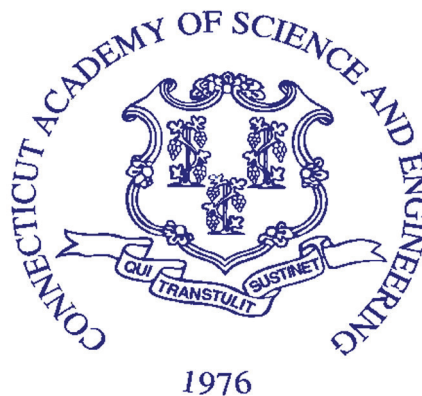


CONNECTICUT DISPARITY STUDY: PHASE 3

MAY 2016

A REPORT BY

THE CONNECTICUT
ACADEMY OF SCIENCE
AND ENGINEERING



FOR

THE CONNECTICUT GENERAL ASSEMBLY
AND THE
GOVERNMENT ADMINISTRATION AND
ELECTIONS COMMISSION

CONNECTICUT DISPARITY STUDY: PHASE 3

A REPORT BY

THE CONNECTICUT ACADEMY
OF SCIENCE AND ENGINEERING

ORIGIN OF INQUIRY:

THE CONNECTICUT
GENERAL ASSEMBLY

DATE INQUIRY

ESTABLISHED:

AUGUST 21, 2015

DATE RESPONSE

RELEASED:

MAY 9, 2016

This study was initiated at the request of the Connecticut General Assembly on August 21, 2015. The project was conducted by an Academy Study Committee with the support of staff of the Connecticut Economic Resource Center, Inc., serving as the study management team with assistance from Evolution Enterprises, LLC. The content of this report lies within the province of the Academy's Economic Development, Education and Human Resources, and Technology Technical Boards. The report has been reviewed by Academy Members Peter G. Cable, PhD and Gale F. Hoffnagle. Martha Sherman, the Academy's Managing Editor, edited the report. The report is hereby released with the approval of the Academy Council.

Richard H. Strauss
Executive Director

MEMBERS OF THE STUDY COMMITTEE ON THE CONNECTICUT DISPARITY STUDY: PHASE 3

Myron Genel, MD (*Academy Member*)

Professor Emeritus Pediatrics and
Senior Research Scientist
Yale School of Medicine

A. Walter Esdaile

Managing Director
New Haven Regional Contractors Alliance

Shantè Hanks

Director of Constituent Services
Office of Congressman Jim Himes

Lois McLaughlin

Director, Opportunities Program
State University of New York
Construction Fund

James Nixon

Former Director of Affirmative Action, MTA
of New York; Former Chairman, Stamford
Urban Redevelopment Commission; Owner &
CEO (ret.) Inline Brake Manufacturing Corp.

Nalini Ravishanker, PhD (*Academy Member*)

Professor and Undergraduate Director
Department of Statistics
UConn

Gwendolyn Samuel

Founder
State of Black CT Alliance and
the CT Parents Union

Lil Snyder

Program Manager
Small Contractor Development Program
City of New Haven

RESEARCH TEAM

CONNECTICUT ECONOMIC RESOURCE CENTER, INC.

