

Small Business Procurement Scorecard Evaluation Report

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The statements, findings, and conclusions found in this study are those of the contractor and do not necessarily reflect the views of the Office of Program Performance, Analysis, and Evaluation, the United States Small Business Administration, or the United States Government.

Table of Contents

Small Business Procurement Scorecard Evaluation Report.....	1
Table of Contents.....	2
Glossary	6
Chief Financial Officer Act Agencies	7
Acknowledgments	8
Purpose of the Evaluation Report.....	9
What Are the Statutory Federal Small Business Procurement Goals?.....	9
Who is Responsible for Achieving Small Business Procurement Goals?	10
The SBA’s Responsibility?	10
Findings and Recommendations from GAO-18-672	10
Why GAO Did This Study	10
What GAO Found.....	10
What GAO Recommends	11
Findings and Recommendations from GAO-19-623T	11
Why GAO Did This Study.	11
What GAO Found.....	12
Small Business Procurement Scorecard	12
Executive Summary.....	13
Overview:	13
Key Findings – Prime Contracting:.....	13
Key Findings – Subcontracting:	13
Key Findings – Best Practices:.....	14
Introduction	15
Research Objective:.....	15
Intended Audience	16
Summary of Findings – Prime Contracting:.....	16

Summary of Findings – Subcontracting	17
Structure of the Report	17
Overview of the Program	17
Goaling Process:	17
Small Business Procurement Scorecard	19
Literature Review	20
Barriers Faced by Small Businesses.....	20
Procurement Programs and Resources of Federal Agencies.....	21
Procurement Practices Affecting Small Business Contracting Opportunities:	21
Challenges Associated with Grading Agency Achievement in Meeting the Goals..	22
Landscape of Small Business Federal Contracting	23
Prime Contracting Achievements.....	23
Contracting to Small Business Socioeconomic Programs	25
Procurement Through Consolidated Services	27
Research Design	29
Methodological Approach	29
Methodological Approach	32
Data Source and Preparation	34
Methodological Approach	35
Data Source and Preparation	36
Findings	36
Reported Challenges – The SBA’s Methodology for Proposing Initial Goals Are Not Understood or Perceived to Be Accurate by the Majority of Agencie.....	38
Reported Best Practice – Collaborative Nature of the Negotiation Process	40
Suggested Changes to the Goaling Process.....	41
Reported Challenge – Scorecard Methodology Change Did Not Strongly Influence Agencies’ Small Business Procurement Practices	42
Reported Challenge – Increased Attention to Subcontracting, But More Attention Needed:	42

Best Practice: Section 15(k) Compliance Scorecard Component Raises OSDDBU Standing Within Their Agencies:	43
Suggested Modification to Scorecard.....	43
Reported Challenge – Category Management Is Contradictory to the Intended Effects of the Scorecard Methodology Change.....	46
Recommendation – The SBA Provides Government-wide Guidance on How to Navigate Small Business and Category Management Priorities	47
Reported Best Practice – The Existence and the Publication of the Scorecard Promoted Small Business Culture in Agencies by Involving Senior Leadership	48
Reported Best Practice – Small Business-First Policies and Culture Are Essential for Accomplishing Scorecard Goals	48
Reported Challenges – Subcontracting Monitoring with eSRS Is Difficult	49
Recommendation – Data Integration and Automation.....	49
Prime Contracting.....	52
Subcontracting	55
Effects on Small Business Opportunities	57
Effects on Small Business Dollars	57
Effects of Agency Characteristics and Procurement Practices	57
Small Business Opportunities.....	59
Effects on Small Business Dollars	59
Effects of Agency Characteristics and Procurement Practices	60
Small Business Opportunities and Dollars	61
Effects of Agency Characteristics and Procurement Practices	62
Limitations.....	62
Methodological Approach and Statistical Modeling.....	63
Quantitative Data	64
Qualitative Data.....	64
Conclusions and Recommendations.....	65
Major Findings	65
Recommendations	65

References	68
Appendix A: Research Question 1 Summary Statistics, Model Specifications, and Results for Small Business Prime Contracting.....	71
Appendix B: Research Question 1 Summary Statistics, Model Specifications, and Results for Small Business Subcontracting.....	115
Appendix C: Research Question 2 Results.....	129
Appendix D: Research Question 3 Hypotheses for Semi-Structured Interviews.....	146
Appendix E: Research Question 3 Semi-Structured Interview Protocols.....	148
Appendix F: Research Question 3 Information Sheet on the Evaluation Provided to Respondents of the Semi-Structured Interviews	157
Appendix G: Supplementary Tables	158

Glossary

Term	Definition
8(a)	A federal procurement socioeconomic program for small businesses
BOA	Basic Order Agreement
BPA	Blanket Purchase Agreement
DUNS	Data Universal Numbering System
FPDS-NG	Federal Procurement Data System – Next Generation
FSS	Federal Supply Schedule
GWAC	Governmentwide Acquisition Contract
HUBZone	Historically Underutilized Business Zone
IDC	Indefinite Delivery Contract
IDV	Indefinite Delivery Vehicle
NAICS	North American Industry Classification System
OMB	Office of Management and Budget
OSDBU	Office of Small and Disadvantaged Business Utilization
RFI	Request for Information
RFP	Request for Proposal
SAM	System for Award Management
SBGR	Small Business Goaling Report
SDB	Small Disadvantaged Business
SEM	Structural Equation Model
SDVOSB	Service-Disabled Veteran-Owned Small Business
VOSB	Veteran-Owned Small Business
WOSB	Women-Owned Small Business

Chief Financial Officer Act Agencies

Acronym	Agency Name
Commerce	U.S. Department of Commerce
DHS	U.S. Department of Homeland Security
DOD	U.S. Department of Defense
DOE	U.S. Department of Energy
DOJ	U.S. Department of Justice
DOL	U.S. Department of Labor
DOT	U.S. Department of Transportation
ED	U.S. Department of Education
EPA	U.S. Environmental Protection Agency
GSA	U.S. General Services Administration
HHS	U.S. Department of Health and Human Services
HUD	U.S. Department of Housing and Urban Development
Interior	U.S. Department of the Interior
NASA	National Aeronautics and Space Administration
NRC	U.S. Nuclear Regulatory Commission
NSF	National Science Foundation
OPM	U.S. Office of Personnel Management
SBA	U.S. Small Business Administration
SSA	U.S. Social Security Administration
State	U.S. Department of State
Treasury	U.S. Department of the Treasury
USAID	U.S. Agency for International Development
USDA	U.S. Department of Agriculture
VA	U.S. Department of Veterans Affairs

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Purpose of the Evaluation Report

Introduced in 2007 and most recently revised in 2017, the Small Business Procurement Scorecard assesses federal agencies' achievement of their statutory federal small business procurement goals. This program evaluation aims to assess the effectiveness of the Small Business Procurement Scorecard methodology change, as well as the effectiveness of the scorecard overall, in increasing small business opportunities and improving federal agencies' ability to meet their small business contracting goals. The U.S. Small Business Administration (SBA) conducted this program evaluation based on the recommendations of the Government Accountability Office (GAO) presented in GAO-18-672 and GAO-19-623T. A brief description of the statutory federal small business procurement goals along with the findings and recommendations of GAO from GAO-18-672 and GAO-19-623T are presented below.

Statutory Goals

***What Are the Statutory Federal Small Business Procurement Goals?** Federal small business procurement goals are set by Congress, which requires that the Federal Government shall direct a percentage of spending dollars to small business concerns (SBCs), and certain socioeconomic categories of small businesses. In 1988, Congress first enacted a procurement goal in prime contracting for small businesses. Since then, goals have been increased, extended to include some subcontracting, and applied to socially and economically disadvantaged small businesses (SDBs), service-disabled veteran-owned small businesses (SDVOSBs), woman-owned small businesses (WOSBs), and small businesses in the Historically Underutilized Business Zone (HUBZone) Program. The Small Business Act (Section 15(g), 15 U.S.C. 644(g) (1)) includes the various small business procurement goals. (U.S. Small Business Administration, 2020)*

Agency Goals and Government-wide Goals: The goals established under the Small Business Act are summarized in Table 1 below.

Table 1: Summary of the small business procurement goals for each fiscal year

Small Business Category	Small Business Procurement Goals
<i>Small Business Concerns</i>	Not less than 23% of the total value of all prime contract awards across the Federal Government
<i>Small Disadvantaged Businesses</i>	Not less than 5% of the total value of all prime contract and subcontract awards for each Chief Financial Act Officer (CFO) Act agency
<i>Woman-Owned Small Businesses</i>	Not less than 5% of the total value of all prime contract and subcontract awards for each CFO Act agency
<i>Service-Disabled Veteran-Owned Small Businesses</i>	Not less than 3% of the total value of all prime contract and subcontract awards for each CFO Act agency

Small Business Category	Small Business Procurement Goals
HUBZone Businesses	Not less than 3% of the total value of all prime contract and subcontract awards for each CFO Act agency

Who is Responsible for Achieving Small Business Procurement Goals? Every Federal agency with procurement authority is responsible for contributing toward the achievement of Federal Government-wide small business procurement goals. Each agency must provide the maximum practicable opportunity to small businesses to win awards and must work to improve its procurement processes to meet the goals. (U.S. Small Business Administration, 2020)

The SBA's Responsibility? SBA is responsible for implementing the small business goaling program to ensure that the various government-wide small business goals are established for each agency each fiscal year and for tracking and reporting on agencies' achievements toward meeting those goals. Like other Federal agencies, SBA must also establish and achieve the statutory small business procurement goals. (U.S. Small Business Administration, 2020)

Findings and Recommendations from GAO-18-672

Why GAO Did This Study. Each year SBA produces a scorecard measuring federal contract spending allocated to small businesses. The 2016 NDAA included a provision for SBA to revise the scorecard's methodology and for GAO to evaluate the effects of those revisions for fiscal year 2017. This report discusses, among other things, (1) SBA's changes to the scorecard methodology and plans, if any, to evaluate the effects of these changes, (2) the extent to which SBA has processes to disseminate reliable information, and (3) views of selected stakeholders on the scorecard's effects on small business procurement opportunities. GAO analyzed SBA's prior and revised scorecard methodology and results and interviewed officials from SBA, four other federal agencies selected based on small business procurement volume and other attributes, and three groups representing the interests of small businesses. (Government Accountability Office, 2018)

What GAO Found. For fiscal year 2017, the Small Business Administration (SBA) revised the methodology for its Small Business Procurement Scorecard, which is used to assess federal agencies' progress toward small business procurement goals. SBA made revisions to address requirements specified in the National Defense Authorization Act for Fiscal Year 2016 (2016 NDAA). SBA (1) reduced the share of the total scorecard grade devoted to prime contracting achievement, which is the dollar amount of contracts awarded directly to small businesses, and (2) added an element calculating changes in

the number of small businesses receiving prime contracts. SBA made two additional revisions—with input from other agencies' representatives—to increase the share of subcontracting achievement results and peer review of required activities designed to facilitate small business procurement. In July 2018, officials said they had begun developing a plan to evaluate the effects of the revised scorecard methodology but did not provide a draft plan. Conducting a well-designed and comprehensive evaluation could aid SBA in determining whether the scorecard is an effective tool for helping to achieve the agency's strategic goals.

The published fiscal year 2017 scorecards originally contained errors, including an incorrect grade and numeric score for one agency, and SBA does not have a process to ensure that scorecard results are published accurately. Although SBA later corrected the errors, the agency did not initially document that scorecards had been changed, which is inconsistent with SBA's policy on information quality. SBA officials said that errors occurred in the process of formatting scorecards for publication. Errors in the published scorecards—and the initial lack of disclosure about corrections—weaken data reliability and may undermine confidence in scorecard data. Agency officials and representatives of small business groups that GAO interviewed generally expected the scorecard revisions to have little impact on small business procurement opportunities. However, one agency's officials said they would focus more on tracking subcontracting activity as a result of changes to the scorecard. (Government Accountability Office, 2018)

What GAO Recommends. *GAO is recommending that SBA (1) design and implement a comprehensive evaluation to assess scorecard revisions and (2) institute a process for reviewing scorecards for accuracy prior to publication and a mechanism for disclosing corrected information. SBA generally agreed with GAO's recommendations. (Government Accountability Office, 2018).*

Findings and Recommendations from GAO-19-623T

Why GAO Did This Study. *Federal agencies conduct a variety of procurements that are reserved for small business participation through small business set-asides. These set-asides can be for small businesses in general, or they can be specific to small businesses that meet additional eligibility requirements in programs such as those for WOSB or HUBZone. SBA administers both the WOSB and HUBZone programs. SBA also produces an annual Small Business Procurement Scorecard to measure how much contracted spending federal agencies allocate to small businesses and whether the Federal Government is meeting its goals for awarding contracts to small businesses. GAO issued three reports between September 2018 and March 2019 on SBA contracting programs (see GAO18-666, GAO-18-672, and GAO-19-168). This testimony is primarily based on*

these three reports and discusses prior GAO findings and SBA's progress on implementing GAO's recommendations on (1) the WOSB program, (2) the HUBZone program, and (3) SBA's procurement scorecard. To update the status of prior recommendations, GAO reviewed updates from SBA and interviewed officials. (Government Accountability Office, 2019).

What GAO Found. *The Small Business Administration (SBA) has not fully implemented GAO's prior recommendations to address oversight deficiencies in the Women-Owned Small Business (WOSB) and Historically Underutilized Business Zone (HUBZone) programs and to improve evaluation of its procurement scorecard. GAO maintains that its recommendations should be addressed. (Government Accountability Office, 2019).*

Small Business Procurement Scorecard. *For fiscal year 2017, SBA revised the methodology for its Small Business Procurement Scorecard, which assesses the efforts of federal agencies to support contracting with small businesses. For example, one revision reduced the share of the total scorecard grade devoted to prime contracting achievement (the dollar amount of contracts awarded directly to small businesses). GAO recommended in September 2018 that SBA design and implement a comprehensive evaluation to assess the scorecard revisions. Since that report was issued, SBA has proposed but not yet implemented a two-phase evaluation of the scorecard to include an evaluation of the scorecard's effect on federal agencies achieving small business contracting goals. SBA said that it expects to complete phase one by September 2019 and has not provided a time frame for phase two. (Government Accountability Office, 2019).*

Executive Summary

Overview: Agencies of the Federal Government with procurement authority are required by law to obligate a portion of small business eligible contracting dollars to small businesses overall, as well as small businesses that meet certain socioeconomic categories (15 U.S.C. §644(g) (1)-(3), 1988). While Congress sets the overall goals for the Federal Government, agencies can negotiate their individual contributions with the U.S. Small Business Administration (SBA) to meet the collective goal. The SBA leads the process in ensuring the collective and agency-specific goals are set and charts the performance of achievements towards the goals (U.S. Small Business Administration, 2020). Introduced in 2007 and most recently revised in 2017, the Small Business Procurement Scorecard aims to assess the performance of federal agencies towards achieving their small business contracting goals, provide valid and reliable data on federal contracting with an emphasis on transparency, as well as analyze and report agency level and government-wide progress towards the goals. The revision to the scorecard methodology in 2017 was intended to provide more defined pathways for agencies to direct their small business procurement activities and be better positioned to achieve their small business contracting goals. Following the recommendations of the Government Accountability Office (GAO), the SBA has conducted a rigorous program evaluation to assess the effectiveness of the small business scorecard methodology change and the scorecard overall in increasing small business opportunities and improving the ability of federal agencies to meet their small business procurement goals (Government Accountability Office, 2018, 2019).

Key Findings – Prime Contracting: The change in the Small Business Procurement Scorecard methodology did not result in many changes to small business procurement practices at federal agencies for prime contracting. No changes were observed in indicators of small business opportunities (such as use of set-aside and sole source vehicles) or small business prime contracting dollars after the methodology change. However, the scorecard overall has had a strong positive relationship with indicators of small business prime contracting opportunities, which, in turn, have a positive association with small business contracting dollars. Additionally, agency mission and procurement practices were also found to have a relationship with small business contracting dollars. These include the overlap of industry sectors in which agencies and small businesses operate, use of specific contracting vehicles such as Indefinite Delivery Vehicles for procurement, as well as spending through Best-in-Class vehicles and Spend Under Management. The findings for the small business socioeconomic programs for prime contracting opportunities and dollars mostly mirrored the findings for small businesses overall.

Key Findings – Subcontracting: The change in the scorecard methodology and the scorecard overall does not appear to have a relationship between indicators of subcontracting opportunities measured by the value of total subcontracting dollars (as reported by all other-than-small prime contractors with a requirement to submit subcontracting data to the SBA). The total dollar value

of these subcontracts, however, had a positive relationship with small business subcontracting dollars, indicating that increasing the value of such subcontracts may see an increase in the dollars flowing to the small business subcontractors. The findings for the small business socioeconomic programs for subcontracting opportunities and dollars mostly mirrored the findings for small businesses overall.

Key Findings – Best Practices: In terms of best practices for improving the goaling process, the study found that agencies would like for the SBA to provide guidance on navigating Category Management while promoting small businesses. Overall, the study found partnership and understanding between agencies and the SBA to be the most crucial factor in the entire process of setting and meeting goals to improve small business contracting opportunities in the Federal Government.

While the findings of this report shed light on the nature of the relationship between the scorecard methodology change and the scorecard overall on small business opportunities and contracting dollars, the report could not provide definite findings of these relationships due to data limitations and methodological challenges. Therefore, the findings of the report and the recommendations should be interpreted with some caution.

Introduction

Research Objective: Agencies of the Federal Government with procurement authority are required by law to obligate a portion of small business eligible contracting dollars to small businesses overall, as well as small businesses that meet certain socioeconomic categories (15 U.S.C. §644(g) (1)-(3), 1988). While Congress sets the overall goal for the Federal Government, agencies can negotiate their individual contributions with the U.S. Small Business Administration (SBA) to meet in aggregate the government-wide statutory goal. The SBA leads the process in ensuring the collective and agency-specific goals are set and charts the performance of achievements towards the goals (U.S. Small Business Administration, 2020). Historically, these achievements have varied. While the government-wide goal of obligating 23 percent of the total value of small business eligible prime contracting dollars to small businesses has been met over the last few fiscal years by the Federal Government, goals for Women-Owned Small Businesses have only been met twice, and goals for Historically Underutilized Business Zone certified businesses have never been met. Moreover, the performance of individual agencies has been even more varied. For instance, while several federal agencies have consistently met or exceeded the HUBZone contracting goal, between 2005 and 2018, almost one-third of the agencies have never met the goal.¹ To stimulate action towards achieving the goals, the SBA introduced the Small Business Procurement Scorecard in 2007 and most recently updated its grading methodology in 2017. The change in the scorecard methodology was designed to serve as a behavioral nudge that provides more defined pathways for agencies to direct their small business procurement activities and be better positioned to achieve their small business contracting goals. However, at present, there is little consensus on whether this intervention is producing the desired outcomes (Government Accountability Office, 2018). As recommended by the Government Accountability Office (GAO), the SBA has requested a rigorous program evaluation to assess the effectiveness of this policy change (Government Accountability Office, 2018, 2019). The evaluation is guided by the following research questions:

1. *How does the small business contracting scorecard affect progress towards a federal agency's achievement of their small business contracting goals?*
 - a. *How does the small business contracting scorecard influence the attainment of the prime socioeconomic small business contracting goals, and is the influence different for the attainment of the small business prime contracting goal?*
 - b. *What other factors influence small business contracting goal achievement at federal agencies?*

¹ The agencies that have not met the HUBZone contracting goal for any fiscal years (FY) between FY 2005 and FY 2018 are: the U.S. Department of Education, U.S. Department of Energy, National Aeronautics and Space Administration, U.S. Agency for International Development, U.S. Environmental Protection Agency, National Science Foundation, and U.S. Department of Justice (U.S. Small Business Administration, 2005, 2006, 2007, 2008, 2009, 2010, 2011, 2012, 2013, 2014, 2015, 2016, 2017, 2018).

- c. *How does the small business contracting scorecard influence attainment of the subcontract socioeconomic small business goals?*
 2. *How does the small business contracting scorecard and associated processes affect contracting opportunities available to small businesses?*
 - a. *How does the small business contracting scorecard affect opportunities for federal prime contracts for small businesses, and is the effect different for businesses that are Service-Disabled Veteran-Owned Certified, Small Disadvantaged Business Certified, Women-Owned Small Business Certified, or Certified HUBZone firms?*
 - b. *How does the small business contracting scorecard affect opportunities for federal subcontracts for small businesses, and is the effect different for businesses that are Service-Disabled Veteran-Owned Certified, Small Disadvantaged Business Certified, Women-Owned Small Business Certified, or Certified HUBZone firms?*
 - c. *Do the affects vary by NAICs code?*
 3. *What factors or processes that the SBA uses to develop the goals and scorecard most influence progress towards goal achievement (e.g., negotiation of the goals, the public reporting of the scorecard, scorecard calculation methodology, etc.)?*
 - a. *How could the SBA improve the process of establishing federal agency goals to garner agency support, ensure achievement of the federal small business contracting goals, and increase contracting opportunities for small businesses?*
 - b. *How can the SBA ensure the data used to produce the scorecard is of adequate quality?*

Intended Audience: The primary audience for this study is the SBA and its Office of Government Contracting and Business Development (GCBD), as well as contracting and program staff across the Federal Government. The overarching goal of this evaluation is to assess the effectiveness of the scorecard overall, as well as the impact of the change in the scorecard methodology in 2017. Additionally, the evaluation aims to identify barriers that can be removed or measures that can be taken to increase small business contracting opportunities and, in the process, improve the ability of federal agencies to meet their goals.

Summary of Findings – Prime Contracting: The change in the Small Business Procurement Scorecard methodology did not result in many changes to small business procurement practices at federal agencies for small business prime contracting. There were no changes in indicators of small business opportunities or small business prime contracting dollars after the methodology change. However, the scorecard overall has had a strong positive relationship with indicators of small business prime contracting opportunities, which, in turn, have a positive association with small business contracting dollars. This suggests that while the scorecard methodology change could not be attributed with increase in small business opportunities, the existence of the

scorecard overall has played a positive role in creating small business opportunities and increasing the value of prime contract dollars to small businesses.

Summary of Findings – Subcontracting: In terms of subcontracting, the change in the scorecard methodology and the scorecard overall does not appear to have a relationship between indicators of subcontracting opportunities measured by the value of total subcontracting dollars (as reported by all other-than-small prime contractors with a requirement to submit subcontracting data to the SBA). Dollar value of these subcontracts, however, had a positive relationship with small business subcontracting dollars, indicating that increasing the value of such subcontracts may see an increase in the dollars flowing to the small business subcontractors.

In other words, while the scorecard methodology change and scorecard overall were not found to have an influence on the value of total subcontracting dollars (as reported by all other-than-small prime contractors with a requirement to submit subcontracting data to the SBA), requiring such subcontracting plans and encouraging these prime contractors to increase the value of their subcontracts may increase the dollars reaching the small business subcontractors.

Structure of the Report: The report begins with a brief description of the goaling process and the scorecard, and then presents a synopsis of the major themes identified in the literature review, which informed the research design. The report then describes the data and research design, presents a detailed discussion of the results, and outlines its limitations. The report concludes by summarizing the key findings and presenting the study's recommendation to improve program performance.

Overview of the Program

Goaling Process: Set by statute, the federal small business procurement goals require agencies in the Federal Government to collectively contract a percentage of its annual spending to small businesses overall, as well as to certain socioeconomic categories of small businesses. First enacted in 1988 for small business prime contracting, the goals have expanded to include subcontracting and comprise of small businesses that are economically Disadvantaged Small Business (SDBs), Service-Disabled Veteran-Owned Small Businesses (SDVOSBs), Woman-Owned Small Businesses (WOSBs), and businesses in Historically Underutilized Business Zones (HUBZone). Table 2 below presents a summary of the current small business procurement goals (U.S. Small Business Administration, 2020).

