

APPENDIX H.

Success of Businesses in the Dane County Construction Industry

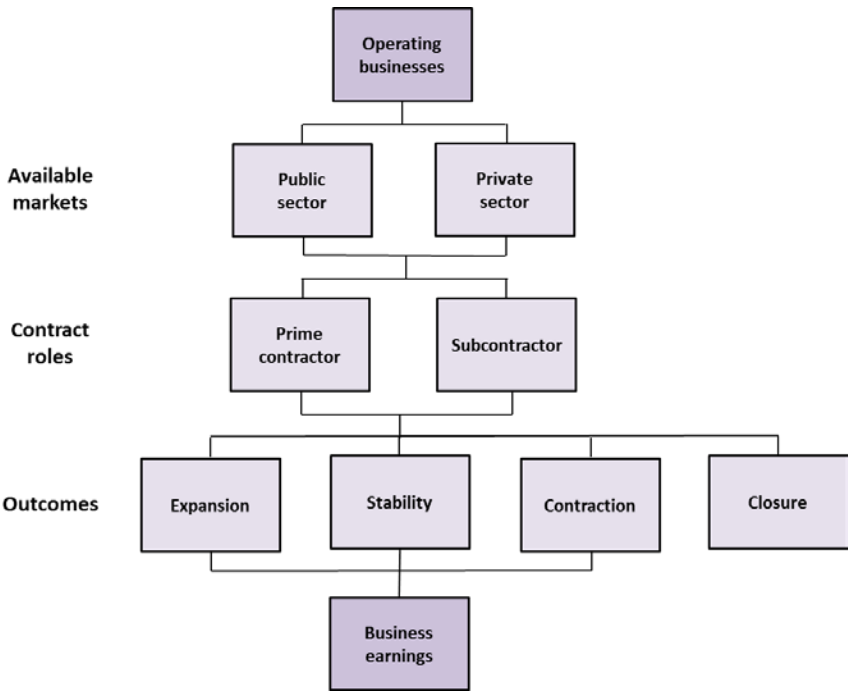
Keen Independent examined the success of MBE/WBEs in the Dane County construction industry. The study team assessed whether business outcomes for those firms differ from those of non-Hispanic white male-owned firms.¹ Keen Independent researched outcomes for MBE/WBEs and non-Hispanic white male-owned businesses in terms of:

- Participation in public and private sector markets;
- Relative bid capacity;
- Business closures, expansions and contractions;
- Business receipts and earnings; and
- Availability interview results concerning potential barriers.

Figure H-1 provides a framework for Keen Independent’s analyses.

Figure H-1.
Business
outcomes

Source:
Keen Independent
Research.



¹ Keen Independent uses the terms “MBEs” and “WBEs” to refer to businesses that are owned and controlled by minorities or women (definitions listed in Appendix A), regardless of whether they are certified or meet the revenue and net worth requirements for DBE certification and regardless of whether they are certified as MBEs or WBEs.

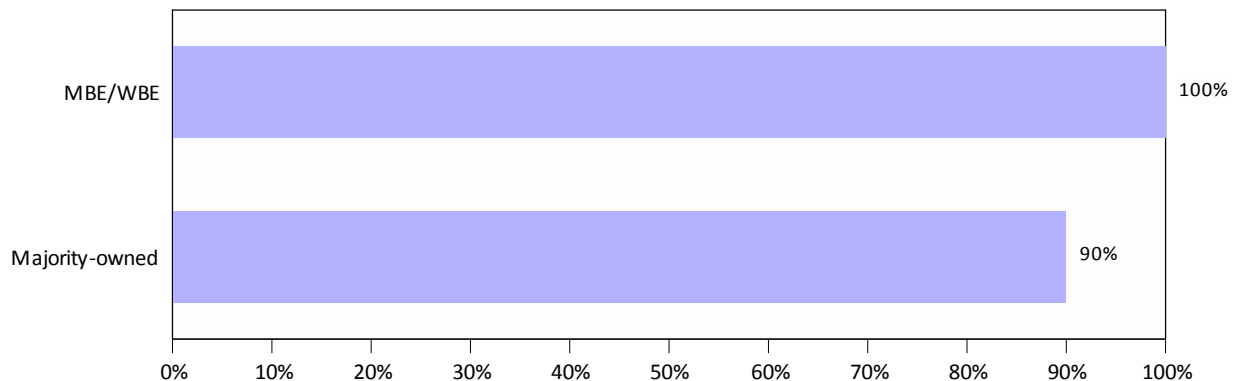
A. Participation in Public and Private Sector Markets

Keen Independent used information collected as part of the availability analysis to examine whether construction businesses bid on public sector and private sector work, and the extent to which firms work as prime contractors and subcontractors.

Bidding on public sector and private sector projects. In the availability interviews, the study team asked firms that reported that they performed work related to public works contracts whether they had bid on or worked on any part of a public sector project in the past seven years. Nearly all of the firms reported that they had bid on or worked on public sector projects.

Keen Independent also asked businesses involved in construction work if they had bid on or worked on private sector work in the past seven years (any part of a project). Again, almost all of the firms indicated that they had bid or worked on private sector work in the past seven years.

Figure H-2.
Percent of public works-related businesses that reported bidding or working on a private sector project in the past seven years (any part of a project)



Note: "MBE/WBE" represents minority-owned firms and white women-owned firms and "majority-owned" represents non-Hispanic white male-owned firms.

Source: Keen Independent Research from 2014 Availability Interviews.

The above results confirm that most public works-related firms in Dane County pursue both public and private sector work. As discussed in Chapter 3, the study team also conducted in-depth, personal interviews with businesses and trade associations in Dane County. Interviewees confirmed that companies performing construction contracts in Dane County usually pursue both public and private sector work.

Bidding as a prime contractor. The study team also asked firms involved in public works-related work whether they had bid as a prime contractor or prime consultant in the past seven years. About half of the firms reported bidding as a prime contractor, regardless of ownership. Most of those also bid as a subcontractor or supplier. About 7 percent of firms indicated they only bid as prime contractors.

In-depth interviews with business owners confirmed that firms working as prime contractors often also function as subcontractors (and vice versa).

B. Relative Bid Capacity

Some legal cases regarding race- and gender-conscious contracting programs have considered the importance of the “relative capacity” of businesses included in an availability analysis.² One approach to account for differing capacities among different types of businesses is to examine relatively small contracts, a technique noted in *Rothe Development Corp. v. U.S. Department of Defense*. In addition to examining size of contracts, Keen Independent directly measured bid capacity in its availability analysis.³

Through this analysis, Keen Independent was able to distinguish firms based on the largest contracts or subcontracts they had performed or bid on (i.e., “bid capacity” as used in this study). Although additional measures of capacity might be theoretically possible, the bid capacity concept can be articulated and quantified for individual firms for specific time periods.

Measurement of bid capacity. The availability analysis produced a database of more than 140 businesses potentially available for City of Madison work. “Relative capacity” for a business is measured as the largest contract or subcontract that the business performed or reported that they had bid on within the seven years preceding the interview date by Keen Independent.

General public building construction tends to involve relatively large projects. Other subindustries, such as landscaping, typically involve smaller projects. Figure H-3 reports the median relative bid capacity among Dane County public works-related businesses in 13 subindustries. Results categorized companies according to their primary line of business (e.g., results for a firm that primarily performs excavation that also does trucking and hauling are included under excavation, grading and drainage).⁴

Figure H-3.
Median bid capacity for public works-related firms, by subindustry

Subindustry	Median bid capacity
General public building construction	\$2 million to \$5 million
Plumbing and HVAC	\$1 million to \$2 million
Carpentry and floor work	\$1 million
Construction materials supply	\$500,000 to \$1 million
Electrical work	\$500,000 to \$1 million
Excavation, demolition and other site prep	\$500,000 to \$1 million
Other building construction	\$500,000 to \$1 million
Roofing, siding and sheet metal work	\$500,000 to \$1 million
Drywall and insulation	\$100,000 to \$500,000
Masonry, stonework, tile setting and plastering	\$100,000 to \$500,000
Water and sewer lines	\$100,000 to \$500,000
Landscaping and related work	\$100,000 or less
Trucking and hauling	\$100,000 or less

Source: Keen Independent Research from 2014 Availability Interviews.