STUDY MANAGER

Alissa K. DeJonge, Vice President of Research

Sarah Ficenec, Economist

Myya McGregory, Research Analyst

Patricia McLaughlin, Consultant

Matt Ross, Consultant

EVOLUTION ENTERPRISES, LLC

STUDY CONSULTANT

Richard Pearce, Managing Member

ACADEMY PROJECT STAFF

Richard H. Strauss, Executive Director

Terri Clark, Associate Director

Ann G. Bertini, Assistant Director for Programs

CASE Advisor

Colette Holt, Attorney at Law, CASE Study Advisor

TABLE OF CONTENTS

| | |
|---|-----|
| TABLE OF CONTENTS..... | v |
| EXECUTIVE SUMMARY..... | vii |
| 1.0 INTRODUCTION..... | 1 |
| 2.0 APPROXIMATING THE GEOGRAPHIC MARKETPLACE | 3 |
| 2.1 Procurement by Connecticut..... | 3 |
| 2.2 Procurement by States | 4 |
| 2.3 Geographic Marketplace Approximation | 4 |
| 2.4 Notes about Core-CT Data | 5 |
| 3.0 DISPARITIES IN BUSINESS FORMATION | 7 |
| 3.1 Literature Review | 7 |
| 3.2 Data..... | 9 |
| 3.3 Methodology..... | 9 |
| 3.4 Findings..... | 9 |
| 3.5 Summary | 12 |
| 4.0 DISPARITIES IN EARNINGS | 13 |
| 4.1 Literature Review..... | 13 |
| 4.2 Data | 15 |
| 4.3 Methodology | 15 |
| 4.4 Findings | 16 |
| 4.5 Summary..... | 23 |
| 5.0 DISPARITIES IN CREDIT ACCESS | 25 |
| 5.1 Literature Review..... | 25 |
| 5.2 Data | 27 |
| 5.3 Methodology | 27 |
| 5.4 Findings | 28 |
| 5.5 Summary..... | 32 |
| 6.0 DISPARITIES IN HOME OWNERSHIP AND HOME LENDING..... | 33 |
| 6.1 Literature Review..... | 33 |
| 6.2 Data | 36 |
| 6.3 Methodology | 37 |
| 6.4 Findings | 38 |
| 6.5 Summary..... | 42 |

| | |
|---|-----|
| 7.0 DISPARITIES IN BUSINESS PERFORMANCE | 45 |
| 7.1 Literature Review | 45 |
| 7.2 Data | 47 |
| 7.3 Methodology | 47 |
| 7.4 Findings | 48 |
| 7.5 Summary | 52 |
| 8.0 CONCLUDING REMARKS..... | 55 |
| REFERENCES | 57 |
| APPENDICES..... | 69 |
| Appendix A: Statistical Analysis Methodology | 69 |
| Appendix B: Study Committee Meetings and Guest Speakers | 74 |
| Appendix 2A: Preparing Data from State Financial Financial Payment Systems | 75 |
| Appendix 3A: Disparities in Business Formation with Race and Ethnicity Breakdown | 78 |
| Appendix 3B: Robustness Test for Self-Employment Specifications | 79 |
| Appendix 4A: Earnings Disparities with Race and Ethnicity Breakdown..... | 83 |
| Appendix 4B: Robustness Test for Earnings Specifications | 84 |
| Appendix 5A: Business Loan Denial Disparities with Race and Ethnicity Breakdown | 91 |
| Appendix 5B: Robustness Test for Business Loan Denial Specifications | 92 |
| Appendix 5C: Interest Rate Disparities with Race and Ethnicity Breakdown | 96 |
| Appendix 5D: Robustness Test for Interest Rate Specifications | 97 |
| Appendix 5E: Fear of Loan Denial Disparities with Race and Ethnicity Breakdown | 99 |
| Appendix 5F: Robustness Test for Fear of Loan Denial Specifications | 100 |
| Appendix 6A: Mortgage Loan Denial Disparities with Race and Ethnicity Breakdown | 104 |
| Appendix 6B: Robustness Test for Mortgage Loan Denial Specifications | 105 |
| Appendix 7A: Establishment Employment with Race and Ethnicity Breakdown | 109 |
| Appendix 7B: Robustness Test for Employment Specifications | 110 |
| Appendix 7C: Establishment Receipts with Race and Ethnicity Breakdown | 113 |
| Appendix 7D: Robustness Test for Receipts Specifications..... | 114 |

EXECUTIVE SUMMARY

ES.1 STUDY PURPOSE

In furtherance of legislation adopted in the 2012 legislative session, Public Act 12-1 and Public Act 12-104, the Connecticut General Assembly requested that the Connecticut Academy of Science and Engineering (CASE) conduct a Disparity Study of the state's Small and Minority Business Set-Aside Program ("Set-Aside Program"). Public Act 12-1 provided an overview of the scope of work to be included in the study, and Public Act 12-104 provided initial project funding.