Table 2: Summary of the small business procurement goals for each fiscal year

Small Business Category	Small Business Procurement Goals
<i>Small Business Concerns</i>	Not less than 23% of the total value of all prime contract awards across the Federal Government
<i>Small Disadvantaged Businesses</i>	Not less than 5% of the total value of all prime contract and subcontract awards for each Chief Financial Officer (CFO) Act agency
<i>Woman-Owned Small Businesses</i>	Not less than 5% of the total value of all prime contract and subcontract awards for each CFO Act agency
<i>Service-Disabled Veteran-Owned Small Businesses</i>	Not less than 3% of the total value of all prime contract and subcontract awards for each CFO Act agency
<i>HUBZone Businesses</i>	Not less than 3% of the total value of all prime contract and subcontract awards for each CFO Act agency

The 24 federal agencies collectively known as the Chief Financial Officer (CFO) Act agencies, are jointly responsible for contributing to the government-wide small business goals. Each agency must contribute towards creating opportunities for small businesses to acquire prime and subcontract awards, as well as work towards improving the agency's ability to better achieve their small business procurement goals (U.S. Small Business Administration, 2020; 15 U.S.C. § 644(g) (1), 1988).

The role of the SBA in the goaling process is to implement the goaling program by ensuring that the government-wide goals are established annually for each CFO Act agency to create the maximum practicable opportunity for small business overall and those in the socioeconomic programs, and measure agencies' performance towards meeting the goals (U.S. Small Business Administration, 2020).

To set the goals, the SBA negotiates with agencies to establish their individual goals such that together they meet the statutory government-wide goal at an aggregate level for prime contracting. The SBA also negotiates goals for subcontracting for each agency based on the agency's recent subcontracting performance. Prior to the start of each fiscal year, the SBA reviews each agency's current year-to-date performance and presents a proposed goal for the agency for the next fiscal year. Agencies review the proposed goal and respond with either a counterproposal or an acceptance of the proposed goal. The SBA then reviews the individual agency goals to assess if they collectively meet or exceed the government-wide statutory levels for each category and then notifies each agency of their individual goals. Each agency is also required to annually expand small business participation in each industry category (15 U.S.C. § 644(g) (2) (d), 2018). If an agency and the SBA cannot agree on the goals, the agency may appeal the goal set to the Office of Federal Procurement Policy (OFPP) at the Office of Management and Budget (OMB) (U.S. Small Business Administration, 2020).

Small Business Procurement Scorecard: Introduced in 2007, the Small Business Procurement Scorecard aims to assess the performance of federal agencies towards achieving their small business contracting goals, provide valid and reliable data on federal contracting with an emphasis on transparency, as well as analyze and report agency level and government-wide progress towards the goals. The current scorecard grade consists of four components:

1. Achievement in prime contracting with small businesses overall and small businesses that fall in the category of SDB, HUBZone, WOSB, and SDVOSB (the four small business socioeconomic programs) comprises 50 percent of the overall scorecard grade.
2. Achievement in subcontracting with small businesses overall and with small businesses in the socioeconomic programs comprises 20 percent of the overall scorecard grade.
3. Examining the number of small businesses overall and small businesses in the socioeconomic programs that received prime contract awards in the agency's top 100 small business North American Industrial Classification System (NAICS) codes between the previous and current fiscal year comprises 10 percent of the overall scorecard grade.
4. A peer review of the compliance of the Office of Small and Disadvantaged Business Utilization (OSDBU) with Section 15(k) of the Small Business Act comprises 20 percent of the overall scorecard grade (U.S. Small Business Administration, 2020).

The scorecard methodology was most recently revised for FY 2017 to meet the requirements of the National Defense Authorization Act (NDAA) for FY 2016. The revisions include a reduction in the weight of the overall scorecard grade for prime contract achievement, an increase in the weight of the grade for subcontracting achievement, a new component measuring the change in number of small businesses receiving prime contracts between the prior and current fiscal year, and a peer review that directly measures the compliance of OSDBUs with Section 15(k) of the Small Business Act. Tables 3 and 4 present the scorecard methodology before and after the FY 2017 change (U.S. Small Business Administration, 2020).

Table 3: Achievement categories and the weights of each of those categories towards the overall grade of the current Small Business Procurement Scorecard

Achievement Category	Percent of the Overall Scorecard Grade
<i>Prime contracting</i>	50
<i>Subcontracting</i>	20
<i>Comparison of the number of small business prime contractors in each of the five small business categories in the agency's top 100 small business NAICS codes</i>	10
<i>OSDBU peer review on agency compliance with Section 15(k) of the Small Business Act</i>	20

Table 4: Achievement categories and the weights of each of those categories towards the overall grade of the pre-2017 Small Business Procurement Scorecard

Achievement Category	Percent of the Overall Scorecard Grade
<i>Prime contracting</i>	80
<i>Subcontracting</i>	10
<i>Plan progress report performance</i>	10

Literature Review

To inform the research design, the study conducted a literature review to better understand barriers that small businesses face in government contracting; the programs, resources, and practices federal agencies employ for contracting; best practices agencies use in meeting their small business contracting goals; as well as the methodology and calculation behind the annual scorecard grades.

Barriers Faced by Small Businesses: Federal contracting serves as a key revenue source for small businesses. The Small Business Act specifically established government-wide goals for small business procurement, small business socioeconomic-categories, and specific procurement goals for each of the 24 CFO Act agencies (U.S. Congress, 1990). However, evidence from the review of existing literature suggests that small businesses face certain challenges in applying for and obtaining federal contracts.

A recent study found that women and minority entrepreneurs often do not submit bids for large-scale government contracting work because of the time, costs, and lack of confidence in the contract bidding process. Frequent reasons for not submitting bids include lack of access to information, barriers to securing necessary bonding, cost/expense of preparing bids, lack of previous success, and perceived unfairness of the government contracting process. There are also linguistic and cultural barriers that reduce the trust in willingness to work with the Federal Government. However, the study found no support for the notion that there are no “qualified” small firms for prime contracts (Murell & Bangs, 2019).

A 2017 study on the barriers faced by small businesses in competing for contracts from the U.S. Department of Defense (DOD) found that another set of difficulties that firms experience in obtaining contracts involves the complexity of the procurement process. The contract solicitation documentation and the metrics for evaluating proposals are often too complex and difficult to understand by some business leaders, and the amount of paperwork required to submit proposals and insufficient time to develop proposals further limit firms’ abilities to win contracts. A lack of communication during the solicitation process is another issue, with businesses struggling to get answers to their questions on solicitation documentation and desiring more feedback on proposals that did not win a contract. Contract requirements that were cited as being issues in previous studies include surety bonds, government cost accounting standards, export control

regulations (International Traffic in Arms), and a past performance rating on previous government contracts. Often cited barriers associated with contract execution include issues getting payments for completed work or payments taking too long, challenges contacting government leads or government leads not being helpful when contacted, contract modifications taking too long, and approvals taking too long as well (Schilling, Mazzuchi, & Sarkani, 2017).

Procurement Programs and Resources of Federal Agencies: The Federal Government has several procurement programs and resources in place to reduce the impact of the barriers faced by small businesses. For example, Procurement Center Representatives (PCRs) and Commercial Market Representatives (CMRs) implement the SBA’s prime contracts and subcontracting assistance programs to small businesses (Congressional Research Service, 2021; Government Accountability Office, 2012). Contracting assistance programs, including the SBA 8(a) Business Development Program, are targeted to small businesses, while agency-specific programs aim to also increase contracts with disadvantaged businesses (Congressional Research Service, 2021; Government Accountability Office, 2012).

Recent efforts by the SBA to further improve small business contracting opportunities include the launch of the All-Small Mentor Protégé Program² in 2016 that provides small businesses an avenue to “learn from an experienced government contractor”; the HUBZone joint venture program that allows HUBZone firms to form a joint venture with other small businesses or an approved mentor in order to compete for HUBZone specific contracts without requiring the entire joint venture to be HUBZone certified; as well as increasing the limit of surety bonds available through the SBA Surety Bond Guarantee Program to allow small business with limited experience and/or credit history to better compete for contracts (13 CFR § 126.616, 1999; Congressional Research Service, 2020; U.S. Small Business Association, 2020; U.S. Small Business Association, 2021).

OSDBUs also play a key role to ensure equitable distribution of contracting dollars. Led by OSDBU directors, agencies and corresponding programs conduct outreach events for small businesses seeking federal contracts. Outreach events include small business fairs, procurement conferences, trade group seminars, conventions, forums, monthly vendor outreach sessions, and industry days (Government Accountability Office, 2012; U.S. Small Business Administration, 2020; Madison Services Group, Inc., 2006). Additionally, OSDBU Council, the beta.SAM system, the SBA, GSA Acquisition Gateway, and the National Women’s Business Council offer online resources to support small business procurement (Government Accountability Office, 2012; Madison Services Group, Inc., 2006).

Procurement Practices Affecting Small Business Contracting Opportunities: Various legislative requirements, which agencies are required to follow, are used to advance small

² The All-Small Mentor Protégé Program merged with the 8(a) Business Development Program in 2020.

business contracting and subcontracting goals (Congressional Research Service, 2021). The Federal Acquisition Regulations require contracting officers to take certain pre-award actions designed to maximize the participation of small businesses as prime contractors, subcontractors, and suppliers (Congressional Research Service, 2021). Through the use of set-aside vehicles, agencies can create additional opportunities by limiting the competition for particular awards to just small businesses. At the same time, sole source awards can be used for situations in which only one small business can satisfy a given contracting opportunity's requirements (Congressional Research Service, 2012, 2021).

The use of consolidated services to streamline procurement also plays a role in small business contracting. The Federal Acquisition Streamlining Act (FASA) of 1994 requires agencies to use multiple-award contracts (MACs) instead of single-award contracts when possible (Congressional Research Service, 2015). Agencies use small business-specific MACs to further create opportunities. At the same time, increased use of Best in Class (BIC) vehicles and contracting through Spend Under Management (SUM), collectively referred to as Category Management, have also changed the procurement practices of federal agencies, including contracting with small businesses. In a 2020 report, GAO found that while 30 percent of all spending through Category Management was obligated to small businesses since 2016, the number of small businesses receiving such awards decreased each year mirroring the trend of other-than-small businesses (Government Accountability Office, 2020). GAO found that improved training for officials who deal with small businesses contracting at agencies facilitated by the OMB "should improve communication with small businesses" on Category Management (Government Accountability Office, 2020).

To further stimulate small business subcontracting opportunities, agencies can require other-than-small business recipients of prime contracts to subcontract with small businesses by including subcontracting plans in the terms and conditions of the contract award (U.S. Small Business Administration, 2021). In terms of best practices, the literature review observed that engagement and support from OSDBUGs and senior management to contracting officers, the use of set-asides, and targeted outreach events contribute towards successful fulfillment of small business procurement goals for agencies (Government Accountability Office, 2012).

Challenges Associated with Grading Agency Achievement in Meeting the Goals: To calculate the scorecard grades that measure achievement towards the small business contracting goals, the SBA uses the Federal Procurement Data System-Next Generation (FPDS-NG)³ and the Electronic Subcontracting Reporting System (eSRS) to identify small business prime and subcontracting awards, respectively (Government Accountability Office, 2018).

³ The reports module of FPDS-NG was retired in October 2020. The functionalities provided by the reports module are now available on beta.SAM.

Literature suggests that these data sources used by the scorecard assessment tool have limitations that likely hinder the reliability of scorecard results. The FPDS-NG design makes it difficult to distinguish individual small contracts from task orders on multiple task or delivery-order contracts. Furthermore, FPDS-NG has some extreme values and outliers for the number and dollar value of awards. In the eSRS, prime contractors are responsible for reporting their subcontracting activity to the Federal Government, and the self-reported nature of these data is a limitation that could hamper its accuracy. In addition, not all prime contractors are required to file subcontracting plans. Exceptions to the requirement include, for example, when the prime contract is for goods or services worth \$750,000 or less (\$1.5 million for construction), or if the prime contractor is exempt. Small business prime contractors are one example of an exempt group that is not required to prepare subcontracting plans. The Federal Government does not have a verified record of who performed subcontracting work and the amount paid. Furthermore, eSRS contains no industry data on subcontractors (48 CFR § 19.702, 2019; Government Accountability Office, 2018).

At the same time, scoring issues arising from the use of exclusions affect the validity of the goaling results. Goals and the goaling program have been defined by the SBA in terms of “eligible” dollars. Eligible is shorthand for saying that not all procurement is included in the base (or achievements) used to calculate small-business procurement rates as some procurement is excluded. The small business eligible baseline excludes certain contracts that the SBA has determined do not realistically reflect the potential for small business participation in federal procurement (such as those awarded to mandatory and directed sources), contracts funded predominately from agency-generated sources (i.e., non-appropriated funds), contracts not covered by the FAR, acquisitions on behalf of foreign governments, and contracts not reported in the FPDS-NG (such as government procurement card purchases and contracts valued less than \$10,000). These exclusions typically account for 18 to 20 percent of all federal prime contracts each year (Congressional Research Service, 2021; Bealle, 2014). Exclusions make a difference in reported goal results. Comparison of fiscal year 2012 goaling reports and FY 2012 FPDS-NG data indicate that the difference is about 3 percentage points. These results are broadly consistent with calculations cited by Congress in 2007, which indicated that inclusion of foreign contract opportunities would lower the small-business procurement rate to 19.3 percent. Thus, the use of exclusions overstates the goal achievement (Bealle, 2014).

Landscape of Small Business Federal Contracting

To understand the role of the scorecard in stimulating small business opportunities, it is helpful to look at the landscape of federal contracting overall and to small businesses.

Prime Contracting Achievements: While the government-wide goal for small business prime contracting is 23 percent of all small business eligible dollars, the individually negotiated goals for each agency varies such that the collective achievement meets or exceeds the 23 percent

target (U.S. Small Business Administration, 2020). Since the negotiated goals vary by agency and the size of total agency contracting varies significantly, the amount of dollars spent by the agencies through small business prime contracts also varies, at times widely. As evident from Figure 1 below, the negotiated nature of small business procurement goals means that while some agencies spend more than 40 percent of all their small business eligible dollars on small business prime contracts, others do not spend 20 percent. The red dotted line at the 23 percent mark represents the government-wide small business prime contracting goal, for additional context.

In viewing Figure 1, it is important to note that agencies that individually meet the goal may not necessarily be the ones leading the effort in meeting the government-wide goal. This means that while an agency with a smaller overall budget like the SBA has been well above the 23 percent mark during FY 2014 through FY 2019, it is playing a relatively small role towards achieving the government-wide goal. In comparison, an agency with a much larger budget like the U.S. Department of Defense plays a much bigger role towards achieving the government-wide goal even though it has been obligating around 23 percent to small business prime contracts during the same time.

Figure 1: Small business prime contracting achievement by agencies: FY 2014 – FY 2019

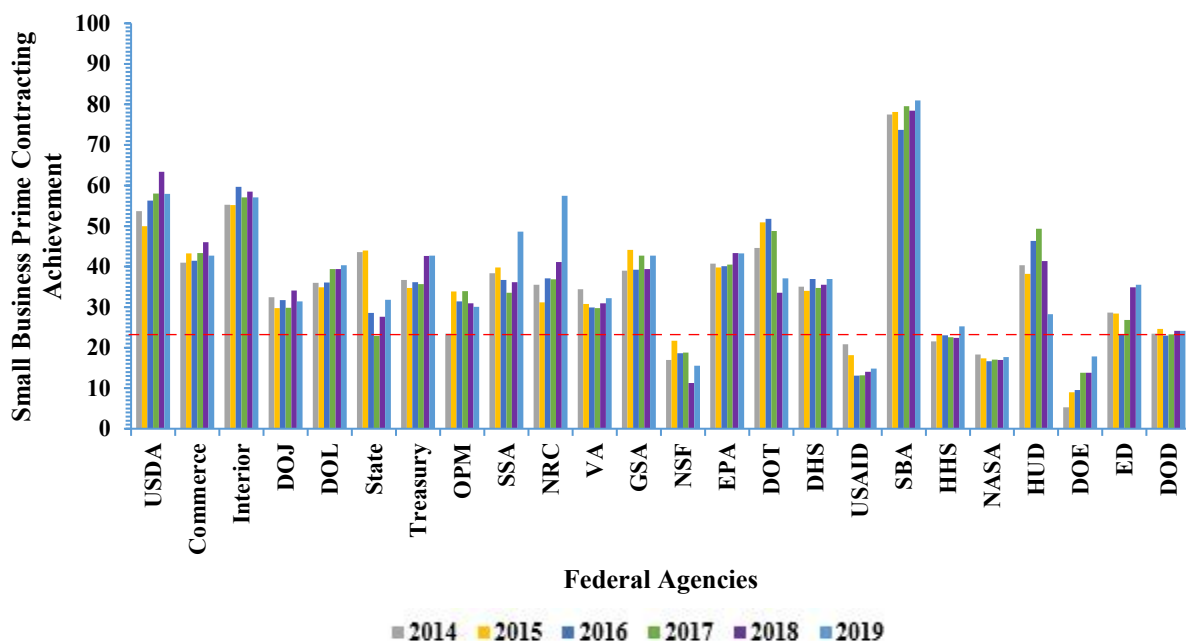
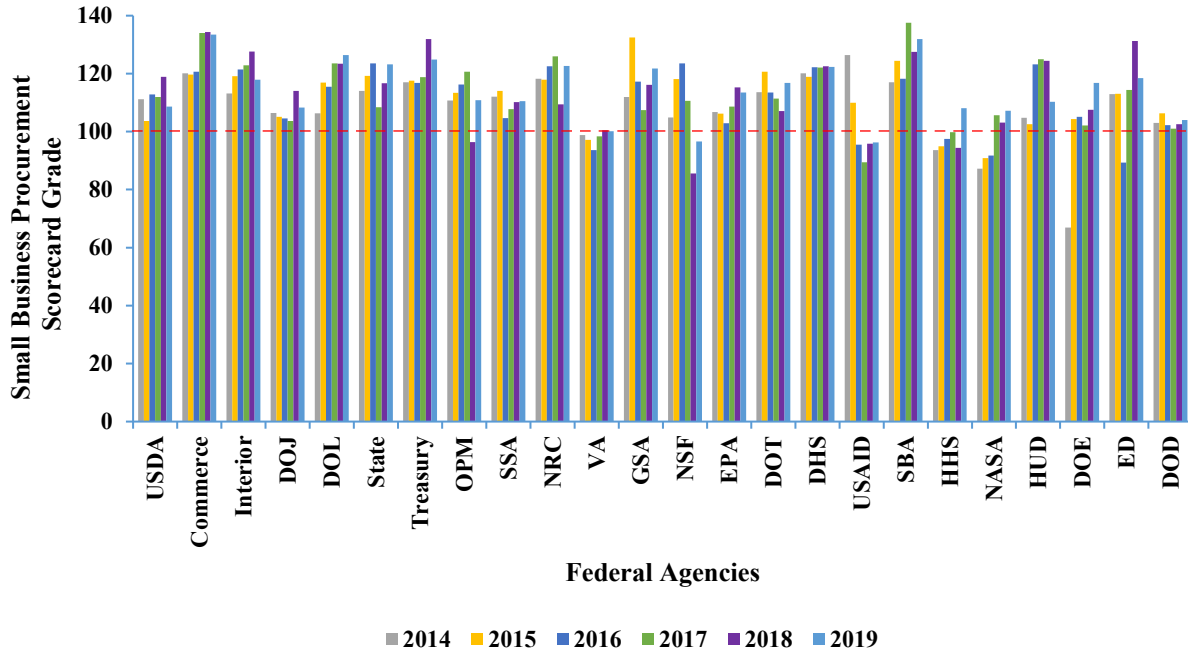


Figure 1, however, only tells part of the story. To understand agencies' commitment to creating small business prime contracting opportunities, it is important to look at their scorecard grades. From Figure 2, it is clear that most agencies have been able to meet or exceed their annual small business contracting goals during FY 2014 through FY 2019, the period of this study.

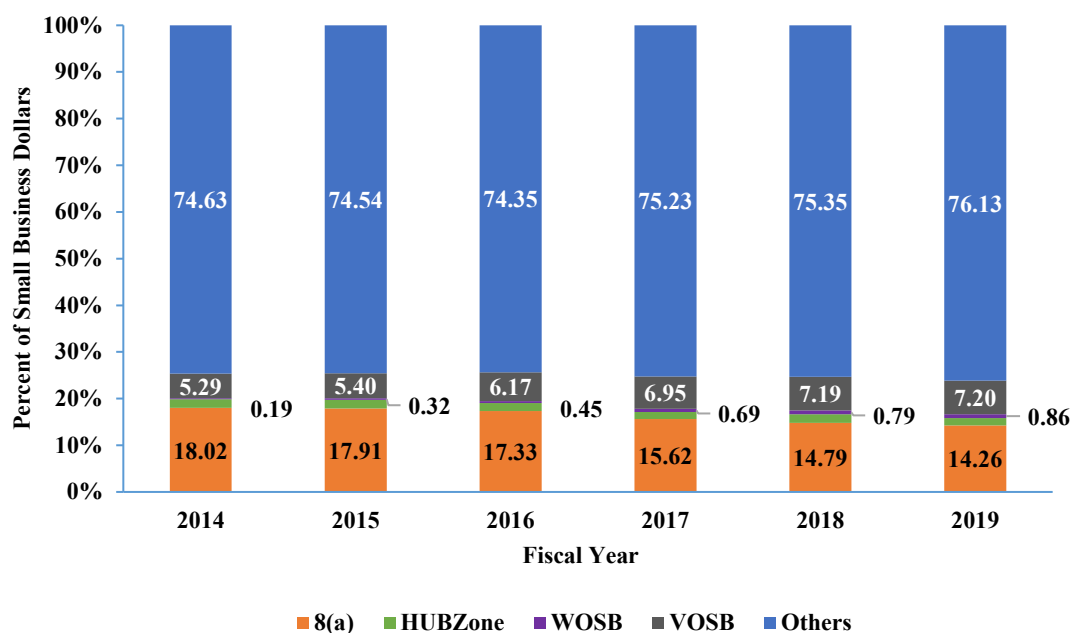
Figure 2: Scorecard grade by agencies: FY 2014 – FY 2019



The red dotted line at the 100 percent mark demarcates agencies that met their goals and received an “A” as their overall grade.

Contracting to Small Business Socioeconomic Programs: Looking beyond the overall small business contracting achievement, it is important to note that the use of set-aside and sole source vehicles to achieve the socioeconomic program and the overall small business prime contracting goals varied widely for the CFO Act agencies. While they exist as tools to meet the goals, the majority of small business prime contracting dollars were not obligated through the socioeconomic program set-aside and sole source vehicles during the study period, as illustrated in Figure 3, with 8(a) set-asides and sole source vehicles being the one most widely used.

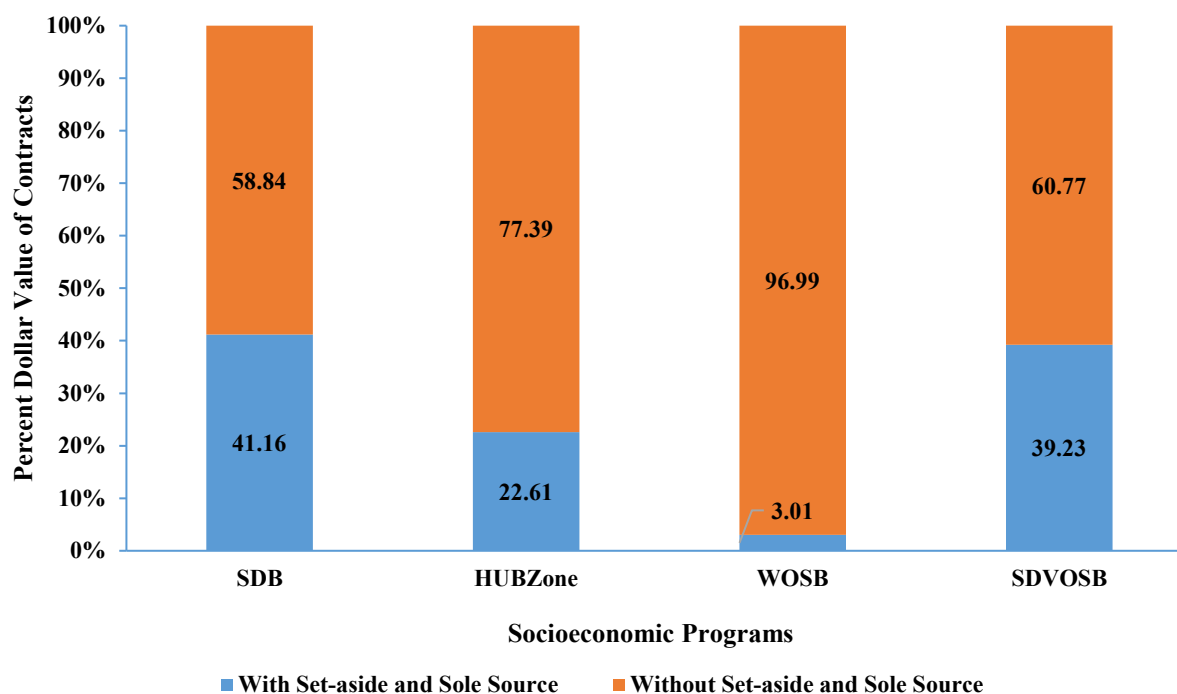
Figure 3: Small business prime contracting dollars through set-aside and sole source vehicles: FY 2014 – FY 2019



Similarly, the use of set-aside and sole source vehicles also varied across the socioeconomic programs. While 41 percent of SDB dollars were obligated through 8(a) set-asides and sole source vehicles and 39 percent of SDVOSB dollars through the VOSB set-aside and sole source vehicles, just 23 percent of HUBZone and a mere 3 percent of WOSB dollars were contracted through set-aside and sole source vehicles during the period of this study.⁴ Figure 4 presents this finding.