² For example, see the decision of the United States Court of appeals for the Federal Circuit in *Rothe Development Corp. v. U.S. Department of Defense*, 545 F.3d 1023 (Fed. Cir. 2008).

³ See Appendix D for details about the availability interview process.

⁴ Only subindustries with a minimum of three respondents in the availability interviews were analyzed.

Comparison of MBE/WBE and majority-owned bid capacity for construction contracts.

Keen Independent examined whether there were differences in the size of the largest contracts for MBEs, WBEs and majority-owned firms within the same subindustries.

- First, the study team determined for each company whether its largest contract or subcontract (awarded or bid on) was higher than the median for its primary line of business. For example, if the median bid capacity category for a subindustry was \$1-2 million, and a firm's largest contract was more than \$2 million, it was classified as having "above median bid capacity."
- Keen Independent then examined the ownership of firms that had above-median bid capacity for their subindustry. Figure H-4 reports the distribution of these firms by ownership.

About two-fifths of majority-owned firms have above-median bid capacity for their respective industry, twice the proportion of minority- and women-owned firms (20%).

Figure H-4.
Proportion of firms with above-median bid capacity by ownership

Source:
Keen Independent Research from 2014 Availability Interviews.

Firm	Construction
MBE/WBE	20 %
Majority-owned	40

Further analysis. The study team considered whether race- and gender-neutral factors could account for the disparities in bid capacity identified for MBEs and WBEs in construction. There were several variables from the availability interviews that may be related to relative bid capacity, such as annual revenue, number of employees and whether a business has multiple establishments.

After considering business characteristics from the availability interviews, Keen Independent determined that age of business was the race- and gender-neutral factor that might best explain differences in relative capacity within a subindustry while also being external to capacity measures. Theoretically, the longer that companies are in business, the larger the contracts or subcontracts that they might pursue.

To test that hypothesis, the study team developed a logistic regression model to determine whether relative bid capacity could be at least partly explained by the age of businesses. The regression results are shown in Figure H-5. The analysis indicated the following:

- Business age was a statistically significant predictor of having above-median bid capacity. The older a business, the more likely it was to show above-median bid capacity; and
- MBE and WBE ownership had a negative, though not statistically significant, relationship to bid capacity after controlling for subindustry and age of firm.

The regression model indicates that age of the business can account for the differences in bid capacity between MBEs and WBEs and majority-owned firms in the same subindustries.

Figure H-5.
City of Madison public works contracting
industry bid capacity regression model

Note:

*,** Denote statistical significance at the 90% or 95% confidence level, respectively.

Source:

Keen Independent Research from 2014 Availability Interviews.

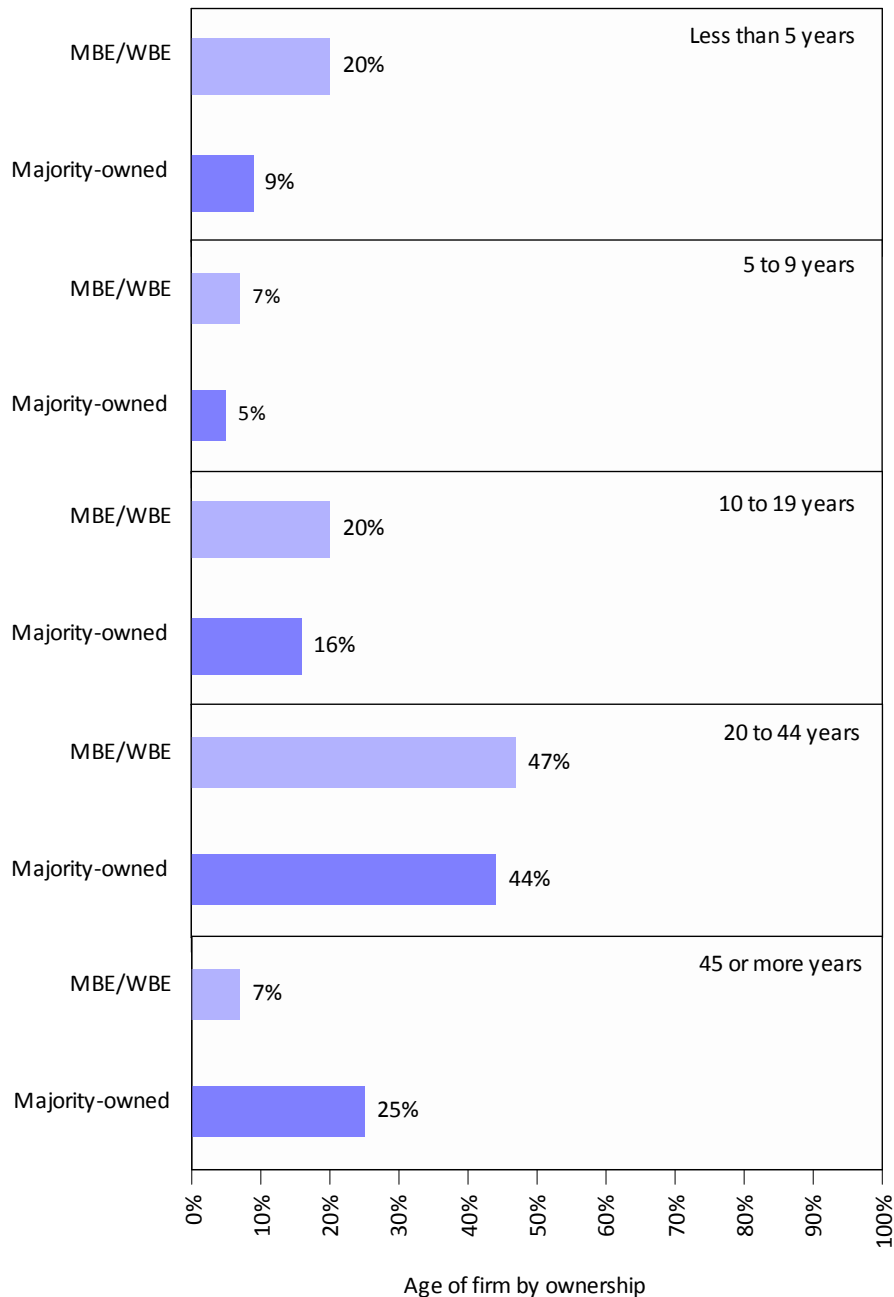
Variable	Coefficient	Chi-square statistic
Age of firm	0.03	21.62 **
MBE/WBE	-0.02	0.00

Additional analyses of the available firms show that minority- and women-owned firms tend to be younger than majority-owned firms. One-in-five of the minority- and women-owned firms are less than 5 years old. Only 9 percent of majority-owned firms are less than 5 years old. On the other end of the spectrum, about 25 percent of majority-owned firms have been in business for 45 years or more compared to 7 percent of minority- and women-owned firms. Figure H-6 presents these results.

Summary of markets, contracting roles and bid capacity. Availability interview results show that most firms in the contracting industry pursue both public and private sector work, regardless of ownership. About one-half of minority- and women-owned firms report pursuing work as a prime contractor and most of those firms also report working as a subcontractor or supplier.

Analysis of bid capacity indicated that most of the firms with the greatest bid capacity are majority-owned firms. The fact that majority-owned firms tend to be older than MBEs and WBEs explains most of these differences.

Figure H-6.
Years in business by ownership of firm



Note: "WBE" represents white women-owned firms, "MBE" represents minority-owned firms and "majority-owned" represents non-Hispanic white male-owned firms.

Source: Keen Independent Research from 2014 Availability Interviews.

