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A Comparative Study of Performance, Impediments, Advantages, and Disadvantages of Construction and Professional Disadvantaged Business Enterprises

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A COMPARATIVE STUDY OF PERFORMANCE, IMPEDIMENTS, ADVANTAGES, AND DISADVANTAGES OF CONSTRUCTION AND PROFESSIONAL DISADVANTAGED BUSINESS ENTERPRISES

By

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ABSTRACT

A Comparative Study of Performance, Impediments, Advantages, and Disadvantages of Construction and Professional Disadvantaged Business Enterprises

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Construction and professional disadvantaged, minority, and women business enterprises (DBE/MBE/WBEs) face several impediments that hinder their business growth. A questionnaire survey was conducted to determine the important factors that affect their business performance, impediments faced by these business enterprises, advantages, and disadvantages of being DBE (DBE will be an umbrella designation for DBE, MBE, and WBE). This study compares the difference in responses from these two groups. A total of 333 business enterprises responded to the questionnaire. The survey results showed that construction firms gave significantly higher importance to "financial" issues and "safe work practices" as their most important factors for business performance than professional firms do. The construction firms' ranked "lack of technology," "unskilled manpower," and "expensive manpower" as significant impediments to their business

success as compared to professional firms. However, no significant difference was detected in the ranking of the advantages of being DBEs between these two groups. Regarding the disadvantages of being a DBE, construction firms ranked “excessive bid shopping” significantly higher than professional firms. The respondents also provided a set of recommendations for the government policy makers/ owners and prime contractors to improve the DBE status.

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CHAPTER 1

INTRODUCTION

1.1 Background

Disadvantaged/Minority/Women Business Enterprises (DBE/MBE/WBEs) are significant contributors to the U.S. economy. In the context where, minority populations are making a quick shift to majority population, it is necessary to identify and address their business impediments so that this sector can significantly contribute to the recovery of the U.S. economy. They are important not only to sustain local businesses, but also to create several opportunities for minority populations. Two major DBE/MBE/WBE groups that are considered in this study are construction and professional firms.

In order to address the minority issues, the federal government issued DBE rules and regulations related to these businesses. Congress created the Small Business Administration (SBA) on July 30, 1953, for helping and protecting the rights of small businesses (SBA, 2013). President John F. Kennedy issued Executive Order # 10925 in March 6, 1961 as the government's commitment to equal opportunity, which states that there should not be any bias regarding race, creed, color, or nationality of people during employment. Again, Executive Order # 11246 issued by President Lyndon B. Johnson in 1965 states that there should not exist any discrimination based on race, color, religion, and national origin by the contractors who receive federal contracts and subcontracts; and care should be taken to promote women and minorities.

Likewise, the Minority Business Development Agency (MBDA) was established by President Nixon on March 5, 1969 originally naming the Office of Minority Business

Enterprise as a federal agency to assist minority business enterprise by identifying their business impediments and promoting them for the welfare of country.

The Government-wide Acquisition Contracts (GWAC) support small businesses by setting aside various GWACs only for small businesses and 8a STARS GWACs exclusively for small disadvantaged businesses (SDBs) that participate in SBA's 8(a) program. This program has spent $ 2.7 billion in awards to SDBs. The GSA's emphasis is on teaming, subcontracting, and mentoring programs. The GSA's Mentor-Protégé Program is designed to encourage and motivate GSA prime contractors to assist small businesses to succeed with government contracts.

According to a report of Victory in Procurement (VIP) Survey (2010), small businesses are growing due to the government goals of spending on their businesses. The report also states that minority business firms are more active and spend significant time and money in bids than do the average small and women businesses. It was also found that the minority owned businesses depend upon building relationships and personal connections, as most of them have active consultations and agency-related participations. Further, the primary reason for seeking federal contracts is a business growth. Despite governmental efforts to prosper the disadvantaged firms, most of them are not succeeding; there are still major issues related to their performance, impediments, advantages, and disadvantages of being disadvantaged businesses.

Some of the terms related to the minority businesses used in this thesis are described below.

1.2 Definitions

The definitions of DBE/MBE/WBEs are explained below.

1.2.1 Disadvantaged Business Enterprise (DBE)

A DBE can be a women, minority, disabled or veteran-owned business. According to the U.S. Department of Transportation, "DBEs are for-profit small business concerns where socially and economically disadvantaged individuals own at least a 51% interest and also control management and daily business operations. African Americans, Hispanics, Native Americans, Asian-Pacific and Subcontinent Asian Americans, and women are presumed to be socially and economically disadvantaged. Other individuals can also qualify as socially and economically disadvantaged on a case-by-case basis. To be regarded as economically disadvantaged, an individual must have a personal net worth that does not exceed $1.32 million. To be seen as a small business, a firm must meet SBA-size criteria and have average annual gross receipts not to exceed $22.41 million."

1.2.2 Minority Business Enterprise (MBE)

According to the National Minority Supplier Diversity Council, Inc., "A minority-owned business is a for-profit enterprise, regardless of size, physically located in the United States or its Trust Territories, which is owned, operated, and controlled by minority group members. Minority group members are U.S. citizens who are Asian, Black, Hispanic, and Native American." The MBE should meet SBA size requirements to qualify for DBE status.

1.2.3 Women Business Enterprise (WBE)

According to the SBA, any small firm owned, controlled, and primarily managed by at least 51 % of one or more women is a women business enterprise.

In this thesis, all these three terms (DBE, MBE, and WBE) are substituted for a single term DBE.

1.3 Scope and Motivation

This study is limited to the DBEs in the U.S. This study focuses on comparing construction and professional firms' opinions on issues related to performance, impediments, advantages, and disadvantages of being Disadvantaged Business Enterprises. For this study, construction firms include those firms who are involved in the sectors of general and heavy construction contractors and specialty trade contractors related to construction. Professional firms include all the firms who specialize in professional and scientific services comprising all architectural and engineering design and consulting services. Review of the literature showed that limited studies were conducted to compare important factors that affect their businesses' performance and impediments to succeed in these groups. Similarly, the difference in major advantages and disadvantages of being DBE firms between these two groups has not been identified. The comparative studies of construction and professional DBEs were not done. Also, there had been no major studies conducted to capture their suggestions for government policy makers, owners, and prime contractors to improve their status.

1.4 Objectives of the Study

The overall objective of this study is to determine whether there is any significant difference in the ranking of the factors provided by construction and professional DBEs related to their performance, impediments, advantages, and disadvantages of being Disadvantaged Business Enterprises. The main objectives of the study were to:

i. Determine the construction and professional firms' ranking for the factors related to their business performance;

ii. Determine the construction and professional firms' ranking for the impediments related to successful business operations;

iii. Determine the construction and professional firms' ranking of the advantages and disadvantages of being DBEs;

iv. Compare the statistically construction and professional firms' ranking of the factors related to performance, impediments, advantages, and disadvantages of being DBEs;

v. Summarize respondents' suggestions for the government policy makers, owners, and prime contractors to improve the DBE firms' status.

CHAPTER 2

LITERATURE REVIEW

Koehn and Espaillat (1984) conducted a study to determine whether the MBE provision enacted in 1969 fulfilled its goals. The study collected the opinions of small and large contractors regarding this provision and also estimated the extra cost added to construction cost due to it. The authors also identified the advantages and disadvantages of this provision to the construction contractors. The data was collected from 193 respondents' firms that belong to Top 400 Engineering News Record (ENR) Contractors; Indiana Constructors, Inc.; and the Associated General Contractors (AGC) of Indiana. The results showed that large-size contractors more easily met the MBE regulations than small-size contractors. However, it was costly to comply with these regulations. Though the MBE regulations indicated an increased number of minority contractors, the quality of minority contractors has not increased.