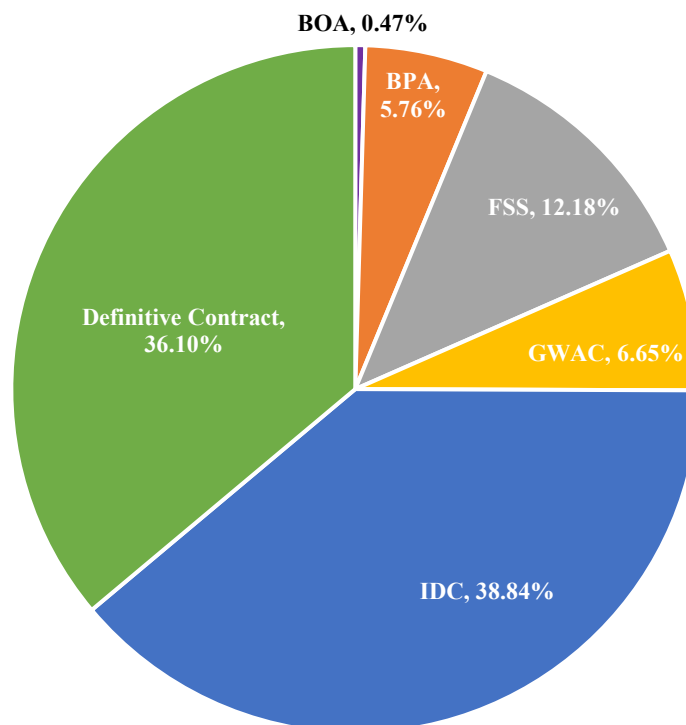
⁴ The utilization of WOSB set-aside and sole source vehicles presented in Figure 4 should be interpreted with some caution as unlike the other socioeconomic programs, the WOSB sole source vehicle was only introduced in FY 2016.

Figure 4: Socioeconomic program prime contracting dollars through set-aside and sole source vehicles: FY 2014 – FY 2019



Procurement Through Consolidated Services: Beyond considering agencies’ goal achievement and use of set-aside and sole source vehicles, it is also important to consider the broader procurement trends that separately impact agencies’ small business spending. Of particular note is the current shift towards procurement through consolidated services, where the majority of small business eligible prime contracting dollars are obligated under indefinite delivery vehicles (IDVs). As illustrated in Figure 5, only 36 percent of the dollars were obligated under definitive or standalone contracts during the period of this study. Agencies are directed to increase spending through such consolidated services to increase efficiency and streamline Federal Government procurement (Congressional Research Service, 2015).

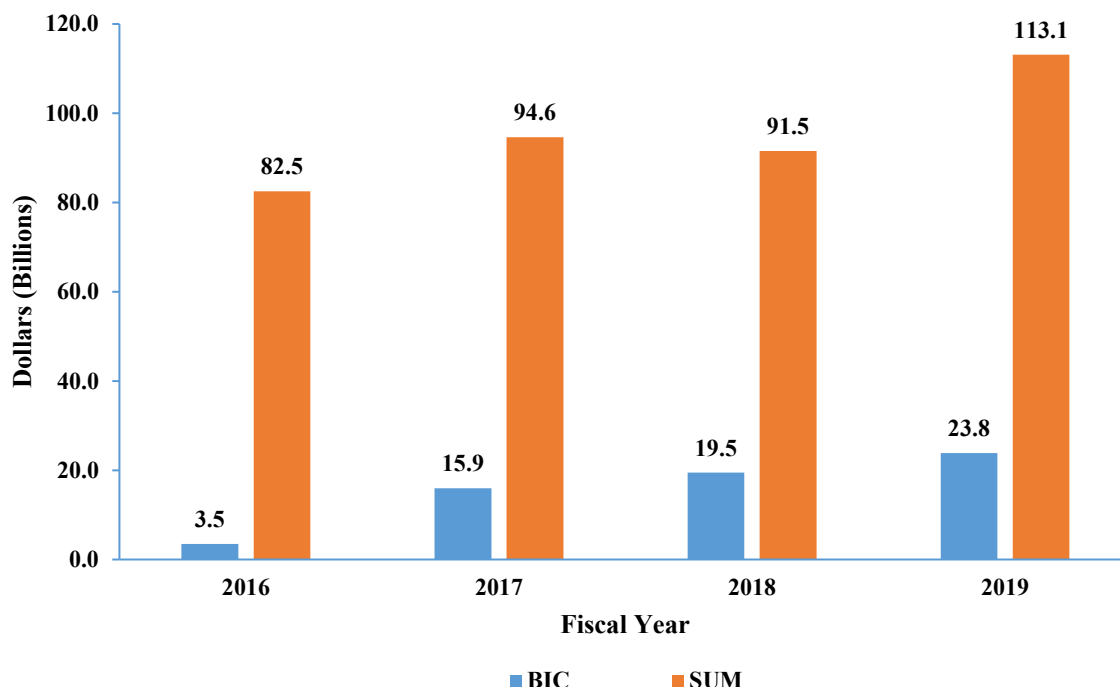
Figure 5: Small business eligible prime contracting dollars through IDVs: FY 2014 – FY 2019



At the same time, agencies are also directed to increase procurement through the use of BICs and SUM, collectively referred to as Category Management. Since its introduction in 2016, total spending through SUM has increased from \$82.5 billion to \$113.1 billion in 2019 for the 24 CFO Act agencies. The average spending through SUM went from \$3.4 billion to \$4.7 billion per agency per year during this time, a 37 percent increase. Spending through BICs also went up. Total spending through BICs increased from \$3.5 billion to \$23.8 billion between FY 2016 and FY 2019 for the CFO Act agencies. The average spending through BICs went from \$0.14 billion to \$1 billion per agency per year during this time, an over 600 percent increase. As mentioned in the Literature Review section, it is important to note that while 30 percent of all spending through Category Management was obligated to small businesses since 2016, the number of small businesses receiving such awards decreased each year leading many⁵ to believe Category Management to be at odds with increasing contracting opportunities for small businesses (Government Accountability Office, 2020). Figure 6 presents the trend in overall spending through Category Management.

⁵ This point is discussed in detail in the findings sections for Research Question 3.

Figure 6: Total expenditure through BIC and SUM: FY 2016 – FY 2019



Research Design

To answer the research questions, the study developed a mixed methods evaluation design that consists of semi-structured interviews, univariate and bivariate panel data analysis, and a structural equation model to measure the effectiveness of the revised small business scorecard methodology and the scorecard overall in increasing the contracting opportunities available to small businesses and improving federal agencies' ability to meet their small business procurement goals. The order of the research questions has been reversed to align with the sequence in which they were answered.

Research Question 3: *What factors or processes that the SBA uses to develop the goals and scorecard most influence progress towards goal achievement (e.g., negotiation of the goals, the public reporting of the scorecard, scorecard calculation methodology, etc.)?*

- How could the SBA improve the process of establishing federal agency goals to garner agency support, ensure achievement of the federal small business contracting goals, and increase contracting opportunities for small businesses?*
- How can the SBA ensure the data used to produce the scorecard is of adequate quality?*

Methodological Approach: The study employed a two-pronged approach in answering the research question. First, the study conducted a series of semi-structured interviews with the SBA

G CBD, federal agencies, and small business advocates to understand the process of how small business contracting goals are set, how they are measured, and whether the change in the scorecard methodology has had any impact on agencies' ability to meet the goals. Next, the study answered research questions by calculating the agency scorecard grades for FY 2017 through FY 2019 using the prior scorecard methodology to make a direct comparison of grades before and after the implementation of the new methodology in 2017.

Semi-structured Interviews: The study used purposeful sampling to identify respondents who are knowledgeable of their federal agencies' procurement practices and, ideally, knowledgeable of how their federal agencies' approach to procurement has changed, if at all, since the change in scorecard methodology in 2017. At the SBA, the study interviewed the Associate Administrator and the Deputy Associate Administrator for the Office of Government Contracting and Business Development (G CBD). The study sampled the Director of the OSDBU at every federal agency and interviewed the Senior Procurement Executive (SPE) and Chief Acquisition Officer (CAO) who were available from 22 of the 24 CFO Act agencies. The study used purposeful sampling to identify and interview four small business advocates from the HUBZone Contractors National Council, National 8(a) Association, and Women Impacting Public Policy. In addition, the research team conducted a follow-up interview with the SBA G CBD to triangulate and contextualize key findings from the interviews with agencies and small business advocates.

To inform the instrument design, the study carried out a desk review of administrative data sources including the Small Business Goaling Report (SBGR) and small business scorecard, obtained feedback from various SBA program offices, and relied on the Literature Review and logic model. The study conducted the qualitative data collection in phases, and used the insights gained from the initial interview with the SBA to finalize the semi-structured interviews with the federal agencies and small business advocates. To analyze the interview data, the research team conducted a direct content analysis using deductive coding that involved developing an initial codebook based on the salient categories derived from the research questions; establishing a common understanding of the codebook among the qualitative research staff; testing for interrater reliability to demonstrate a shared understanding of the codebook; coding all of the qualitative data; and conducting regular reviews of the coding to ensure quality. The research team iterated the codebook based on new findings and emerging themes and analyzed the coded data to assess whether the themes supported or rejected the research questions' hypotheses and assumptions.

The qualitative evidence of the study is based on the interviews conducted with 22 out of 24 CFO agencies, small business stakeholders, and leadership in the SBA G CBD. The interviews were semi-structured meaning that the study asked open-ended questions and asked more specific follow-up questions based on responses. Asking open-ended questions allowed the study to discover unexpected findings and learnings. The research team used its learnings from early interviews to inform additional iterations of the interview protocol in later interviews. In addition, once the study reached data saturation on certain questions, it would skip those questions in the protocol to allow time for exploration in other areas. As a result, not every agency was asked every question. Therefore, the data does not represent every agency's views on every subject but does capture the overall sentiments and salient ideas and concerns across agencies.

While the qualitative study does not claim to be representative of agencies' views, specific language was used to document the level of evidence that was collected for each of the arguments' claims. For example, "most" and "the majority" are used to indicate strong and consistent findings. While "a few" indicates that at least three respondents spontaneously mentioned the same topic but does not necessarily mean that that sentiment is not more broadly shared amongst agencies or small business advocates. Lastly, illustrative quotes are used throughout the qualitative findings section. These quotes were chosen because they are illustrative of broader sentiments. While they are the words of one respondent, they speak to a shared perspective. Follow-up discussions or a survey would be necessary to have a representative or quantified accounting of agencies' perspectives and opinions.

Rescoring Agency Scorecard Grades: In addition to conducting the semi-structured interviews, the study answered the research question by rescoring the agency scorecard grades for FY 2017 through FY 2019 using the old scorecard methodology.⁶ The old scorecard methodology consisted of three components. The prime contracting achievement comprised 80 percent of the scorecard grade, the subcontracting achievement comprised 10 percent of the grade, and the plan progress report performance comprised 10 percent of the grade. For the first two components, the team re-weighted the score assigned in the actual FY 2017 through FY 2019 scorecard to align with the old scorecard methodology. In other words, the team changed the weight of the prime contracting achievement and subcontracting achievement scores of 50 percent and 20 percent, respectively, in the FY 2017 through FY 2019 to 80 percent and 10 percent, respectively, to regrade the agency scores using the old methodology.

Unlike the first two components, the third component of the old scorecard, plan progress report performance, does not have a direct counterpart in the new methodology. The third component in the old scorecard attempted to assess agency compliance with Section 15(k) of the Small Business Act and agencies' overall commitment to small business utilization using seven success factors. In the new methodology, the fourth component of the scorecard measures compliance with Section 15(k) by directly assessing the implementation of 21 specific subsections of Section 15(k) by conducting an OSDBU-level peer review. While some of the success factors in the old methodology specifically align with components of Section 15(k) as identified by GAO,⁷ others do not align as directly (Government Accountability Office, 2017). Therefore, the fourth component of the new methodology, the OSDBU Peer Review of Agency Compliance with Section 15(k), is not a direct substitute for the third component of the old methodology, plan progress report performance. However, both the components are attempting to measure similar constructs related to compliance with best practices for small business contracting. Thus, the OSDBU Peer Review of Agency Compliance with Section 15(k) serves as the best substitute for the seven success factors of the third component of the old scorecard. To estimate the plan progress report performance and regrade agency scores for FY 2017 through FY 2019 using the

⁶ While it was possible for the study to rescore the agency grades for FY 2017 – FY 2019 using the old methodology, it was not possible to estimate the scorecard grades for FY 2014 – FY 2016 using the new methodology as it was beyond the scope of the study to estimate the third component of the new methodology for FY 2014 – FY 2016: *Comparison of the Number of Small Business Prime Contractors in Each of the Five Small Business Categories in the Agency's Top 100 Small Business NAICS Codes Between the Current and Previous Fiscal Year*.

⁷ The 2017 GAO report identified five subsections on 15(k), namely 2, 3, 7, 8, and 15 to align with the organization success factors in the plan progress report performance component of the old scorecard methodology.

old scorecard methodology, the study simply re-weighted the overall score of OSDBU Peer Review of Agency Compliance with Section 15(k), from 20 percent of the overall grade to 10 percent to follow the old methodology.

Research Question 2: *How does the small business contracting scorecard and associated processes affect contracting opportunities available to small businesses?*

- a. How does the small business contracting scorecard affect opportunities for federal prime contracts for small businesses, and is the effect different for businesses that are Service-Disabled Veteran-Owned Certified, Small Disadvantaged Business Certified, Women-Owned Small Business Certified, or Certified HUBZone firms?***
- b. How does the small business contracting scorecard affect opportunities for federal subcontracts for small businesses, and is the effect different for businesses that are Service-Disabled Veteran-Owned Certified, Small Disadvantaged Business Certified, Women-Owned Small Business Certified, or Certified HUBZone firms?***
- c. Do the effects vary by NAICS code?***

Methodological Approach: The study answered the second research question by assessing whether the contracting opportunities available to small businesses changed since the adoption of the new scorecard methodology by empirically testing a set of hypotheses with univariate and bivariate panel data analysis.

To address the ***first part of the research question*** that aims to understand the impact of the change in the scorecard on prime contracting opportunities available to small businesses overall and small businesses with SBA certifications and socioeconomic program designations, the study evaluated the following hypotheses. Each hypothesis represents a measure of small business prime contracting opportunity that could have been affected by the change in the scorecard methodology.

- 1. Agencies are likely to increase their level of engagement with small businesses by increasing the volume of RFIs to identify qualified small businesses.*** This hypothesis was tested by tracking the number of requests for information (RFIs) posted before and after the introduction of the new methodology by reviewing archived opportunities on beta.SAM and cross tabulating it by agency.
- 2. Agencies are likely to increase the number⁸ and dollar value of small business set-aside awards for SDVOSB, SDB, WOSB, or HUBZone businesses.*** This hypothesis was operationalized by tracking the number and dollar value of awards for each type of small business set-aside before and after the introduction of the new scorecard methodology for

⁸ A unique contract award is defined in this study as a standalone contract award not associated with an Indefinite Delivery Vehicle (IDV). Individual task order awards under a single IDV or different IDVs are also counted as unique contract awards. Operationally, a unique contract award was identified by concatenating the variables *PIID*, *IDV_PIID*, and *IDV_REF_IDV_PIID* in the SBGR version of the FPDS-NG dataset and applying the two filters *TOTAL_SB_ACT_ELIGIBLE_DOLLARS* is not equal to zero and *MODIFICATION_NUMBER* is equal to zero.

each agency. The study used the SBA certifications and socioeconomic program designation of contract award recipients listed in the SBGR version of the FPDS-NG to conduct the analysis.

3. ***Agencies are likely to increase the number and dollar value of small business sole source awards for SDVOSBs, SDBs, WOSBs, or HUBZone businesses.*** This hypothesis was operationalized by tracking the number and dollar value of small business sole source awards before and after the introduction of the new scorecard methodology for each agency by analyzing the SBGR version of the FPDS-NG dataset.
4. ***Agencies are likely to increase the number and dollar value of contract awards to businesses with multiple small business certifications and/or socioeconomic program designations to obtain credit towards goals in multiple small business categories with a single award.*** This hypothesis was tested by tracking the number and dollar value of contracts that have one or more of the following designations before and after the introduction of the new scorecard methodology: SDVOSB, SDB, 8(a), WOSB, and HUBZone. The study used the SBGR version of FPDS-NG data to produce the findings for each agency.
5. ***Agencies are likely to increase the number and dollar value of awards to small businesses using IDVs and other multiple award contracts.*** The study operationalized this hypothesis by tracking the number and dollar value of contracts awarded through IDVs to small businesses before and after the introduction of the new scorecard methodology by analyzing the SBGR version of the FPDS-NG data and cross tabulating the findings for each agency.

To address the ***second part of the research question*** that aims to understand the impact of the change in the scorecard on subcontracting opportunities available to small businesses, the study evaluated the following hypotheses:

1. ***Agencies are likely to require other-than-small prime contractors to increase the amount (in dollars) that they spend through subcontracting.*** This hypothesis can only be partially tested, because subcontracting data are only reported by the subset of other-than-small prime contractors who are required to have subcontracting plans (as discussed in the introduction). To test this hypothesis, the study tracked the total dollar value, before and after the scorecard change, of subcontracts awarded under other-than-small business prime contractors who are required to subcontract with small businesses. The analysis was conducted using aggregated summary data at the agency level obtained from eSRS for each agency.
2. ***Prime contractors are likely to increase the dollar value of subcontracts to small businesses.*** This hypothesis was tested by tracking the change in the dollar value of subcontracts to small businesses before and after the introduction of the new scorecard methodology. The study conducted this analysis using the aggregated agency-level data obtained from eSRS to produce the findings and cross tabulate it by the SBA certification and socioeconomic program designation of the small business sub-award recipient.
3. ***The number of small businesses receiving subcontracts may increase.*** The study attempted to test this hypothesis by tracking the number of small businesses receiving

sub-awards from prime contractors before and after the introduction of the new scorecard methodology by analyzing the granular award and sub-award level data for eSRS. However, since the granular award-level data from eSRS could not be obtained for this evaluation, the study could not test this hypothesis.

4. ***Prime contractors may better meet the goals outlined in their subcontracting plans.*** The study attempted to test this hypothesis by tracking the change in percent of subcontracting plans that met their goals before and after the introduction of new scorecard methodology using the granular award and sub-award level data from eSRS. However, since the granular award-level data from eSRS could not be obtained for this evaluation, the study could not test this hypothesis.

To address the ***third part of the research question*** that aims to understand whether the impact of the change in the scorecard on contracting opportunities available to small businesses are affected by NAICS codes, the study tested the hypotheses listed above for the first two parts of the research question and cross tabulated the findings by two-digit NAICS codes.

For each of the hypotheses described above, the study grouped data by taking the average of the operational variable measuring each hypothesis for each agency into two time periods, namely, FY 2014 through FY 2016: before the change of the scorecard methodology, and FY 2017 through FY 2019: after the change of the scorecard methodology. The study then conducted paired t-tests to assess whether the change in the value of the operational variable was statistically significantly different for the time period after adoption of the new scorecard methodology compared to the period before for each agency. The unit of analysis is federal agencies at a given time period (before or after scorecard methodology change).

Data Source and Preparation: The study used the data sources listed below in answering the second research question.

1. ***FPDS-NG, FY 2014 through FY 2019:*** FPDS-NG contains federal contracting information. The data covers 13 modules, such as contract dollar values, product or service information, purchaser information, contractor data, and competition information, which provide detailed information on contract awards obtained by small businesses. The SBA maintains a static version of the FPDS-NG as of October of each year called the SBGR, which excludes contracts that are not small business eligible. The study used the SBGR version of the FPDS-NG.
2. ***beta.SAM, FY 2014 through FY 2019:*** The beta.SAM system contains archived data on contracting opportunities of the Federal Government including current and past RFIs. The study scraped the beta.SAM website to identify webpages containing RFIs posted by the CFO Act agencies during the period of the study and then counted the number of RFIs during that time period.
3. ***eSRS, FY 2014 through FY 2019:*** eSRS is the data system that contains information on subcontract reporting. The study used archived extracts of the aggregated Summary Subcontract Reports (SSR) that contains the agency-level total subcontracting dollars (as reported by all other-than-small prime contractors with a requirement to submit

subcontracting data to the SBA), the portion of the total subcontracting dollars to small businesses, as well as the SBA certification and socioeconomic program designation of the small business subcontractors.

In addition to the data sources listed above, the study also relied on data from the semi-structured interviews collected for Research Question 3 to provide contextual information in answering this research question.

Research Question 1: *How does the small business contracting scorecard affect progress toward a federal agency's achievement of their small business contracting goals?*

- a. How does the small business contracting scorecard influence the attainment of the prime socioeconomic small business contracting goals, and is the influence different for the attainment of the small business prime contracting goal?*
- b. What other factors influence small business contracting goal achievement at federal agencies?*
- c. How does the small business contracting scorecard influence attainment of the subcontract socioeconomic small business goals?*

Methodological Approach: To answer the first research question, the study developed a structural equation model (SEM) with mediation variables to assess whether the change in the methodology of the Small Business Procurement Scorecard and the scorecard overall has had an impact on federal agencies' ability to increase small business prime and subcontracting opportunities and better achieve their small business contracting goals by empirically mapping the mechanism of the intended theory of change. The unit of analysis of the model is federal agencies for a given fiscal year.

To empirically test the scorecard's effect on small business prime contracting, the model first evaluated the effect of the change in the scorecard methodology and the scorecard overall on small business prime contracting opportunities created by the federal agency. This is measured by the agency's outreach efforts in terms of the number of RFIs issued, number of contract awards to small businesses new to the agency, as well as awarding contracts to small businesses through small business socioeconomic program set-aside and sole source vehicles. The model then estimated the effect of each of the measures of small business opportunities on small business prime contracting dollars while controlling for other factors that affect Federal Government procurement. These include the overlap or match of goods and services predominantly produced by small businesses and those demanded by the federal agency,⁹ the

⁹ To assess the overlap or match of goods and services predominantly produced by small businesses and those demanded by the federal agency, the study first identified the industry sector level two-digit NAICS codes of all prime contract awards to small businesses during the FY 2013 and FY 2019. The study found that about 82 percent of all small business prime dollars were obligated in five industry sectors and around 75 percent of all small business eligible dollars were spent by the CFO Act agencies in the same sectors. These industry sectors are: NAICS code 54 – Professional, Scientific, and Technical Services; NAICS code 33 – Manufacturing; NAICS code 23 –

percent of small business eligible dollars obligated through different IDVs, as well as the dollars obligated through BIC and SUM. Detailed specifications of the SEM model for small business prime contracting are presented in Figures 10 and 11 in Appendix A.