C. Business Closures, Expansions and Contractions

A 2010 SBA report investigated business dynamics for the 2002 through 2006 time period for minority-owned and white-owned businesses. By matching data from business owners who responded to the 2002 U.S. Census Bureau Survey of Business Owners (SBO) to data from the Census Bureau's 1989-2006 Business Information Tracking Series, the SBA reported on business

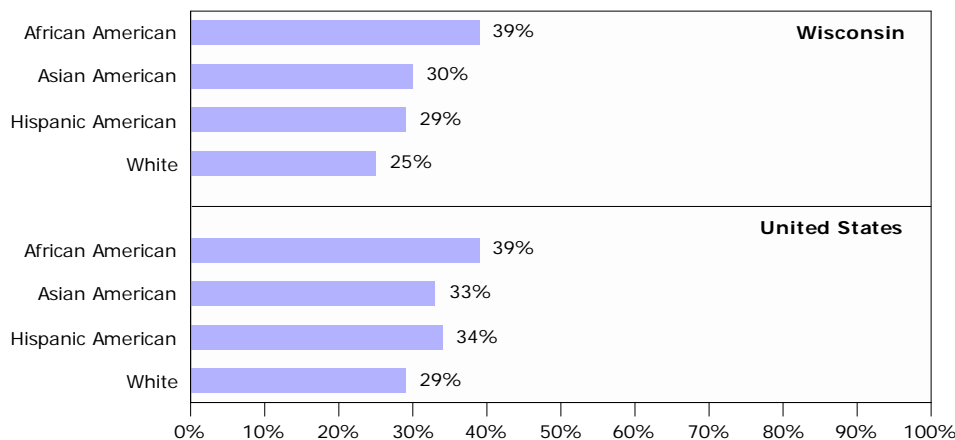
closures, expansions and contractions between 2002 and 2006 across different sectors of the economy.^{5,6} The SBA examined differences in outcomes by race and ethnicity.

Business closures. High rates of business closures may reflect adverse business conditions for minority business owners.

Overall rates of business closures in Wisconsin. The 2010 SBA report analyzed business closure rates between 2002 and 2006 for minority- and non-Hispanic white-owned firms in Wisconsin. Figure H-7 presents those data for African American-, Asian American-, and Hispanic American-owned firms as well as for non-Hispanic white-owned firms.

As shown in Figure H-7, 39 percent of African American-owned firms that were operating in Wisconsin in 2002 had closed by the end of 2006, a higher rate than those of other groups, including non-Hispanic white-owned firms (25%). Hispanic American- (29%) and Asian American-owned firms (30%) also had closure rates that were higher than that of non-Hispanic white-owned firms. Differences in closure rates between minority-owned firms and non-Hispanic white-owned firms were similar in Wisconsin and in the United States during that time period.

Figure H-7.
Rates of business closure, 2002-2006, Wisconsin and the U.S.



Note: Data refer only to non-publicly held businesses only. As sample sizes are not reported, statistical significance of these results cannot be determined; however, statistics are consistent with SBA data quality guidelines.

Source: Lowrey, Ying. 2010. "Race/Ethnicity and Establishment Dynamics, 2002-2006." U.S. Small Business Administration Office of Advocacy. Washington D.C.

Rates of business closures by industry. Data for the construction and professional services industries were not available by state. The SBA analysis only reported industry-specific results for the nation as a whole. Based on national results, 43 percent of African American-owned construction businesses that were operating in 2002 had closed by 2006, higher than the rate for white-owned construction companies. Hispanic American-owned businesses and Asian American-owned construction

⁵ Lowrey, Ying. 2010. "Race/Ethnicity and Establishment Dynamics, 2002-2006." U.S. Small Business Administration Office of Advocacy. Washington D.C.

⁶ Businesses classifiable by race/ethnicity exclude publicly-traded companies. Keen Independent did not categorize racial groups by ethnicity. As a result, some Hispanic Americans may also be included in statistics for African Americans, Asian Americans and whites.

businesses that were operating in 2002 were also more likely than white-owned companies to have closed by 2006.

Unsuccessful closures. Not all firm closures can be interpreted as “unsuccessful closures.” Firms may close when an owner retires or a more profitable business alternative emerges, both of which represent “successful closures.” The 1992 Characteristics of Business Owners (CBO) Survey is one of the few Census Bureau sources to classify firm closures into successful and unsuccessful subsets.⁷ The 1996 CBO survey asked owners of businesses that had closed between 1992 and 1995, “Which item below describes the status of this business at the time the decision was made to cease operations?” Only the responses “successful” and “unsuccessful” were permitted. A firm that reported being unsuccessful at the time of closure was understood to have failed.

Keen Independent examined CBO data on the proportion of firms that closed due to failure between 1992 and 1995 in construction and all industries.^{8,9} According to CBO data, African American-owned firms were the most likely to report being “unsuccessful” at the time at which their businesses closed. About 77 percent of African American-owned firms in all industries reported an unsuccessful business closure in the 1996 CBO, compared with only 61 percent of non-Hispanic white male-owned firms. Unsuccessful closure rates were also relatively high for Hispanic American-owned firms (71%) and for firms owned by “other minority groups” (73%). The rate of unsuccessful closures for women-owned firms (61%) was similar to that of non-Hispanic white male-owned firms.

In the construction industry, minority- and women-owned firms were more likely to report unsuccessful business closures than non-Hispanic white male-owned firms (58%). Those trends were similar in all industries with one exception — women-owned businesses (61%) were equally as likely to report unsuccessful closures as non-Hispanic white male-owned firms (61%).

Reasons for differences in unsuccessful closure rates. Several researchers have offered explanations for higher rates of unsuccessful closure rates among minority- and women-owned firms compared with non-Hispanic white-owned firms:

- Unsuccessful business failures of minority-owned firms are largely due to barriers in access to capital. Regression analyses have identified initial capitalization as the most significant factor in determining firm viability. Because minority-owned firms secure smaller amounts of debt equity in the form of loans, they are more liable to fail.

⁷ CBO data from the 1997 and 2002 Economic Censuses do not include statistics on successful and unsuccessful business closures. To date, the 1992 CBO is the only U.S. Census dataset that includes such statistics.

⁸ All CBO data should be interpreted with caution as firms that did not respond to the survey cannot be assumed to have the same characteristics of ones that did. Holmes, Thomas J. and James Schmitz. 1996. “Nonresponse Bias and Business Turnover Rates: The Case of the Characteristics of Business Owners Survey.” *Journal of Business & Economic Statistics*. 14(2): 231-241. This report does not include CBO data on overall firm closure rates because firms not responding to the survey were found to be much more likely to have closed than ones that did.

⁹ This study includes CBO data on firm success because there is no compelling reason to believe that closed firms responding to the survey would have reported different rates of success/failure than those closed firms that did not respond to the survey. Headd, Brian. U.S. Small Business Administration, Office of Advocacy. 2000. *Business Success: Factors leading to surviving and closing successfully*. Washington D.C.: 12.

Difficulty in accessing capital is found to be particularly acute for minority-owned firms in the construction industry.¹⁰

- Prior work experience in a family member's business or similar experiences are found to be strong determinants of business viability. Because minority business owners are much less likely to have such experience, their firms are less likely to survive.¹¹ Similar research has been conducted for women-owned businesses that found similar gender gaps in the likelihood of business survival.¹²
- Level of education is found to be a strong determinant of business survival. Educational attainment explains a significant portion of the gap in firm closure rates between African American-owned and non-minority-owned firms.¹³
- Non-minority business owners have the opportunity to pursue a wider array of business activities, which increases their likelihood of closing successful businesses to pursue more profitable business alternatives. Minority business owners, especially those who do not speak English, have limited employment options and are less likely to close a successful business.¹⁴
- The possession of greater initial capital and generally higher levels of education among Asian Americans determine the high rate of survival of Asian American-owned firms compared to other minority-owned firms.¹⁵

In sum, data suggest that closure rates for African American- and Hispanic American-owned firms in Wisconsin are higher than for other firms. Based on national results for the construction industry, African American-owned firms had higher rates of closure in that industry than other firms. National data indicate that African Americans, Hispanic Americans, and other minorities who owned and closed firms are more likely than non-Hispanic white-owned firms to have done so because the firm was unsuccessful. Several studies have examined why business failure rates are higher for firms owned by certain minority groups at the national level.

¹⁰ Bates, Timothy and Caren Grown. 1991. "Commercial Lending Practices and the Development of Black-Owned Construction Companies." Center for Economic Studies, U.S. Census Bureau.

