	1.5	0.00	NC				22.7	0.46	C	11.7	0.59	NC
Dade County, FL–Nonprocurement #	Registered	52	1989–91	8.9	0.43	NC	12.3	2.35	NC	1.5	0.00	NC				22.7	1.44	C	11.7	0.00	NC
Dade County, FL–Nonprocurement $	Registered	52	1989–91	8.9	0.96	NC	12.3	3.33	NC	1.5	0.00	NC				22.7	2.18	C	11.7	0.00	NC
Dallas–City $	Vendors list	NS	1990–93	6.1	0.16	Under	3.0	0.55	Under	0.8	0.55	Under	0.1	0.00	Under	12.1	0.06	C	4.3	1.12	Over
Dallas–PMSA $	Vendors list	NS	1990–93	4.8	0.17	Under	2.4	0.29	Under	0.9	0.56	Under	0.2	0.30	Under	12.1	0.06	C	4.0	1.40	Over
Dallas/Fort Worth Airport $	SM/WOBE	473	1986–87	4.2	0.05	NC	3.2	0.12	NC	2.6	0.00	NC	0.1	0.00	NC	10.0	0.09	NC	35.2	0.09	NC
Dallas/Fort Worth Airport $	Survey—Interest	473	1986–87	4.0	0.06	NC	4.9	0.08	NC	2.3	0.00	NC	1.6	0.00	NC	13.1	0.07	NC	10.7	0.29	NC
Dallas/Fort Worth Airport $	Mailing list	473	1986–87	10.8	0.02	NC	8.7	0.04	NC	6.9	0.00	NC	0.9	0.00	NC	28.9	0.03	NC	13.7	0.22	NC
Dallas/Fort Worth Airport $	SM/WOBE	385	1992–93	4.2	0.13	NC	3.2	0.03	NC	2.6	0.20	NC	0.1	0.00	NC	10.0	0.12	NC	35.2	0.00	NC
Dallas/Fort Worth Airport $	Survey—Interest	385	1992–93	4.0	0.14	NC	4.9	0.02	NC	2.3	0.22	NC	1.6	0.00	NC	13.1	0.09	NC	10.7	0.00	NC
Dallas/Fort Worth Airport $	Mailing list	385	1992–93	10.8	0.05	NC	8.7	0.01	NC	6.9	0.07	NC	0.9	0.00	NC	28.9	0.04	NC	13.7	0.00	NC