To empirically test the scorecard's effect on small business subcontracting, the model first evaluated the effect of the change in the scorecard methodology and the scorecard overall on small business subcontracting opportunities created by the federal agency in terms of the value of total subcontracting dollars (as reported by all other-than-small prime contractors with a requirement to submit subcontracting data to the SBA). The model then estimated the effect of this measure of small business subcontracting opportunities on small business subcontracting dollars while controlling for factors that affect Federal Government procurement practices. These include the overlap or match of goods and services predominantly produced by small businesses and those demanded by the federal agency, number of RFIs issued to identify qualified vendors, the percent of small business eligible dollars obligated through different IDVs, as well as the dollars obligated through BIC and SUM. Detailed specifications of the SEM model for small business subcontracting are presented in Figures 12 and 13 in Appendix B.

Data Source and Preparation: To answer the first research question, the study used the datasets and operational variables developed for the second research question, developed a dataset of federal agency-level expenditure through BIC and SUM extracted from the **General Service Administration (GSA) Data to Decisions (D2D)** system, created a dataset containing information listed in the agency-level scorecards, and then merged all the datasets together to create a composite dataset and collapsed the records such that the unit of analysis is federal agencies in a given fiscal year. Additionally, the study relied on data from the semi-structured interviews collected for Research Question 3 to provide contextual information in answering this research question.

Findings

The findings of the study are discussed in detail below.

Research Question 3: What factors or processes that the SBA uses to develop the goals and scorecard most influence progress towards goal achievement (e.g., negotiation of the goals, the public reporting of the scorecard, scorecard calculation methodology, etc.)?

- a. How could the SBA improve the process of establishing federal agency goals to garner agency support, ensure achievement of the federal small business contracting goals, and increase contracting opportunities for small businesses?***
- b. How can the SBA ensure the data used to produce the scorecard is of adequate quality?***

Construction; NAICS code 56 – Administrative and Support, Waste Management and Remediation Services; and NAICS code 42 – Wholesale Trade.

The study answered the research questions by first conducting a series of semi-structured interviews with the SBA, federal agencies, and small business advocates to understand the goaling process and then regraded the scorecard for FY 2017 through FY 2019 using the old methodology.

Semi-structured Interviews

The semi-structured interviews respond to Research Question 3 by providing insight on how the goaling process, the scorecard methodology, and the small business culture of agencies affect their support for the goals and increase contracting opportunities for small businesses. The following findings draw out reported best practices, challenges, suggestions, and recommendations where relevant. The major findings are:

- The collaborative nature of the negotiation process and setting goals that agencies perceive to be achievable are essential to the goal setting process.
- The scorecard methodology changes did not strongly influence most agencies' small business procurement practices.
- Category Management was contradictory to the intended effects of the methodology change. Agencies would like the SBA to provide government-wide guidance on how to navigate small business and Category Management priorities.
- Suggested modifications to the scorecard include:
 - Measure the number of set-asides per small business socioeconomic category.
 - Increase the weight of the Comparison of the Number of Small Business Prime Contractors in each of the Five Small Business Categories metric.
 - Piloting a negotiation process where the agencies propose their initial goals to the SBA to better account for agency's changing programmatic needs.

As was discussed in the Research Question 3 methodological approach, given that our qualitative interviews were semi-structured, not every agency was asked every question in the interview protocol. Follow-up discussions or a survey would be necessary to have a representative or quantified accounting of agencies' perspectives and opinions. A follow-up, anonymous survey based on this study's key findings would give the SBA GCBD a representative accounting of agency's perspectives while allowing agencies to express ideas that they may not be comfortable expressing publicly. Here (as specified in the Research Design section), specific language is used to document the level of evidence that was collected for each of the arguments' claims. For example, "most" and "the majority" are used to indicate strong and consistent findings. While "a few" indicates that at least three respondents mentioned the same topic, this does not necessarily mean that that sentiment is not more broadly shared.

Negotiation of the Goals

The majority of agencies reported that they were satisfied with the goal setting process. At the beginning of the fourth quarter each fiscal year, the SBA requests each CFO Act agency's end of the year projections for prime contracting. The SBA reviews each agency's response and completes a review of each agency's contracts using the SBA's projection methodology to determine future small business opportunities to set the initial proposed goal for the upcoming fiscal year. The SBA then sends each agency a template that proposes initial small business goals and details the agency's prime and subcontracting performance over the last three years and the current prime contracting performance year-to-date.

Agencies then have the opportunity to negotiate the goal with the SBA. Agencies determine their counter-proposed goals by analyzing their acquisition forecasts and historical acquisition data, setting and negotiating intra-agency small business goals, consulting with relevant procurement leadership, and by considering changes to agency budget or programming in the coming fiscal year. Agencies return the template to the SBA with their response and supporting narrative. Key findings regarding goal setting challenges, best practices, and suggested changes to the goal setting process are further detailed below.

Reported Challenges – The SBA's Methodology for Proposing Initial Goals Are Not Understood or Perceived to Be Accurate by the Majority of Agencies: Agencies widely believed that there were limits to subcontracting data quality and the SBA's projection models for calculating the initial goals sent to agencies, and as a result, their initially proposed goals were often too high. The data that the SBA draws on to determine subcontracting goals and the number of small businesses in the Top 100 NAICS Codes projections are reported to be not accurate and/or not relevant. Lastly, the SBA's projection models assume that agencies' performance will incrementally increase every year. These challenges, which will be discussed in more detail below, were often mitigated by the SBA's responsiveness to agencies' counterproposals.

Initial Subcontracting Goals – Reported Challenges to Data Quality and Monitoring: The majority of agencies are unwilling to challenge themselves to setting a high subcontracting goal because there is no overall goal to which the Federal Government is statutorily responsible; subcontracting data is generally understood to be inaccurate; and subcontracting is perceived to be outside of agencies' scope of enforcement. As a result, some agencies felt that they did not have sufficient evidence to negotiate a reasonable subcontracting goal.

The SBA GCBD reported that they determine an agency's subcontracting goal based on the average of the agency's performance over the last three years. Nonetheless, agencies reported that they were unsure of how the SBA determined how to distribute the subcontracting achievement goal across the Federal Government since there is no overall goal like there is for

prime contracting. In addition, agencies were skeptical of the quality of the data that the SBA used to calculate the averages.¹⁰

Agencies widely reported that they were unable to use eSRS to respond to the SBA's proposed subcontracting goals because prime contractors are only required to submit subcontracting data by the end of the fiscal year. Therefore, it is not uncommon to go through the subcontracting goal setting process without knowing how an agency performed in that fiscal year. The last impediment to improving subcontracting metrics across agencies is that, while not in the majority, a substantial number of agencies reported that their agency's subcontracting performance is outside of their influence since prime contractors are responsible for hiring subcontractors.

The level of attention paid to subcontracting varied by agency, but markedly increased in select agencies as a result of the scorecard methodology change in 2017 that increased the weight of subcontracting from 10 percent to 20 percent. Not all agencies were aware of or responded to the change in the scorecard methodology weight, which may be one reason why there continues to be less of an emphasis in subcontracting among some agencies.

Initial NAICS Code Goals – Data Presentation and Relevance: Several respondents said that the Business Opportunity Tool, included in the SBA's initial proposal, is difficult to interpret because the information presented in it is unclear and overwhelming.

The Business Opportunity Tool calculates the number of small businesses contracted by each contracting office in each NAICS code of an agency's Top 100 NAICS codes. The contracting office's performance in each NAICS code is compared to the overall department average as well as the Federal Government average in that NAICS code. This comparison is the basis for establishing quartile increments of improvement for each contracting office to increase the number of small businesses in underperforming NAICS codes. A couple of agencies shared that they tried to discuss the Business Opportunity Tool with the SBA GCBD to understand its logic, and they did not receive a clear answer from the SBA GCBD nor were they confident in the validity of its comparisons. These agencies believed that the Business Opportunity Tool could be a helpful part of the goaling process if it contained what they understood to be relevant and clearly presented data.

In addition, several agency respondents did not find the comparison of contracting offices' NAICS code performance to the Federal Government average to be helpful or relevant because the types of small businesses that agencies work with are often not comparable, and they did not feel that the Federal Government average should be considered in the goaling process.

Projection Models Based on Past Performance Rather Than on Planned Acquisitions: Many

¹⁰ This topic is further discussed in the section on Data Quality subsection.

agencies expressed dissatisfaction with the SBA GCBD's small business projection models for negotiated goals because they assume incremental improvements to past performance every year. Statutorily, each agency is required to annually expand on small business participation in each industry category (15 U.S.C. § 644(g) (2) (d), 2018). Nonetheless, agencies widely believed that increasing their goals, and specifically increasing the number of new small business opportunities across NAICS codes every year, ran counter to agency-specific and federal-wide directives, such as Category Management, which encourage consolidated and streamlined services. Nor do projections based on past performance take into account changes to agencies' program, budgets, or leadership directives. Agencies felt that goaling should be based on their acquisition plans that take agency-specific changes into account rather than the past performance data that the SBA primarily draws upon for their goaling rationale.

In addition, by using a projection model that always improves upon the previous year's past performance, some high-performing agencies reported that there was somewhat of an unintended disincentive to super-exceeding their small business goals. This disincentive did not stop agencies from promoting small business opportunities, but it makes it harder for them to achieve an A or A+ on the scorecard every year, which in many cases were linked to OSDDBU and procurement leaderships' performance plans.

Reported Best Practice – Collaborative Nature of the Negotiation Process: While agencies had problems with the initial goals provided by the SBA, agencies commonly reported that setting a realistic prime contracting goal¹¹ during the negotiation process with the SBA was key to achieving their goals. Agencies with a long institutional memory commonly reported high levels of satisfaction with the goal setting process because the SBA made dramatic changes to their approach to the process in the past two to three years. In prior years, those agencies believed that the SBA set "unreasonable goals," and did not respond to agencies' feedback on how goals were set. An agency reported that in prior years, their small business program lost institutional support because their prime contracting goals had been so unachievable, they were demoralizing. These agencies, with long-term staff, noticed that in recent years, the SBA began to accept their feedback and the negotiation process became collaborative.

Several agencies remarked on the high quality of their relationship with the SBA during the goaling process. And, in some instances, agencies were in conversation with the SBA throughout the year to strategize how to maximize small business opportunities for upcoming large or niche procurements and anticipate how their agency's small business goaling could be responsive to long-term agency directives. Not all agencies benefit from this level of engagement with the

¹¹ The only negotiated goals are the overall prime contracting and subcontracting goals. The other elements of the scorecard methodology are statutorily set. The following discussion of negotiated goal setting is primarily relevant to the prime contracting component of the overall scorecard goal.

SBA. However, the agencies that did have a strong partnership and communicated with the SBA throughout the year seemed to reap the benefits during the goal setting process.

A few agencies said that the SBA was unwilling to adjust their prime contracting goal by a couple of percentage points, despite presenting what they felt was rigorous evidence, but acknowledged that the SBA was constrained by the overall government-wide goal of 23 percent and understood why that was not possible.

Suggested Changes to the Goaling Process: Potential changes to the existing goaling process suggested by the respondents are discussed below. Note that these are improvements that were suggested by three or more agency respondents. They are options to consider and discuss rather than recommendations. A government-wide discussion and/or survey would be necessary to determine whether the majority of agencies agree with these suggestions.

Initial Proposal from Agencies: As described above, most agencies were not confident in the initial goals that the SBA provided. As a result, agencies relied on the negotiation process to establish reasonable goals based on what they believed was more accurate data in their counterproposals. A few respondents suggested that the agencies should send their initial proposals to the SBA GCBD to start the negotiation process. An agency survey would be necessary to determine whether or not the majority of agencies would prefer this approach. When asked about this suggestion, the SBA GCBD noted that agencies would need to take account of the overall increase of the government-wide small business eligible dollars and the government-wide 23 percent small business goal when calculating their proposed budget percentages, especially since the scale and spending across the CFO Act agencies vary so widely. If agencies were able to meaningfully account for increases in the federal budget, the SBA GCBD would be open to receiving initial proposals from agencies.

Longer Duration of Goals: A couple of agencies felt that the annual duration of the goals was too short and did not foster their ability to develop long-term plans to create opportunities for small businesses. Increasing the duration of the goals would require a statutory change.

Many respondents felt, as discussed previously, that it was unrealistic to expect improvements every year, and it takes multiple years to see results from small business initiatives. Some of these respondents believed that a goal duration of two to five years would foster more long-term thinking on creating small business opportunities.

Some respondents wanted to increase the duration of the goals due to the time and effort required to prepare for the goal negotiation process. These respondents felt that the time spent yearly preparing to set the goals could be “more effectively deployed in the substance of these programs.” Specifically, respondents took issue with the time intensity of the OSD BU

compliance review. While the review had become easier to complete in recent years, a few respondents felt that it was a waste of time to have to complete the OSDBU review every year when most of their responses to the review did not change. They proposed that either agencies simply update the SBA GCBD on what has changed on a yearly basis or the OSDBU compliance review be conducted every few years.

Timeliness of Goal Setting Process: Agencies consistently reported that it would be helpful if the goal setting process could take place earlier in the fiscal year because by the time that they have their finalized goals, they are already into that fiscal year. In addition, the end of the year is already a busy time for all of the stakeholders involved in the goal setting process due to increased contracting activity at the end of the year. Other respondents suggested moving the negotiation process into the next fiscal year because it would better accommodate for the continuing resolution legislative environment, and because they were unsure of what their budget would be during the negotiation process.

Scorecard Calculation Methodology

Key findings on the challenges and best practices regarding the scorecard methodology change are discussed below.

Reported Challenge – Scorecard Methodology Change Did Not Strongly Influence Agencies’ Small Business Procurement Practices: Approximately half of respondents said that the Small Business Procurement Scorecard methodology modification in FY 2017 had no effect on their small business procurement practices. A few of those respondents went on to explain that they did not change their practices because they already had small-business-first policies in place. As one agency respondent illustratively explained, “We have an established culture, established process[es], that work independent of the scorecard.” Other agencies mentioned that they made changes to their procurement practices to maximize contracting opportunities for small businesses since FY 2017, but not in reaction to the scorecard methodology change. Lastly, several agencies mentioned that the scorecard change had made the reporting process easier but did not cite any changes to their procurement practices. Several agencies had new OSDBU directors that did not have the institutional knowledge of what the scorecard was like prior to FY 2017 and were therefore unable to answer the question.

Of those agencies that made changes based on the scorecard, agencies reported increasing their focus on subcontracting and Section 15(k) compliance.

Reported Challenge – Increased Attention to Subcontracting, But More Attention Needed: Some agencies increased their attention to subcontracting because the weight of subcontracting had increased from 10 percent to 20 percent on the scorecard as a result of the methodology change. In most instances, agencies increased attention to subcontracting by ensuring better

reporting compliance from contracting officers and prime contractors to better represent the subcontracting that the agency was already doing but was often underreported. In a few instances, agencies increased attention to subcontracting by requiring a subcontracting plan in the proposal evaluation criteria. Small business advocates agreed with the agency respondents on this issue. Small business advocates believed that agencies should hold their prime contractors accountable to their subcontracting plans, and do not believe that most agencies adequately monitor subcontracting plans. A high-quality subcontracting plan and consistent monitoring could improve prime contractors follow through with hiring the small business that they bid as their subcontractor and would ensure that the small business complete a substantive portion of the contract.

Best Practice: Section 15(k) Compliance Scorecard Component Raises OSDBU Standing

Within Their Agencies: The inclusion of the Section 15(k) compliance portion of the scorecard increased attention paid to how agencies could become more aligned to Section 15(k). Some agencies that reported improved Section 15(k) compliance stated that the GAO audit on Section 15(k) compliance was more influential in increasing their compliance than the scorecard, but that the scorecard was an additional method of enforcement.

The inclusion of the Section 15(k) compliance component of the scorecard in 2017 and the public reporting of that component in the scorecard elevated the standing of the OSDBU within some agencies. As a result of the increased profile of the OSDBU, its directors began to be invited into procurement conversations earlier in the process, had increased justification to senior leadership to hold more small business outreach and educational events, and generally increased senior leaderships' engagement with OSDBU staff, including regular monitoring and reporting on scorecard progress.

Suggested Modification to Scorecard: Potential modifications to the scorecard methodology suggested by the respondents are discussed in detail below. Note that these are improvements that were suggested by three or more agency and/or small business advocate respondents. They are options to consider and discuss rather than recommendations. A government-wide discussion and/or survey would be necessary to determine whether the majority of agencies agree with these suggestions.

Measure Number of Sole Sources and Set-Asides per Small Business Socioeconomic

Category: Small business advocates highlighted that the prime contracting goal for SDBs could be met with 8(a) sole sourcing. As a result, the SDBs subcomponent received far more attention from agencies than the other socioeconomic goals in the scorecard. Agencies explicitly and implicitly confirmed that this lack of parity between the goals exists because 8(a) sole sourcing is easier and faster to use due to the exception to the 8(a) program in the "Rule of Two." The Small Business Act states that contracting officers are not to sole source if they believe that there are

two or more eligible parties that could do the business. If they believe that there are two or more eligible parties, they could use a set-aside. Agency and small business advocate respondents shared that the 8(a) program allows for contracting officers to sole source without having to verify whether or not there is another eligible party. In addition, the agency and small business advocate respondents shared that 8(a) sole sourcing has less requirements in terms of establishing whether the chosen small business has the requisite capability and experience required to complete the work being contracted when compared to set-asides.

As one agency respondent illustratively stated, the exception of 8(a) for the Rule of Two created unintended consequences, “The biggest issue that I’ve encountered is that the 8(a) program is swallowing up a lot of the opportunities for the [other] socioeconomic goals, in particular HUBZone goals, because it’s so easy to do an 8(a) because of the limited competition in the sole source.” As this agency respondent went on to state, and as HUBZone small business advocates observed, there are very few HUBZone set-asides used. It is far more common for agencies to meet their 8(a) and HUBZone goal by strategically seeking out firms that are both 8(a) and HUBZone certified and contracting with them through an 8(a) sole source. Small business advocates felt the current scorecard methodology “double counts” and obfuscates that agencies have not created a small business opportunity accessible to the wider HUBZone small business community.

In order to encourage parity between the socioeconomic goals, as well as accurately measure the amount of small business opportunities that are created, small business advocates are especially eager for a scorecard metric that would measure and incentivize agencies to increasingly use sole sources and set-asides to reach the HUBZone, WOSB, and SDVOSB goals at similar rates to the use of 8(a) sole sourcing. The SBA GCBD agreed that small businesses across socioeconomic categories would benefit from the incorporation of this metric into the scorecard.

Lastly, the evaluation research team argues that if regulation was changed to exempt HUBZone certified, WOSB, and SDVOSBs from the Rule of Two to allow for increased sole sourcing and streamlined their acquisition processes as is done for 8(a) small businesses, contracting officers could be more willing to engage these other socioeconomic categories of small businesses.

Arguments for and against Comparison of the Number of Small Business Prime Contractors in Each of the Five Small Business Categories in the Agency’s Top 100 Small Business

NAICS Codes between Financial Years Metric: A number of agencies voiced dissatisfaction with FPDS-NG and/or beta.SAM because they did not provide a way to monitor the Comparison of the Number of Small Business Prime Contractors in each of the Five Small Business Categories in the Agency’s Top 100 Small Business NAICS Codes between financial years metric. A few agencies had a problem with the metric’s inclusion in the scorecard because it was directly in conflict with Category Management and was outside of OSDDBU’s influence. They felt

while it was important to monitor, it was not fair for it to be included in the scorecard. When presented with this suggestion, the SBA GCBD clarified that this metric was introduced for the explicit purpose of mitigating the impacts of Category Management.

The SBA GCBD is open to studying the impact of measuring the number of small business prime contractors in each of the five small business socioeconomic categories in all of an agency's small business NAICS codes as opposed to the current approach of looking at the Top 100 NAICS codes. The current approach necessitates tracking how the composition of the Top 100 NAICS codes changes every five years as a result of the NAICS code review as well as how the composition of the Top 100 NAICS codes changes from year to year based on agencies' various programmatic needs. The OSDDBU Council plans to convene a working group to discuss this measure.

Small business advocates that are well-versed in Federal Government procurement recognize that small business opportunities have decreased overall as a result of Category Management. And yet, overall agency scorecard grades do not reflect that the number of small business opportunities are declining despite the fact that overall small business expenditure is increasing. This is occurring because more or larger contracts are going to fewer small businesses. Because the scorecard does not clearly indicate that this is occurring, small business advocates question the usefulness of the scorecard for accurately measuring the creation of small business opportunities.

The evaluation team suggests that one way to better counteract the effects of Category Management, in addition to the SBA advising agencies on navigating the Category Management environment, would be to increase the weight of the comparison of the number of small businesses metric.

Measure and Monitor Quality of Subcontracting Work: A few agencies voiced concern over the limitations of the subcontracting metric, and their concern was echoed by small business advocates. The subcontracting scorecard goal measures the portion of the total subcontracting dollars (as reported by all other-than-small prime contractors with a requirement to submit subcontracting data to the SBA) that flows to the small business subcontractor instead of measuring the portion of all small business eligible dollars that flow to small business subcontractors. Therefore, the metric fails to accurately measure how much small businesses are benefiting through subcontracting. Those concerned argue that by not accurately monitoring prime contractors and agencies' engagement with subcontractors, the scorecard cannot accurately monitor the quality and scope of federal contracting's industrial base, particularly with regards to subcontracting.

Unable to Receive an “A” Without Meeting All Criteria: Small business advocates were frustrated that agencies were able to achieve a high score on the small business procurement scorecard (“A” or “A+”) without meeting each of the prime and subcontracting socioeconomic component goals. Small business advocates believed that rewarding agencies that do not meet all of their socioeconomic prime and subcontracting goals would not incentivize them to prioritize their small business communities. This concern was most felt amongst the HUBZone small business community, because the majority of agencies consistently do not meet their HUBZone goals and the majority of agencies have a score of an “A” or “A+”. Due to the weight of the socioeconomic component goals, 10 percent of the prime contracting goal, agencies do not have to achieve the HUBZone small business goal to receive an “A+”. HUBZone small business advocates argue that the scorecard weight and the general perception amongst agencies that HUBZone goals cannot and will not be met creates an atmosphere of complacency.

In response to their poor scorecard performance in their HUBZone goal, some agencies had undergone initiatives to improve their HUBZone performance, but their efforts were ineffective because they shared that they were not able to find qualified HUBZone businesses to do the work. Other agencies were able to increase their HUBZone performance by creating HUBZone-first procurement strategies coordinated between OSDDBU, procurement, and program offices. However, other agencies confirmed the small business advocates’ concern that HUBZone is not a priority goal. As one agency SPE stated, “We have not focused on HUBZone, we haven’t put any strategies in place to address HUBZone. And I think some of that is because we feel that it is not achievable... I think that is why we have not focused on HUBZone.”

When the SBA GCBD was presented with the HUBZone small business advocates’ complaints regarding the scorecard weight, the SBA GCBD understood their frustration, but conceded that agencies would only improve their HUBZone goal once enough HUBZone-certified small businesses had sufficient capacity to work in federal contracting. In addition, the SBA GCBD believed that the mission of some agencies will continue to limit their ability to work with HUBZone businesses. These findings suggest that the scorecard must balance the need to hold agencies accountable to the HUBZone small business community, while also maintaining what agencies perceive to be achievable goals.

Category Management

The challenges posed to small businesses by Category Management and recommendations to alleviate those challenges are discussed below.

Reported Challenge – Category Management Is Contradictory to the Intended Effects of the Scorecard Methodology Change: There was a consensus among small business advocates and the majority of agencies interviewed that Category Management decreased the amount of small

business opportunities across the Federal Government. One small business advocate succinctly described Category Management as a “small business killer” because its strategic sourcing principles implicitly limited the number of small businesses eligible for a given contract. As a result, small business advocates that are knowledgeable of procurement data have assessed that while there is an overall increase in the amount of money awarded to small businesses, those funds are awarded to fewer small businesses. These advocates recommended that the scorecard better represent the number of small business opportunities rather than amount of small business dollars spent because the latter metric does not accurately represent small business engagement.

Many agencies expressed that the dictates of Category Management and the scorecard methodology change in FY 2017 were contradictory to one another. For example, one agency respondent said, “Increasing the number of small business contractors compared to the year before is [written in] statute. Category Management is an OMB policy. And yet, nobody is focused on tracking or trying to increase the number of contractors because it’s in conflict with the idea of Category Management.” As this respondent explained, the mandate to increase the number of new small business opportunities year over year has more legislative weight than Category Management, but, nonetheless, there is a tendency that is common across agencies to put more focus on Category Management.