¹¹ Robb, A. and Fairlie, R. 2005. "Why are Black-Owned Businesses Less Successful than White-Owned Businesses? The Role of Families, Inheritances, and Business Human Capital." University of California, Santa Cruz.

¹² Fairlie, R. and A. Robb. 2009. "Gender Differences in Business Performance: Evidence from the Characteristics of Business Owners Survey." University of California, Santa Cruz.

¹³ Ibid. 24.

¹⁴ Bates, Timothy. 2002. "Analysis of Young Small Firms That Have Closed: Delineating Successful from Unsuccessful Closures." Center for Economic Studies, U.S. Census Bureau.

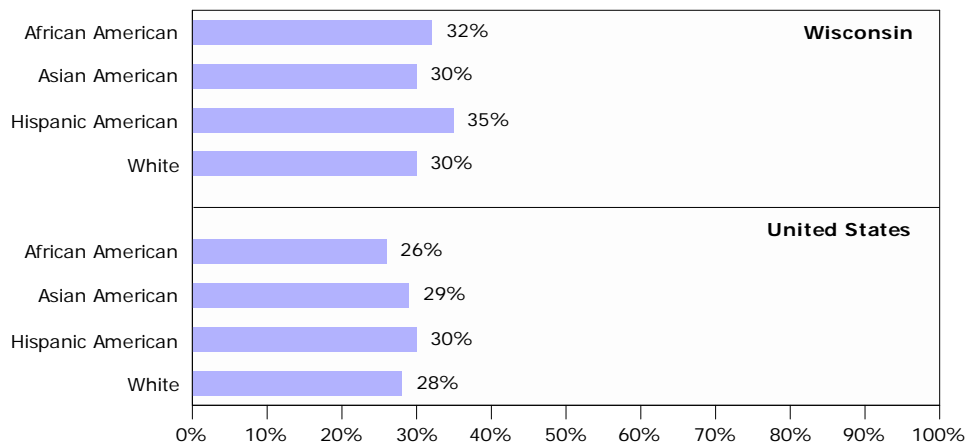
¹⁵ Bates, Timothy. 1993. "Determinants of Survival and Profitability Among Asian Immigrant-Owned Small Businesses." Center for Economic Studies, U.S. Census Bureau.

Expansions and contractions. Comparing rates of expansion and contraction between minority-owned and non-Hispanic white male-owned businesses is also useful in assessing the relative success of minority-owned businesses. As with closure data, only some of the data on expansions and contractions that were available for the nation were also available at the state level.

Expansions. The 2010 SBA study of minority business dynamics from 2002-2006 examined the number of non-publicly-held Wisconsin businesses that expanded and contracted between 2002 and 2006. Figure H-8 presents the percentage of all businesses, by race/ethnicity of ownership, that increased their total employment between 2002 and 2006.

According to the SBA study, approximately 30 percent of non-Hispanic white-owned Wisconsin businesses expanded between 2002 and 2006, compared to 32 percent of African American-owned businesses, 30 percent of Asian American-owned businesses, and 35 percent of Hispanic American-owned businesses. Expansion results were similar for the nation as a whole.¹⁶

Figure H-8.
Percentage of firms that expanded, 2002-2006



Note: Data refer only to non-publicly held businesses. As sample sizes are not reported, statistical significance of these results cannot be determined; however, statistics are consistent with SBA data quality guidelines.

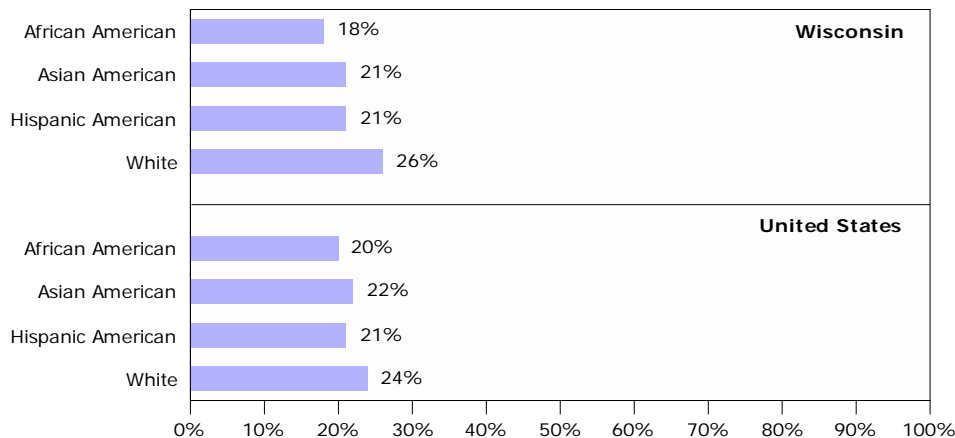
Source: Lowrey, Ying. 2010. "Race/Ethnicity and Establishment Dynamics, 2002-2006." U.S. Small Business Administration Office of Advocacy. Washington D.C.

The 2010 SBA study did not report state-level results for individual industries. For the nation, African American-owned construction businesses were less likely than white-owned businesses to have expanded between 2002 and 2006. Hispanic American- and Asian American-owned construction companies were slightly more likely than white-owned businesses to have expanded between 2002 and 2006.

Contractions. Figure H-9 shows the percentage of non-publicly held businesses operating in 2002 that reduced their employment (contracted) between 2002 and 2006 in Wisconsin and in the nation as a whole. At both the state level and the national level, African American, Asian American, and Hispanic American-owned businesses were slightly less likely to have contracted between 2002 and 2006 than non-Hispanic white-owned businesses.

¹⁶ Lowrey, Ying. 2010. "Race/Ethnicity and Establishment Dynamics, 2002-2006." U.S. Small Business Administration Office of Advocacy. Washington D.C.

Figure H-9.
Percentage of firms that contracted, 2002-2006



Note: Data refer only to non-publicly held businesses. As sample sizes are not reported, statistical significance of these results cannot be determined; however, statistics are consistent with SBA data quality guidelines.

Source: Lowrey, Ying. 2010. "Race/Ethnicity and Establishment Dynamics, 2002-2006." U.S. Small Business Administration Office of Advocacy. Washington D.C.

The SBA study did not report state-specific results relating to contractions in individual industries. Based on national data, a slightly smaller percentage of African American-, Hispanic American- and Asian American-owned construction businesses contracted between 2002 and 2006 compared to white-owned businesses.

D. Business Receipts and Earnings

Annual business receipts and earning for business owners are also indicators of the success of businesses. The study team examined:

- Business receipts data from the U.S. Census Bureau 2007 Survey of Business Owners (SBO);
- Business earnings data for business owners from the 2000 Census and 2008-2012 American Community Survey (ACS)¹⁷; and
- Annual revenue data for Dane County construction firms that the study team collected as part of availability interviews.

Business receipts. Keen Independent examined receipts for firms in the Madison metropolitan area and Wisconsin using data from the 2007 SBO, conducted by the U.S. Census Bureau. Keen Independent also analyzed receipts for firms in individual industries. The SBO reports business receipts separately for employer firms (i.e., those with paid employees other than the business owner and family members) and for all firms.¹⁸

¹⁷ It should be noted that the 2008-2012 ACS data were collected during the economic recession which began in late 2007.

¹⁸ We use "all firms" to denote SBO data used in this analysis; the data include incorporated and unincorporated firms, but not publicly-traded companies or other firms not classifiable by race/ethnicity and gender.

Figure H-10 presents 2007 mean annual receipts for employer and non-employer businesses by race, ethnicity and gender. Racial categories are not available by both race and ethnicity. As such, the racial categories shown may include Hispanic Americans. The SBO data for businesses across all industries in Madison indicate that average receipts for minority- and women-owned businesses were lower than that for non-Hispanic-owned, white-owned, or male-owned businesses:

- Average receipts of African-American-owned businesses (\$83,000) were only 15 percent of the average for white-owned businesses (\$542,000).
- Asian American-owned businesses had average receipts (\$301,000) that were 56 percent of the average for white-owned businesses.
- Hispanic American-owned businesses had average receipts (\$415,000) that were 78 percent of the average of non-Hispanic-owned businesses (\$529,000).
- Average receipts for women-owned businesses (\$160,000) were 24 percent of the average of male-owned businesses (\$665,000).