Similarly, Chang (1989) conducted a study to determine the impediments to business success of DBE and non-DBE contractors. From the statistical study of 154 DBEs and 444 non-DBEs of the State of Florida, the author concluded that a higher number of DBEs faced the problem of obtaining working capital. They also faced difficulty in meeting loan requirements or posting collateral and getting sufficient bank credit. However, non-DBEs faced less difficulty to get construction contracts or hire skilled manpower. They easily met project deadlines and obtained bonds and licenses. The author also found that non-DBEs were better in handling employees' turnover, negotiating with unions, and reading blueprints than DBEs.

Similar findings were reported by Bates (1989) regarding the impediments of DBE contractors. The study found that firms with higher capital investment at the startup of business have higher rates of survival and the owner's level of education determined access to capital sources. However, when the data of African American minority firms were compared with non-minority firms, the minority firms with equal education, age, and capital characteristics received smaller loan than non-minority firms.

Beliveau et al. (1991) studied the weaknesses and shortcomings in the existing DBE programs of Virginia and Maryland and proposed a new improved model. The model was prepared by conducting personal and in-phone interviews of 15 DBEs and 13 prime contractors. The study concluded that the program was beneficial for DBEs to get in the construction business, but they faced difficulties in obtaining funding and bonding. Some of the weaknesses of this program were excessive paperwork, sheltered environment, and bid shopping. The proposed new model suggests selecting DBE firms with basic levels of expertise and providing necessary resources and technical assistance to successfully start their businesses. The resources and technical assistance would then be reduced gradually by monitoring the progress to make them self-competent.

A similar study was conducted by El-Itr and Kangari (1994) to identify weaknesses of existing Equal Business Opportunity (EBO) Program. The study collected data by interviewing contractors, bonding companies, and minority sub-contractors. The participants recommended that only competent minority contractors should qualify for EBO programs, otherwise the requirements of this Program will create operational problems to the construction industry. Further, the participants recommended that the construction industry should be given incentives and opportunities to train minority

contractors without the interference of the government. Also, the EBO Program should be able to support a large number of minority contractors.

Similar to the studies of Beliveau et al. (1991) and El-Itr and Kangari (1994), Glover (1977) found that the problems faced by minority firms were financing, marketing, bonding, and labor issues (such as recruiting, retaining, and training). They also have problems in maintaining relationships with owners and prime contractors due to lack of business management skills. It was also difficult to obtain licenses for minority businesses. The author suggested that these problems could be addressed by increasing the volume of work to minority contractors and also by providing bonding, financial, managerial, and technical assistance.

Myers and Chan (1996) found that the success rate for winning the contracts were lower for the MBEs than non-MBEs in New Jersey. The data showed that there was 7% reduction in the contracts awarded to MBEs during the set-asides period. Set-aside is a government program designed to assist minority and women owned businesses by allocating a fixed percentage of state contracts for award to MBEs. The set-aside period was successful in increasing the number of bids submitted by the MBEs. However, it had paradoxical effects on minority businesses as it reduced their success rate without increasing the works.

The authors recommended that management people in the owner community commit in their businesses to set minority goals and train their staffs (Carter et al. 1999). There must be a provision for a full-time MBE coordinator. Further, the study also concluded that government influence is a key for success of minority business programs. Similar

recommendations were made by Shah and Ram (2006) for the success of minority businesses.

The study conducted with DBE program managers of 27 states showed that there were staffing, budgeting, and funding problems in the DBE program administration, along with a lack of disparity studies in DBE goal-setting issues. Also, prime DBEs are facing problems related to bonding and capital (TRB-DBE 2008).

Kim and Arditi (2010) compared the performance of DBE and non-DBE using a combined performance measurement model of balanced scorecard, key performance indicators, and European foundation for quality measurement. These models consisted of seven performance issues related to financial, customer satisfaction, internal business, learning and growth, job safety, technological innovativeness, and quality management. The statistical analysis of responses of 132 senior executives was conducted at 5% significance level to compare the responses of these business groups. The results showed that non-DBE firms are far better than DBE firms involved in transportation projects. They performed better because they are financially sound and bring innovation to the project. They have a tendency to learn while growing and care for the satisfaction of the customers. But, when the same comparison was made by selecting these firms according to age and size, there were not significant differences in any of these performance issues. This suggested that the performance of DBEs and non-DBEs construction companies was similar for same ages and size and the difference exists only when these size and age factors are not considered.

In contrast to the above studies, another study shows that minority-owned businesses are achieving success due to continuous support provided by the U.S. General Services Administration by partnering with the U.S. Small Business Administration (SBA), the Department of Commerce's Minority Business Development Agency (MBDA), and others (Park 2010). The study found that each year 23% of federal contracts go to SBA and out of these contracts; SBA gives 5% to Small Disadvantaged Business (SDB). In FY 2010, these agencies had awarded contracts worth of $829 million to the SDBs, an increase in $36 million from FY 2009. The GSA also awarded contracts worth $452 million to minority firms through one of its portfolios, the American Recovery and Reinvestment Act (ARRA). Similarly, the Multiple Award Schedules (MAS) Program is the largest acquisition program of the federal government for supporting small businesses. Out of its 19,000 contracts, a total of 4,352 contracts will be awarded to minority-owned firms and 2,331 contracts will be given to SDBs. In FY 2010, SDB received contracts worth $2.8 billion from this program.

CHAPTER 3

RESEARCH METHODOLOGY

The methodology of this research consisted of five steps. First, the study objectives were defined. Then, the literature related to DBE impediments was reviewed. In the third step, the questionnaire was prepared and sent to these DBEs. In the fourth step, the data was collected and analyzed using statistical tests to develop the conclusions. Finally, the conclusions of the study and recommendations for future studies are presented.

3.1 Questionnaire Preparation and Data Collection

The questionnaire was prepared using UNLV's online Qualtrics Survey Software. The questionnaire consists of 16 questions divided into three sections. The first section consists of general information followed by the problem identification section, and the recommendation section. The types of respondents are categorized into three groups. The first group is related to the construction while the second group is related to the engineering and professionals, and the third group is related to other businesses. The demographic section consists of information related to types of business certifications and locations, types of works and number of employees, experience and annual revenue, growth rates of the firms and the educational backgrounds of the owners, etc. The second section consists of questions that should be ranked by the respondents in a varying scale of importance. The questions consist of ranking factors related to performance, major external and internal impediments, and advantages and disadvantages of being DBE owners. Appendix A shows the factors related to performance, impediments, advantages, and disadvantages of being DBEs as identified from literature review. The final section

consists of recommendations to improve the business relationships of the minority business enterprises with the government/ owners, prime contractors, and others. The questionnaire is attached in the Appendix D.

The data collection was conducted in two phases. The first phase identified potential respondents by searching names and e-mail addresses of DBE firms from all the States Department of Transportation (DOT) websites. The firms that were found in the certified DBE lists were used for the study. All of these firms were certified for Transportation Contracts by the DOT. Then, an email was sent to them asking if they were interested in taking part in this survey. In the second phase, the online survey questionnaire was sent to those firms who responded to the first e-mail.

3.2 Data Analysis

Descriptive statistics were used to analyze the general-information section data. The survey data of problem identification section was analyzed using Statistical Package for Social Science (SPSS) 19 Software. The statistical tests used to analyze the data are explained below.

3.2.1 Statistical Tests

The Relative Important Index (RII) was calculated to determine the ranking of the factors related to performance, impediments, advantages, and disadvantages of being DBEs. A statistical test was conducted to determine the significant difference in the responses between construction and professional groups. The responses were related to business issues such as performance, external and internal impediments, advantages, and

disadvantages of being DBEs. Binary logistic regression (BLR) was conducted to check the significance of these factors and identify the predictors of these two groups.