ES.2 STUDY PHASING

Initial research, previously conducted in Phase 1 and Phase 2 of the Disparity Study, identified that

- The state's executive branch agencies and other branches of state government responsible for awarding state contracts and overseeing the Set-Aside Program do not for the most part collect subcontractor data, including payment information.¹
- A review of the legal issues and case law, including presentations to the CASE Study Committee by experts on minority business enterprise programs, identified examination of subcontractor data and financial information as a critical component of conducting a valid disparity study. Additionally, it was noted that unless quality data are collected and available for analysis as part of a disparity study, the results of the study could be challenged, and if such a challenge were successful, the whole study would be negated.

Therefore, as a result of the initial research findings, the scope of work for the Disparity Study was divided into four phases based on the goals of the project as specified in Public Act 12-1 and in the best interests of the State of Connecticut. As noted, Phase 1 and Phase 2 have been completed, Phase 3 is the subject of this report, and Phase 4 will be conducted at a later date.

- Phase 1 was completed in August 2013 and included a review and analysis of Connecticut's Set-Aside Program, legal issues, and stakeholder anecdotal information.
- Phase 2 was completed in May 2014 and included legislative and administrative initiatives, diversity data management system review, review of issue areas, and data and methodology for statistical analysis.
- Phase 3 (*current phase*): The purpose of Phase 3 is to analyze whether or not disparities exist in Connecticut's geographic marketplace. For the purpose of this study,

¹ It is noted that subsequent to the completion of Phase 1 and Phase 2 of the study, provisions of the Set-Aside Program (C.G.S §4a-60g) were amended in 2015 (Public Act 15-5) to include state-financed, quasi-public agency projects and municipal public works contracts, as of October 2015. Therefore, financial information regarding these expenditures commenced in fiscal year 2016. The analysis for Phase 3 of the study is based on historical data through fiscal year 2015.

“disparities” are defined as measurable differences between the experiences of one group of individuals or firms (e.g., members of minority communities or minority-owned firms) and the experiences of another group of individuals or firms (e.g., members of majority communities or majority-owned firms) with respect to certain indicators and within a given geographic location. Testing for marketplace disparities first requires the establishment of the appropriate geographic market relevant to all agencies’ procurement and contracting (hereinafter referred to as “procurement”) activity. An approximation of the state’s geographic marketplace was developed using procurement data from the state’s financial payment systems for this analysis.

The Phase 3 analysis was conducted using publicly available data and examined different measures of disparity in the geographic marketplace in an effort to identify whether minority- and women-owned businesses in the state are at a statistically significant disadvantage, a finding that would provide support for a state MBE and WBE Program. The following factors were examined to determine if disparities exist in the economy-wide marketplace by race and ethnicity or gender: business formation, earnings, credit access, homeownership and lending, and business performance.

- Phase 4: The final phase of the Disparity Study will provide an analysis of the availability and utilization of minority- and women-owned businesses. After the geographic marketplace identified in Phase 3 is confirmed, or revised, if necessary, using forthcoming data on prime contracts and subcontracts, the state’s current utilization of minority- and women-owned businesses will be compared with the availability of these groups in the state’s geographic market area. This comparison will be used to evaluate whether there is evidence of disparities, which may be indicative of discrimination, in state procurement based on the availability and utilization ratios. If such disparities are found, the final step in Phase 4 would be to determine the need for a MBE and WBE Program and if so, the percentage goals for utilization of minority- and women-owned businesses. Phase 4 is needed to complete the Disparity Study; the timeline for conducting Phase 4 is to be determined.

ES.3 PHASE 3 METHODOLOGY

Phase 3 of the Disparity Study builds upon the research and findings from the previous two phases. It provides research and key findings on the following issues

1. *Approximating the State’s Geographic Marketplace*: Defining the state procurement marketplace was the first step in statistically evaluating whether economy-wide disparities existed. State expenditure data were collected for the past three to five years from most state agencies, and the location(s) of the majority of the state’s prime vendors was identified.² This analysis found that the state’s geographic marketplace extends beyond the state borders.