Recommendation – The SBA Provides Government-wide Guidance on How to Navigate Small Business and Category Management Priorities: Many OSDBUGs recognize the threat that Category Management poses to small business opportunities and are calling on the SBA to provide more support to small businesses by advising agencies on how the contradictory directives should be navigated. One agency respondent succinctly summarized the assistance that agencies wanted from the SBA as follows:

I think that [Category Management] is an area that the SBA can play a more helpful and instrumental role in because of their vantage point as the government-wide program manager for small business programs... What’s happening is that a lot of contracting officials do not know how they should be exercising their discretion in what vehicle they should award and when they should go to small businesses. I really believe that the SBA needs to provide government-wide guidance that will help to inform contracting officials on what vehicles they should use, and when they should be prioritizing awards to small businesses.

Agencies are confused on how to navigate the priorities of Category Management and would like for the SBA to provide government-wide guidance on how and when to prioritize small businesses. Consistent with this suggestion, the SBA is currently responding to a requirement in the NDAA for FY 2021 (Section 871), which requires the SBA and the OFPP to develop a

training curriculum on Category Management and avoiding conflicts with the Small Business Act (U.S. Congress, 2020).

Institutional Commitment to Small Business

The role of agencies' small business culture and institutional commitment to creating small business opportunities are discussed below.

Reported Best Practice – The Existence and the Publication of the Scorecard Promoted Small Business Culture in Agencies by Involving Senior Leadership: Agencies found that the small business scorecard spurred agency senior leaderships into promoting small businesses, for example, by setting small-business-first or socioeconomic-small-business-first procurement strategies; including the OSDBU in early, high-level procurement discussions; OSDBU regularly reporting small business progress to senior leadership; and senior leadership's involvement in scorecard publication and celebration. As one SPE explained, "The scorecard itself raises awareness at the highest level and heads of the agencies, [regardless] of which party they come from they all want to do well on the small business scorecard. They like to get "A's" and "A+'s." The existence of the scorecard gives small businesses better visibility within agencies and creates a sense of competition and excitement in agencies where the results are celebrated as well as linked to financial incentives and performance plans.

Reported Best Practice – Small Business-First Policies and Culture Are Essential for Accomplishing Scorecard Goals: Agencies that have strong small business culture support their cultures by establishing small business-first policies and procedures, and these policies are coordinated and executed in collaboration with agencies' program offices and contracting offices. This small business-first structure allows small business opportunities to flourish due to the agencies' institutional memory even when there is turnover or a new administration. In agencies with strong small business culture, OSDBU directors are regularly reporting, for example on a biweekly basis, on small businesses to senior leadership and meeting with department heads to accomplish intra-agency small business goals.

The qualitative research team heard from a few agencies that were able to drastically improve their HUBZone performance because they gained the buy-in of their senior leadership and institutionalized HUBZone-first procurement strategies. This suggests that agencies that are not able to meet HUBZone goals may suffer from lack of institutional will to create HUBZone-first procurement policies. Some OSDBU directors noted that other small business advocacy groups such as woman-owned and 8(a)-certified small businesses have much louder advocates than HUBZone small businesses, and agencies are focusing their efforts where the strongest advocates want their focus to be.

Data Quality and Reporting

The challenges presented by the quality and timeliness of data on the goaling process and steps to alleviate these challenges are discussed below.

Reported Challenges – Subcontracting Monitoring with eSRS Is Difficult: As discussed throughout the qualitative findings, subcontracting data is perceived to be unreliable because it is self-reported by prime contractors. While contracting officers approve these submissions, respondents understand there to be little oversight from contracting officers. Subcontracting monitoring with eSRS is also hindered by the “non-functionality” of eSRS due to the timing of subcontracting data collection. Essentially, OSDDBU directors only know about their subcontracting performance after the fiscal year has already ended. OSDDBU directors described trying to improve their subcontracting performance as “flying blind,” therefore, if agencies are to improve their subcontracting performance, there will need to be improved compliance to subcontracting reporting and improved monitoring systems.

The evaluation team argues that changing the subcontracting reporting requirement such that prime contractors are required to report their subcontracting performance throughout the year would greatly improve agencies’ ability to monitor subcontracting. But changes to reporting requirements would necessitate agreement and coordination amongst agencies as well as a willingness to monitor increased reporting.

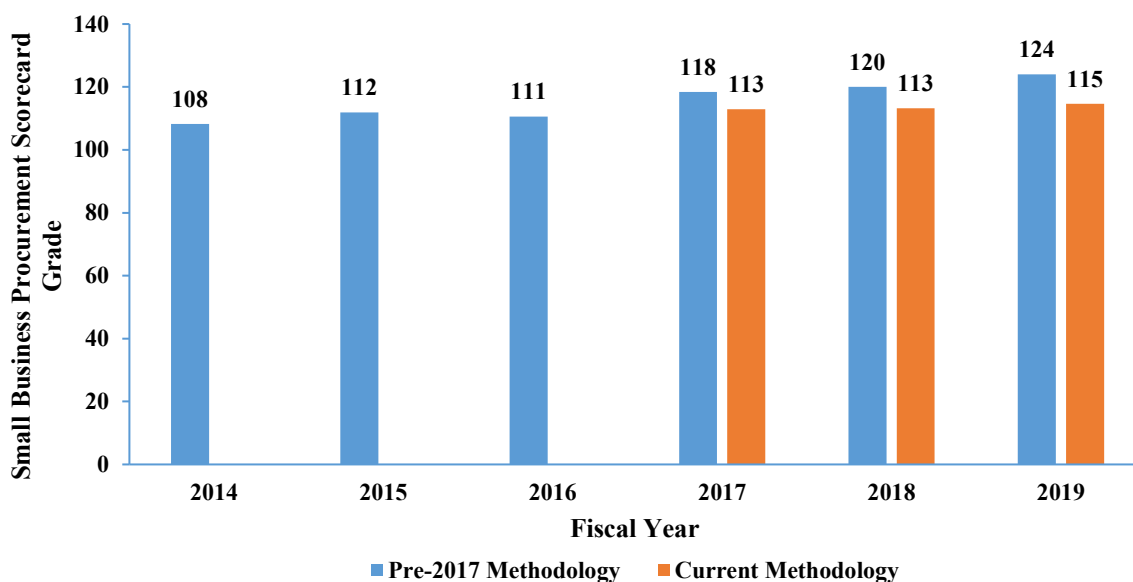
Recommendation – Data Integration and Automation: Agencies consistently reported that they want better integration and automation of their data systems. By making the data systems more user-friendly, OSDDBU and procurement staff believed that contracting officers would be better able to enter quality data and monitor compliance of subcontracting data as well as allow for contracting officers to work on other, more pressing tasks. Agencies reported that FPDS-NG/beta.SAM was partially integrated with agencies’ contracting systems. Since there can be more than one contracting system within an agency, a lot of data have to be routinely manually entered and analyzed. Complete integration between FPDS-NG/beta.SAM and contracting systems would automatically update all relevant fields and would be a timesaver for contracting officials. Some OSDDBU and procurement staff, rather than better integrating different systems, wanted to create a one-stop hub for the data currently collected separately in FPDS-NG/beta.SAM, eSRS, and their contract writing systems. Agencies also wanted to see more user-friendliness in their monitoring system’s data presentation. Since the built-in monitoring tools in FPDS-NG/beta.SAM are not viewed as user-friendly, several agencies have created their own data visualization tools and dashboards to measure their small business progress.

Rescoring Agency Scorecard Grades

In addition to conducting the semi-structured interviews, the study answered Research Question 3 by rescoring the agency scorecard grades for FY 2017 through FY 2019 using the old scorecard methodology to directly compare scorecard grades estimated using the same methodology before and after the implementation of the new methodology in FY 2017. This allowed the study to make a fair comparison of agency performance towards small business contracting goals.

As illustrated in Figure 7, the findings show that the overall scorecard grades were higher after FY 2017 when calculated using both the current and pre-2017 methodology for the CFO Act agencies. Moreover, the grades calculated using the pre-2017 methodology were higher than the current methodology for FY 2017 to FY 2019. Since the rescored agency grades for FY 2017 through FY 2019 were estimated by re-weighting the scores assigned in the actual scorecard to align with the old scorecard methodology, the rescored grades may understate agency performance as the scores for the category component achievements in the actual FY 2017 to FY 2019 scorecards are capped at 200 percent.

Figure 7: Scorecard grades for CFO Act agencies calculated using both methodologies: FY 2014 – FY 2019



Looking at individual agencies, the findings show that all but two agencies had a higher average scorecard grade after FY 2017 when using the pre-2017 methodology, and 16 out of the 24 agencies had a higher grade after FY 2017 when the current methodology was used for FY 2017 through FY 2019 to make the comparison. Figures 12 and 13 illustrate these findings. These findings suggest that agencies would have had a higher scorecard grade during FY 2017 through FY 2019 if the methodology had not been changed in FY 2017.

Figure 8: Scorecard grades calculated using pre-2017 methodology by CFO Act agencies: FY 2014 – FY 2019

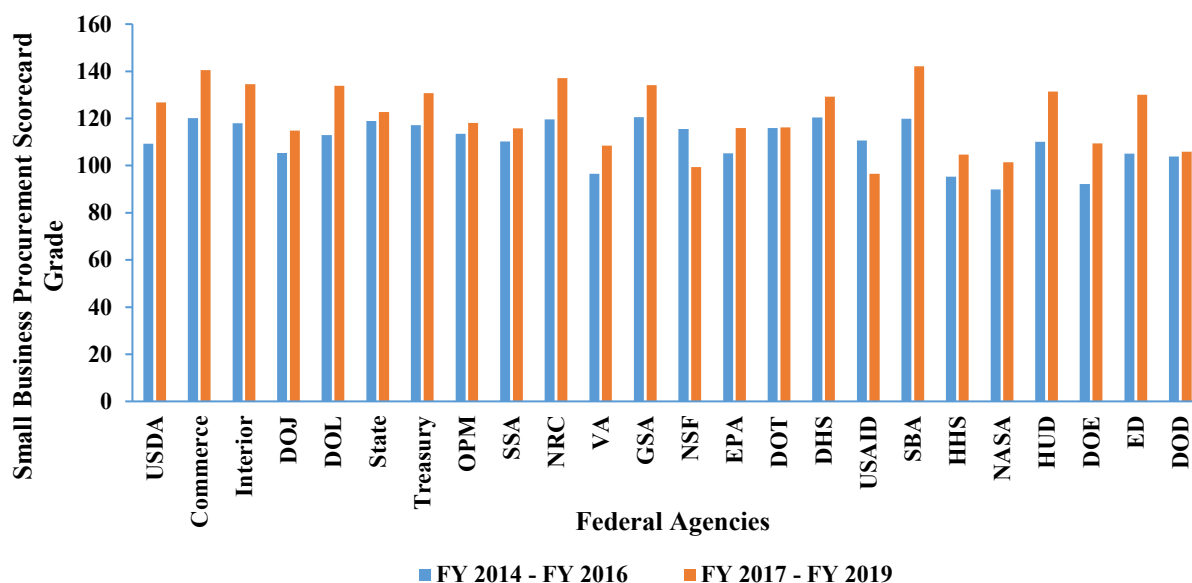
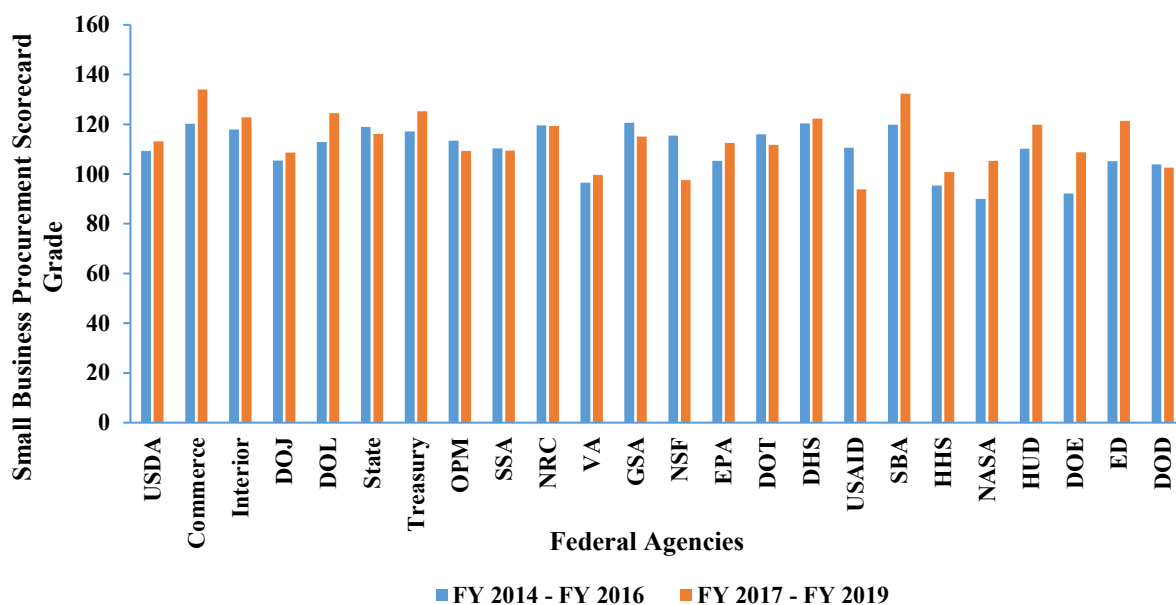


Figure 9: Actual scorecard grades by CFO Act agencies: FY 2014 – FY 2019



Research Question 2: *How does the small business contracting scorecard and associated processes affect contracting opportunities available to small businesses?*

a. How does the small business contracting scorecard affect opportunities for federal prime contracts for small businesses, and is the effect different for businesses that are Service-

Disabled Veteran-Owned Certified, Small Disadvantaged Business Certified, Women-Owned Small Business Certified, or Certified HUBZone firms?

- b. How does the small business contracting scorecard affect opportunities for federal subcontracts for small businesses, and is the effect different for businesses that are Service-Disabled Veteran-Owned Certified, Small Disadvantaged Business Certified, Women-Owned Small Business Certified, or Certified HUBZone firms?*
- c. Do the effects vary by NAICS code?*

To assess the role of how small business contracting scorecard and associated processes affect contracting opportunities available to small businesses, the study empirically tested the series of hypotheses discussed in the Research Methods section to evaluate if the opportunities changed after the adoption of the new scorecard methodology.

Prime Contracting: For small business prime contracting, the study found the following results for each of the hypotheses.

Hypothesis 1 – Agencies are likely to increase their level of engagement with small businesses by increasing the volume of RFIs to identify qualified small businesses. There was no change in the volume of RFIs used to identify qualified businesses after the adoption of the new scorecard methodology.

Hypotheses 2 and 3 – Agencies are likely to increase the number and dollar value of small business set-aside and sole source awards for SDVOSBs, SDBs, WOSBs, or HUBZone businesses. After the adoption of the new scorecard methodology, the dollar value of contracts awarded through WOSB set-asides as well as both the dollar value and volume of contracts awarded through WOSB sole source vehicles increased for small businesses overall. This finding should be interpreted with some caution, as it could be attributable to the introduction of WOSB sole source as a contracting vehicle in FY 2016. In other words, the increase in the usage of WOSB set-aside and sole source after FY 2017 could be in some part due to the availability of WOSB sole source as a contracting vehicle as opposed to the change in the scorecard methodology. At the same time, the volume of contracts awarded through HUBZone set-asides, dollar value of contracts awarded through HUBZone sole source vehicles as well as dollars through the 8(a) sole source vehicles also increased after the adoption of the new scorecard methodology.

Additionally, the study found contracting opportunities through the socioeconomic program set-aside and sole source vehicles also increased for the following NAICS codes after the methodology change:

- 23 - Construction.
- 32 - Manufacturing.

- 33 - Manufacturing.
- 48 - Transportation and Warehousing.
- 51 - Information and Cultural Industries.
- 54 - Professional, Scientific, and Technical Services.
- 56 - Administrative and Support, Waste Management and Remediation Services.

Table 5 contextualizes this finding by listing the set-aside and sole source vehicles for which there were changes in opportunities for these NAICS codes.

Table 5: Summary of key findings of hypothesis tests 2 and 3 answering Research Question 2 for small business prime contracting

Measure of Small Business Contracting Opportunities	Change with New Methodology	NAICS Code
8(a) Sole Source	Increase (Dollar Value)	Overall
	Decrease (Volume)	32 - Manufacturing
	Decrease (Dollar Value)	42 - Wholesale Trade
	Decrease (Volume)	42 - Wholesale Trade
	Increase (Dollar Value)	48 - Transportation and Warehousing
	Increase (Dollar Value)	54 - Professional, Scientific, and Technical Services
	Decrease (Volume)	54 - Professional, Scientific, and Technical Services
	Increase (Dollar Value)	56 - Administrative and Support, Waste Management and Remediation Services
HUBZone Sole Source	Increase (Dollar Value)	Overall
	Increase (Dollar Value)	51 - Information and Cultural Industries
	Increase (Volume)	51 - Information and Cultural Industries
HUBZone Set-aside	Increase (Volume)	Overall
	Increase (Dollar Value)	54 - Professional, Scientific, and Technical Services
	Increase (Volume)	54 - Professional, Scientific, and Technical Services
WOSB Sole Source	Increase (Dollar Value)	Overall
	Increase (Volume)	Overall
	Increase (Dollar Value)	23 - Construction
	Increase (Volume)	23 - Construction
	Increase (Volume)	33 - Manufacturing
	Increase (Volume)	42 - Wholesale Trade
	Increase (Volume)	51 - Information and Cultural Industries

Measure of Small Business Contracting Opportunities	Change with New Methodology	NAICS Code
	Increase (Dollar Value)	54 - Professional, Scientific, and Technical Services
	Increase (Volume)	54 - Professional, Scientific, and Technical Services
	Increase (Volume)	56 - Administrative and Support, Waste Management and Remediation Services
<i>WOSB Set-aside</i>	Increase (Dollar Value)	Overall
	Decrease (Volume)	42 - Wholesale Trade
	Increase (Dollar Value)	54 - Professional, Scientific, and Technical Services
	Increase (Dollar Value)	56 - Administrative and Support, Waste Management and Remediation Services

Lastly, contracting opportunities through set-aside and sole source vehicles decreased in terms of both the number and dollar value of awards for NAICS code 42 – Wholesale Trade after the methodology change. This finding should also be interpreted with some caution as Regulation 13 C.F.R. § 121.201 – Size Standards Table provides instruction that NAICS code 42 should not be used to classify government acquisitions for supplies, but in practice has still been used widely by federal agencies, albeit at a decreasing rate (13 C.F.R. §121.201, 2013). In other words, the decrease in the use of set-aside and sole source vehicles for NAICS code 42 after FY 2017 could be more attributable to the aforementioned regulation than the scorecard methodology change.

Hypothesis 4 – Agencies are likely to increase the number and dollar value of contract awards to businesses with multiple small business certifications and/or socioeconomic program designation to obtain credit towards goals in multiple small business categories with a single award. The dollar value of contracts awarded to small businesses with multiple SBA certifications or socioeconomic program designations increased overall after the adoption of the new scorecard methodology. Prime dollars to such firms also increased for NAICS codes 54 – Professional, Scientific, and Technical Services but decreased for NAICS code 42 – Wholesale Trade.

Hypothesis 5 – Agencies are likely to increase the number and dollar value of awards to small businesses using IDVs and other multiple award contracts. After the adoption of the new scorecard methodology:

- The dollar value of contracts to small businesses through Blanket Purchase Agreements (BPAs) increased for NAICS code 54 – Professional, Scientific, and Technical Services and NAICS codes 31-33 – Manufacturing.
- The dollar value of contracts awarded through Basic Order Agreements (BOAs) increased for small businesses overall.
- The dollar value of contracts to small businesses through the Federal Supply Schedule (FSS) decreased for NAICS code 42 – Wholesale Trade but increased for 51 –

Information and Cultural Industries and 54 – Professional, Scientific, and Technical Services.

- The dollar value and volume of contracts awarded through Governmentwide Acquisitions Contracts (GWACs) increased for small businesses overall as well as for NAICS code 54 – Professional, Scientific, and Technical Services. Small business dollars through GWACs decreased for NAICS code 42 – Wholesale Trade during the same time.
- The dollar value of contracts to small businesses through Indefinite Delivery Contracts (IDCs) increased for NAICS code 23 – Construction and NAICS code 56 – Administrative and Support, Waste Management and Remediation Services, but decreased for NAICS code 54 – Professional, Scientific, and Technical Services.

Subcontracting: For small business subcontracting, the study found the following results for each of the hypotheses.

Hypothesis 1 – Agencies are likely to require other-than-small prime contractors to increase the amount (in dollars) that they spend through subcontracting. There was no change in the total dollar value of subcontract awards of other-than-small prime contractors with subcontracting plans after the adoption of the new methodology.

Hypothesis 2 – Prime contractors are likely to increase the dollar value of subcontracts to small businesses. The dollar value of subcontract awards to SDVOSBs and HUBZone businesses increased after the methodology change.

Hypothesis 3 – The number of small businesses receiving subcontracts may increase. The study could not test this hypothesis as the data obtained from the eSRS extract did not contain information on the number of small businesses who received sub-awards.

Hypothesis 4 – Prime contractors may better meet the goals outlined in their subcontracting plans. The study could not test this hypothesis as the data obtained from the eSRS extract did not contain information on award level subcontracting plans and how well the other-than-small prime contractors met the goals outlined in the plans.

Table 38 in Appendix C presents the detailed findings for Research Question 2.

Research Question 1: How does the small business contracting scorecard affect progress toward a federal agency's achievement of their small business contracting goals?

- a. How does the small business contracting scorecard influence the attainment of the prime socioeconomic small business contracting goals, and is the influence different for the attainment of the small business prime contracting goal?*
- b. What other factors influence small business contracting goal achievement at federal agencies?*
- c. How does the small business contracting scorecard influence attainment of the subcontract socioeconomic small business goals?*

To answer the first research question, the study developed a series of SEM models to first assess whether the change in the scorecard methodology and the scorecard overall had an effect on small business prime and subcontracting opportunities and then evaluate whether those opportunities had an effect on small business dollars. Detailed specifications of the SEM models are presented in Figures 10 and 11 in Appendix A for small business prime contracting and Figures 12 and 13 in Appendix B for subcontracting.

Summary of Key Findings: The analysis suggests that the change in the Small Business Procurement Scorecard methodology did not result in many changes to small business procurement practices at federal agencies for prime contracting. No changes were observed in indicators of small business opportunities or small business prime contracting dollars after the methodology change. However, the scorecard overall has had a strong positive relationship with indicators of small business prime contracting opportunities, which, in turn, have a positive association with small business contracting dollars. Additionally, agency mission and procurement practices were also found to have a relationship with small business contracting dollars. These include the overlap of industry sectors in which agencies and small businesses operate, use of specific contracting vehicles such as IDVs for procurement, as well as spending through BIC and SUM. The findings for the small business socioeconomic programs for prime contracting opportunities and dollars mostly mirrored the findings for small businesses overall.

For subcontracting, the change in the scorecard methodology and the scorecard overall do not appear to have a relationship between indicators of subcontracting opportunities measured by the value of total subcontracting dollars (as reported by all other-than-small prime contractors with a requirement to submit subcontracting data to the SBA). The total dollar value of these subcontracts, however, had a positive relationship with small business subcontracting dollars, indicating that increasing the total value of such subcontracts may see an increase in the dollars flowing to the small business subcontractors. The findings for the small business socioeconomic programs for subcontracting opportunities and dollars mostly mirrored the findings for small businesses overall.

The detailed findings of Research Question 1 are presented in Tables 7–26 in Appendix A for small business prime contracting and Tables 28–37 in Appendix B for subcontracting. The major takeaways from the findings are discussed below.