Denver Phase II #	Survey—Interest	183	1989	10.5	1.10	N.S.	9.1	0.78	N.S.											
Denver Phase II $	Survey—Interest	183	1989	10.5	1.99	N.S.	9.1	0.13	Under											
Denver Phase II #	Survey—Interest	254	1990	11.6	0.65	N.S.	11.0	0.43	Under											
Denver Phase II $	Survey—Interest	254	1990	11.6	1.77	N.S.	11.0	0.05	Under											
District of Columbia $	SMOBE	1,258	1989–91	7.3	1.82	N.S.	1.8	1.44	N.S.	5.0	0.10	N.S.				14.0	2.43	N.S.			
Fort Worth–City $	Survey—Interest	983	1986	4.8	0.03	NC	6.8	0.11	NC	2.9	0.24	NC	1.8	0.02	NC	16.7	0.13	NC	10.2	0.03	NC
Fort Worth–City $	Mailing list	983	1986	2.5	0.06	NC	1.6	0.46	NC	0.4	1.75	NC	0.6	0.07	NC	6.1	0.36	NC	2.8	0.10	NC
Fort Worth–City $	Survey—Interest	3,151	1992–93	4.8	0.25	NC	6.8	0.09	NC	2.9	0.09	NC	1.8	0.13	NC	16.7	0.14	NC	10.2	0.21	NC
Fort Worth–City $	Mailing list	3,151	1992–93	2.5	0.47	NC	1.6	0.37	NC	0.4	0.65	NC	0.6	0.42	NC	6.1	0.38	NC	2.8	0.77	NC
Fort Worth–Transportation $	Survey—Interest	536	1991–93	16.7	0.31	Under	10.2	1.65	Over											
Fort Worth–Transportation #	Survey—Interest	536	1991–93	16.7	0.42	Under	10.2	0.39	Under											
Fort Worth–Transportation $	Mailing list	536	1991–93	6.6	0.77	N.S.	3.3	5.07	N.S.											
Fort Worth–Transportation #	Mailing list	536	1991–93	6.6	1.07	N.S.	3.3	1.18	N.S.											
Hennepin County, MN–Acct Payable $	Survey—Interest	5,295	1981–86	0.9	0.44	Under	0.5	0.02	Under	1.3	0.04	Under	0.4	0.12	Under	3.2	0.16	Under	16.1	0.04	Under
Hennepin County, MN–Acct Payable $	Survey—Attempt	5,295	1981–86	1.6	0.26	Under	0.4	0.03	Under	1.9	0.03	Under	0.9	0.05	Under	4.7	0.11	Under	13.8	0.05	Under
Hennepin County, MN–Acct Payable $	Registered	5,295	1981–86	4.1	0.10	Under	0.7	0.02	Under	2.1	0.03	Under	0.2	0.32	N.S.	7.2	0.07	Under	5.3	0.12	Under
Hennepin County, MN–Acct Payable $	Survey—Interest	4,866	1987–93	0.9	0.69	Under	0.5	0.12	Under	1.3	0.03	Under	0.4	0.19	Under	3.2	0.26	Under	16.1	0.08	Under
Hennepin County, MN–Acct Payable $	Survey—Attempt	4,866	1987–93	1.6	0.41	Under	0.4	0.15	Under	1.9	0.02	Under	0.9	0.09	Under	4.7	0.18	Under	13.8	0.09	Under
Hennepin County, MN–Acct Payable $	Registered	4,866	1987–93	4.1	0.16	Under	0.7	0.09	Under	2.1	0.02	Under	0.2	0.52	N.S.	7.2	0.11	Under	5.3	0.23	Under
Hennepin Co, MN–Acct Pay–Soc Serv $	Survey—Interest	3,093	1987–93	7.1	0.34	Under	0.0			0.0			0.0			7.1	0.43	Under	42.9	0.65	Under
Hennepin Co, MN–Acct Pay–Soc Serv $	Survey—Attempt	3,093	1987–93	0.0			0.0			0.0			0.0			0.0			55.6	0.50	Under
Hennepin Co, MN–Acct Pay–Soc Serv $	Registered	3,093	1987–93	1.7	1.48	Over	0.3	0.07	Under	1.1	0.54	Under	0.0			3.0	1.01	N.S.	11.6	2.39	Over
Jefferson County, AL #	SM/WOBE	NS	1986–90	9.0	2.04	Over	0.3	0.00	Under	0.3	0.00	Under				9.6	4.41	NC	34.8	0.02	Under
Las Vegas–City $	Survey—Interest	138	1988–92	2.4	2.27	Over	7.6	0.25	Under	3.5	0.00	Under	1.2	0.00	N.S.	14.6	0.50	Under	18.1	0.22	Under
Las Vegas–City $	Mailing list	138	1988–92	2.5	2.17	Over	2.0	0.94	N.S.	0.4	0.00	N.S.	0.2	0.00	N.S.	5.7	1.28	N.S.	5.4	0.73	N.S.
Las Vegas–City $	Survey—Interest	1,342	1993	2.4	1.06	N.S.	7.6	0.06	Under	3.5	0.00	Under	1.2	0.00	Under	14.6	0.21	Under	18.1	0.70	Under
Las Vegas–City $	Mailing list	1,342	1993	2.5	1.01	N.S.	2.0	0.21	Under	0.4	0.00	Under	0.2	0.00	N.S.	5.7	0.53	Under	5.4	2.33	Over
Las Vegas–Local Area Gvts $	Survey—Interest	2,340	1988–92	2.4	1.03	N.S.	7.6	0.14	Under	3.5	0.09	Under	1.2	0.02	Under	14.6	0.27	Under	18.1	0.33	Under
Las Vegas–Local Area Gvts $	Mailing list	2,340	1988–92	2.8	0.86	N.S.	2.2	0.46	Under	0.5	0.69	N.S.	0.2	0.11	N.S.	6.3	0.62	Under	7.0	0.87	N.S.
Las Vegas–Local Area Gvts $	Survey—Interest	10,504	1990–93	2.4	0.29	Under	7.6	0.26	Under	3.5	0.03	Under	1.2	0.05	Under	14.6	0.21	Under	18.1	0.32	Under
Las Vegas–Local Area Gvts $	Mailing list	10,504	1990–93	2.8	0.24	Under	2.2	0.87	N.S.	0.5	0.22	Under	0.2	0.33	Under	6.3	0.49	Under	7.0	0.84	Under