3.2.1.1 Relative Important Index (RII)

RII is calculated to rank the factors according to the order of importance. This index is calculated using Equation 1.

$$\text{RII} = \frac{\sum \text{W}}{(\text{A} * \text{N})} \qquad \ldots\ldots\ldots\ldots\ldots\ldots\ldots\ldots\ldots (1)$$

Where, W= weights given to each reason by respondents; A= highest weight; N = total number of respondents.

3.2.1.2 Binary Logistic Regression (BLR)

Logistic regression is one of the statistical methods for modeling the dependency of a binary response variable on one or more explanatory variables, i.e. it analyzes a set of data consisting of independent variables, or predictors that determine an outcome. Logistic regression determines the best-fitting model that describes the relationship between the characteristics of dependent variables with the predictors. The coefficients generated by the logistic regression predict a logit transformation of the probability of presence of relationship characteristics. It is calculated using Equation 2.

$$\text{Logit}(p) = a_0 + a_1 X_1 + a_2 X_2 + a_3 X_3 + \ldots + a_k X_k \qquad \ldots\ldots\ldots\ldots\ldots (2)$$

Here, p is the probability of the presence of relationship characteristics and logit transformation is the logged odds that can be calculated using Equation 3.

$$\text{Odds} = \frac{p}{(1\text{-}p)} = \frac{\text{probability of presence of characteristic}}{\text{probability of absence of characteristic}} \quad \text{.....(3)}$$

To determine the logit (p), Equation 4 will be used

$$\text{logit}(p) = \ln\left(\frac{p}{1-p}\right) \quad \text{……(4)}$$

The estimation in the logistic regression chooses the parameters that maximize the likelihood of observing the sample values, and the results of this logistic regression can be used to classify firms with respect to what decision we think they will make (Logistic Regression, 2013). The research and null hypotheses for this test are described below.

3.2.1.3 Research Hypothesis

H_A: All data is sampled from different populations, i.e. there are significant differences in the responses.

3.2.1.4 Null Hypothesis

H_O: All data is sampled from the same population, i.e. there are no significant differences in the responses.

If the p value is less than 0.05, the test will reject the null hypothesis and confirms that the sample is collected from different populations.

CHAPTER 4

DATA COLLECTION

The first phase of data collection identified 30,420 DBE firms listed in the states Department of Transportation websites. The e-mails could not be delivered to about 3,500 firms due to incorrect e-mail addresses. The e-mails were sent a couple of times informing about the survey. The intended participants were from construction and professional firms, but to get a general idea of overall DBEs, firms other than these two were also emailed. A total of 1,006 respondents agreed to participate.

In the second phase, the online questionnaire was sent to these 1,006 respondents. The survey was sent using UNLV's online Qualtrics Survey Program. Among these respondents, 416 filled out the survey questionnaire, constituting a 41 % response rate.

Out of 416 responses, 331 were completely filled. Since, most of the responses were partly responded, only two were selected from the remaining 85 responses. A total of 333 responses were used for the study. The data was collected in the Qualtrics Survey Program and was then downloaded in Excel, and analyzed using SPSS 19 Software.

CHAPTER 5

RESULTS

The study results are presented in three sections. The first section consists of descriptive statistics of general information data. The second section consists of Relative Importance Index (RII) to rank the factors related to the business performance, impediments, advantages, and disadvantages of DBEs. The final section consists of statistical analysis conducted to determine the significant predictors for the construction and the professional groups. Binary logistic regression (BLG) was conducted to check the significance of relationship between the predictor variables and these two groups.

The survey questionnaire had an importance scale in decreasing order, but in the actual calculations, increasing order of importance is used, i.e., in a scale of one to ten, ten is the most important in rank and one is the least. This is done to simplify the calculation process and visualize the data graphically.

5.1 Descriptive Statistics of Respondents' Demographics

Out of the 416 total responses, 333 were complete. These complete responses were used to analyze the data. The number of respondents and their states are shown in Table 1. California has the maximum number of respondents followed by Washington, Texas, and Maryland. The rest of 57 % of the respondents were from 34 other states (Massachusetts, Florida, Colorado, Alabama, Alaska, Georgia, Hawaii, Idaho, Illinois, Indiana, Iowa, Kansas, Louisiana, Arizona, Arkansas, Connecticut, Delaware, Maine, Minnesota, Missouri, Montana, Nevada, New Hampshire, New Jersey, New York, North Carolina,

Ohio, Utah, Oregon, Pennsylvania, Virginia, South Carolina, Tennessee, and Wisconsin) and from District of Columbia and Puerto Rico.

Table 1. Location of Respondents' Firms

Name of the state	No. of respondents	Percentage of respondents
California (CA)	71	19 %
Washington (WA)	37	10 %
Texas (TX)	37	10 %
Maryland (MD)	33	9 %
Massachusetts (MA)	27	7 %

As seen in Fig. 1, out of 333 respondents, the majority were from professional firms (46%), followed by construction firms with 32 %. About 22% of the respondents were from other businesses, e.g. manufacturing, food processing, photography, retail stores, bank etc.

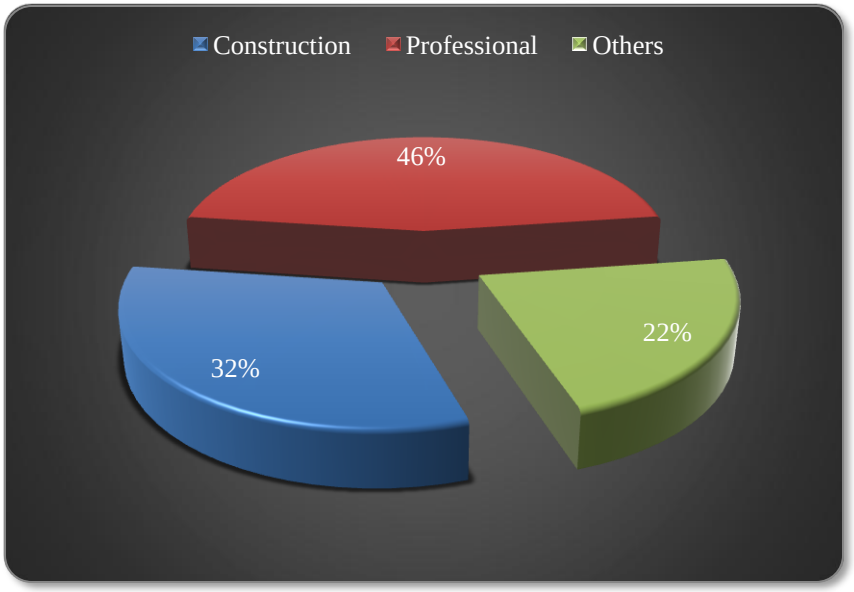

Fig. 1. Distribution of Respondents' Firms

The respondents were asked about the number of employees working in their firms. Table 2 shows the range of employees for these three groups of respondents. About one third of the respondents' firms have less than 10 employees. Only 3.6% of the respondents' firms have more than 50 employees.

Table 2. Size of Respondents' Firms

Range of employees	No. of respondents			Sub-total	% of total respondents
	Construction	Professional	Others		
Less than 10	63	116	53	232	69.6%
10 - 50	40	33	16	89	26.7%
51 - 100	3	3	3	9	2.7%
More than 100	1	0	2	3	0.9%
Total	107	152	74	333	100.0%

Table 3 shows the respondents firms work experience. The majority of firms (56.5%) that responded to the survey have more than 10 years of experience. About 60.7 % of the construction firms and 52 % of the professional firms have more than 10 years of experience.

Table 3. Experience of Respondents' Firms

Experience of firms	No. of respondents			Sub-total	% of total respondents
	Construction	Professional	Others		
Less than 1 year	1	0	0	1	0.3%
1 - 5 years	22	44	15	81	24.3%
5 - 10 years	19	29	15	63	18.9%
More than 10 years	65	79	44	188	56.5%
Total	107	152	74	333	100.0%

The annual revenues of the respondents' firms are shown in Table 4. Based on annual revenues, about 30.4% of the respondents' firms can be categorized as large firms. More construction firms (40.2 %) have annual revenues greater than $1 million as compared to the professional firms (22.5 %). About one fourth of the firms have annual revenues less than $100,000.