In addition to the expenditure data being incomplete in terms of agency coverage, it did not contain information on subcontractors. Therefore, in an effort to ensure that

² As of early December 2015, data had been received from: CORE-CT, which records payments for the Executive and Judicial branches; the University of Connecticut and UConn Health systems; and the Connecticut State Colleges and Universities system. Requested financial data from the Legislative Branch was not received.

the results were robust to variations in the marketplace definition, three models of the geographic marketplace were used for each portion of the Phase 3 analyses. These three definitions were: Connecticut; a Regional market of Connecticut and its contiguous states (Massachusetts, New York, and Rhode Island); and the United States.

- 2. Analysis of Economy-wide Disparities:* The second step of Phase 3 evaluated whether economy-wide disparities existed in the geographic marketplaces for indicators identified as having an impact on business formation and performance. For this, publicly-available data were collected and statistical analyses were conducted on five indicators: business formation; earnings; credit access; homeownership and lending; and business performance.³

ES.4 BRIEF STATEMENT PRIMARY CONCLUSION: PHASE 3

Disparities were found by race, ethnicity, and gender for business formation, earnings, credit access, homeownership and lending, and business performance. The magnitude of these disparities varied across each specification and for each marketplace, but the estimates were generally consistent in terms of statistical significance. The presence of these disparities was aligned with findings from peer-reviewed academic journals and from disparity studies conducted in other jurisdictions.

Completion of the Disparity Study is dependent on conducting Phase 4 of the study. Taken together, the results from Phases 1-4 will provide the necessary information to determine if there is a need for a state minority- and women-owned business enterprise program and the rationale that courts have deemed necessary in order for governments to operate such programs. If there is a need for a program, the results of the Phase 3 and Phase 4 statistical analyses will then be used to determine program goals.

ES.5 DETAILED SUMMARY OF PHASE 3 FINDINGS

ES.5.1 Approximating the State's Geographic Marketplace

Approximating the geographic market for procurement in the state involved identifying the location(s) of the majority of the state's prime vendors. To construct Connecticut's geographic marketplace, a request was made for five fiscal years (2011 - 2015) of financial data from the state's six payments databases. As of early December 2015, data were received from: CORE-CT, which records payments for the Executive and Judicial branches; the University of Connecticut and UConn Health systems; and the Connecticut State Colleges and Universities system. Requested financial data from the legislative branch was not provided.

The analysis in this phase found that the state's geographic marketplace extended beyond the state borders. Based on this analysis three models of the geographic marketplace were used for conducting the balance of the Phase 3 analyses:

³ For information on statistical analysis, see Appendix A.

1. **Connecticut:** The state of Connecticut represented the location of the largest single grouping of vendors by state in each financial payment system and 64.5% of state procurement.
2. **Regional (Connecticut, Massachusetts, New York, and Rhode Island):** In total, vendors in these four states represented 77.9% of the state's procurement. Although it cannot be verified until more detailed procurement data is provided, it is likely that subcontractors would be located within many of the same or nearby geographic locations as the prime contractors.
3. **United States:** Procurement by the state of Connecticut included vendors throughout the country, and some subcontractors (not captured in the data) are likely located throughout United States. Therefore, the entire United States was used as the third definition of the state's geographic marketplace, both to include prime and subcontractors and as a sensitivity test of any disparities found in the other two marketplaces.

ES.5.2 Analysis of Economy-wide Disparities

The economy-wide disparity analyses conducted in this phase of the Disparity Study found disparities by race, ethnicity, and gender for every indicator, although the magnitude of the disparities varied by the indicator, marketplace, and minority group. The results of these analyses are summarized here and presented with considerably more detail in the following sections of the Phase 3 report.

ES.5.2.1 DISPARITIES IN BUSINESS FORMATION

The academic literature on entrepreneurship demonstrates that minorities and women have experienced long-standing disparities in business formation. Moreover, these groups face considerably more challenging financial constraints that restrict their ability to start a business. The presence of such disparities may affect the availability of businesses with which the government and prime contractors could conduct business.