Prime Contracting – Small Business Overall

Effects on Small Business Opportunities: Evaluating the effect of the scorecard methodology change on indicators that measure small business opportunities, the study found that the value of WOSB set-aside and sole source contracts increased after the adoption of the new methodology in FY 2017.¹²

Evaluating the effect of the scorecard overall (measured by the agency's previous year's grade) on indicators that measure small business opportunities, the study found a strong positive relationship with 8(a) set-aside and sole source contracts, a positive relationship with HUBZone and WOSB set-aside and sole source contracts, and an inverse relationship with RFIs issued to identify qualified businesses. This indicates that agencies that have high scorecard grades tend to utilize 8(a), HUBZone, and WOSB set-aside and sole source vehicles to create small business opportunities to meet their small business contracting goals. As for RFIs, the inverse relationship suggests that agencies that have lower grades tend to issue more RFIs.

Effects on Small Business Dollars: Evaluating the effects of indicators that measure small business opportunities on small business dollars, the study found contracting through 8(a) and HUBZone set-aside and sole source vehicles to have a strong positive relationship with small business dollars, and WOSB set-aside and sole source vehicles to have a very strong relationship with small business dollars. While statistically significant, the study found the use of RFIs to have only a very modest negative relationship with small business dollars indicating that most agencies already know of qualified small businesses to buy goods and services from. Overall, these findings suggest that increasing the use of set-aside and sole source vehicles, particularly WOSB, could be effective tools in increasing the dollar value of small business prime contracting and, in the process, improving the ability of agencies to better meet their goals. For instance, the study found that increasing the use of WOSB set-aside and sole-source expenditure by 1 percentage point of small business eligible dollars would be associated with about an 8 percentage point increase in the percent of small business eligible dollars to small business prime contracting overall.

Effects of Agency Characteristics and Procurement Practices: Evaluating the effect of agency characteristics and procurement practices on small business dollars, the study found a strong positive relationship of agency expenditure through BOAs, moderately positive relationships

¹² This finding should be interpreted with some caution as it could be attributable to the introduction of WOSB sole source as a contracting vehicle in FY 2016. In other words, the increase in the usage of WOSB set-aside and sole source vehicles after FY 2017 could be due to the availability of WOSB sole source as a contracting vehicle as opposed to the change in the scorecard methodology.

through BPAs and FSS, and a weak positive relationship of agency expenditure through IDCs¹³ and small business dollars. This suggests that increasing the use of these IDV vehicles would see an increase in small business contracting dollars.

Going beyond IDVs, the study found SUM to have a complex negative relationship with small business prime contracting dollars. When the SEM model is run without controlling for NAICS codes most prevalent with small businesses and agencies, the study found SUM to have a strong negative relationship on small businesses. This indicates that increasing expenditure through SUM has a crowding out effect on small businesses by decreasing small business dollars.

However, when the model controls for NAICS codes, the negative relationship of SUM is no longer statistically significant, and it detects a negative relationship between agency expenditure in NAICS codes 54 – Professional, Scientific, and Technical Services; 33 – Manufacturing; and 56 – Administrative and Support, Waste Management and Remediation Services with small business dollars. What this finding suggests is that it may not be the existence of SUM overall that creates the crowding out effect of small businesses, but it could be the expenditure in certain industries. For instance, around 38 percent of all small business prime contracting dollars are obligated in NAICS code 54 – Professional, Scientific, and Technical Services. At the same time, about 44 percent of all small business eligible dollars also happen to be in NAICS code 54, indicating an overlap in what is demanded by the government and what is supplied by small businesses. However, the model suggests that if government expenditure increased in NAICS code 54, there will be a decrease in small business expenditure, which suggests that the beneficiary of the new spending would be other-than-small businesses, which comes at the expense of the small businesses, thereby creating a crowding out effect. However, what the findings of the model cannot definitively detect is whether the expenditure in NAICS code 54 that would benefit the other-than-small businesses is occurring through SUM, though it implies it is occurring in some part. The same phenomenon was observed by the model for NAICS codes 33 and 56 for SUM.

On the other hand, the opposite relationship was detected for BICs. When the SEM model is run without controlling for NAICS codes most prevalent with small businesses and agencies, the study found BIC to have a positive relationship on small businesses. This indicates that increasing expenditure through BIC has a positive relationship on small businesses by increasing small business dollars. However, when the model controls for NAICS codes, the positive relationship of BIC is no longer statistically significant, and it detects a positive relationship between agency expenditure in NAICS codes 23 – Construction and 42 – Wholesale Trade with small business dollars. This suggests that increasing expenditure in NAICS codes 23 and 42 will

¹³ This relationship was found in the SEM model that assessed the effect of the scorecard methodology change and the scorecard overall when the model controlled for NAICS codes but was not found in the models where NAICS codes were not included.

see an increase in small business dollars, and while not definitive, the results imply that in some part, the expenditure in these NAICS codes are taking place through BICs.

Further analysis would be required to fully understand the relationship of SUM and BIC with small business dollars. Detailed results of the SEM model for small business prime contracting overall are presented in Tables 7–10 in Appendix A.¹⁴

Prime Contracting – Socioeconomic Programs

Effects of the scorecard methodology change and the scorecard overall on contracting opportunities and prime contracting dollars for SDBs, HUBZone, WOSB, and SDVOSB programs largely mirrored those of small businesses overall with a few exceptions, which are discussed below.

Small Business Opportunities: Of the different indicators of small business prime contracting opportunities, the study found only the dollar value of contracts through WOSB set-aside and sole source vehicles¹⁵ to have increased after the scorecard methodology change for all four of the socioeconomic programs. This mirrors the findings for small business prime contracting overall.

As for the effect of the scorecard overall on these indicators, the results show a positive relationship between the agency’s grade last year and contracting through 8(a), HUBZone, and WOSB set-aside and sole source vehicles for all the socioeconomic programs. This mirrors the findings for small business prime contracting overall. Similarly, the study also found the inverse relationship between the scorecard overall and the number of RFIs issued to identify qualified businesses exist for all the socioeconomic programs.

Effects on Small Business Dollars: In terms of the effects of these indicators of small business opportunities on small business dollars to the socioeconomic programs, the study found a positive relationship between contracting through 8(a) set-aside and sole source vehicles with increasing the dollar value of contracts to the SDB, WOSB, and SDVOSB programs. Similarly, contracting through WOSB set-aside and sole source vehicles were found to have a positive relationship with increasing contract dollars to all four socioeconomic programs, and HUBZone set-aside and sole source vehicles to have a positive relationship with increasing contract dollars to all but SDVOSB programs. At the same time, while the number of RFIs issued had an inverse relationship with contracting opportunities to the socioeconomic programs, it did not have a

¹⁴ Tables 7 and 9 present the findings of the SEM models run without controlling for the most prevalent NAICS codes and Tables 8 and 10 present the findings when the models controlled for NAICS codes.

¹⁵ This finding should be interpreted with some caution as it could be attributable to the introduction of WOSB sole source as a contracting vehicle in FY 2016. In other words, the increase in the usage of WOSB set-aside and sole source vehicles after FY 2017 could be due to the availability of WOSB sole source as a contracting vehicle as opposed to the change in the scorecard methodology.

meaningful relationship with contracting dollars to those programs. Lastly, spending through VOSB set-aside and sole source vehicles was not found to be an indicator of small business subcontracting opportunities for the socioeconomic programs since it did not have a statistically significant relationship with the scorecard change or the scorecard overall. However, spending through these vehicles had a moderately positive relationship with SDB and SDVOSB contracting dollars but a negative relationship with WOSB contracting dollars.¹⁶

Effects of Agency Characteristics and Procurement Practices: Similar to small business dollars overall, agency characteristics and procurement practices also influence dollars to SDB, HUBZone, WOSB, and SDVOSB firms.

In terms of use of IDVs, agency-wide contracting through BOA had a positive relationship with HUBZone dollars but a negative one for WOSB.¹⁶ Expenditure through BPA had a positive relationship with dollars to all four socioeconomic programs. For FSS and IDC, the positive relationship detected with small business dollars was also seen for WOSB dollars, but a negative relationship was found with SDB. Lastly, no relationship was found between expenditure through GWAC for any of the four programs.¹⁷

The complex negative relationship detected between SUM and small business dollars was also seen with SDB dollars. When the SEM model was run without controlling for NAICS codes, the study found a strong negative relationship between SUM and SDB dollars, but when variation of agency-level expenditure by NAICS codes was accounted for, the negative relationship of SUM was no longer statistically significant and a negative relationship was detected instead with NAICS codes 54 – Professional, Scientific, and Technical Services; 33 – Manufacturing; and 56 – Administrative and Support, Waste Management and Remediation Services. This again implies that it may not be the existence of SUM overall that creates the crowding out effect of SDBs, but it could be the federal contracting dollars are going to other-than-small businesses at the expense of SDBs for certain industries in some part through SUM. This complex negative relationship was not detected for the other socioeconomic programs.

The complex positive relationship detected between BIC and small business dollars was also seen with SDB dollars.¹⁸ When the SEM model is run without controlling for NAICS codes, the

¹⁶ This relationship was found in the SEM model that assessed the effect of the scorecard methodology change and the scorecard overall when the model controlled for NAICS codes but was not found in the models where NAICS codes were not included.

¹⁷ No relationship was found between expenditure through GWAC for any of the four programs when the full SEM models that control for NAICS codes were run. However, when the SEM models were run without controlling for NAICS codes, spending through GWAC were found to have a negative relationship with WOSB dollars and a positive relationship with SDVOSB dollars.

¹⁸ This relationship was found in the SEM model assessing the effect of the scorecard overall on SDB opportunities and dollars but was not found to be statistically significant in the model assessing the effects of the scorecard methodology change.

study found BICs to have a positive relationship on SDB dollars. This indicates that increasing expenditure through BICs could see an increase in SDB dollars. However, when the model controls for NAICS codes, the positive relationship of BIC is no longer statistically significant, and it detects a positive relationship between agency expenditure in NAICS code 23 – Construction, suggesting that increasing expenditure in NAICS code 23 will see an increase in SDB dollars, implying that in some part, the expenditure to this sector is taking place through BIC. The study also found a complex but negative relationship between BIC and SDVOSB dollars when the model was run without controlling for NAICS codes. While the negative relationship with BIC and SDVOSB dollars was no longer statistically significant when NAICS codes were accounted for, unlike the other models, a negative relationship was not detected for any of the NAICS codes included in the model. Further analysis would be required to fully understand the relationship of SUM and BIC with dollars to the different small business socioeconomic programs.

Agency spending to the socioeconomic programs also varied by NAICS codes that were not found to be related to SUM or BIC. Spending on NAICS code 54 – Professional, Scientific, and Technical Services had a negative relationship with WOSB dollars but a positive one with SDVOSB dollars; 33 – Manufacturing and 56 – Administrative and Support, Waste Management and Remediation Services only had a negative relationship with WOSB dollars; 23 – Construction only had a positive relationship with HUBZone dollars; and no relationship was found between expenditure in 42 – Wholesale Trade and any of the socioeconomic programs.

Detailed results of the SEM model for prime contracting to the small business socioeconomic programs are presented in Tables 11–26 in Appendix A.

Subcontracting – Small Businesses Overall

Small Business Opportunities and Dollars: The study found that the change in the scorecard methodology and the scorecard overall does not appear to have a relationship between indicators of subcontracting opportunities measured by the value of total subcontracting dollars (as reported by all other-than-small prime contractors with a requirement to submit subcontracting data to the SBA). Dollar values of such subcontracts, however, were found to have a positive relationship with small business subcontracting dollars. A 1 percentage point increase in small business eligible dollars to total subcontracting dollars (as reported by all other-than-small prime contractors with a requirement to submit subcontracting data to the SBA) would be associated with about a 0.27 percentage point increase in small business subcontracting dollars. This suggests that while the scorecard methodology change and the scorecard overall do not have any relationship with the value of total subcontracting dollars (as reported by all other-than-small prime contractors with a requirement to submit subcontracting data to the SBA), increasing the dollar value of such subcontracts may see an increase in the dollar value of small business

subcontracts, as a little over a quarter of that increased spending would go to the small business subcontractors.

Effects of Agency Characteristics and Procurement Practices: Evaluating the effect of agency characteristics and procurement practices on small business subcontracting dollars, the study found that expenditure through BIC has a negative relationship with small business subcontracting dollars, and spending through NAICS code 54 – Professional, Scientific, and Technical Services had a positive relationship with small business subcontracting dollars. None of the other agency characteristics or procurement practices had a statistically significant relationship with small business subcontracting dollars. Detailed results of the SEM model for subcontracting to small businesses overall are presented in Tables 28 and 29 in Appendix B.

Subcontracting – Socioeconomic Programs

Effect of the scorecard methodology change and the scorecard overall on subcontracting opportunities and dollars to SDB, HUBZone, WOSB, and SDVOSB programs largely mirrored those of small business subcontracting overall with a few exceptions. While no relationship was found between the scorecard methodology change and the scorecard overall on subcontracting opportunities to the socioeconomic programs measured by the value of total subcontracting dollars (as reported by all other-than-small prime contractors with a requirement to submit subcontracting data to the SBA), the relationship between spending through such subcontracts and the dollars flowing to the four socioeconomic programs through subcontracts was much weaker than the relationship detected with small business subcontracting overall. This suggests that increasing the value of total subcontracting dollars (as reported by all other-than-small prime contractors with a requirement to submit subcontracting data to the SBA) would not lead to a meaningful increase in subcontracting dollars to SDB, HUBZone, WOSB, and SDVOSB firms. While agency-level spending through specific IDVs and most NAICS codes was not found to have any relationship for small business subcontracting overall, spending through NAICS code 33 – Manufacturing and 56 – Administrative and Support, Waste Management and Remediation Services had a positive relationship with HUBZone and SDVOSB subcontracting dollars, and spending through GWAC had a negative relationship with HUBZone subcontracting dollars. Lastly, spending through BICs was found to have a positive relationship with HUBZone and SDVOSB subcontracting dollars; SDB and WOSB subcontracting dollars had the negative relationship with BIC observed in small businesses subcontracting overall. Detailed results of the SEM model for subcontracting to the small business socioeconomic programs are presented in Tables 30–37 in Appendix B.

Limitations

The findings of this study are limited by the methodological challenges faced in modeling factors that could not be directly measured, the quality and completeness of the data used, and challenges related to qualitative data collection and analysis.

Methodological Approach and Statistical Modeling: Results from the SEM models are likely impacted by factors that were difficult to measure. The study could not fully analyze subcontracting opportunities to small businesses as the only source of subcontracting data, eSRS, only contains information on subcontracting dollars reported by all other-than-small prime contractors with a requirement to submit subcontracting data to the SBA, which is a subset of all subcontracts. While it did not impact the SEM model, the study could not count the number of small businesses with subcontract awards and disaggregate the list by socioeconomic program designation and NAICS code or assess whether prime contractors were better able to meet the requirements of their subcontracting plans as the data obtained from the eSRS did not contain this information. As a result, the study could not test all the hypotheses pertaining to subcontracting opportunities for Research Question 2.

At the same time, the study could not analyze the role of agency-level outreach activities in the form of industry days and small business events in creating contracting opportunities. While the study collected a sample of events through web scraping outreach information posted on beta.SAM and archived information from the now defunct FedBizOps website, the results did not appear to be complete and consequently were not included in the final model. While the study was able to obtain the number of RFIs issued to identify qualified vendors as a measure of outreach activities conducted by agencies and included it in the analyses, it is important to note that RFIs are just one form of outreach and do not represent the overall outreach activities of agencies. Future studies should attempt to better understand the role agency-level outreach activities play in creating small business opportunities.

Similarly, the study could not analyze the outreach efforts of small businesses interested in subcontracting, as well as other-than-small prime contractors soliciting services from such small businesses. While the research team received access to current and archived data from SubNet, the SBA's subcontracting network system, the data could not be analyzed and included in the models as the interactions that take place on SubNet represent only a subset of the subcontracting marketplace, and the archived data received did not cover the entire period of the study.

The scope of the study also played a role in what analyses were conducted. Although small business opportunities are created by vehicles like Ability One and Other Transaction Authority (OTA) and federal dollars flow to small businesses through Federally Funded Research and Development Centers (FFRDCs) and micro-purchases, the study did not include these opportunities as they do not count towards small business eligible dollars or the scorecard. The study could also not fully explore the effects of BIC and SUM on small business prime and subcontracting opportunities and dollars or their relationship with the scorecard due to limitations pertaining to the availability of data and the scope of the evaluation.

Lastly, it is important to note that given the non-experimental research design of the overall study, any changes detected in small business contracting opportunities and dollars after the adoption of the new methodology or the scorecard overall cannot be definitively attributable to the methodology change or the existence of the scorecard due to the absence of a counterfactual. Findings from Research Question 2 in particular should be interpreted carefully as unlike the findings of Research Question 1 where all the hypotheses were tested jointly in the SEM models, which aimed to assess both the change in the scorecard methodology and the scorecard overall on small business contracting opportunities and dollars while attempting to account for other factors that may influence them, Research Question 2 tested each hypothesis individually without accounting for such other factors. At the same time, the findings from the SEM models answering Research Question 1 should also be interpreted with some caution as many other factors that likely influence small business contracting opportunities and dollars could not be measured and accounted for in the models.

Quantitative Data: In terms of issues pertaining to the quality and completeness of the data used, the study could not distinguish between global and local Data Universal Numbering System numbers in identifying unique vendors that received contract awards. The study also could neither account for changes to NAICS codes at the two-digit level over the study period nor perfectly replicate the estimates for the percent of small business eligible dollars contracted through IDVs each fiscal year; the estimates were within 0.01 percent of the actuals. Given that the SBGR version of FPDS-NG data received for FY 2018 did not include the double credit for local area set-aside and Puerto Rico awards, the study also could not perfectly replicate the estimates for the percent of small business eligible dollars spent on small businesses overall and by different socioeconomic program designations published in the 2018 SBGR report. The percent error of the values estimated were on average about 0.01 percent of the published figures. Lastly, the SEM models may also suffer from minor validity issues due to possible measurement error in estimating the number of contract awards to small businesses new to a given agency.

Qualitative Data: Issues related to qualitative data collection and analysis could also likely limit the findings of this study. Firstly, the team could not interview two out of the 24 CFO Act agencies, the U.S. Office of Personnel Management (OPM) and the U.S. Department of Agriculture (USDA), due to scheduling conflicts. Additionally, only 10 out of the 22 interviews were attended by senior officials equivalent to CAOs and/or SPEs. The perspectives shared in the answers to the interview questions varied depending on which procurement officials attended the interview. At the same time, only a limited number of interviews were conducted with small business advocates; future studies could investigate their perspectives in greater detail. Finally, given the semi-structured nature of the interviews and time constraints, the team could not ask all the prepared questions to the respondents, although questions on all of the major themes were covered.

Conclusions and Recommendations

The research team leading the study conducted a mixed methods evaluation consisting of semi-structured interviews, univariate and bivariate panel data analysis, and a structural equation model to measure the effectiveness of the revised small business scorecard methodology and the scorecard overall. The major findings and recommendations of the evaluation are presented below.

Major Findings: The study found that the change in the Small Business Procurement Scorecard methodology did not result in many changes to small business procurement practices at federal agencies for prime contracting. No changes were observed in indicators of small business opportunities or small business prime contracting dollars after the methodology change. However, the scorecard overall has had a strong positive relationship with indicators of small business prime contracting opportunities, which, in turn, have a positive association with small business contracting dollars. Additionally, agency mission and procurement practices were also found to have a relationship with small business contracting dollars. These include the overlap of industry sectors in which agencies and small businesses operate, use of specific contracting vehicles such as IDVs for procurement, as well as spending through BIC and SUM. The findings for the small business socioeconomic programs for prime contracting opportunities and dollars mostly mirrored the findings for small businesses overall.

For subcontracting, the change in the scorecard methodology and the scorecard overall does not appear to have a relationship between indicators of subcontracting opportunities measured by the value of total subcontracting dollars (as reported by all other-than-small prime contractors with a requirement to submit subcontracting data to the SBA). The total dollar value of these subcontracts, however, had a positive relationship with small business subcontracting dollars, indicating that increasing the total value of such subcontracts may see an increase in the dollars flowing to the small business subcontractors. The findings for the small business socioeconomic programs for subcontracting opportunities and dollars mostly mirrored the findings for small businesses overall.

In terms of best practices for improving the goaling process, the study found that agencies would like for the SBA to provide guidance on navigating Category Management while promoting small businesses. Overall, the study found that partnership and understanding between agencies and the SBA was the most crucial factor in the entire process of setting and meeting goals to improve small business contracting opportunities in the Federal Government.

Recommendations: To create more opportunities for small businesses and improve agencies' ability to meet the scorecard goals, the SBA could consider the following recommendations.

1. Continue using the scorecard as a tool and consider modifying the weight of metrics like the number of small businesses receiving awards to counterbalance the effects of Category Management. Add a metric to the scorecard that measures the number of contracts awarded through 8(a), HUBZone, WOSB, and SDVOSB set-aside and sole source vehicles to increase small business opportunities and agency achievements across socioeconomic categories.
2. Continue to maintain constant communication with agencies throughout the fiscal year and continue to set what agencies perceive to be reachable goals.
 - a. Consider initiating an open dialogue on the challenges faced by both the SBA and agencies during the goaling process. The findings of this report could serve as a starting point.
 - b. Also consider communicating and reiterating that the purpose and intent of the scorecard is to improve small business opportunities and encourage agencies to identify pathways to meet their goals by increasing these opportunities.
3. Advise agencies to further increase procurement through small business-specific set-aside, sole source, and price preference vehicles as spending through these vehicles is likely to improve the ability of the agencies to better meet their overall small business and socioeconomic program goals.
4. Provide guidance to agencies on negotiating Category Management while promoting small businesses. Consider reviewing and potentially revising the current training curriculum for agencies on Category Management with an eye towards avoiding conflicts with the Small Business Act. Consistent with this suggestion, the SBA is currently responding to a requirement in the NDAA for FY 2021 (Section 871), which requires the SBA and the OFPP to develop a training curriculum on this topic (U.S. Congress, 2020).
5. Continue to promote best practices through the Small Business Procurement Advisory Council (SBPAC) to encourage agencies to consider using positive incentives to stimulate small business contracting opportunities:
 - a. Agencies could consider instituting agency-wide awards with monetary awards that are widely publicized within and outside the agency for procurement officials at every level for small business contracting performance. Such awards would recognize excellence in small business contracting at the level of individual procurement staff. Meeting small business goals could also be included as a performance metric during the annual review of procurement officials, meeting which will result in performance bonuses.
 - b. Alternatively, agencies could institute agency-wide competitions between program offices or departments within the overall agency with monetary awards recognizing the leadership and the role of individual procurement staff members for excellence in small business contracting.
6. Negative incentives could also be considered as a tool to stimulate small business contracting opportunities. The SBA could receive legislative authority to conduct reviews

of whether steps outlined in the corrective action plans for agencies who failed to meet their small business contracting goals were carried out and have the authority to enforce the steps in the corrective action plans if they were not met.

7. Consider discussing changing subcontracting reporting requirements with the SBPAC. Increasing the frequency of subcontracting reporting could enable agencies to track their performance throughout the year and increase agencies' willpower to improve subcontracting performance.
8. Consider piloting a negotiation process where the agencies propose their initial goals to the SBA to better account for agency's changing programmatic needs.