Table 4. Annual Revenue of Respondents' Firms

Annual revenues	No. of respondents			Sub-total	% of total respondents
	Construction	Professional	Others		
Less than $100,000	19	39	19	77	23.2%
$100,000 - $500,000	33	61	15	109	32.8%
$500,000 - $1 million	12	17	16	45	13.6%
More than $1 million	43	34	24	101	30.4%
Total	107	151	74	332	100.0%

The respondents' firms were asked about the educational level of the owners. This question was not focused on specific type of qualification (such as, Bachelors' in Business or History). Table 5 shows the level of education. About three-fourths of the firm owners have an educational level higher than or equal to a bachelor's degree. When the data was divided into construction and professional groups, the result showed that about 91% of the professional firm owners have an educational level higher than or equal to a bachelor's degree as compared to 50% for construction firms.

Table 5. Educational Level of Owners' of Respondents' Firms

Education level	No. of respondents			Sub-total	% of total respondents
	Construction	Professional	Others		
Up to high school	36	6	13	55	16.5%
Associate degree	17	7	6	30	9.1%
Bachelor's degree	40	54	27	121	36.3%
Graduate degree	13	71	25	109	32.7%
Ph.D. or above	1	14	3	18	5.4%
Total	107	152	74	333	100.0%

The respondents were asked whether their firms are the members of any unions. The majority of construction firms (76%) surveyed were not members of any unions (Table 6). All the professional firms except one were not unionized. This professional firm might misunderstood the question. About 91% of the total respondent firms were not associated with any unions.

Table 6. Association of Respondents' Firms with Unions

Is business unionized	No. of respondents			Sub-Total	% of total respondents
	Construction	Professional	Others		
Yes	17	1	3	21	6.3%
No	81	150	71	302	91.0%
Partial	8	1	0	9	2.7%
Total	106	152	74	332	100.0%

The respondents were asked whether their firm's rate of growth has been increasing or decreasing during the past five years. The question did not focus on any specific parameter (such as, revenue, profit, employees) for the growth rate.

Table 7 shows the status of the respondents' firms' growth rate. About 39% of the total respondents said that their firms' growth rate is increasing. However, 40% of the professional firms responded that there is an increase in the growth rate of their firms as compared to 36 % for the construction firms.

Table 7. Growth Rate of Respondents' Firms

Growth rate of firm	No. of respondents			Sub-total	% of total respondents
	Construction	Professional	Others		
Decreasing	47	39	24	110	33.0%
Constant	21	52	19	92	27.6%
Increasing	39	61	31	131	39.4%
Total	107	152	74	333	100.0%

The respondents were asked about their repeat work with the same clients. The results showed that 61% of the professional firms have more than 50% of their work with the same clients (Table 8). About 46 % of the construction firms have more than 50% of their work with the same clients.

Table 8. Repeat Work of Respondents' Firms with Clients

Percentage of repeat work	No. of participants			Sub-Total	% of total respondents
	Construction	Professional	Others		
1% - 25 %	29	28	17	74	22.3%
25 % - 50 %	29	30	17	76	22.9%
50 % - 75 %	31	46	19	96	28.9%
75 % - 100 %	18	48	20	86	25.9%
Total	107	152	73	332	100.0%

5.2 Ranking of Performance, Impediments, Advantages, and Disadvantages of being Disadvantaged Business Enterprises

Relative importance index (RII) is used to rank factors related to performance, impediments, advantages, and disadvantages of being a DBE. Fig. 2 shows the combined RII values of factors related to performance for all of the respondent firms. "Relationship with the clients," "financial," and "relationship with the employees" are ranked first,

second, and third respectively.

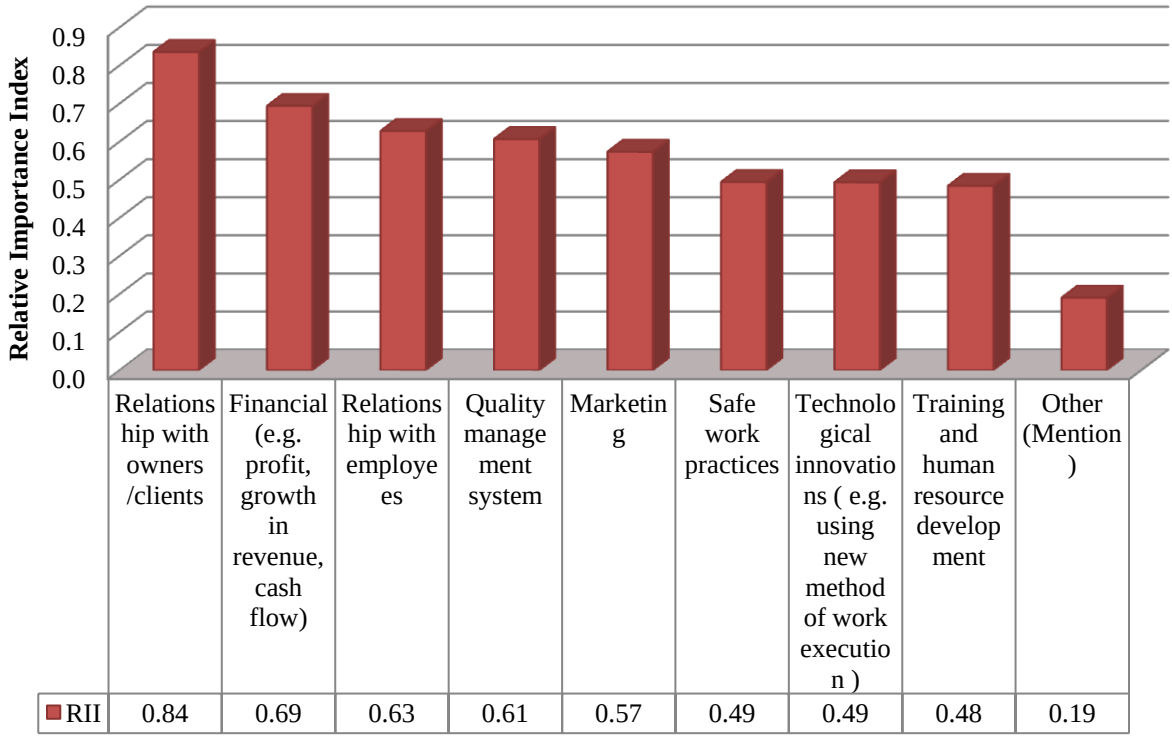

Fig. 2. Combined Ranking of Performance Factors

The combined RII values for internal impediments related to all the respondents firms are shown in Fig. 3. The major impediments for the success are "expensive manpower," "lack of technology," "lack of business management skills," "lack of training and communication to staffs," and "unskilled manpower."