Continued

Table A.3d. *Evidence of Disparity in the Other Services Industry (Continued)*

	BACKGROUND			AFRICAN AMERICANS			LATINOS			ASIANS			NATIVE AMERICANS			ALL MINORITIES			WOMEN		
	Source	# of Contracts	Year	Avail.	Disp. Ratio	Stat. Sig.	Avail.	Disp. Ratio	Stat. Sig.	Avail.	Disp. Ratio	Stat. Sig.	Avail.	Disp. Ratio	Stat. Sig.	Avail.	Disp. Ratio	Stat. Sig.	Avail.	Disp. Ratio	Stat. Sig.
Maryland–Primes&Subs $	SM/WOBE	142	1985–89	1.5	1.53	NC				1.0	1.30	NC				8.4	0.89	NC	5.4	0.46	NC
Maryland & Environs–Primes&Subs $	SM/WOBE	142	1985–89	1.1	2.00	NC				0.5	2.20	NC				7.2	0.90	NC	5.3	0.40	NC
Maryland DOT–Primes only $	SM/WOBE—Empl.	NS	FY91–93	8.7	0.44	Under	0.9	2.02	N.S.	2.6	1.02	N.S.				12.1	0.68	N.S.	15.7	0.08	N.S.
Maryland DOT–Primes and subs $	SM/WOBE—Empl.	NS	FY92–93	8.7	0.52	NC	0.9	0.18	NC	2.6	2.18	NC				12.1	1.85	NC	15.7	0.35	NC
Minneapolis $	SM/WOBE	132	1990–91	0.6	0.00	Under	0.4	0.00	Under	0.5	1.70	N.S.				1.5	11.19	Over	9.9	0.07	Under
Minneapolis $	Survey—Interest	132	1990–91	0.9	0.00	Under	0.5	0.00	Under	1.3	0.69	N.S.	0.4	0.00	Under	3.2	5.29	Over	16.1	0.04	Under
Minneapolis $	Survey—Attempt	132	1990–91	1.6	0.00	Under	0.4	0.00	Under	1.9	0.50	N.S.	0.9	0.00	Under	4.7	3.60	Over	13.8	0.05	Under
Minneapolis $	Registered	132	1990–91	1.6	0.00	Under	0.1	0.00	Under	0.7	1.26	N.S.	0.5	0.00	Under	3.0	5.65	Over	3.6	0.19	Under
Minneapolis $	SM/WOBE	3,735	1992–94	0.6	0.38	Under	0.4	0.00	Under	0.5	0.65	N.S.				1.5	0.39	Under	9.9	2.99	Over
Minneapolis $	Survey—Interest	3,735	1992–94	0.9	0.24	Under	0.5	0.00	Under	1.3	0.15	Under	0.4	0.38	Under	3.2	0.19	Under	16.1	1.84	Over
Minneapolis $	Survey—Attempt	3,735	1992–94	1.6	0.14	Under	0.4	0.00	Under	1.9	0.11	Under	0.9	0.18	Under	4.7	0.13	Under	13.8	2.13	Over
Minneapolis $	Registered	3,735	1992–94	1.6	0.14	Under	0.1	0.01	N.S.	0.7	0.27	Under	0.5	0.34	Under	3.0	0.20	Under	3.6	8.28	Over
Minneapolis Comm Devel Agency $	SM/WOBE	27	1990–91	0.7	6.82	Over	0.5	0.00	N.S.	0.6	0.00	N.S.				1.8	2.72	N.S.	10.4	0.77	N.S.
Minneapolis Comm Devel Agency $	Survey—Interest	27	1990–91	0.9	5.13	Over	0.5	0.00	N.S.	1.3	0.00	N.S.	0.4	0.00	N.S.	3.2	1.49	N.S.	16.1	0.50	N.S.
Minneapolis Comm Devel Agency $	Survey—Attempt	27	1990–91	1.6	3.04	N.S.	0.4	0.00	N.S.	1.9	0.00	N.S.	0.9	0.00	N.S.	4.8	1.01	N.S.	13.8	0.58	N.S.
Minneapolis Comm Devel Agency $	SM/WOBE	473	1992–94	0.7	0.20	N.S.	0.5	0.20	N.S.	0.6	7.18	Over				1.8	2.63	Over	10.4	0.05	Under
Minneapolis Comm Devel Agency $	Survey—Interest	473	1992–94	0.9	0.15	N.S.	0.5	0.17	N.S.	1.3	2.32	Over	0.4	3.26	Over	3.2	1.45	N.S.	16.1	0.03	Under
Minneapolis Comm Devel Agency $	Survey—Attempt	473	1992–94	1.6	0.09	Under	0.4	0.21	N.S.	1.9	1.66	Over	0.9	1.52	N.S.	4.8	0.98	N.S.	13.8	0.04	Under
New Orleans $	SM/WOBE—Empl.	1,619	1986–89	3.8	2.46	NC	1.0	0.10	N.S.	0.6	0.92	N.S.				5.3	1.86	NC	9.1	0.33	N.S.
New Orleans $	SM/WOBE—Empl.	6,509	1989–92	4.7	1.78	NC	0.8	0.15	N.S.	0.8	1.66	NC				6.3	1.56	NC	12.3	0.19	Under
New York City $	SM/WOBE—Empl.	50112	1989–90	3.5	0.41	Under	2.6	0.66	N.S.	3.8	0.29	Under				9.9	0.43	C	19.3	0.12	Under
New York City #	SM/WOBE—Empl.	50112	1989–90	5.1	0.56	Under	5.2	0.40	Under	3.8	1.02	Under				14.1	0.62	C	19.2	0.19	N.S.
New York State $	Bidders list	NS	FY90–91	5.3	0.03	Under	2.7	0.16	Under	2.3	2.08	Over	0.7	0.06	Under	11.0	0.49	Under	14.3	0.09	Under
Pennsylvania (SEPTA)–Lrg Contr $	SM/WOBE—Empl.	491	1988–92	2.0	0.23	N.S.	0.4	0.10	N.S.	1.6	0.00	N.S.				4.0	0.13	N.S.	12.6	0.39	N.S.
Pennsylvania (SEPTA)–Lrg Contr #	SM/WOBE—Empl.	491	1988–92	3.1	0.26	Under	0.5	1.74	Over	1.3	0.00	Under				4.9	0.33	Under	16.5	0.42	Under
Pennsylvania (SEPTA)–Sml Contr $	SM/WOBE—Empl.	9449	1988–92	1.8	0.41	Under	0.5	1.09	N.S.	1.1	0.08	Under				3.4	0.40	Under	13.0	0.96	N.S.
Pennsylvania (SEPTA)–Sml Contr #	SM/WOBE—Empl.	9449	1988–92	2.5	0.38	Under	0.5	0.75	N.S.	1.3	0.02	Under				4.4	0.32	Under	13.9	1.05	Over