The analysis in this section relied on microdata from the American Community Survey, which is an annual survey of American households conducted by the US Census Bureau. Women and minorities were found to be significantly less likely to be self-employed in Connecticut, the Regional marketplace, and the United States. These disparities persisted even when controls were added for location, education, industry, occupation, age, and year.

ES.5.2.2 DISPARITIES IN EARNINGS

Disparities in earnings, whether for employees or the self-employed, hinder wealth accumulation and access to capital. As a result, they have been shown to substantially influence both business formation and survival. Indeed, financial security has been shown to be a predictor of self-employment. Therefore, disparities in the earnings of women and minorities place them at a disadvantage for beginning and sustaining a business.

The analysis in this section used microdata drawn from the American Community Survey. Statistically significant disparities were found for both women and minorities in each marketplace, even after the inclusion of controls for location, education, industry, occupation,

age, and year. Moreover, the hourly wage disparities found in the Connecticut marketplace were larger than the hourly wage disparities in the Regional marketplace and in the United States. In addition, hourly wage disparities were of greater magnitude for self-employed females and minorities relative to their employed peers.

ES.5.2.3 DISPARITIES IN CREDIT ACCESS

Businesses of all sizes regularly need access to credit to support their operations, and this is especially the case for small or new businesses. There is an extensive body of research concerning the importance of access to credit for business growth and, similarly, extensive research about the disparate treatment of minority- and women-owned firms in the credit market. This differential treatment includes not only the rates of loans and credit approvals but also the interest rates the firms are charged. As a result of inadequate access to credit, entrepreneurs may be limited in their ability to maintain or grow their businesses and reluctant to apply for financing for fear of denial.

This analysis used national data collected by the Federal Reserve Board of Governors on small business finances. Minority- and women-owned businesses were found to be more likely to have their loan applications denied. These findings persisted with the inclusion of controls for firm credit information (e.g., firm bankruptcy within last seven years, Dun and Bradstreet credit score); firm financials (e.g., equity, sales, length of relationship with primary financial institution); other firm characteristics (e.g., age of firm, number of employees, industry); owner financials (e.g., number of owners, net worth, owner bankruptcy within last seven years); and other owner characteristics (e.g., years of experience, age, education). Minority- and women-owned businesses were also found to pay higher interest rates for approved loan applications and to be more likely to let their fear of having a credit application denied affect their decision to seek credit.⁴

ES.5.2.4 DISPARITIES IN HOMEOWNERSHIP AND HOME LENDING

Homeownership is an important asset for many entrepreneurs because it provides equity that can be drawn on for business formation and used as collateral when applying for credit. There is empirical evidence that minorities and women face unique barriers to homeownership, including discrimination in the real estate market and differential treatment in the mortgage credit market. Studies show that even when women and minorities own homes, they can experience a host of negative economic consequences such as higher cost burdens and greater exposure to risk. These disparities can then translate into fewer resources for starting and/or sustaining a business.

The analysis in this section used data from the American Community Survey and data compiled under the Home Mortgage Disclosure Act (HMDA). Minorities were found to have lower levels of homeownership and lower average home values than non-minority homeowners. Moreover, minorities were more likely to have their mortgage applications denied than non-minority applicants in all three marketplaces. These estimates persisted with the inclusion of controls for: applicant characteristics (e.g., loan amount, income, sole applicant interacted with demographics, income quintiles interacted with demographics); neighborhood characteristics

⁴ The findings on loan denial for female-owned businesses and for the interest rate charged on approved loans for both female- and minority-owned businesses were not statistically significant, likely due to the small sample size of the available data.

(e.g., tract population, the ratio of income in the census tract of the home to income in the metropolitan statistical area); and year and state fixed-effects (when applicable). Female applicants were also significantly more likely to have their applications denied in the Regional and United States marketplaces.