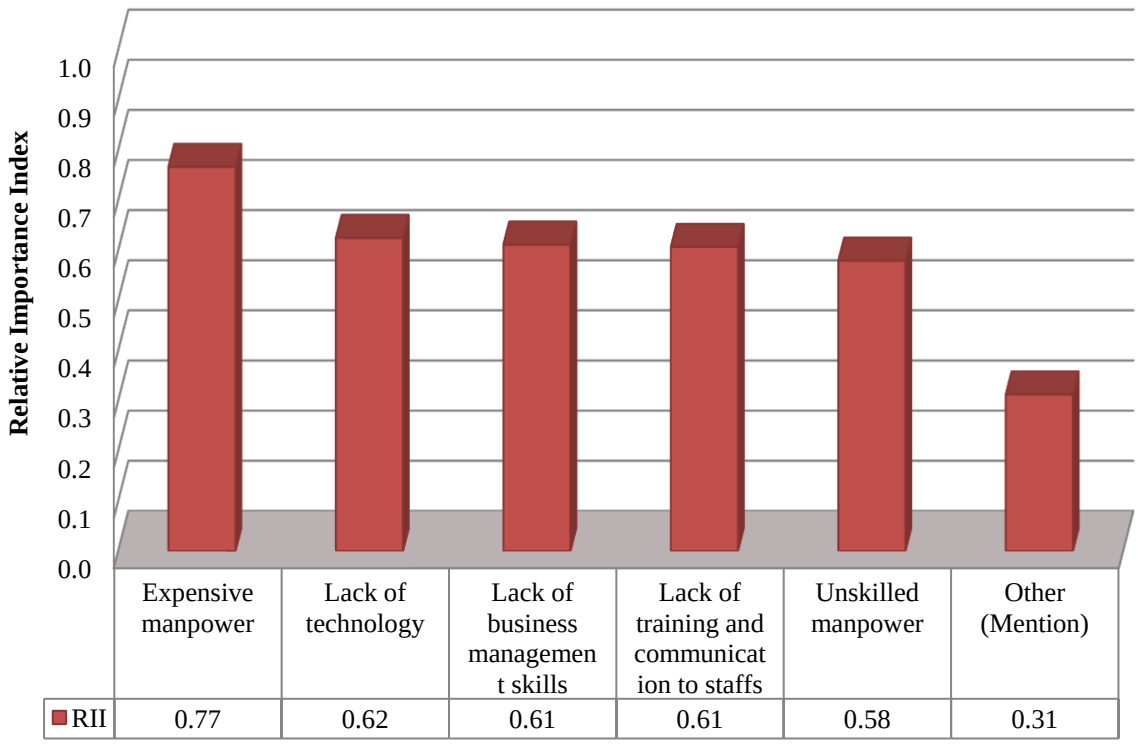

Fig. 3. Combined Ranking of Internal Impediments

Fig. 4 shows the RII values for ranking the advantages of all the respondents. They ranked “increased opportunity for partnership with majority businesses,” “market access," and “improved relationship with clients” as first, second, and third advantages respectively.

The respondents were also asked to rank the external impediments that affect their businesses' success. The combined ranking for all the respondents could not be presented, because they were asked to rank on different factors, but the RII values for construction and professional groups are presented in the comparison section.

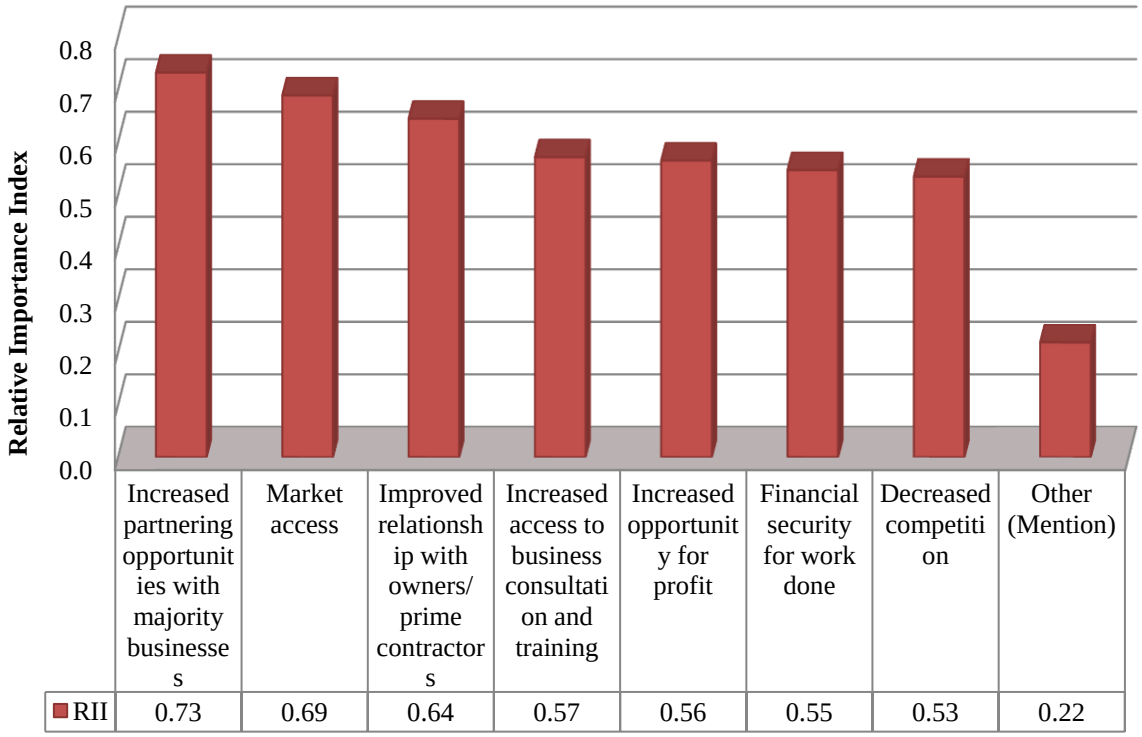

Fig. 4. Combined Ranking of Advantages of being Disadvantaged Business Enterprises

Similarly, Fig. 5 shows the RII values for ranking the disadvantages of being Disadvantaged Business Enterprises. The results showed that “competition for less profit” is the most important disadvantage of being a DBE. "High competition for smaller jobs” and “excessive bid shopping” are another two important disadvantages that are ranked second and third respectively. DBE owners believe that there is still bias in the minority businesses based upon gender and color. "Thriving of fewer competent minorities" and “hampered work by minority supplier who act as middle man only" are given lower importance.

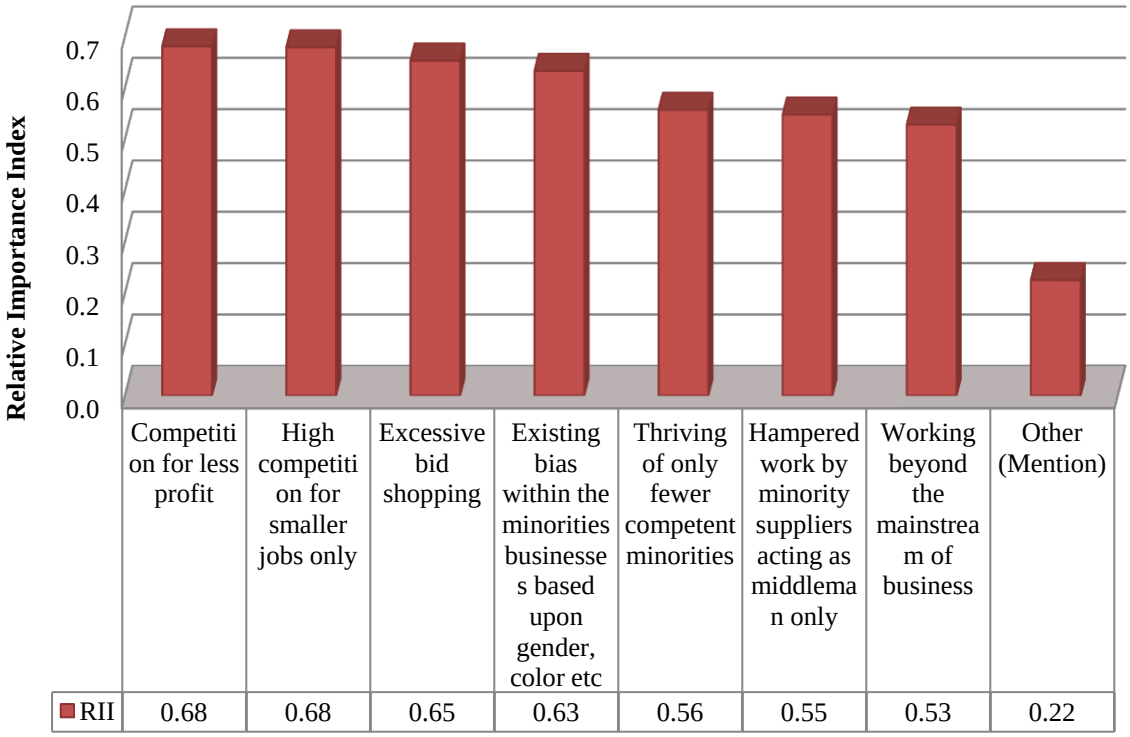

Fig. 5. Combined Ranking of Disadvantages of being Disadvantaged Business Enterprises

5.3 Comparison of Ranking of Factors for Performance, Impediments, Advantages, and Disadvantages of being Disadvantaged Business Enterprises

Table 9 shows the RII values of factors related to the performance and the rankings for the construction and professional firms. The results showed that the top five performance factors were similar in these two groups except the third-ranked factor. The construction and professional firms ranked “safe work practices” and “marketing” as their third-ranked performance factors respectively.