Phoenix–Men $	Registered	12,883	FY87–93	3.5	0.24	Under	2.0	0.28	Under	0.6	0.07	Under	0.2	0.17	Under	7.0	0.28	Under			
Phoenix–Women $	Registered	12,883	FY87–93	0.5	0.00	Under	1.0	0.47	Under	0.2	0.00	Under	0.2	0.00	Under	2.2	0.24	Under	12.2	0.17	Under
Phoenix–Men $	Survey—Interest	12,883	FY87–93	0.7	1.28	Over	3.6	0.15	Under	0.3	0.13	Under	0.4	0.08	Under	5.2	0.38	Under			
Phoenix–Women $	Survey—Interest	12,883	FY87–93	0.1	0.00	Under	1.0	0.46	Under	0.3	0.00	Under	0.1	0.00	Under	1.9	0.28	Under	17.1	0.12	Under
Phoenix–Men $	Mailing list	12,883	FY87–93	2.7	0.31	Under	2.0	0.27	Under	0.3	0.12	Under	0.1	0.27	Under	7.1	0.28	Under			
Phoenix–Women $	Mailing list	12,883	FY87–93	0.1	0.00	N.S.	0.9	0.56	Under	0.2	0.00	Under	0.1	0.00	Under	1.9	0.28	Under	9.8	0.21	Under
Pima County, AZ $	Survey—Interest	2,140	FY90–93	1.4	0.45	Under	8.5	0.15	Under	1.0	0.07	Under	0.7	0.01	Under	11.6	0.17	Under	16.9	0.09	Under
Pima County, AZ $	Mailing list	2,140	FY90–93	1.3	0.52	N.S.	4.0	0.32	Under	0.9	0.08	Under	0.5	0.02	Under	6.7	0.30	Under	8.6	0.17	Under
Prince George's County, MD $	Survey	3182	1988	57.0	0.16	NC															
Prince George's County, MD #	Survey	3182	1988	57.0	0.27	NC															
Ramsey County, MN $	Survey—Interest	7,546	1985–89	0.9	0.64	Under	0.1	0.25	Under	1.3	0.54	Under	0.4	0.64	Under	3.3	0.50	Under	16.0	0.05	Under
Ramsey County, MN $	Survey—Attempt	7,546	1985–89	1.6	0.38	Under	0.4	0.08	Under	1.9	0.39	Under	0.9	0.30	Under	4.8	0.35	Under	13.8	0.06	Under
Ramsey County, MN $	Registered	7,546	1985–89	3.4	0.18	Under	0.6	0.05	Under	2.0	0.36	Under	0.6	0.40	Under	7.8	0.21	Under	11.5	0.07	Under
Ramsey County, MN $	Survey—Interest	7,352	1990–94	0.9	0.73	Under	0.1	0.12	Under	1.3	0.45	Under	0.4	0.19	Under	3.3	0.43	Under	16.0	0.06	Under
Ramsey County, MN $	Survey—Attempt	7,352	1990–94	1.6	0.44	Under	0.4	0.04	Under	1.9	0.32	Under	0.9	0.09	Under	4.8	0.29	Under	13.8	0.07	Under
Ramsey County, MN $	Registered	7,352	1990–94	3.4	0.20	Under	0.6	0.03	Under	2.0	0.30	Under	0.6	0.12	Under	7.8	0.18	Under	11.5	0.08	Under
Sacramento $	Direcs./Mailing list	60	1990	9.5	0.00	N.S.	19.1	0.00	N.S.	9.5	0.00	N.S.				38.1	0.00	N.S.	19.1	0.01	N.S.