Data on mean annual receipts for American Indian and Alaska Native and Native Hawaiian and Other Pacific Islander business owners were not available for the Madison area, due to small sample sizes.

Disparities in business receipts for minority-owned businesses compared to non-Hispanic white-owned businesses in Madison are consistent with those seen in Wisconsin. A 2007 SBA study identified differences similar to those presented in Figure H-10 when examining firms in all industries across the U.S.¹⁹

¹⁹ Lowrey, Ying. 2007. *Minorities in Business: A Demographic Review of Minority Business Ownership*. Office of Economic Research, Office of Advocacy, U.S. Small Business Administration.

Figure H-10.
Mean annual receipts
(thousands) for all firms, by
race/ethnicity and gender of
owners, 2007

Note:

Includes employer and non-employer firms. Does not include publicly-traded companies or other firms not classifiable by race/ethnicity and gender.

Source:

2007 Survey of Business Owners, part of the U.S. Census Bureau's 2007 Economic Census.

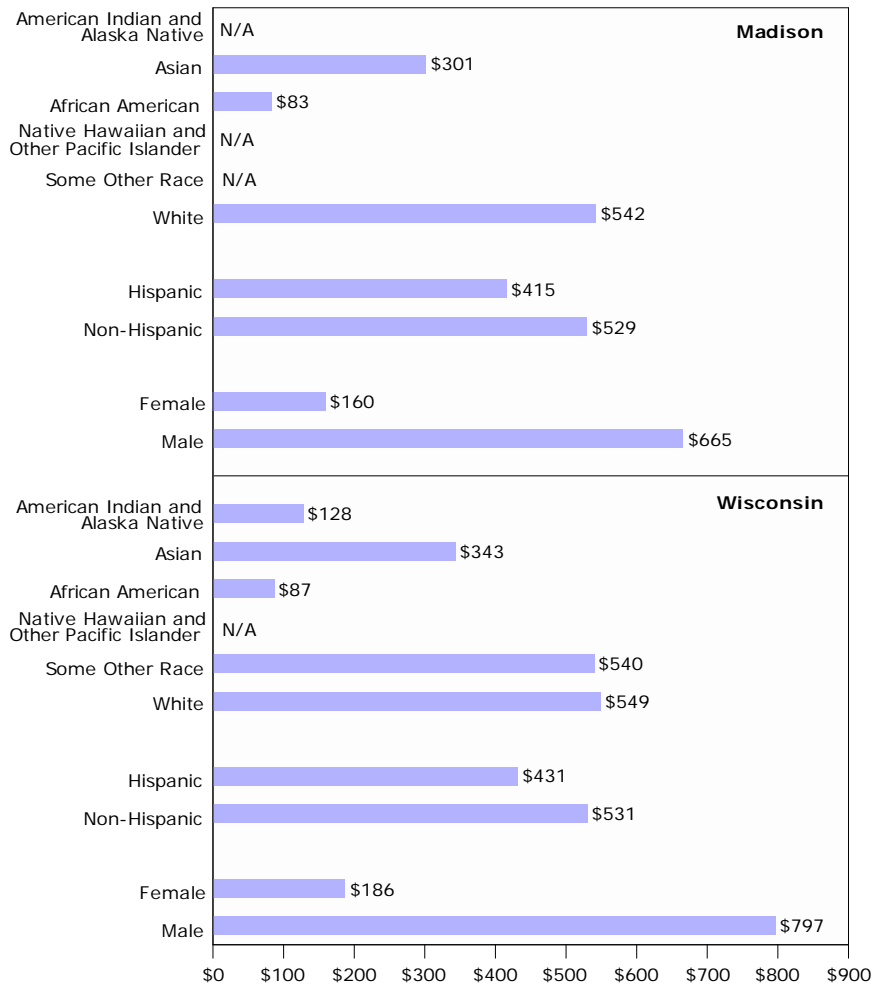


Figure H-11 presents average annual receipts in 2007 for only employer firms in Madison and in Wisconsin. (Employer businesses are those with paid employees.) Minority- and women-owned businesses had lower average business receipts than white- and male-owned employer businesses in Madison:

- Average receipts of African-American-owned businesses (\$618,000) were only 27 percent of the average for white-owned businesses (\$2.3 million).
- Asian American-owned businesses had average receipts (\$912,000) that were 40 percent of the average of white-owned businesses.
- Average receipts for women-owned businesses (\$1.1 million) were about half (48%) the average of male-owned businesses (\$2.4 million).

Data on mean annual receipts for American Indian and Alaska Native and Native Hawaiian and Other Pacific Islander business owners were not available for the Madison area, due to small sample sizes. Average receipts of Hispanic American-owned businesses (\$2.2 million) were equal to the average for non-Hispanic-owned businesses (\$2.2 million).

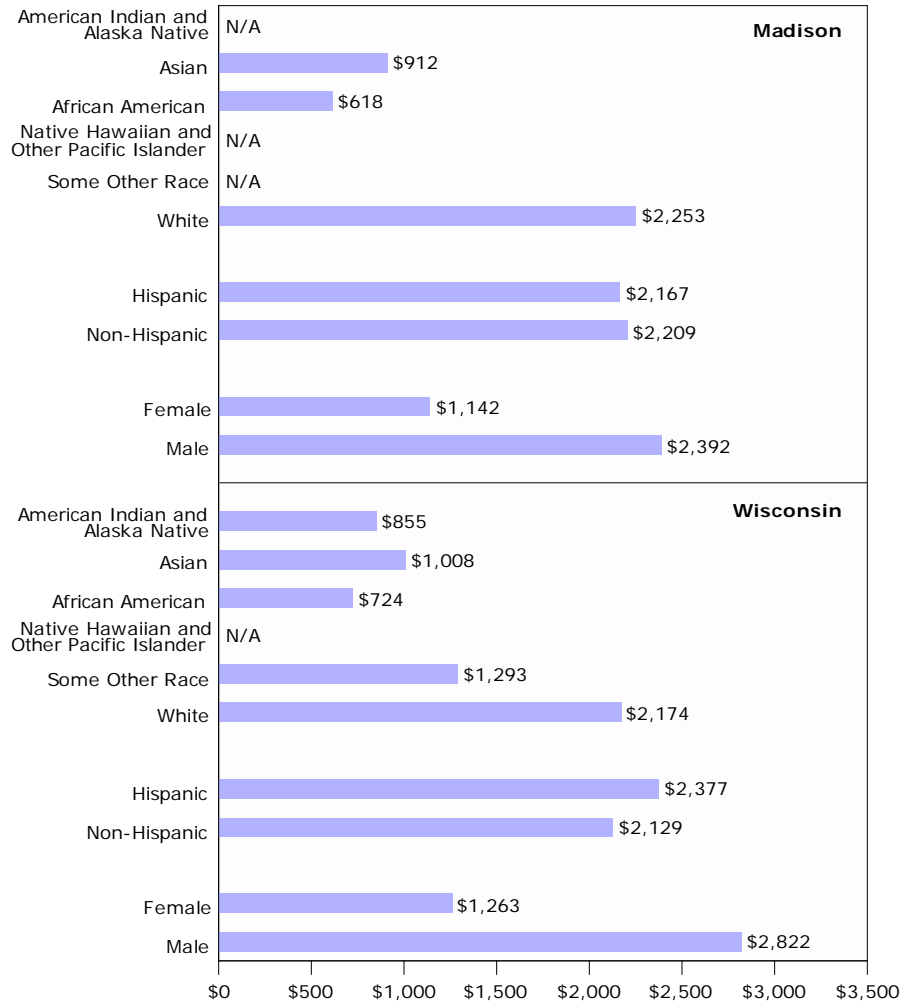
Figure H-11.
Mean annual receipts
(thousands) for
employer firms, by
race/ethnicity and
gender of owners, 2007

Note:

Includes only employer firms.
Does not include publicly-traded
companies or other firms not
classifiable by race/ethnicity
and gender.