Table 9. Ranking of Performance Issues

S.N	Performance Issues	Relative Importance Index (RII)		Ranking	
		Construction (N = 107)	Professional (N = 151)	Construction	Professional
1	Relationship with owners/ clients	0.80	0.87	1	1
2	Financial	0.76	0.65	2	2
3	Safe work practices	0.68	0.37	3	8
4	Relationship with employees	0.62	0.62	4	4
5	Quality management system	0.60	0.60	5	5
6	Marketing	0.50	0.64	6	3
7	Training and human resources development	0.46	0.50	7	7
8	Technological innovations	0.42	0.56	8	6
9	Other	0.15	0.21	9	9

Appendix B shows the table of RII values and the rankings of internal and external impediments provided by construction and professional firms. Both of the firms ranked "expensive manpower" as their major internal impediments. "Lack of technology" was

ranked as the second most important impediment by construction firms as compared to “lack of business management skills” by professional firms. Regarding the internal impediments, construction firms ranked "lack of funding" as the highest external impediment whereas professional firms ranked “state of the economy” as top ranked external impediment for their business success. There are also differences in the ranking of other internal impediments by construction and professional firms. All the external impediments were not applicable to both groups.

The RII values and the rankings of the advantages of being DBEs for the construction and professional firms are given in Table 10. The results showed that both groups ranked “increased opportunity for partnership with majority businesses,” “market access," and “improved relationship with clients” as first, second, and third important advantages respectively. The rest of the factors are ranked differently by these two groups.

Table 10. Ranking of Advantages of being Disadvantaged Business Enterprises

S.N	Advantages	Relative Importance Index (RII)		Ranking	
		Construction (N = 107)	Professional (N = 152)	Construction	Professional
1	Increased partnering opportunities with majority businesses	0.70	0.78	1	1
2	Market access	0.66	0.71	2	2
3	Improved relationship with owners / prime contractors	0.66	0.64	3	3
4	Increased opportunity for profit	0.60	0.52	4	7
5	Financial security for work done	0.57	0.52	5	6
6	Increased access to business consultation and training	0.56	0.58	6	4
7	Decreased competition	0.54	0.54	7	5
8	Other	0.21	0.21	8	8

Appendix C shows the table of RII values of factors related to the disadvantages of being DBEs and its rankings for the construction and professional firms. The results showed that there are differences in the rankings of the top four disadvantages of being a DBE. Construction firms ranked “excessive bid shopping”, “competition for less profit,” and "high competition for smaller jobs” as their first, second, and third-ranked disadvantages respectively. However, professional firms ranked “high competition for smaller jobs,” “competition for less profit,” and “existing bias within the minority business based upon gender, color, etc.” as their top-three ranked disadvantages.

5.4 Binary Logistic Regression (BLR)

A binary logistic regression was conducted to determine the significance of responses between construction and professional firms. It is used to analyze the relationship between binary dependent variables with independent variables. Table 11 shows the result of this test for various factors that affect the performance of construction and professional firms. The test is conducted with reference to the construction group. The result shows that “financial” and “safe work practices” are only two predictors that has significant relationship with these two groups. Though the ranking of professional firms show "financial" as the second most important factor for their performance, the odd ratio shows that the respondents who gave high importance to “financial” issues have 1.38 times more likely of being in the construction group than in the professional group. Similarly, the respondents who gave high importance to “safe work practices” have 1.93 times more likely of being in the construction group than in the professional.

Table 11. Results of Binary Logistic Regression for Performance Factors

Performance Factors	Constant (B)	Standard Error	Wald	Significance	Exp(B), Odd ratio	95% C.I. for EXP(B)	
						Lower	Upper
Financial	0.33	0.13	6.77	0.01*	1.38	1.08	1.77
Marketing	-0.04	0.13	0.12	0.73	0.96	0.75	1.23
Training and human resources development	0.03	0.14	0.05	0.82	1.03	0.79	1.35
Safe work practices	0.66	0.13	25.55	<0.01*	1.93	1.49	2.48
Technological Innovations	-0.18	0.13	2.03	0.15	0.84	0.65	1.07
Quality management system	0.11	0.13	0.69	0.41	1.11	0.87	1.43
Relationship with owners/ clients	0.14	0.13	1.13	0.29	1.15	0.89	1.50
Relationship with employees	0.05	0.13	0.18	0.67	1.05	0.82	1.35

* Significant at alpha level 0.05

The BLR test result shows that “lack of technology,” “unskilled manpower,” and “expensive manpower” are three significant predictor variables for internal impediments (Table 12). The result shows that respondents who gave high importance to “lack of technology” as an impediment for DBE firms' success have 1.36 times more likelihood of being in the construction group than in the professional. Similarly, the odd ratio of the predictor variable “unskilled manpower” indicates that respondents who gave high importance to this factor have 1.61 times more likelihood of being in the construction

group than in the professional. In addition to this, the respondents who gave high importance to "expensive manpower" as an impediment have 1.28 times more likelihood of being in the construction group than in the professional.

Table 12. Results of Binary Logistic Regression for Internal Impediments

Internal Impediments	Constant (B)	Standard Error	Wald	Significance	Exp(B), Odd ratio	95% C.I. for EXP(B)	
						Lower	Upper
Lack of business management skills	0.19	0.11	3.39	0.07	1.21	0.99	1.49
Lack of technology	0.31	0.12	6.03	0.01*	1.36	1.06	1.73
Unskilled manpower	0.47	0.12	15.85	<0.01*	1.61	1.27	2.03
Expensive manpower	0.25	0.12	4.60	0.03*	1.28	1.02	1.61
Lack of training and communication to staffs	0.21	0.11	3.31	0.07	1.23	0.98	1.54

* Significant at alpha level 0.05

Table 13 shows the results of BLR test for the advantages of being Disadvantaged Business Enterprises. The results show that there are no significant predictor variables that separates the responses of either groups. This means that, the advantages of being Disadvantaged Business Enterprises for both construction and professional firms are similar.

Table 13. Results of Binary Logistic Regression for Advantages of being Disadvantaged Business Enterprises

Advantages	Constant (B)	Standard Error	Wald	Significance	Exp(B), Odd ratio	95% C.I. for EXP(B)	
						Lower	Upper
Increased opportunity for profit	0.15	0.09	2.64	0.10	1.16	0.97	1.40
Decreased competition	0.07	0.09	0.55	0.46	1.07	0.89	1.29
Increased partnering opportunities with majority businesses	-0.12	0.09	1.76	0.18	0.88	0.74	1.06
Increased access to business consultation and training	0.03	0.10	0.09	0.77	1.03	0.84	1.25
Financial security for work done	0.07	0.09	0.62	0.43	1.08	0.89	1.30
Improved relationship with owners/ prime contractors	0.08	0.087	0.81	0.37	1.08	0.91	1.28
Market access	-0.04	0.09	0.21	0.64	0.96	0.80	1.14

* Significant at alpha level 0.05

Table 14 shows the results of the BLR test for factors related to the disadvantages of being a DBE. The results show that there is only one predictor variable whose ranking is significantly different in the construction and professional groups. Both of these groups gave significantly different importance to “excessive bid shopping" as the disadvantage of being DBEs. The odd ratio of this variable indicated that the respondents who gave high importance to “excessive bid shopping” are 1.33 times more likely to be in construction group than in professional group.