References

- 13 CFR § 121.201. (2013).
- 13 CFR § 126.616. (1999).
- 15 U.S.C. § 644 (g) (1)-(3). (1988).
- 15 U.S.C. § 644 (g) (1) (1988).
- 15 U.S.C. § 644 (g) (2) (d). (2018).
- 48 CFR § 19.702. (2019).
- Beale, H. B. (2014). *Evaluation of the Small Business Procurement Goals Established in Section 15(g) of the Small Business Act*. Microeconomic Applications, Inc.
- Congressional Research Service. (2012). *Small Business Set-Aside Programs: An Overview and Recent Developments in the Law*. Washington, D.C.: Congressional Research Service.
- Congressional Research Service. (2015). *Competition in Federal Contracting: Legal Overview*. Washington, D.C.: Congressional Research Service.
- Congressional Research Service. (2020). *SBA Surety Bond Guarantee Program*. Washington, D.C.: Congressional Research Service.
- Congressional Research Service. (2021). *An Overview of Small Business Contracting*. Washington, D.C.: Congressional Research Service.
- Congressional Research Service. (2021). *Small Business Administration: A Primer on Programs and Fundings*. Washington, D.C.: Congressional Research Service.
- Government Accountability Office. (2010). *Department of Veterans Affairs: Preliminary Observations of Issues Related to Contracting Opportunities to Veteran-Owned Small Businesses*. Washington, D.C.: U.S. Government Publishing Office.
- Government Accountability Office. (2012). *Government Contracting: Federal Efforts to Assist Small Minority Owned Businesses*. Washington, D.C.: U.S. Government Publishing Office.
- Government Accountability Office. (2017). *Small Business Contracting: Actions Needed to Demonstrate Compliance with Requirements for Small Business Advocates*. Washington, D.C.: U.S. Government Publishing Office.
- Government Accountability Office. (2018). *Small Business Administration: Actions Needed to Improve Confidence in Small Business Procurement Scorecard*. Washington, D.C.: U.S. Government Publishing Office.
- Government Accountability Office. (2019). *Small Business Administration Contracting Programs: Additional Efforts Needed to Implement GAO Recommendations*. Washington, D.C.: U.S. Government Publishing Office.
- Government Accountability Office. (2020). *Federal Buying Power: OMB Can Further Advance Category Management Initiative by Focusing on Requirements, Data, and Training*. Washington, D.C.: U.S. Government Publishing Office.

- Grammich, C. A., Edison, T., Moore, N. Y., & Keating, E. G. (2011). *Small Business and Defense Acquisitions: A Review of Policies and Current Practices*. Washington, D.C.: RAND Corporation.
- Madison Services Group, Inc. (2006). *Best Practices in Federal Procurement: A Study of the Successes and Barriers for Women-Owned Businesses*. Washington, D.C.: NWBC.
- Murell, A. J., & Bangs, R. (2019). Reducing Disparities for Women and Minority Business in Public Contracting Work: A Call for Social Virtuousness. *Frontiers in Psychology*, 1264.
- Schilling, R., Mazzuchi, T. A., & Sarkani, S. (2017). Survey of Small Business Barriers to Department of Defense Contracts. *Defense Acquisition Research Journal*, 2-29.
- Snyder, D. (2020). *Federal Contract Spending: Five Trends in Five Charts*. Washington, D.C.: Bloomberg.
- U.S. Congress. House of Representatives. (1990). *H.R.5687 - Chief Financial Officers Act of 1990*. Washington, D.C.: U.S. Government Publishing Office.
- U.S. Congress. House Committee on Armed Services. (2020). *H.R.6395 - William M. (Mac) Thornberry National Defense Authorization Act for Fiscal Year 2021*. Washington, D.C.: U.S. Government Publishing Office.
- U.S. Small Business Administration. (2019). *Report on the Most Serious Management and Performance Challenges Facing SBA in FY 2020*. Washington, D.C.: Office of Inspector General, U.S. Small Business Administration.
- U.S. Small Business Administration. (2005–2018). *Small Business Goaling Report*. Washington, D.C.: Office of Government Contracting and Business Development, U.S. Small Business Administration.
- U.S. Small Business Administration. (2020). *Consolidation of Mentor-Protégé Programs and Other Government Contracting Amendments; Correction*. Washington, D.C.: Federal Register.
- U.S. Small Business Administration. (2020). *FY 2021 Goaling Guidelines*. Washington, D.C.: Office of Policy, Planing, and Liaison and Office of Government Contracting and Business Development, U.S. Small Business Administration.
- U.S. Small Business Administration. (2020). *Report to Congress on Agency Office of Small Disadvantaged Business Utilization Training and Travel Costs for Fiscal Year 2019*. Washington, D.C.: Office of Policy, Planning, and Liason, U.S. Small Business Administration.
- U.S. Small Business Administration. (2020). *U.S. Small Business Procurement Scorecard Overview*. Washington, D.C.: Office of Policy, Planning, and Liason, U.S. Small Business Administration.
- U.S. Small Business Administration. (2021, February 4). *Prime and Subcontracting*. Retrieved from SBA.gov: <https://www.sba.gov/federal-contracting/contracting-guide/prime-subcontracting>

U.S. Small Business Administration. (2021, March 5). *SBA Mentor-Protégé Program*. Retrieved from SBA.gov: <https://www.sba.gov/federal-contracting/contracting-assistance-programs/sba-mentor-protege-program>

Appendix A: Research Question 1 Summary Statistics, Model Specifications, and Results for Small Business Prime Contracting

The table below presents the summary statistics of the analytical dataset developed to answer the first research question for small business prime contracting. The unit of observation of the dataset is *federal agency - fiscal year*.

Table 6: Summary statistics for the analytical dataset to answer the first research questions for prime contracting.

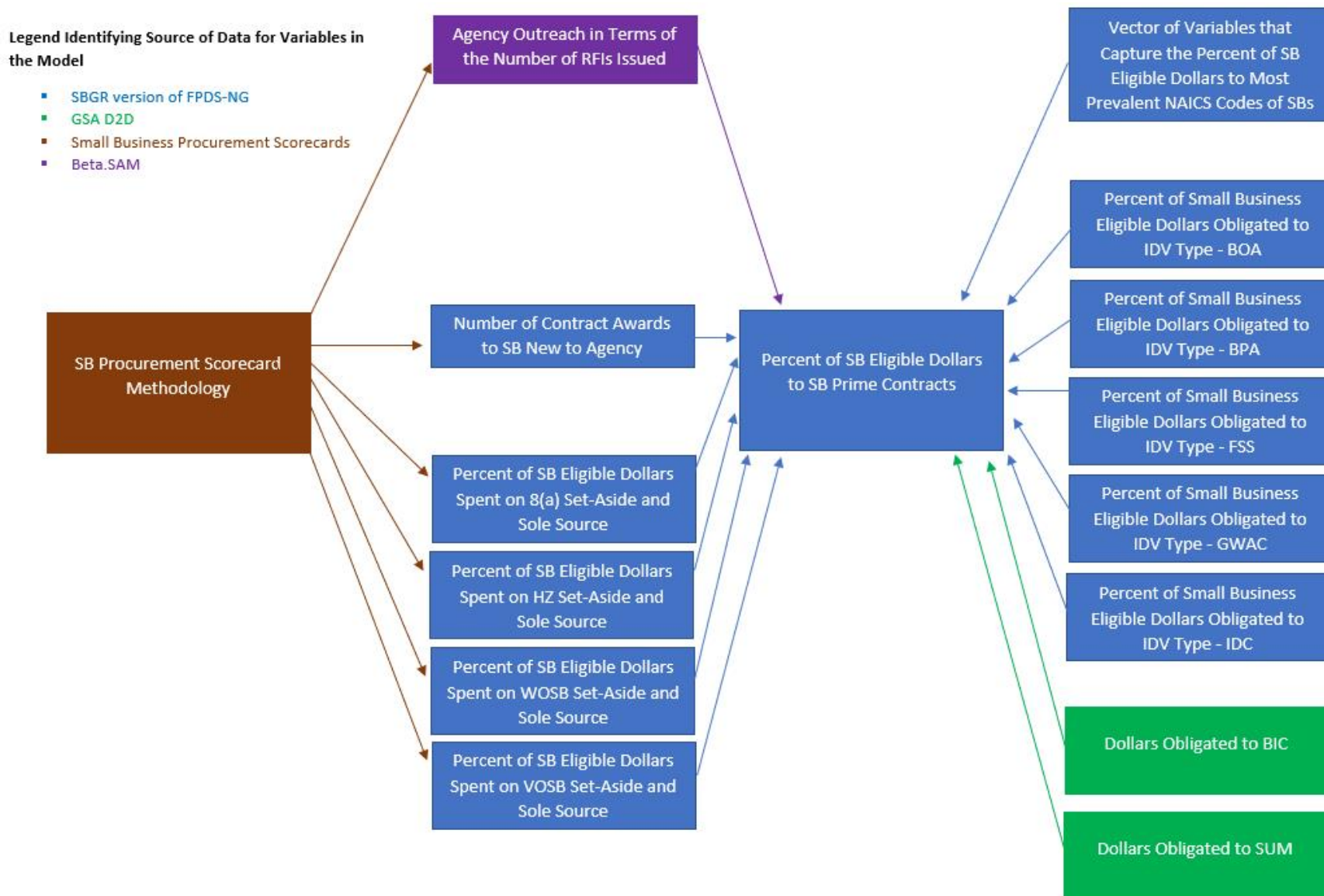
Variable	Mean	Std. Dev.	Min.	Max.
<i>Percent of small business eligible dollars to small business prime contracts awards</i>	35.24119	15.42213	5.125863	81.02277
<i>Percent of small business eligible dollars to Small Disadvantaged Business prime contract awards</i>	15.83674	9.25214	2.28	55.9
<i>Percent of small business eligible dollars to HUBZone prime contract awards</i>	2.917959	2.464555	0.120341	13.30779
<i>Percent of small business eligible dollars to Women-owned prime contract awards</i>	8.942734	5.048069	1.113842	28.52012
<i>Percent of small business eligible dollars to Service-Disabled Veteran-Owned Small Business prime contract awards</i>	4.617917	4.31477	0.34	24.17
<i>Percent of small business eligible dollars to 8(a) set-aside or sole source awards</i>	7.222779	5.798319	0.058545	34.20753
<i>Count of request for information notices posted by agency</i>	278.7708	783.9477	0	3929
<i>Percent of small business eligible dollars to HUBZone set-aside, HUBZone sole source, or price preference¹⁹ awards</i>	0.672991	0.986808	-0.2719	9.38027
<i>Percent of small business eligible dollars to Women Owned Small Businesses set-aside or sole source awards</i>	0.295755	0.436994	0	2.228917
<i>Percent of small business eligible dollars to Veteran Owned Small Businesses set-aside or sole source awards</i>	1.801047	2.91514	0.004615	19.3842
<i>Count of contracts awarded to small businesses new to the agency</i>	17098.11	123022	46	1422239

¹⁹ In addition to set-asides and sole source vehicles, additional opportunities to certified HUBZone businesses can be created through the implementation of the price evaluation preferences for HUBZone businesses outlined in the HUBZone ACT, 15 U.S.C. § 675a which states that “the price offered by a qualified HUBZone small business concern shall be deemed as being lower than the price offered by another offeror (other than another small business concern), if the price offered by the qualified HUBZone small business concern is not more than 10 percent higher than the price offered by the otherwise lowest, responsive, and responsible offeror”.

Variable	Mean	Std. Dev.	Min.	Max.
<i>Percent of small business eligible dollars to NAICS code 54 - professional, scientific, and technical services</i>	44.45079	18.12183	17.45147	89.16653
<i>Percent of small business eligible dollars to NAICS code 33 – manufacturing</i>	9.38993	10.68665	0.009453	43.88963
<i>Percent of small business eligible dollars to NAICS code 23 - construction</i>	6.467868	8.858327	-0.05051	36.16113
<i>Percent of small business eligible dollars to NAICS code 56 - administrative and support, waste management and remediation services</i>	13.68688	16.5775	-20.229	63.06235
<i>Percent of small business eligible dollars to NAICS code 42 - wholesale trade</i>	0.886271	1.270051	-0.00013	9.338916
<i>Percent of small business eligible dollars to IDV type - Basic Ordering Agreement</i>	0.467301	0.963876	-0.00521	4.224934
<i>Percent of small business eligible dollars to IDV type - Blanket Purchasing Agreement</i>	5.764062	4.814391	0.336108	24.52803
<i>Percent of small business eligible dollars to IDV type - Federal Supply Schedule</i>	12.18205	8.111313	-1.08138	46.51278
<i>Percent of small business eligible dollars to IDV type - Government-Wide Acquisition Contract</i>	6.645489	5.987651	0.287059	30.11059
<i>Percent of small business eligible dollars to IDV type - Indefinite Delivery Contract</i>	38.84017	17.23998	1.712606	77.35905
<i>Dollar value of expenditure through Spend Under Management</i>	2.65E+09	5.1E+09	0	2.22E+10
<i>Dollar value of expenditure through Best-in-Class vehicles</i>	4.35E+08	8.34E+08	0	5.35E+09
<i>Small Business Procurement Scorecard grade for the previous year</i>	110.7575	12.02788	66.9	137.6
No. of observations	144			

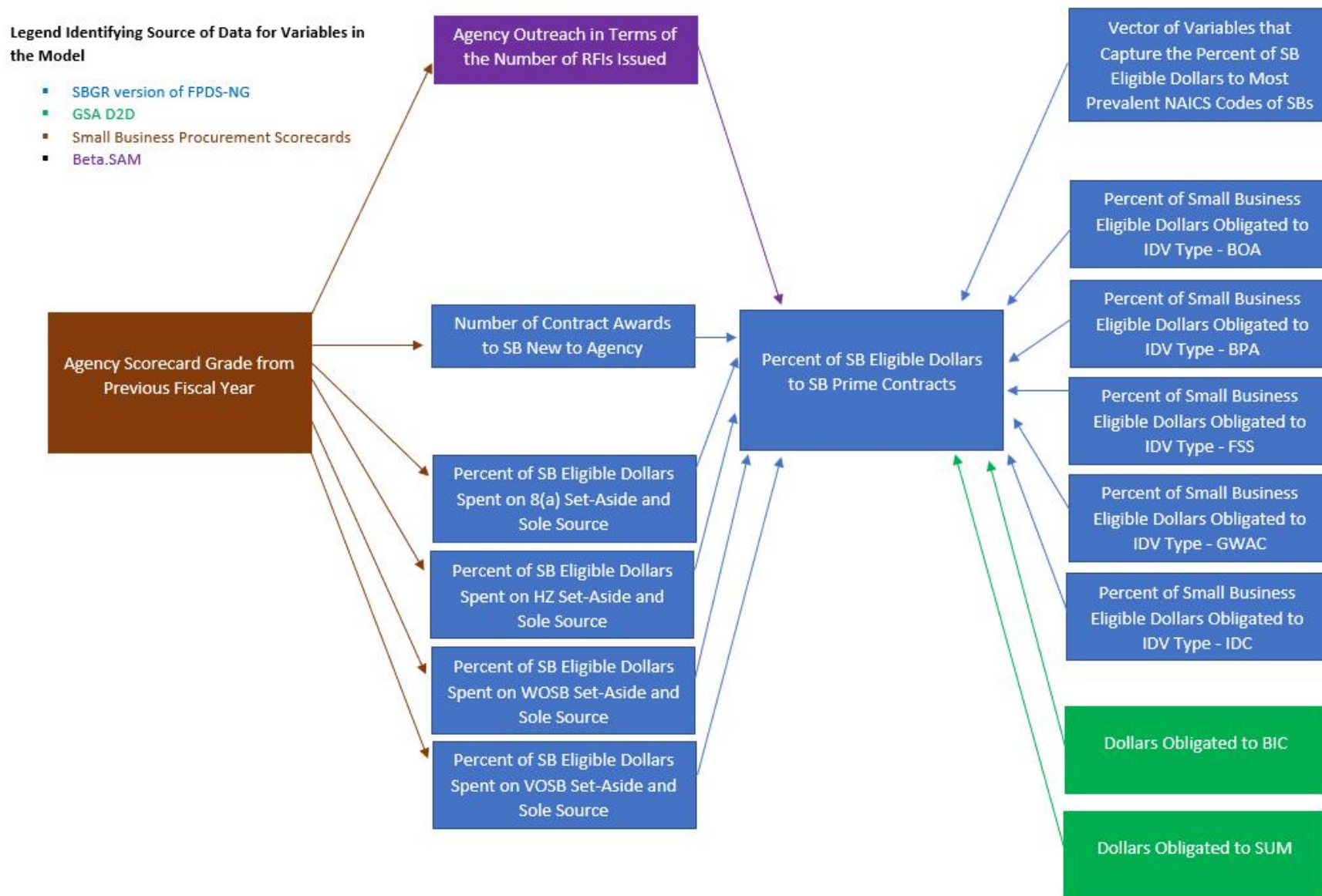
The diagram below presents the specifications of the Structural Equation Model developed to answer the first research question by evaluating the effect of the scorecard methodology change on small business prime contracting opportunities and small business dollars. The unit of observation of the model is *federal agency - fiscal year*.

Figure 10: Specifications for SEM model assessing the effect of the scorecard methodology change for prime contracting.



The diagram below presents the specifications of the SEM model developed to answer the first research question by evaluating the effect of the scorecard overall on small business prime contracting opportunities and small business dollars. The unit of observation of the model is *federal agency - fiscal year*.

Figure 11: Specifications for SEM model assessing the effect of the scorecard overall.



The table below presents the results of the SEM model developed to answer the first research question by evaluating the effect of the scorecard methodology change on small business contracting opportunities and small (business dollars without controlling for NAICS codes. The unit of observation is *federal agency - fiscal year*.

Table 7: SEM model results for the effect of scorecard methodology change on small business opportunities and dollars without controlling for NAICS codes.

Dependent Variable: Percent of small business eligible dollars to small business prime contract awards		
Independent Variables²⁰	Coeff.	Std. Error
<i>Percent of small business eligible dollars to 8(a) set-aside or sole source awards***</i>	1.340228	0.1757523
<i>Count of request for information notices posted by agency**</i>	-0.0047663	0.0015172
<i>Percent of small business eligible dollars to HUBZone set-aside, HUBZone sole source, or price preference awards*</i>	1.488206	0.7839519
<i>Percent of small business eligible dollars to Women Owned Small Businesses set-aside or sole source awards***</i>	7.919054	1.79312
<i>Percent of small business eligible dollars to Veteran Owned Small Businesses set-aside or sole source awards***</i>	1.023157	0.2613522
<i>Count of contracts awarded to small businesses new to the agency</i>	-0.00000246	0.00000603
<i>Percent of small business eligible dollars to IDV type - Basic Ordering Agreement***</i>	5.917541	1.072922
<i>Percent of small business eligible dollars to IDV type - Blanket Purchasing Agreement**</i>	0.5058656	0.1564021
<i>Percent of small business eligible dollars to IDV type - Federal Supply Schedule***</i>	0.3261794	0.092177
<i>Percent of small business eligible dollars to IDV type - Government-Wide Acquisition Contract**</i>	-0.3550874	0.1668162
<i>Percent of small business eligible dollars to IDV type - Indefinite Delivery Contract</i>	-0.0264003	0.0449874
<i>Dollar value of expenditure through Spend Under Management**</i>	-6.33E-10	1.98E-10
<i>Dollar value of expenditure through Best-in-Class vehicles*</i>	0.000000002	1.17E-09

²⁰ * Denotes statistical significance at 10 percent level

** Denotes statistical significance at 5 percent level

*** Denotes statistical significance at 1 percent level

Dependent Variable: Percent of small business eligible dollars to 8(a) set-aside or sole source award		
Independent Variables ²¹	Coeff.	Std. Error
<i>Small Business Procurement Scorecard current methodology</i>	-0.9114529	0.9600494

Dependent Variable: Count of request for information notices posted by agency		
Independent Variables	Coeff.	Std. Error
<i>Small Business Procurement Scorecard current methodology</i>	70.18936	130.0731

Dependent Variable: Percent of small business eligible dollars to HUBZone set-aside, HUBZone sole source, or price preference awards		
Independent Variables	Coeff.	Std. Error
<i>Small Business Procurement Scorecard current methodology</i>	0.1108033	0.1636377

Dependent Variable: Percent of small business eligible dollars to Women Owned Small Businesses set-aside or sole source awards		
Independent Variables	Coeff.	Std. Error
<i>Small Business Procurement Scorecard current methodology**</i>	0.2032963	0.0705905

Dependent Variable: Percent of small business eligible dollars to Veteran Owned Small Businesses set-aside or sole source awards		
Independent Variables	Coeff.	Std. Error
<i>Small Business Procurement Scorecard current methodology</i>	0.2993521	0.4835289

Dependent Variable: Count of contracts awarded to small businesses new to the agency		
Independent Variables	Coeff.	Std. Error
<i>Small Business Procurement Scorecard current methodology</i>	28327.3	20296.64

²¹ * Denotes statistical significance at 10 percent level

** Denotes statistical significance at 5 percent level

*** Denotes statistical significance at 1 percent level

The table below presents the results of the SEM model developed to answer the first research question by evaluating the effect of the scorecard methodology change on small business contracting opportunities and small business dollars controlling for NAICS codes. The unit of observation is *federal agency - fiscal year*.

Table 8: SEM model results for the effect of scorecard methodology change on small business opportunities and small business eligible dollars controlling for NAICS codes.

Dependent Variable: Percent of small business eligible small business eligible dollars to small business prime contract awards		
Independent Variables²²	Coeff.	Std. Error
<i>Percent of small business eligible dollars to 8(a) set-aside or sole source awards***</i>	1.222095	0.1676559
<i>Count of request for information notices posted by agency**</i>	-0.0036992	0.0015685
<i>Percent of small business eligible dollars to HUBZone set-aside, HUBZone sole source, or price preference awards**</i>	1.357098	0.6590766
<i>Percent of small business eligible dollars to Women Owned Small Businesses set-aside or sole source awards***</i>	8.427314	1.667995
<i>Percent of small business eligible dollars to Veteran Owned Small Businesses set-aside or sole source awards</i>	0.1203278	0.2537406
<i>Count of contracts awarded to small businesses new to the agency</i>	0.000000106	0.00000503
<i>Percent of small business eligible dollars to NAICS code 54 - professional, scientific, and technical services***</i>	-0.2443384	0.0446696
<i>Percent of small business eligible dollars to NAICS code 33 – manufacturing*</i>	-0.1331447	0.0793757
<i>Percent of small business eligible dollars to NAICS code 23 - construction*</i>	0.1512799	0.0785876
<i>Percent of small business eligible dollars to NAICS code 56 - administrative and support, waste management and remediation services***</i>	-0.2385599	0.0435615
<i>Percent of small business eligible dollars to NAICS code 42 - wholesale trade**</i>	1.030195	0.4895118
<i>Percent of small business eligible dollars to IDV type - Basic Ordering Agreement***</i>	3.611123	0.9593571
<i>Percent of small business eligible dollars to IDV type - Blanket Purchasing Agreement***</i>	0.5983021	0.1374528
<i>Percent of small business eligible dollars to IDV type - Federal Supply Schedule**</i>	0.2241997	0.0811754
<i>Percent of small business eligible dollars to IDV type - Government-Wide Acquisition Contract</i>	0.2042702	0.1569298
<i>Percent of small business eligible dollars to IDV type - Indefinite Delivery Contract**</i>	0.096955	0.0430452
<i>Dollar value of expenditure through Spend Under Management</i>	-2.13E-12	1.85E-10
<i>Dollar value of expenditure through Best-in-Class vehicles</i>	-1.33E-09	1.05E-09

²² * Denotes statistical significance at 10 percent level

** Denotes statistical significance at 5 percent level

*** Denotes statistical significance at 1 percent level

Dependent Variable: Percent of small business eligible dollars to 8(a) set-aside or sole source award		
Independent Variables ²³	Coeff.	Std. Error
<i>Small Business Procurement Scorecard current methodology</i>	-0.9135028	0.9600456

Dependent Variable: Count of request for information notices posted by agency		
Independent Variables	Coeff.	Std. Error
<i>Small Business Procurement Scorecard current methodology</i>	70.34721	130.0729

Dependent Variable: Percent of small business eligible dollars to HUBZone set-aside, HUBZone sole source, or price preference awards		
Independent Variables	Coeff.	Std. Error
<i>Small Business Procurement Scorecard current methodology</i>	0.1110525	0.1636373

Dependent Variable: Percent of small business eligible dollars to Women Owned Small Businesses set-aside or sole source awards		
Independent Variables	Coeff.	Std. Error
<i>Small Business Procurement Scorecard current methodology**</i>	0.2037535	0.0705879

Dependent Variable: Percent of small business eligible dollars to Veteran Owned Small Businesses set-aside or sole source awards		
Independent Variables	Coeff.	Std. Error
<i>Small Business Procurement Scorecard current methodology</i>	0.3000253	0.4835281

Dependent Variable: Count of contracts awarded to small businesses new to the agency		
Independent Variables	Coeff.	Std. Error
<i>Small Business Procurement Scorecard current methodology</i>	28391	20296.47

²³ * Denotes statistical significance at 10 percent level

** Denotes statistical significance at 5 percent level

*** Denotes statistical significance at 1 percent level

The table below presents the results of the SEM model developed to answer the first research question by evaluating the effect of the scorecard overall on small business contracting opportunities and small business eligible dollars without controlling for NAICS codes. The unit of observation is *federal agency - fiscal year*.