Sacramento $	Direcs./Mailing list	53	1991	9.5	0.00	N.S.	19.1	0.00	N.S.	9.5	0.00	N.S.				38.1	0.00	Under	19.1	0.00	N.S.
St. Paul, MN $	Registered	10,729	1990–94	3.4	0.08	Under	0.6	0.02	Under	2.0	0.38	Under	0.6	0.93	N.S.	7.8	0.21	Under	11.5	0.27	Under
St. Paul, MN $	Survey—Interest	10,729	1990–94	0.9	0.28	Under	0.1	0.10	Under	1.3	0.58	Under	0.4	1.47	Over	3.3	0.50	Under	16.0	0.19	Under
St. Paul, MN $	SM/WOBE—Empl.	10,729	1990–94	0.6	0.44	Under	0.4	0.04	Under	0.5	2.50	Over				1.5	1.09	N.S.	9.9	0.31	Under
St. Paul, MN–School Dist. 625 $	SM/WOBE—Empl.	1936	1988–91	0.6	1.36	N.S.	0.4	0.00	Under	0.5	0.18	Under				1.5	0.59	Under	9.9	0.06	Under
St. Paul, MN–School Dist. 625 $	Survey—Interest	1936	1988–91	1.0	0.85	N.S.	0.1	0.01	N.S.	1.4	0.04	Under	0.3	0.12	Under	3.3	0.28	Under	16.3	0.04	Under
St. Paul, MN–School Dist. 625 $	Survey—Attempt	1936	1988–91	1.6	0.50	Under	0.4	0.00	Under	1.9	0.03	Under	0.7	0.06	Under	4.8	0.19	Under	14.1	0.04	Under
St. Paul, MN–School Dist. 625 $	SM/WOBE—Empl.	4022	1992–94	0.6	0.52	Under	0.4	0.05	Under	0.5	0.40	Under				1.5	0.36	Under	9.9	0.16	Under
St. Paul, MN–School Dist. 625 $	Survey—Interest	4022	1992–94	1.0	0.32	Under	0.1	0.13	Under	1.4	0.06	Under	0.3	0.40	Under	3.3	0.17	Under	16.3	0.10	Under
St. Paul, MN–School Dist. 625 $	Survey—Attempt	4022	1992–94	1.6	0.19	Under	0.4	0.04	Under	1.9	0.04	Under	0.7	0.19	Under	4.8	0.11	Under	14.1	0.11	Under
San Antonio–Bexar Co.–VIA Metro Trans $	Directories	387	1986–90	1.8	0.00	N.S.	9.7	0.08	N.S.	0.6	0.00	N.S.				12.1	0.06	C	8.9	0.05	N.S.
San Antonio–Bexar Co.–VIA Metro Trans #	Directories	387	1986–90	2.5	0.00	Under	13.8	0.09	Under	1.3	0.00	Under				17.6	0.07	C	17.2	0.12	Under
San Antonio–City Water Board $	Directories	64	1986–90	2.9	0.00	N.S.	14.4	0.04	N.S.	1.2	0.00	N.S.				18.5	0.03	C	17.3	0.01	N.S.
San Antonio–City Water Board #	Directories	64	1986–90	2.8	0.00	N.S.	14.4	0.11	Under	1.3	0.00	N.S.				18.5	0.09	C	17.6	0.09	Under
San Antonio–City $	Directories	905	1986–87	0.2	1.65	N.S.	8.6	1.13	N.S.	0.0	187.00	Over				8.8	1.57	C	21.6	0.15	Under
San Antonio–City #	Directories	905	1986–87	0.1	4.13	Over	8.4	1.85	Over	0.0	118.75	Over				8.5	2.42	C	22.3	0.32	Under