ES.5.2.5 DISPARITIES IN BUSINESS PERFORMANCE

A direct examination of disparities in business ownership and competitiveness is another important aspect of testing for the presence of an economy-wide disparity. Existing academic research has consistently shown that both minority- and women-owned businesses tend to be smaller than non-minority- and male-owned firms in terms of profits, receipts, and numbers of employees. Moreover, there is evidence that Black-owned businesses are more likely to be small and fail and that Black and Hispanic self-employment periods tend to be shorter than those of White or non-Hispanic entrepreneurs.

The analysis in this section used data from the US Census Bureau Survey of Business Owners. Minority- and women-owned businesses were found to be smaller in terms of number of employees and total receipts than non-minority- and male-owned businesses. These disparities existed in the Connecticut, Regional, and United States marketplaces and persisted with the inclusion of controls for: owner characteristics (e.g., age, education); business characteristics (e.g., age of business, industry); and management characteristics (e.g., number of owners, how business was acquired, if there was owner-manager). The findings on business performance indicate that the principal challenge with regard to minority- and women-owned businesses is their ongoing performance.

ES.6 CONCLUDING REMARKS

The following are the preliminary conclusions with respect to several requirements for a comprehensive disparity study. Consistent with the 2006 recommendations from the US Commission on Civil Rights and the National Cooperative Highway Research Program (NCHRP) “Guidelines for Conducting a Disparity and Availability Study for the Federal DBE Program, 2010,” this phase of the Connecticut Disparity Study first developed an approximation of the state’s geographic marketplace using available state procurement data on the location of state vendors. From this, three definitions of the state marketplace were developed: the state itself; a regional four-state market consisting of Connecticut plus Massachusetts, New York, and Rhode Island; and the full United States.

Publicly-available data were then used to investigate if economy-wide disparities existed in business formation, earnings, credit access, homeownership and home lending, and business performance. Evidence of disparities were found by race, ethnicity, and gender for the indicators across the marketplaces. The presence of these disparities, moreover, was found to be generally consistent with findings in existing academic literature and in disparity studies from other locations.⁵

⁵ See, for example, disparity studies on contracting in New York (NERA, 2010) and for the Metropolitan District Commission (Miller³ Consulting, Inc., 2009), which provides water and sewer services in central Connecticut.

The next and final phase of this Disparity Study, Phase 4, is a necessary component in completing a legally defensible disparity study that requires more detailed data on both prime and subcontractors. Assuming that adequate provisions have been made to collect or acquire such data, Phase 4 will include the following:

1. **Product Market Assessment:** State procurement by industry will be analyzed to support the availability and utilization analyses. This product market assessment will also help minority and female business owners target their business with the state.
2. **Availability Analysis:** A detailed estimate of available minority- and women-owned businesses will be developed based on the state's geographic and product marketplaces. This will be used to evaluate the state's utilization of minority- and women-owned businesses and, if necessary, to develop program goals.
3. **Utilization Analysis:** The state's use of minority- and women-owned businesses will be analyzed and compared with state procurement in various product markets and by agency.
4. **Possible Revisions to the Geographic Marketplace Definition:** Detailed data on prime and subcontractors will be used to review and revise, if necessary, Connecticut's geographic marketplace developed in Phase 3.
5. **Possible Revisions to the Examination of Economy-wide Disparities:** The econometric analysis of economy-wide disparities will be revised if the contracting data collected in Phase 4 reveals a substantially different Connecticut geographic marketplace as noted or if the statistical data used in the Phase 3 analysis is updated and available.

Completion of the Disparity Study will provide the rationale and evidence based on legal requirements as set forth in relevant case law to determine if there is a need for a legislatively mandated minority- and women-owned business enterprise program. Completion of the study will determine whether a program is necessary and, if so, how that program should be structured. The current Set-Aside program goals were established legislatively over thirty years ago and have not been rigorously examined through a disparity study analysis in the intervening years.

It should be noted that, even prior to the completion of this study, the state could undertake the race-neutral policy measures recommended in Phase 1 and Phase 2 of this study. Not only would these measures support the state's minority- and women-owned businesses, but they could also help decrease the magnitude of the economy-wide disparities that were found in this phase of the study.