Table 14. Results of Binary Logistic Regression for Disadvantages of being Disadvantaged Business Enterprises

Disadvantages	Constant (B)	Standard Error	Wald	Significance	Exp(B), Odd ratio	95% C.I. for EXP(B)	
						Lower	Upper
Working beyond the mainstream of business	0.13	0.09	1.93	0.16	1.13	0.95	1.36
High competition for smaller jobs only	0.02	0.09	0.07	0.79	1.02	0.86	1.22
Competition for less profit	0.18	0.10	3.32	0.07	1.19	0.99	1.45
Thriving of only fewer competent minorities	0.11	0.10	1.31	0.25	1.12	0.92	1.36
Excessive bid shopping	0.29	0.09	9.69	<0.01*	1.33	1.11	1.60
Existing bias within the minorities businesses based upon gender, color etc.	0.13	0.08	2.20	0.14	1.13	0.96	1.34
Hampered work by minority suppliers acting as middleman only	0.15	0.09	2.58	0.11	1.16	0.97	1.40

* Significant at alpha level 005

CHAPTER 6

CONCLUSIONS AND RECOMMENDATIONS

This study collected data of 333 Disadvantaged Business Enterprises throughout the United States. There were participants from 38 states who responded to the survey. Out of these respondents, 46% were professional firms and 32% were construction contractors. About 70% of the firms participating in the survey have than 10 employees. More than half of the participating firms were established more than 10 years ago. In addition, two-thirds of the firms have annual revenues of less than $1 million. Owners of the professional firms have higher level of formal education than the owners of the construction firms. More of the professional firms indicated that their growth rates were increasing in the last five years as compared to construction firms.

The study also compared the difference in ranking of factors related to the business performance, impediments to success, advantages, and disadvantages of being DBEs provided by these construction and professional firms. The survey results showed that construction and professional groups gave significantly different rankings to some factors related to business performance, impediments to success, and disadvantages of being DBEs. However, both groups ranked similar to all the advantages of being DBEs.

The binary logistic regression showed that construction firms ranked performance factors "financial" and "safe work practices" significantly higher than professional firms. But there was no significant difference in the ranking provided by these two groups to the rest of six factors. If the financial health of a construction firm is poor then it will be impossible to complete the construction work successfully. Similarly, if the safety record

of the construction firm is poor, then owners and prime contractors will be reluctant to give construction contracts to DBEs. However, in the case of the professional firms, these two factors do not play a significant role in their firms' performance. In addition, the construction firms identified "expensive manpower," "lack of technology," and "unskilled manpower" as the significant impediments for their business growth as compared to the professional firms. If the contractor can use appropriate technology, there is a greater chance of project success. The contractors have difficulty in hiring skilled manpower for their jobs, as well as retaining them, because most of the construction DBEs do not have enough contracts and long-term contracts. Employees in the construction category need trainings as well as management skills more on construction job sites than in professional areas. These findings are in accordance with the findings of Beliveau et al. (1991), El-Itr and Kangari (1994), and Glover (1997).

This study did not identify any significant differences in the rankings of advantages of being DBEs by construction and professional firms. However, regarding the disadvantages, construction firms identified "more bid shopping" as one of the major disadvantages of being DBEs as compared to the professional firms. In construction works, there is more bid shopping as compared to the professional firms' works. Beliveau et al. (1991) also found similar finding in their study.

This survey also asked the DBE firms to provide suggestions for government policy makers and owners/prime contractors to improve the DBE's status. The recommendations are summarized below.

6.1 Recommendations for Government Policy Makers/Owners

The recommendations for the government policy makers are categorized into two groups. The first set of recommendations is directed to improve the works of DBE firms' and the second set of recommendations is directed towards the fulfillment of DBE requirements by prime contractors in their contracts. The primary owners for these DBE firms are taken as government itself. The following recommendations are provided to improve the works of DBE firms':

- The government should make DBE-paperwork requirements simple, quick, and coherent.
- They should reduce the procurement time for DBE-consulting contracts.
- The bonding provisions and requirements should be made easier for DBE firms.
- The government should provide more contracts directly to DBE firms.

The following recommendations were provided for the fulfillment of DBE requirements concerning prime contractors and their retention of DBE firms:

- The government should provide more information to clients/contractors regarding the DBE requirements in their contracts.
- The government should not only increase oversight of the work payments made by prime contractors, but also help in collecting unpaid fees to the DBE firms.
- The government staffs that provide oversight in government-funded projects should be increased in order to verify that prime contractors are following the DBE requirements in the contract.

- The government should ensure that the DBE firms are legitimate firms before providing contracts to the prime contractors and keep close track of workers and operations.

6.2 Recommendations for Prime Contractors

The following recommendations were provided to improve the work of DBE firms':

- The prime contractor should interact face-to-face rather than by electronic communication related to DBE opportunities and issues. There should exist more networking between them.
- They should improve communication with the DBE firms in order to build good working relationships.
- The clients should break large contracts into smaller contracts to provide more opportunities for smaller DBE firms.
- The prime contractors should make more frequent payments than normal to DBE subcontractors, so that they can improve their cash flow.
- They should also stop bid shopping and provide contracts to capable DBE firms. DBE/MBE/WBE firms should get satisfactory time to submit the bids.
- The prime contractors should work genuinely to provide opportunities to the DBE firms in their contracts rather than acting like a middleman to fulfill DBE requirements in their contracts.

6.3 Summary Section

This study was conducted to determine the difference in the rankings of factors related to business performance, impediments, advantages, and disadvantages between construction and professional Disadvantaged Business Enterprises. The results clearly show that there are some significant differences in their rankings related to these issues. The respondents also provided some suggestions to improve the status of the DBE firms in the U.S. The author would like to recommend further studies to determine the DBE's performance either by collecting quantitative data related to their project cost and schedule performance or by ranking/rating the issues related to minority businesses by non-minority firms based on their experience with DBEs. The recommended research will help to understand whether the DBE firms are performing as expected by the government.

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APPENDIX A

TABLE OF FACTORS RELATED TO PERFORMANCE, IMPEDIMENTS, ADVANTAGES, AND DISADVANTAGES OF BEING DISADVANTAGED BUSINESS ENTERPRISES

Category	Factors	Sources
Performance	Relationship with owners/ clients	Kim and Arditi (2010), Glover (1977)
	Relationship with employees	Kim and Arditi (2010)
	Financial	Kim and Arditi (2010), Chang (1989), Glover (1977)
	Safe work practices	Kim and Arditi (2010)
	Quality management system	Kim and Arditi (2010)
	Marketing	Kim and Arditi (2010)
	Training and human resources development	Kim and Arditi (2010)
	Technological Innovations	Kim and Arditi (2010)
Internal Impediments	Expensive manpower	Chang (1989)
	Lack of technology	Chang (1989)
	Unskilled manpower	Chang (1989)
	Lack of training and communication to staffs	Chang (1989)