Source:

2007 Survey of Business
Owners, part of the U.S. Census
Bureau's 2007 Economic
Census.



Construction. The study team also analyzed SBO receipts data separately for firms in construction. Figure H-12 presents mean annual receipts in 2007 for all (i.e., employer and non-employer firms combined) construction firms and for just employer firms by racial/ethnic and gender group. Results are presented for the Madison metropolitan area and the state of Wisconsin.

Figure H-12.
Mean annual receipts
(thousands) for firms in the
construction industry, by
race/ethnicity and gender of
owners, 2007

Note:

Does not include publicly-traded
companies or other firms not
classifiable by race/ethnicity and
gender.
“NA” denotes that data were not
available at the time of publication and
are subject to revision.

Source:

2007 Survey of Business Owners, part
of the U.S. Census Bureau’s 2007
Economic Census.

Madison	All firms	Employer firms
Race		
Minority	\$ 453	n/a
White	\$ 814	\$ 2,356
Ethnicity		
Hispanic	n/a	n/a
Non-Hispanic	\$ 811	\$ 2,373
Gender		
Female	\$ 496	n/a
Male	\$ 826	\$ 2,336
Wisconsin	All firms	Employer firms
Race		
American Indian and Alaska Native	\$ 220	\$ 768
Asian	n/a	n/a
African American	\$ 174	\$ 1,022
Native Hawaiian and Other Pacific Islander	n/a	n/a
Some other race	n/a	n/a
White	\$ 496	\$ 1,646
Ethnicity		
Hispanic	\$ 246	\$ 1,264
Non-Hispanic	\$ 489	\$ 1,643
Gender		
Female	\$ 404	\$ 1,772
Male	\$ 539	\$ 1,970

In the Madison construction industry, average 2007 receipts for minority- and women-owned firms were lower than the average for non-Hispanic, white- and male-owned businesses. Results for all businesses (i.e., employer and non-employer businesses combined) indicate that average receipts for minority-owned construction firms (\$453,000) were about 56 percent that of white-owned construction firms. Average receipts for women-owned construction firms (\$496,000) were about 60 percent that of male-owned construction firms. Data for the Madison area were not available for Hispanic-owned firms or by race due to small sample sizes. Average receipts for non-Hispanic-owned construction firms were \$811,000.

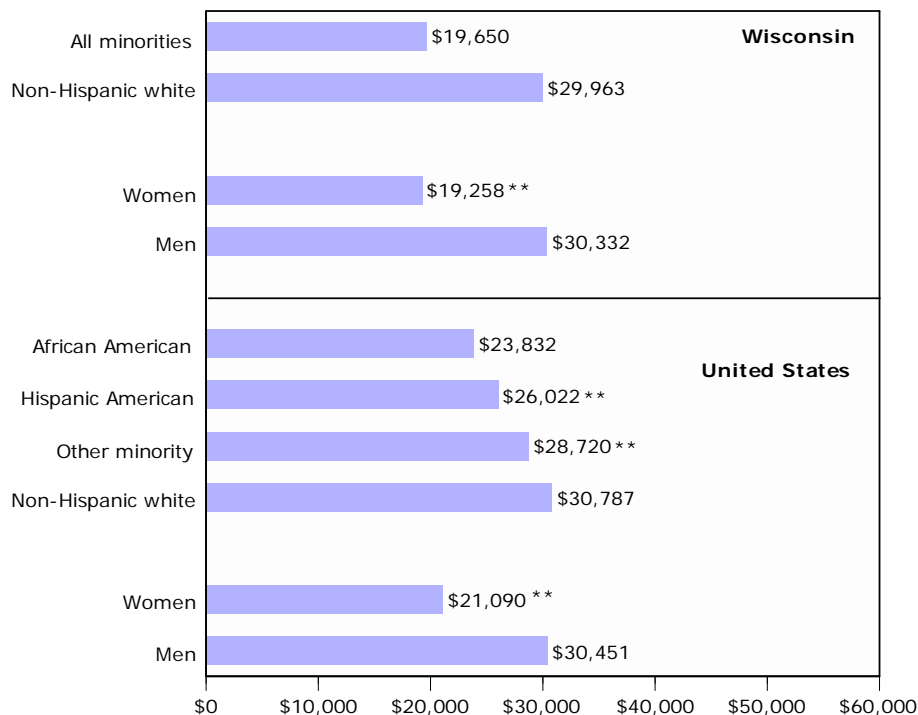
SBO data indicate that average receipts were higher for construction employer businesses than for all construction businesses (i.e., employer and non-employer businesses combined). Data were not available by race/ethnicity for Madison area construction employer businesses due to small sample sizes. Data for the state of Wisconsin show average receipts for American Indian and Alaska Native-owned construction employer businesses were less than half that of white-owned construction employer businesses and receipts for African American-owned businesses were about two-thirds that of white-owned businesses. Average receipts for Hispanic American-owned business were about three-fourths that of non-Hispanic-owned businesses. Average receipts for women-owned construction employer businesses (\$1.8 million) were about 90 percent that of male-owned construction employer businesses (\$2.0 million).

Business earnings. In order to assess the success of self-employed minorities and women in the construction industry, Keen Independent examined earnings of business owners using the Public Use Microdata Series (PUMS) from the 2000 U.S. Census and 2008-2012 ACS. Keen Independent analyzed earnings of incorporated and unincorporated business owners age 16 and over who reported positive business earnings.

Construction business owner earnings, 1999. Figure H-13 shows average earnings in 1999 for business owners in the construction industry in Wisconsin and in the United States. Due to small sample sizes for individual racial/ethnic groups, Keen Independent examined all minorities as a single category. Business earning results for 1999 were based on the 2000 Census, in which individuals were asked to give their business income for the previous year:

- On average, minority business owners in Wisconsin (\$19,650) earned about two-thirds that of Non-Hispanic white construction business owners (\$29,963), although this difference was not statistically significant.
- Female construction business owners in Wisconsin (\$19,258) earned less, on average, than male construction business owners (\$30,332). This difference was statistically significant.

Figure H-13.
Mean annual business owner earnings in the construction industry, 1999

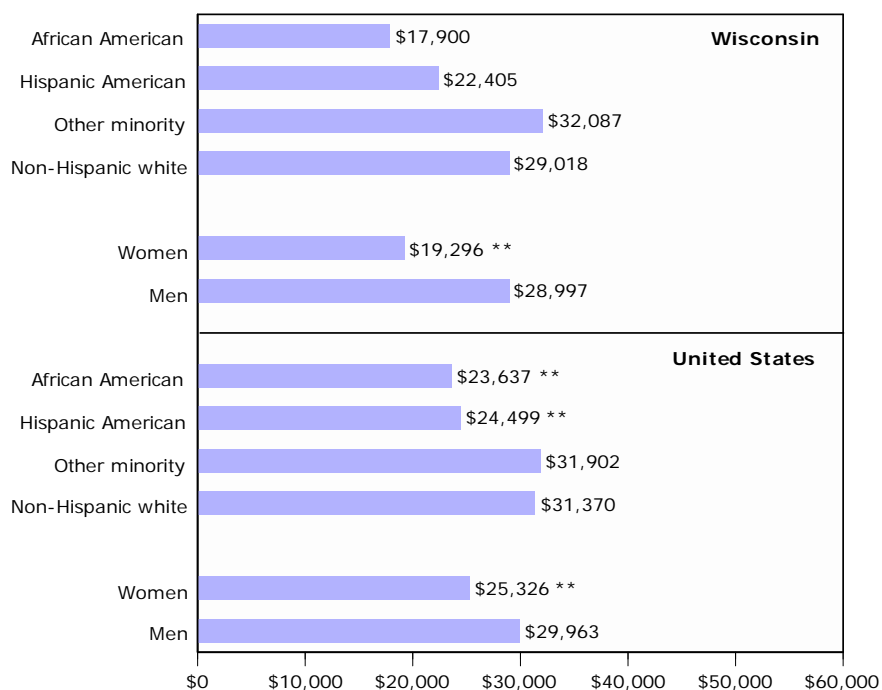


Note: The sample universe is business owners age 16 and over who reported positive earnings. All amounts in 1999 dollars. *,** Denotes statistically significant differences from non-Hispanic whites (for minority groups) or from men (for women) at the 90% and 95% confidence level, respectively.