Continued

Table A.3d. *Evidence of Disparity in the Other Services Industry (Continued)*

	BACKGROUND			AFRICAN AMERICANS			LATINOS			ASIANS			NATIVE AMERICANS			ALL MINORITIES			WOMEN		
	Source	# of Contracts	Year	Avail.	Disp. Ratio	Stat. Sig.	Avail.	Disp. Ratio	Stat. Sig.	Avail.	Disp. Ratio	Stat. Sig.	Avail.	Disp. Ratio	Stat. Sig.	Avail.	Disp. Ratio	Stat. Sig.	Avail.	Disp. Ratio	Stat. Sig.
San Antonio–City $	Directories	606	1989–90	0.1	11.63	Over	8.0	2.45	Over	0.0	95.00	Over				8.2	2.90	C	22.5	0.36	Under
San Antonio–City #	Directories	606	1989–90	0.1	15.36	Over	8.3	2.25	Over	0.1	68.83	Over				8.5	2.88	C	22.1	0.43	Under
Texas $	SM/WOBE—Empl.	NS	9/88–8/91	3.3	0.25	Under		8.2		0.14	Under		2.3	0.09	Under	13.8	0.16	Under	16.6	0.32	Under
Texas #	SM/WOBE—Empl.	NS	9/88–8/91	2.4	0.18	Under	9.8	0.36	Under	1.8	0.18	Under				14.0	0.31	Under	16.7	0.59	Under
Texas $	SM/WOBE—Empl.	NS	9/91–8/93	3.5	0.23	N.S.	9.9	0.22	Under	2.3	0.45	N.S.				15.7	0.25	Under	17.3	0.33	Under
Texas #	SM/WOBE—Empl.	NS	9/91–8/93	2.4	0.27	Under	10.2	0.37	Under	1.8	0.26	Under				14.4	0.34	Under	17.0	0.59	Under
Tucson $	Survey—Interest	746	1991–94	1.4	1.11	N.S.	8.5	0.32	Under	1.0	0.11	N.S.	0.7	0.25	N.S.	11.6	0.40	Under	16.9	0.75	Under
Tucson $	Mailing list	746	1991–94	1.3	1.23	N.S.	4.5	0.61	Under	1.3	0.08	Under	0.7	0.24	N.S.	7.8	0.59	Under	9.8	1.29	NC

Notes: Unless otherwise indicated, "Women" includes minority women and "All Minorities" does not include white women. A "$" after the study name indicates disparity refers to the dollar value of contracts awarded; a "#" indicates disparity refers to the number of contracts awarded. "Under", "Over", and "Not Sig." in the "Stat Sig." column indicates statistically significant underutilization, statistically significant overutilization, and not significantly different from one, respectively. NC stands for statistical significance not calculated in study. C stands for availability and disparity ratio calculated by authors. NA stands for no availability, therefore cannot calculate disparity ratio. A blank indicates study did not report this figure.

The availability measure "SM/WOBE–Empl" only includes firms with paid employees. See also study–specific notes at end of table.

Notes to Table A.3
Evidence of Disparity

Alameda County, CA: Only construction contracts over $25,000 are analyzed. Only professional service contracts over $25,000 are reported. Figures for Asians include Native Americans. For large contracts, the measure of overall construction utilization allocates the total dollars awarded to the race/ethnicity of the prime contractor, and may therefore overstate disparity.

Albuquerque: The availability measure "CIP Bidders list" is a separate bidders list of professional design firms maintained by the city's Capital Improvement Program.

Asheville, NC: "Goods" includes all purchase orders. Eighty-eight percent of all expenditures are for goods. "Asians" includes Native Americans and other minorities.

Boston Metro Area: This study was commissioned by the City of Boston, the Boston Public Housing Authority, and the Water and Sewer Commission, but the agencies examined were state agencies. For the Executive Office of Environmental Affairs, the measure of overall construction utilization allocates the total dollars awarded to the race/ethnicity of the prime contractor, and may therefore overstate disparity.

Chicago—City: Number of contracts listed is actually number of firms receiving contracts, which underestimates number of contracts. "WBEs" includes white women only.

Cincinnati: The availability source "Bidders list: C" uses only certified MBEs; "Bidders list: C&N" uses certified and non-certified, self-reported MBEs. "Goods" includes supplies and other contractual services. The measure of overall construction utilization allocates the total dollars awarded to the race/ethnicity of the prime contractor, and may therefore overstate disparity.

Columbus, OH: "Asians" includes Native Americans for all SM/WOBE measures. "Other Services" includes both professional and non-professional services. For pre-1991 years, "Women" includes minority women; for later years, only white women are included. For pre-1991 years, SM/WOBE data are adjusted for C-corporations; for later years, SM/WOBE data are adjusted for C-corporations and undercount of Hispanics and Asians.