	Lack of business management skills	El-Itr and Kangari (1994), Chang (1989)
External Impediments	Lack of funding	Beliveau (1991), Chang (1989)
	Competition from other minority businesses	Chang (1989)
	Excessive government regulations	Beliveau (1991)
	Lack of firms' experience	Chang (1989)
	State of the economy	TRB-DBE (2008)
	Unable to obtain bonding	Beliveau (1991), TRB-DBE (2008)
	Difficult to obtain payment of finished job	Chang (1989)
	Increased fraudulent minority businesses	Beliveau (1991), Koehn and Espaillat (1984)
	Underbidding	Chang (1989)
Advantages	Increased partnering opportunities with majority businesses	Myers and Chan (1996), Koehn and Espaillat (1984)
	Market access	Kim and Arditi (2010), Bates (1989), Glover (1977)
	Improved relationship with owners/ prime contractors	VIP Survey (2010)
	Increased opportunity for profit	VIP Survey (2010)

	Financial security for work done	VIP Survey (2010)
	Increased access to business consultation and training	Park (2010), VIP Survey
	Decreased competition	Chang (1989)
Disadvantages	Excessive bid shopping	Beliveau (1991)
	Competition for less profit	Chang (1989), Myers and Chan (1996)
	High competition for smaller jobs	Chang (1989)
	Existing bias within the minority businesses based upon gender, color etc.	Myers and Chan (1996)
	Thriving of only fewer competent minorities	Koehn and Espaillat (1984)
	Hampered work by minority suppliers acting as middleman only	Beliveau (1991)
	Working beyond the mainstream of business	Beliveau (1991)

APPENDIX B

TABLE OF RANKING OF INTERNAL AND EXTERNAL IMPEDIMENTS

S.N	Impediments	Relative Importance Index (RII)		Ranking	
		Construction (N = 107)	Professional (N = 152)	Construction	Professional
	Internal Impediments				
1	Expensive manpower	0.77	0.76	1	1
2	Lack of technology	0.63	0.62	2	3
3	Unskilled manpower	0.63	0.53	3	5
4	Lack of training and communication to staffs	0.62	0.60	4	4
5	Lack of business management skills	0.61	0.62	5	2
6	Other	0.24	0.37	6	6
	External Impediment				
1	Lack of funding	0.74	0.68	1	2
2	State of the economy	0.73	0.80	2	1
3	Excessive government regulations	0.64	0.58	3	4

4	Difficult to obtain payment of finished job	0.61	-	4	-
5	Unable to obtain bonding	0.55	-	5	-
6	Competition from other minority businesses	0.54	0.55	6	5
7	Lack of firms' experience	0.44	0.49	7	6
8	Underbidding	-	0.60	-	3
9	Increased fraudulent minority businesses	-	0.49	-	7
10	Other (Mention)	0.25	0.33	8	8

APPENDIX C

TABLE OF RANKING OF DISADVANTAGES OF BEING DISADVANTAGED BUSINESS ENTERPRISES

S.N	Disadvantages	Relative Importance Index (RII)		Ranking	
		Construction (N = 107)	Professional (N = 152)	Construction	Professional
1	Excessive bid shopping	0.71	0.61	1	4
2	Competition for less profit	0.70	0.67	2	2
3	High competition for smaller jobs	0.66	0.71	3	1
4	Existing bias within the minorities businesses based upon gender, color etc.	0.64	0.64	4	3
5	Thriving of only fewer competent minorities	0.55	0.57	5	5
6	Hampered work by minority suppliers acting as middleman	0.55	0.53	6	6

	only				
7	Working beyond the mainstream of business	0.519	0.52	7	7
8	Other	0.18	0.25	8	8

APPENDIX D

SURVEY QUESTIONNAIRE

General Information Section

1. Please indicate how your firm is certified. (e.g. MBE, WBE)
   a) Disadvantaged Business Enterprise (DBE)
   b) Minority Business Enterprise (MBE)
   c) Women Business Enterprise (WBE)
   d) Minority Women Business Enterprise (MWBE)
   e) White Business Women Enterprise (WWME)
   f) 8(a) Participants
   g) Small Business Enterprise (SBE)
   h) HUBZone
   i) Veterans
   j) Any Combination or Other.

2. Please mention the Combination or Other certification type selected in last question.
   _____

3. Please select the state, federal district or territory, where your main office is located. (Options, all "50 states and two district territories -District of Columbia and Puerto Rico")

4. How do you classify your business?
   a) General Construction, Specialty Construction or other construction-related business.
   b) Professional, Engineering, Scientific or Technical services
   c) Other

5. Please estimate the number of employees working in your firm.
   a) Less than 10
   b) 10 - 50
   c) 51 - 100
   d) More than 100

6. How long has your firm been in business?
   a) Less than 1 years

b) 1 - 5 years
c) 5 - 10 years
d) More than 10 years

7. What is your annual volume of revenue/sales?
   a) Less than $100,000.00
   b) $100,000.00 - $500,000.00
   c) $500,000.00 - $1 million
   d) More than $1 million

8. What is your level of education?
   a) Below 10th grade
   b) High School
   c) Associate Degree
   d) Bachelors Degree
   e) Graduate
   f) Ph.D. or above

9. Is your business unionized?
   a) Yes
   b) No
   c) Partial

10. Please indicate the growth rate of your firm in the last five years.
    a) Decreasing
    b) Constant
    c) Increasing

11. Please identify the percentage of your firm's repeat work for same client.
    a) 1% - 25 %
    b) 25 % - 50 %
    c) 50 % - 75 %
    d) 75 % - 100 %

Problem Identification Section

12. Please rank the importance of the following factors (internal to your business) on the success of your business. (Rank 1 is the highest importance and Rank 9 is the lowest.)
    a) Financial (e.g. profit, growth in revenue, cash flow)
    b) Relationship with owners
    c) Relationship with employees

d) Marketing
e) Training and human resource development
f) Safe work practices
g) Technological innovations (e.g. using new method of work execution)
h) Quality management system

13. Please rank impediments (external to your business) on the success of your business. (Rank 1 is the highest important and Rank 8 is the lowest.)
    a) Lack of funding
    b) Competition from other minority businesses
    c) Excessive government regulations
    d) Lack of firms' experience
    e) State of the economy
    f) Unable to obtain bonding
    g) Difficult to obtain payment of finished job
    h) Other

14. Please rank impediments (external to your business) on your business performance. (Rank 1 is the highest important and rank 8 is the lowest.)
    a) Lack of funding
    b) Competition from other minority businesses
    c) Excessive government regulations
    d) Lack of firms' experience
    e) State of the economy
    f) Increased fraudulent minority businesses
    g) Underbidding
    h) Other

15. Please rank impediments (internal to your business) on the success of your business. (Rank 1 is the highest important and Rank 6 is the lowest.)
    a) Lack of business management skills
    b) Lack of technology
    c) Unskilled manpower
    d) Expensive manpower
    e) Lack of training and communication to staffs
    f) Other

16. Please rank the following advantages for being a minority business owner. (Rank 1 is the highest importance and Rank 8 is the lowest.)
    a) Increased opportunity for profit

b) Decreased competition
c) Increased partnering opportunities with majority businesses
d) Increased access to business consultation and training
e) Financial security for work done
f) Improved relationship with owners/ prime contractors
g) Market access
h) Other

17. Please rank the following disadvantages for being a minority business owner. (Rank 1 is the highest important and Rank 8 is the lowest.)
    a) Working outside the mainstream of business
    b) High competition for smaller jobs
    c) Competition for less profit
    d) Thriving of only fewer competent minorities
    e) Excessive bid shopping
    f) Existing bias within the minorities businesses based upon gender, color etc
    g) Hampered work by minority suppliers acting as middleman only
    h) Other

Recommendation

18. How can the relationship between the following bodies can be improved , considering the aspects of minority business development ?(you may comment/ recommend on procurement, preferences, and others)

Government / Policy Makers	Owners/Prime Contractors	Other

VITA

Graduate College

University of Nevada, Las Vegas

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Degree:

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Thesis Title:

A Comparative Study of Performance, Impediments, Advantages, and Disadvantages of Construction and Professional Disadvantaged Business Enterprises

Thesis Examination Committee:

Chairperson, Dr. Pramen P. Shrestha, Ph. D.

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