Source: Keen Independent Research from 2000 U.S. Census 5% sample. The raw data extract was obtained through the IPUMS program of the MN Population Center: <http://usa.ipums.org/usa/>.

Construction business owner earnings, 2007-2012. The 2008-2012 ACS also reports business owner earnings. Because of the way that the U.S. Census Bureau conducts each year's ACS, earnings for business owners reported in the 2008-2012 sample were for the previous 12 months between 2007 and 2012.²⁰ However, all dollar amounts are presented in 2012 dollars. Figure H-14 shows earnings in 2007-2012 for business owners in the construction industry in Wisconsin and the nation as a whole.

Figure H-14.
Mean annual business owner earnings in the construction industry, 2007-2012



Note: The sample universe is business owners age 16 and over who reported positive earnings. All amounts in 2012 dollars.

*,** Denotes statistically significant differences from non-Hispanic whites (for minority groups) or from men (for women) at the 90% and 95% confidence level, respectively.

Source: Keen Independent Research from 2008-2012 ACS. The raw data extract was obtained through the IPUMS program of the MN Population Center: <http://usa.ipums.org/usa/>.

From 2007 through 2012, there were large differences in earnings between African American business owners and non-Hispanic white business owners, both in Wisconsin and nationally. The difference was not statistically significant in Wisconsin, likely due to small sample sizes; the difference was statistically significant at the national level. Additionally, Hispanic American-owned businesses reported lower earnings than non-Hispanic white businesses owners. This difference was significant for the nation as a whole, but not in Wisconsin; it is also likely due to small sample sizes. The earnings difference between female and male business owners lessened from 2007-2012 relative to 1999 but remained statistically significant.

²⁰ For example, if a business owner completed the survey on January 1, 2008, the figures for the previous 12 months would reference January 1, 2007 to December 31, 2007. Similarly, a business owner completing the survey December 31, 2012 would reference amounts since January 1, 2012.

Regression analyses of business earnings. Differences in business earnings among different racial/ethnic and gender groups may be at least partially attributable to race- and gender-neutral factors such as age, marital status, and educational attainment. Keen Independent performed regression analyses using 2000 Census data and 2008-2012 ACS data to examine whether there were differences in 1999 and 2007-2012 business earnings between minorities and non-Hispanic whites and between women and men after statistically controlling for certain race- and gender-neutral factors.

Keen Independent applied an ordinary least squares (OLS) regression model to the data that was very similar to models reviewed by courts after other disparity studies.²¹ The dependent variable in the model was the natural logarithm of business earnings. Business owners that reported zero or negative business earnings were excluded, as were observations for which the U.S. Census Bureau had imputed values of business earnings. Along with variables for the race/ethnicity and gender of business owners, the model also included available measures from the data considered likely to affect earnings potential, including age, age-squared, marital status, ability to speak English well, and educational attainment.

Due to small sample sizes for the Dane County construction industry, Keen Independent applied an OLS regression model for business earnings in the construction industry in Wisconsin. Business owners with positive business earnings are included in the model and any Dane County effects are estimated by using county-level control variables. All minorities were analyzed as a single, combined group due to small sample sizes.

Figure H-15 presents the results of the regression model for 1999 business earnings in the Wisconsin construction industry. The model indicated that several race- and gender-neutral factors significantly predicted earnings of business owners in the Wisconsin construction industry:

- Older business owners tended to have greater business earnings than younger business owners (age had less of an effect for the oldest individuals);
- Married business owners tended to have greater business earnings than unmarried business owners;
- Business owners that indicated fluent English tended to have lower earnings; and
- Disabled business owners tended to have lower earnings than non-disabled business owners.

After statistically controlling for race- and gender-neutral factors, there were still statistically significant effects of race and gender. Specifically, being a minority in Dane County or female was associated with lower business earnings.

²¹ For example, National Economic Research Associates, Inc. 2000. *Disadvantaged Business Enterprise Availability Study*. Prepared for the Minnesota Department of Transportation; and National Economic Research Associates, Inc. 2004. *Disadvantaged Business Enterprise Availability Study*. Prepared for the Illinois Department of Transportation.

Figure H-15.
Wisconsin construction business owner
earnings model, 1999

Note:

*,** Denotes statistical significance at the 90% and 95% confidence level, respectively.

Source:

Keen Independent Research from 2000 Census. The raw data extract was obtained through the IPUMS program of the MN Population Center: <http://usa.ipums.org/usa/>.

Variable	Coefficient
Constant	8.115 **
Age	0.119 **
Age-squared	-0.001 **
Married	0.404 **
Speaks English well	-1.043 **
Disabled	-0.310 **
Less than high school	-0.260
Some college	-0.167
Four-year degree	0.038
Advanced degree	0.118
Female	-0.592 **
Female in Dane County	-0.225
All minorities	-0.408
All minorities in Dane County	-1.953 **
Dane County	0.393 **

Figure H-16 presents the results of the regression model for 2007-2012 business earnings in the Wisconsin construction industry. The model indicated that several race- and gender-neutral factors significantly predicted earnings of business owners in the Wisconsin construction industry:

- Older business owners tended to have greater business earnings than younger business owners (age had less of an effect for the oldest individuals); and
- Married business owners tended to have greater business earnings than unmarried business owners.

After statistically controlling for race- and gender-neutral factors, there were still statistically significant effects of race and gender. Specifically, being a minority or female was associated with lower business earnings.

Figure H-16.
Wisconsin construction business owner
earnings model, 2007-2012

Note:

*,** Denotes statistical significance at the 90% and 95% confidence level, respectively.

Source:

Keen Independent Research from 2008-2012 ACS. The raw data extract was obtained through the IPUMS program of the MN Population Center: <http://usa.ipums.org/usa/>.

Variable	Coefficient
Constant	7.245 **
Age	0.123 **
Age-squared	-0.001 **
Married	0.432 **
Speaks English well	-0.168
Disabled	-0.220
Less than high school	-0.171
Some college	-0.049
Four-year degree	0.253
Advanced degree	0.471
Female	-0.479 **
Female in Dane County	1.158
All minorities	-0.642 **
All minorities in Dane County	0.917
Dane County	-0.069

Summary of business receipts and earnings. Keen Independent examined several different datasets to examine business receipts and earnings for firms in Madison and at the state level.

- Analysis of 1999 and 2007 through 2012 data indicated that, in Madison, average receipts for minority- and women-owned firms were lower compared to those of non-Hispanic white- and male-owned firms in the construction industry.
- Regression analyses using Census data for business owner earnings indicated that there were statistically significant effects of race/ethnicity and gender on business earnings, after statistically controlling for certain race- and gender-neutral factors.

E. Availability Interview Results Concerning Potential Barriers

As part of the availability interviews conducted with Dane County businesses, the study team asked firm owners and managers if they had experienced barriers or difficulties associated with starting or expanding a business or with obtaining work. Appendix D explains the interview process and provides the interview questions. Appendix G presents results for questions concerning access to capital, bonding and insurance.

Results for other interview questions are examined here, including whether the firm had experienced difficulties learning about:

- Bid opportunities with City of Madison;
- Bid opportunities with other public agencies in the Madison area;
- Bid opportunities in the private sector; and
- Subcontracting opportunities from Madison area prime contractors.