Contra Costa County, CA: Small contracts are those less than $25,000. "All Minorities" category includes WBEs. The measure of overall construction utilization allocates the total dollars awarded to the race/ethnicity of the prime contractor, and may therefore overstate disparity.

Dade County, FL: Study does not include firms that are not "gender/ethnic identified," and thus overstates minority utilization. "Asians" category includes Asians and other minorities. "Other Services" includes both professional and non-professional services. "Women" includes only white women.

Dallas: "All Minorities" category includes WBEs. "Women" includes only white women.

Dallas/Fort Worth Airport: Number of contracts listed are actually number of firms receiving contracts, an underestimate of number of contracts. For the 1988–1992 figures, the number listed under the "MBE" heading includes all WBEs. The study performs statistical significance tests at the 95 percent confidence level, but does not indicate which of the results pass this test. "Other Services" category includes professional and non-professional services.

Dayton, OH: "Goods" includes both goods and services. Study did not test for statistical significance when utilization was zero.

Denver—Phase II: "Other Services" includes both professional and non-professional services. "Construction" includes contracts identified by the study authors as "remodeling."

Denver—Regional Transportation District: "Asians" includes Native Americans and other minorities. "Women" includes minority and white women. SM/WOBE data are adjusted for growth and undercount of Hispanics and Asians, and weighted geographically. Only firms with a payroll are considered.

Florida: WBE utilization is measured for white women, while availability is measured for all women. The measure of overall construction utilization allocates the total dollars awarded to the race/ethnicity of the prime contractor, and may therefore overstate disparity.

Fort Worth—City: Number of contracts listed is actually number of firms receiving contracts, which is an underestimate of number of contracts. The study performs statistical significance tests at the 95 percent confidence level, but does not indicate which of the results pass this test. It states simply that 118 of the 128 measures for all minorities and all women, and 109 of the 128 measures for specific racial/ethnic groups, showed statistically significant underutilization.

Fort Worth—Transportation: Number of contracts listed is actually number of firms receiving contracts, which is an underestimate of number of contracts. WBE numbers include only white women. The measure of overall construction utilization allocates the total dollars awarded to the race/ethnicity of the prime contractor, and may therefore overstate disparity.

Greensboro: Figures for "Goods" refer only to retail trade.

Hayward, CA: "Construction" is contracts under $100,000 and all contracts. The "Asian" category includes Native Americans.

Hennepin County, MN: For SM/WOBE measures of availability, "Asians" includes Native Americans. "All Minorities" includes firms of unspecified minority status. "Women" includes only white women. SM/WOBE data are adjusted for C-corporations and undercount of Hispanics, Asians, and Native Americans.

Houston: Houston purchase orders totaled $690 million during the study period. Large purchase orders totaled $292 million. Houston architecture and engineering contracts totaled $363 million.

Jacksonville: "Asians" includes Native Americans. "All Minorities" includes all women. "Goods" category includes goods and services (all purchasing).

Jefferson County, AL: "Women" includes minority and white women. SM/WOBE data are adjusted for growth.

Louisiana: "Asians" includes Pacific Islanders. "Women" includes white women only.

Maricopa County, AZ: "Professional Services" includes only architecture and engineering. "Goods" also includes services other than health services and architecture and engineering.

Maryland: "Asians" includes Native Americans and other minorities. "Other Services" includes professional and non-professional services.

Maryland—Department of Transportation: "Professional Services" only includes architecture and engineering. "Asians" category includes Native Americans and other minorities. Maryland contracts totaled $4.6 billion.

Massachusetts: "Goods" includes goods and services. The study did not test for statistical significance when utilization was zero.

Memphis: Some of the agencies/localities for which the Memphis study reported figures are not included in the table because of the small number of contracts. "Goods" includes non-professional services. "Asian" category includes Pacific Islanders.

Milwaukee: The "All Minorities" category includes women. "Asians" also includes Native Americans. Figures for professional services and goods are presented in the study, but these are not presented in the table because they are too disaggregated (at 2-digit SIC code level).

Minneapolis: The "Asian" category includes Native Americans and other minorities for availability measures based on SM/WOBE data. Small contracts are those less than $100,000. Large contracts are over $100,000. Except for the analysis of large contracts only, the measure of overall construction utilization allocates the total dollars awarded to the race/ethnicity of the prime contractor, and may therefore overstate disparity.

New Mexico: "Women" includes only white women. SM/WOBE availability refers to firms in the highway construction industry only. Only a subset of the measures of availability are shown. "Professional Services" includes only professional design and engineering.