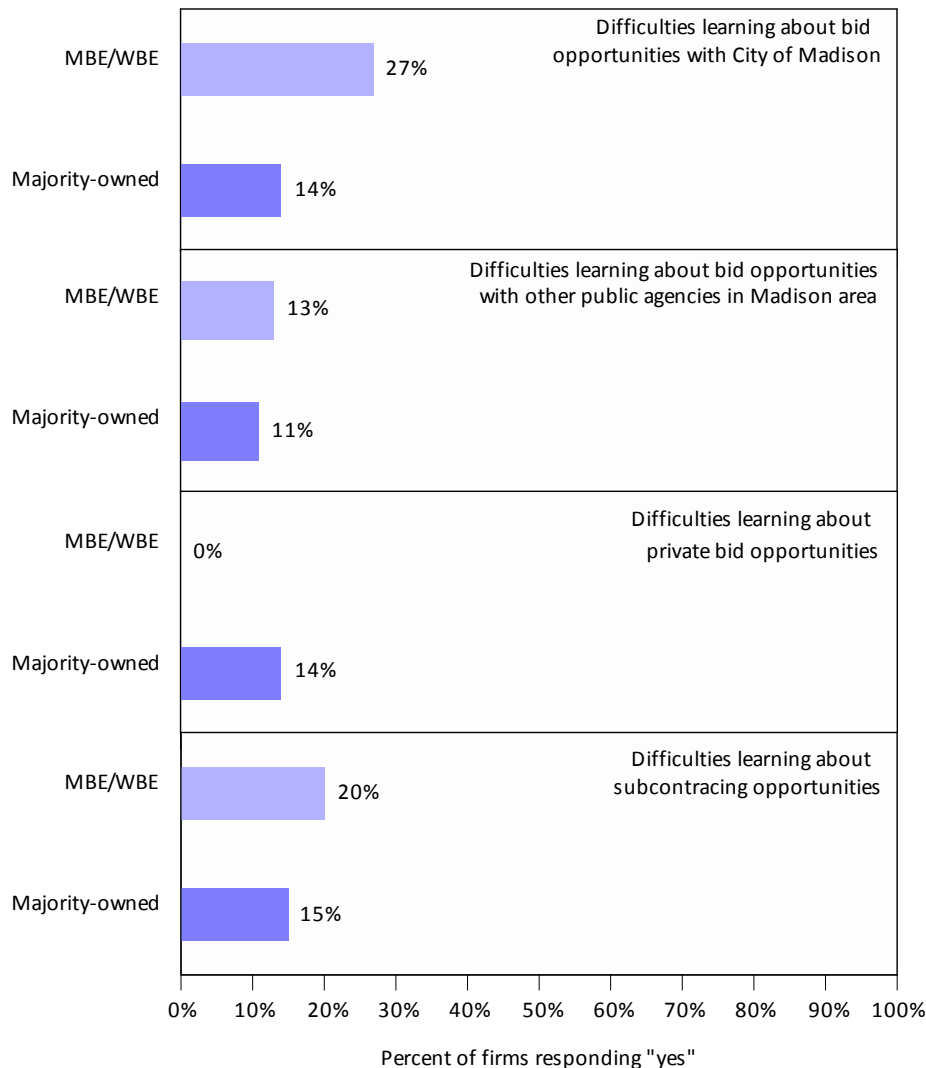
Learning about City of Madison bid opportunities. As shown in Figure H-17 on the following page, a greater percentage of minority- and women-owned firms (27%) indicated difficulties learning about bid opportunities with the City of Madison compared with majority-owned businesses (14%).

Learning about other public agency bid opportunities. Fewer firms reported difficulties learning about bid opportunities from other public agencies in the Madison area. About 13 percent of minority-and women-owned firms and 11 percent of majority-owned firms indicated they had experienced difficulties learning of bid opportunities from other local public agencies.

Learning about private sector bid opportunities. No minority- and women-owned firms and only 14 percent of majority-owned firms reported any difficulties learning about private sector opportunities.

Learning about subcontracting opportunities. Minority- and women-owned firms were more likely than majority-owned firms to report difficulties learning about subcontracting opportunities. Twenty percent of minority- and women-owned firms and 15 percent of majority-owned firms indicated difficulties learning of subcontracting opportunities from Madison area prime contractors.

Figure H-17.
Responses to 2014 availability interview questions concerning learning about work,
Dane County MBE, WBE and majority-owned firms



Note: "WBE" represents white women-owned firms, "MBE" represents minority-owned firms and "majority-owned" represents non-Hispanic white male-owned firms.

Source: Keen Independent Research from 2014 Availability Interviews.

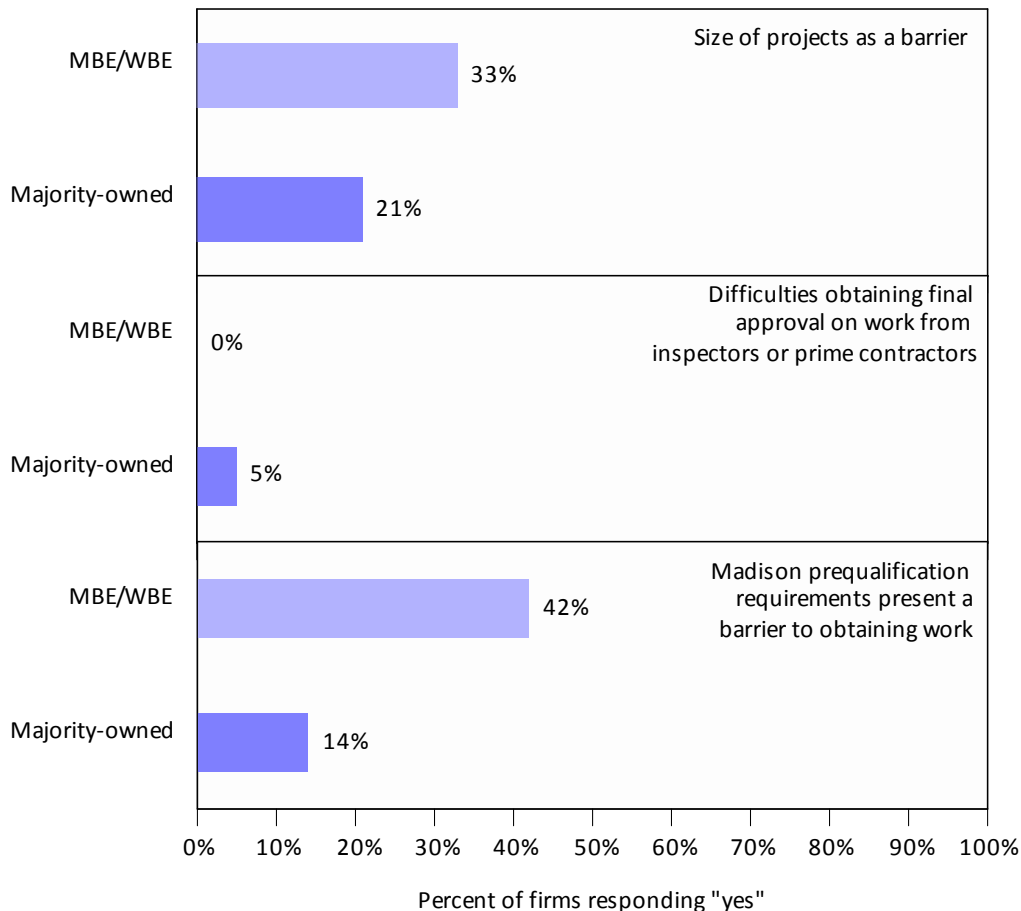
Size of projects. Interviewers also asked business owners and managers whether size of projects presented a barrier to bidding. About one-fifth of majority-owned firms reported that size of projects was a barrier. A greater percentage of MBEs and WBEs (33%) reported that size was a barrier to bidding. Figure H-18 shows these results.

Obtaining final approval on work from inspectors or prime contractors. Few firms indicated difficulties regarding inspections or approval of work, regardless of ownership (see Figure H-18).

Prequalification for work in City of Madison. Few majority-owned firms (14%) reported City of Madison prequalification requirements present a barrier to obtaining work, while about 42 percent of minority-and women-owned firms indicated the requirements present a barrier to obtaining work with the City of Madison.

Figure H-18.

Responses to 2014 availability interview questions concerning size of projects, approval of work, and licensing and prequalification, Dane County MBE, WBE and majority-owned firms



Note: "WBE" represents white women-owned firms, "MBE" represents minority-owned firms and "majority-owned" represents non-Hispanic white male-owned firms.

Source: Keen Independent Research from 2014 Availability Interviews.

Summary of analysis of availability interview questions concerning barriers. The availability interviews suggest that relatively more minority- and women-owned firms have difficulty learning about bid opportunities with the City of Madison.

Relatively more minority- and women-owned firms than majority-owned firms reported that size of projects was a barrier to bidding and that the City of Madison prequalification requirements present a barrier to obtaining work.