New Orleans: WBEs are included in the "All Minorities" category. The study tested only whether disparity ratios less than 1 were statistically significant. Ratios greater than 1 are labeled NC. The "Other Services" category

includes professional and non-professional services. The measure of overall construction utilization allocates the total dollars awarded to the race/ethnicity of the prime contractor, and may therefore overstate disparity.

New York City: "Asians" includes other minorities. Federally funded contracts are not included. Figures for subcontracts are construction subcontractors used by construction contracts; other subcontracts are excluded. The number of "Goods" subcontracts used by construction firms was 1,466, almost twice the figure for construction subcontracts. Large contracts include only those over $2,500. "Other Services" includes professional and non-professional services.

New York City Housing Authority: Women are included in the "All Minorities" category. "Asian" category may include Native Americans. The study also includes numbers for Hasidic Jews, which are not shown. The "Goods" category includes only small purchases. Under the "Construction" category the measure "small contracts" includes only "tile and paint." The study tested only whether disparity ratios less than 1 were statistically significant. Ratios greater than 1 are labeled NC. The measure of overall construction utilization allocates the total dollars awarded to the race/ethnicity of the prime contractor, and may therefore overstate disparity.

New York State: Contract and procurement dollars in FY90–91 totaled roughly $4 billion (more than 800,000 orders).

Oakland—School District: "Women" includes only white women.

Pennsylvania (SEPTA): SEPTA stands for "Southeastern Pennsylvania Transportation Authority." Large contracts are only those over $10,000; small contracts are under $10,000. "Other Services" includes professional and non-professional services. The study only tested whether disparity ratios less than 1 were statistically significant. Ratios greater than 1 are labeled NC. The measure of overall construction utilization allocates the total dollars awarded to the race/ethnicity of the prime contractor, and may therefore overstate disparity.

Phoenix: "All Minorities" includes other minority groups not shown here.

Pima County, AZ: The study tested only whether disparity ratios less than 1 were statistically significant. Ratios greater than 1 are labeled NC. The "Asian" category includes Native Americans and other minorities for availability measures based on SM/WOBE data.

Port Authority NY/NJ: The "Bid Attempts" measure allows for multiple bids from one firm. "Asians" includes Pacific Islanders. "Women" includes only WBEs owned by white women. The measure of overall construction utilization allocates the total dollars awarded to the race/ethnicity of the prime contractor, and may therefore overstate disparity.

Prince George's County, MD: "Other Services" includes both professional and non-professional services. Study did not calculate statistical significance.

Ramsey County, MN: For SM/WOBE measures of availability, "Asians" includes Native Americans. "All Minorities" includes minority firms of unspec-

ified minority status. "Women" includes only white women. SM/WOBE data are adjusted for C-corporations and undercount of Hispanics, Asians, and Native Americans.

Richmond, CA: "Women" includes only white women.

Sacramento: "Women" includes only white women. "Other Services" includes only the maintenance industry. The measure of overall construction utilization allocates the total dollars awarded to the race/ethnicity of the prime contractor, and may therefore overstate disparity.

San Antonio: The "Other Services" category includes professional and non-professional services. The measure of overall construction utilization allocates the total dollars awarded to the race/ethnicity of the prime contractor, and may therefore overstate disparity.

San Jose—Procurement and Professional Services: "Women" includes only white women.

St. Paul: The "Asian" category includes Native Americans and other minorities for availability measures based on SM/WOBE data. "Other Services" includes all services except architecture and engineering.

St. Paul—School District: For SM/WOBE measures of availability, "Asians" includes Native Americans. "Women" includes only white women. SM/WOBE data are adjusted for C-corporations and undercount of Hispanics, Asians, and Native Americans.

St. Petersburg: Federal funds were excluded in 1984 and part of 1985.

Syracuse, NY: "Women" includes both minority and white women. The study did not calculate statistical significance. The study presents both high and low estimates of availability of minority-owned firms.

Tampa, FL: The study calculates figures with and without EPA dollars in an attempt to identify the effect of the federal set-aside program. "Asians" includes Asians and other minorities.

Texas: Contracts totaled $14.5 billion with 190,000 vendors. Department of Transportation contracts totaled $6.6 billion. Construction subcontracts include information from five agencies. The measure of overall construction utilization allocates the total dollars awarded to the race/ethnicity of the prime contractor, and may therefore overstate disparity. The "Asians" category includes Native Americans and other minorities. Number of contracts listed is actually number of firms receiving contracts, which underestimates number of contracts.

Tucson: Number of contracts listed is actually number of firms receiving contracts, an underestimate of number of contracts.

Washington, D.C: "Other Services" includes both professional and non-professional services.

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