Table 9: SEM model results for the effect of scorecard overall on small business opportunities and small business eligible dollars without controlling for NAICS codes.

Dependent Variable: Percent of small business eligible dollars to small business prime contract awards		
Independent Variables²⁴	Coeff.	Std. Error
<i>Percent of small business eligible dollars to 8(a) set-aside or sole source awards***</i>	1.451954	0.1729523
<i>Count of request for information notices posted by agency***</i>	-0.0051314	0.0014928
<i>Percent of small business eligible dollars to HUBZone set-aside, HUBZone sole source, or price preference awards**</i>	1.672077	0.7713151
<i>Percent of small business eligible dollars to Women Owned Small Businesses set-aside or sole source awards***</i>	8.914054	1.765525
<i>Percent of small business eligible dollars to Veteran Owned Small Businesses set-aside or sole source awards***</i>	1.005933	0.2571734
<i>Count of contracts awarded to small businesses new to the agency</i>	-0.00000302	0.00000593
<i>Percent of small business eligible dollars to IDV type - Basic Ordering Agreement***</i>	5.856655	1.055656
<i>Percent of small business eligible dollars to IDV type - Blanket Purchasing Agreement***</i>	0.4713152	0.1539511
<i>Percent of small business eligible dollars to IDV type - Federal Supply Schedule***</i>	0.3189985	0.0906911
<i>Percent of small business eligible dollars to IDV type - Government-Wide Acquisition Contract**</i>	-0.3591289	0.1641279
<i>Percent of small business eligible dollars to IDV type - Indefinite Delivery Contract</i>	-0.033813	0.0442738
<i>Dollar value of expenditure through Spend Under Management***</i>	-6.45E-10	1.95E-10
<i>Dollar value of expenditure through Best in Class vehicles*</i>	2.1E-09	1.15E-09

²⁴ * Denotes statistical significance at 10 percent level

** Denotes statistical significance at 5 percent level

*** Denotes statistical significance at 1 percent level

Dependent Variable: Percent of small business eligible dollars to 8(a) set-aside or sole source award		
Independent Variables ²⁵	Coeff.	Std. Error
<i>Small Business Procurement Scorecard grade for the previous year***</i>	0.2149025	0.0362896

Dependent Variable: Count of request for information notices posted by agency		
Independent Variables	Coeff.	Std. Error
<i>Small Business Procurement Scorecard grade for the previous year**</i>	-16.11861	5.275455

Dependent Variable: Percent of small business eligible dollars to HUBZone set-aside, HUBZone sole source, or price preference awards		
Independent Variables	Coeff.	Std. Error
<i>Small Business Procurement Scorecard grade for the previous year**</i>	0.0226697	0.0065909

Dependent Variable: Percent of small business eligible dollars to Women Owned Small Businesses set-aside or sole source awards		
Independent Variables	Coeff.	Std. Error
<i>Small Business Procurement Scorecard grade for the previous year***</i>	0.0164873	0.0027238

Dependent Variable: Percent of small business eligible dollars to Veteran Owned Small Businesses set-aside or sole source awards		
Independent Variables	Coeff.	Std. Error
<i>Small Business Procurement Scorecard grade for the previous year</i>	-0.0184931	0.0201426

Dependent Variable: Count of contracts awarded to small businesses new to the agency		
Independent Variables	Coeff.	Std. Error
<i>Small Business Procurement Scorecard grade for the previous year</i>	-743.2518	850.2531

²⁵ * Denotes statistical significance at 10 percent level

** Denotes statistical significance at 5 percent level

*** Denotes statistical significance at 1 percent level

The table below presents the results of the SEM model developed to answer the first research question by evaluating the effect of the scorecard overall on small business contracting opportunities and small business eligible dollars with controlling for NAICS codes. The unit of observation is *federal agency - fiscal year*.

Table 10: SEM model results for the effect of scorecard overall on small business opportunities and small business eligible dollars controlling for NAICS codes.

Dependent Variable: Percent of small business eligible dollars to small business prime contract awards		
Independent Variables²⁶	Coeff.	Std. Error
<i>Percent of small business eligible dollars to 8(a) set-aside or sole source awards***</i>	1.299298	0.16679
<i>Count of request for information notices posted by agency**</i>	-0.00392	0.0015604
<i>Percent of small business eligible dollars to HUBZone set-aside, HUBZone sole source, or price preference awards**</i>	1.403067	0.6556764
<i>Percent of small business eligible dollars to Women Owned Small Businesses set-aside or sole source awards***</i>	8.667499	1.65971
<i>Percent of small business eligible dollars to Veteran Owned Small Businesses set-aside or sole source awards</i>	0.129067	0.2524896
<i>Count of contracts awarded to small businesses new to the agency</i>	-5.5E-07	5.01E-06
<i>Percent of small business eligible dollars to NAICS code 54 - professional, scientific, and technical services***</i>	-0.23841	0.0444462
<i>Percent of small business eligible dollars to NAICS code 33 – manufacturing*</i>	-0.13167	0.0789668
<i>Percent of small business eligible dollars to NAICS code 23 - construction*</i>	0.143461	0.0781919
<i>Percent of small business eligible dollars to NAICS code 56 - administrative and support, waste management and remediation services***</i>	-0.23215	0.043346
<i>Percent of small business eligible dollars to NAICS code 42 - wholesale trade**</i>	1.033173	0.4869876
<i>Percent of small business eligible dollars to IDV type - Basic Ordering Agreement***</i>	3.646299	0.9544245
<i>Percent of small business eligible dollars to IDV type - Blanket Purchasing Agreement***</i>	0.58001	0.1367713
<i>Percent of small business eligible dollars to IDV type - Federal Supply Schedule**</i>	0.220677	0.0807551
<i>Percent of small business eligible dollars to IDV type - Government-Wide Acquisition Contract</i>	0.188576	0.156143
<i>Percent of small business eligible dollars to IDV type - Indefinite Delivery Contract**</i>	0.090801	0.0428327
<i>Dollar value of expenditure through Spend Under Management</i>	-2.4E-11	1.84E-10
<i>Dollar value of expenditure through Best-in-Class vehicles</i>	-1.2E-09	1.05E-09

²⁶ * Denotes statistical significance at 10 percent level

** Denotes statistical significance at 5 percent level

*** Denotes statistical significance at 1 percent level

Dependent Variable: Percent of small business eligible dollars to 8(a) set-aside or sole source award		
Independent Variables ²⁷	Coeff.	Std. Error
<i>Small Business Procurement Scorecard grade for the previous year***</i>	0.205631	0.0364664

Dependent Variable: Count of request for information notices posted by agency		
Independent Variables	Coeff.	Std. Error
<i>Small Business Procurement Scorecard grade for the previous year**</i>	-15.4232	5.28231

Dependent Variable: Percent of small business eligible dollars to HUBZone set-aside, HUBZone sole source, or price preference awards		
Independent Variables	Coeff.	Std. Error
<i>Small Business Procurement Scorecard grade for the previous year**</i>	0.021692	0.0066017

Dependent Variable: Percent of small business eligible dollars to Women Owned Small Businesses set-aside or sole source awards		
Independent Variables	Coeff.	Std. Error
<i>Small Business Procurement Scorecard grade for the previous year***</i>	0.015776	0.0027376

Dependent Variable: Percent of small business eligible dollars to Veteran Owned Small Businesses set-aside or sole source awards		
Independent Variables	Coeff.	Std. Error
<i>Small Business Procurement Scorecard grade for the previous year</i>	-0.0177	0.020145

Dependent Variable: Count of contracts awarded to small businesses new to the agency		
Independent Variables	Coeff.	Std. Error
<i>Small Business Procurement Scorecard grade for the previous year</i>	-711.185	850.3436

²⁷ * Denotes statistical significance at 10 percent level

** Denotes statistical significance at 5 percent level

*** Denotes statistical significance at 1 percent level

The table below presents the results of the SEM model developed to answer the first research question by evaluating the effect of the scorecard methodology change on SDB contracting opportunities and SDB dollars without controlling for NAICS codes. The unit of observation is *federal agency - fiscal year*.

Table 11: SEM model results for the effect of scorecard methodology change on SDB opportunities and dollars without controlling for NAICS codes.

Dependent Variable: Percent of small business eligible dollars to Small Disadvantaged Business prime contract awards		
Independent Variables²⁸	Coeff.	Std. Error
<i>Percent of small business eligible dollars to 8(a) set-aside or sole source awards***</i>	1.220688	0.0705881
<i>Count of request for information notices posted by agency</i>	-0.00059	0.0006093
<i>Percent of small business eligible dollars to HUBZone set-aside, HUBZone sole source, or price preference awards**</i>	1.067314	0.3148215
<i>Percent of small business eligible dollars to Women Owned Small Businesses set-aside or sole source awards***</i>	4.721201	0.7201943
<i>Percent of small business eligible dollars to Veteran Owned Small Businesses set-aside or sole source awards***</i>	0.466857	0.1049549
<i>Count of contracts awarded to small businesses new to the agency</i>	1.15E-07	0.00000242
<i>Percent of small business eligible dollars to IDV type - Basic Ordering Agreement</i>	0.230124	0.4308581
<i>Percent of small business eligible dollars to IDV type - Blanket Purchasing Agreement**</i>	0.126061	0.0628077
<i>Percent of small business eligible dollars to IDV type - Federal Supply Schedule</i>	-0.03495	0.0370214
<i>Percent of small business eligible dollars to IDV type - Government-Wide Acquisition Contract***</i>	-0.23397	0.0669991
<i>Percent of small business eligible dollars to IDV type - Indefinite Delivery Contract**</i>	-0.0596	0.0180661
<i>Dollar value of expenditure through Spend Under Management**</i>	-2E-10	7.95E-11
<i>Dollar value of expenditure through Best-in-Class vehicles</i>	7.65E-10	4.69E-10

²⁸ * Denotes statistical significance at 10 percent level

** Denotes statistical significance at 5 percent level

*** Denotes statistical significance at 1 percent level

Dependent Variable: Percent of small business eligible dollars to 8(a) set-aside or sole source award		
Independent Variables²⁹	Coeff.	Std. Error
<i>Small Business Procurement Scorecard current methodology</i>	-0.9563	0.9599521

Dependent Variable: Count of request for information notices posted by agency		
Independent Variables	Coeff.	Std. Error
<i>Small Business Procurement Scorecard current methodology</i>	73.64301	130.0688

Dependent Variable: Percent of small business eligible dollars to HUBZone set-aside, HUBZone sole source, or price preference awards		
Independent Variables	Coeff.	Std. Error
<i>Small Business Procurement Scorecard current methodology</i>	0.116255	0.1636292

Dependent Variable: Percent of small business eligible dollars to Women Owned Small Businesses set-aside or sole source awards		
Independent Variables	Coeff.	Std. Error
<i>Small Business Procurement Scorecard current methodology**</i>	0.2133	0.0705246

Dependent Variable: Percent of small business eligible dollars to Veteran Owned Small Businesses set-aside or sole source awards		
Independent Variables	Coeff.	Std. Error
<i>Small Business Procurement Scorecard current methodology</i>	0.314082	0.4835081

Dependent Variable: Count of contracts awarded to small businesses new to the agency		
Independent Variables	Coeff.	Std. Error
<i>Small Business Procurement Scorecard current methodology</i>	29721.13	20292.19

²⁹ * Denotes statistical significance at 10 percent level

** Denotes statistical significance at 5 percent level

*** Denotes statistical significance at 1 percent level

The table below presents the results of the SEM model developed to answer the first research question by evaluating the effect of the scorecard methodology change on SDB contracting opportunities and SDB dollars controlling for NAICS codes. The unit of observation is *federal agency - fiscal year*.

Table 12: SEM model results for the effect of scorecard methodology change on SDB opportunities and dollars controlling for NAICS codes.

Dependent Variable: Percent of small business eligible dollars to Small Disadvantaged Business prime contract awards		
Independent Variables³⁰	Coeff.	Std. Error
<i>Percent of small business eligible dollars to 8(a) set-aside or sole source awards***</i>	1.157322	0.070382
<i>Count of request for information notices posted by agency</i>	0.000483	0.000658
<i>Percent of small business eligible dollars to HUBZone set-aside, HUBZone sole source, or price preference awards**</i>	0.917417	0.276637
<i>Percent of small business eligible dollars to Women Owned Small Businesses set-aside or sole source awards***</i>	4.303105	0.700227
<i>Percent of small business eligible dollars to Veteran Owned Small Businesses set-aside or sole source awards*</i>	0.192868	0.106505
<i>Count of contracts awarded to small businesses new to the agency</i>	1.41E-06	2.11E-06
<i>Percent of small business eligible dollars to NAICS code 54 - professional, scientific, and technical services**</i>	-0.03818	0.018749
<i>Percent of small business eligible dollars to NAICS code 33 – manufacturing**</i>	-0.09895	0.033318
<i>Percent of small business eligible dollars to NAICS code 23 - construction**</i>	0.079698	0.032986
<i>Percent of small business eligible dollars to NAICS code 56 - administrative and support, waste management and remediation services***</i>	-0.11034	0.018284
<i>Percent of small business eligible dollars to NAICS code 42 - wholesale trade</i>	-0.02779	0.205461
<i>Percent of small business eligible dollars to IDV type - Basic Ordering Agreement</i>	-0.5726	0.402668
<i>Percent of small business eligible dollars to IDV type - Blanket Purchasing Agreement***</i>	0.21576	0.057694
<i>Percent of small business eligible dollars to IDV type - Federal Supply Schedule**</i>	-0.07702	0.034076
<i>Percent of small business eligible dollars to IDV type - Government-Wide Acquisition Contract</i>	-0.06021	0.065876
<i>Percent of small business eligible dollars to IDV type - Indefinite Delivery Contract*</i>	-0.0344	0.018067
<i>Dollar value of expenditure through Spend Under Management</i>	-3.9E-12	7.76E-11
<i>Dollar value of expenditure through Best-in-Class vehicles</i>	-1.5E-10	4.42E-10

³⁰ * Denotes statistical significance at 10 percent level

** Denotes statistical significance at 5 percent level

*** Denotes statistical significance at 1 percent level

Dependent Variable: Percent of small business eligible dollars to 8(a) set-aside or sole source award		
Independent Variables ³¹	Coeff.	Std. Error
<i>Small Business Procurement Scorecard current methodology</i>	-0.95794	0.959953

Dependent Variable: Count of request for information notices posted by agency		
Independent Variables	Coeff.	Std. Error
<i>Small Business Procurement Scorecard current methodology</i>	73.7696	130.0689

Dependent Variable: Percent of small business eligible dollars to HUBZone set-aside, HUBZone sole source, or price preference awards		
Independent Variables	Coeff.	Std. Error
<i>Small Business Procurement Scorecard current methodology</i>	0.116455	0.163629

Dependent Variable: Percent of small business eligible dollars to Women Owned Small Businesses set-aside or sole source awards		
Independent Variables	Coeff.	Std. Error
<i>Small Business Procurement Scorecard current methodology**</i>	0.213666	0.070525

Dependent Variable: Percent of small business eligible dollars to Veteran Owned Small Businesses set-aside or sole source awards		
Independent Variables	Coeff.	Std. Error
<i>Small Business Procurement Scorecard current methodology</i>	0.314622	0.483508

Dependent Variable: Count of contracts awarded to small businesses new to the agency		
Independent Variables	Coeff.	Std. Error
<i>Small Business Procurement Scorecard current methodology</i>	29772.22	20292.22

³¹ * Denotes statistical significance at 10 percent level

** Denotes statistical significance at 5 percent level

*** Denotes statistical significance at 1 percent level

The table below presents the results of the SEM model developed to answer the first research question by evaluating the effect of the scorecard overall on SDB contracting opportunities and small SDB dollars without controlling for NAICS codes. The unit of observation is *federal agency - fiscal year*.

Table 13: SEM model results for the effect of scorecard overall on SDB opportunities and dollars without controlling for NAICS codes.

Dependent Variable: Percent of dollars to Small Disadvantaged Business prime contract awards		
Independent Variables³²	Coeff.	Std. Error
<i>Percent of small business eligible dollars to 8(a) set-aside or sole source awards***</i>	1.296585	0.0696982
<i>Count of request for information notices posted by agency</i>	-0.0007486	0.0006016
<i>Percent of small business eligible dollars to HUBZone set-aside, HUBZone sole source, or price preference awards**</i>	1.064873	0.31083
<i>Percent of small business eligible dollars to Women Owned Small Businesses set-aside or sole source awards***</i>	4.682127	0.7115091
<i>Percent of small business eligible dollars to Veteran Owned Small Businesses set-aside or sole source awards***</i>	0.4505751	0.1036382
<i>Count of contracts awarded to small businesses new to the agency</i>	-6.43E-07	0.00000239
<i>Percent of small business eligible dollars to IDV type - Basic Ordering Agreement</i>	0.2061647	0.4254163
<i>Percent of small business eligible dollars to IDV type - Blanket Purchasing Agreement*</i>	0.1128244	0.0620416
<i>Percent of small business eligible dollars to IDV type - Federal Supply Schedule</i>	-0.0402295	0.0365474
<i>Percent of small business eligible dollars to IDV type - Government-Wide Acquisition Contract***</i>	-0.2314692	0.0661415
<i>Percent of small business eligible dollars to IDV type - Indefinite Delivery Contract***</i>	-0.0622987	0.017842
<i>Dollar value of expenditure through Spend Under Management**</i>	-1.99E-10	7.85E-11
<i>Dollar value of expenditure through Best-in-Class vehicles*</i>	8.49E-10	4.63E-10

³² * Denotes statistical significance at 10 percent level

** Denotes statistical significance at 5 percent level

*** Denotes statistical significance at 1 percent level

Dependent Variable: Percent of small business eligible dollars to 8(a) set-aside or sole source award		
Independent Variables ³³	Coeff.	Std. Error
<i>Small Business Procurement Scorecard grade for the previous year***</i>	0.2155906	0.0362776

Dependent Variable: Count of request for information notices posted by agency		
Independent Variables	Coeff.	Std. Error
<i>Small Business Procurement Scorecard grade for the previous year**</i>	-16.17023	5.274992

Dependent Variable: Percent of small business eligible dollars to HUBZone set-aside, HUBZone sole source, or price preference awards		
Independent Variables	Coeff.	Std. Error
<i>Small Business Procurement Scorecard grade for the previous year**</i>	0.0227423	0.0065902

Dependent Variable: Percent of small business eligible dollars to Women Owned Small Businesses set-aside or sole source awards		
Independent Variables	Coeff.	Std. Error
<i>Small Business Procurement Scorecard grade for the previous year***</i>	0.0165401	0.0027228

Dependent Variable: Percent of small business eligible dollars to Veteran Owned Small Businesses set-aside or sole source awards		
Independent Variables	Coeff.	Std. Error
<i>Small Business Procurement Scorecard grade for the previous year</i>	-0.0185523	0.0201424

Dependent Variable: Count of contracts awarded to small businesses new to the agency		
Independent Variables	Coeff.	Std. Error
<i>Small Business Procurement Scorecard grade for the previous year</i>	-745.6319	850.247

³³ * Denotes statistical significance at 10 percent level

** Denotes statistical significance at 5 percent level

*** Denotes statistical significance at 1 percent level

The table below presents the results of the SEM model developed to answer the first research question by evaluating the effect of the scorecard overall on SDB contracting opportunities and SDB dollars controlling for NAICS codes. The unit of observation is *federal agency - fiscal year*.

Table 14: SEM model results for the effect of scorecard overall on SDB opportunities and dollars controlling for NAICS codes.

Dependent Variable: Percent of small business eligible dollars to Small Disadvantaged Business prime contract awards		
Independent Variables³⁴	Coeff.	Std. Error
<i>Percent of small business eligible dollars to 8(a) set-aside or sole source awards***</i>	1.217142	0.07011
<i>Count of request for information notices posted by agency</i>	0.00038	0.0006559
<i>Percent of small business eligible dollars to HUBZone set-aside, HUBZone sole source, or price preference awards**</i>	0.884941	0.2756102
<i>Percent of small business eligible dollars to Women Owned Small Businesses set-aside or sole source awards***</i>	4.10925	0.6977231
<i>Percent of small business eligible dollars to Veteran Owned Small Businesses set-aside or sole source awards*</i>	0.190397	0.1061443
<i>Count of contracts awarded to small businesses new to the agency</i>	7.05E-07	0.0000021
<i>Percent of small business eligible dollars to NAICS code 54 - professional, scientific, and technical services*</i>	-0.03498	0.0186841
<i>Percent of small business eligible dollars to NAICS code 33 – manufacturing**</i>	-0.09931	0.0331935
<i>Percent of small business eligible dollars to NAICS code 23 - construction**</i>	0.076502	0.0328696
<i>Percent of small business eligible dollars to NAICS code 56 - administrative and support, waste management and remediation services***</i>	-0.10707	0.0182221
<i>Percent of small business eligible dollars to NAICS code 42 - wholesale trade</i>	-0.02654	0.2047027
<i>Percent of small business eligible dollars to IDV type - Basic Ordering Agreement</i>	-0.55694	0.4011903
<i>Percent of small business eligible dollars to IDV type - Blanket Purchasing Agreement***</i>	0.207433	0.0574966
<i>Percent of small business eligible dollars to IDV type - Federal Supply Schedule**</i>	-0.08047	0.033945
<i>Percent of small business eligible dollars to IDV type - Government-Wide Acquisition Contract</i>	-0.06513	0.065639
<i>Percent of small business eligible dollars to IDV type - Indefinite Delivery Contract**</i>	-0.03731	0.0180064
<i>Dollar value of expenditure through Spend Under Management</i>	-1.3E-11	7.73E-11
<i>Dollar value of expenditure through Best-in-Class vehicles</i>	-3.6E-11	4.41E-10

³⁴ * Denotes statistical significance at 10 percent level

** Denotes statistical significance at 5 percent level

*** Denotes statistical significance at 1 percent level

Dependent Variable: Percent of small business eligible dollars to 8(a) set-aside or sole source award		
Independent Variables ³⁵	Coeff.	Std. Error
<i>Small Business Procurement Scorecard grade for the previous year***</i>	0.208172	0.03643

Dependent Variable: Count of request for information notices posted by agency		
Independent Variables	Coeff.	Std. Error
<i>Small Business Procurement Scorecard grade for the previous year**</i>	-15.6138	5.280897

Dependent Variable: Percent of small business eligible dollars to HUBZone set-aside, HUBZone sole source, or price preference awards		
Independent Variables	Coeff.	Std. Error
<i>Small Business Procurement Scorecard grade for the previous year**</i>	0.02196	0.0065995

Dependent Variable: Percent of small business eligible dollars to Women Owned Small Businesses set-aside or sole source awards		
Independent Variables	Coeff.	Std. Error
<i>Small Business Procurement Scorecard grade for the previous year***</i>	0.015971	0.0027348

Dependent Variable: Percent of small business eligible dollars to Veteran Owned Small Businesses set-aside or sole source awards		
Independent Variables	Coeff.	Std. Error
<i>Small Business Procurement Scorecard grade for the previous year</i>	-0.01791	0.0201445

Dependent Variable: Count of contracts awarded to small businesses new to the agency		
Independent Variables	Coeff.	Std. Error
<i>Small Business Procurement Scorecard grade for the previous year</i>	-719.974	850.3249

³⁵ * Denotes statistical significance at 10 percent level

** Denotes statistical significance at 5 percent level

*** Denotes statistical significance at 1 percent level

The table below presents the results of the SEM model developed to answer the first research question by evaluating the effect of the scorecard methodology change on HUBZone contracting opportunities and HUBZone dollars without controlling for NAICS codes. The unit of observation is *federal agency - fiscal year*.

Table 15: SEM model results for the effect of scorecard methodology change on HUBZone opportunities and dollars without controlling for NAICS codes.

Dependent Variable: Percent of small business eligible dollars to HUBZone prime contract awards		
Independent Variables³⁶	Coeff.	Std. Error
<i>Percent of small business eligible dollars to 8(a) set-aside or sole source awards</i>	0.04524	0.03352
<i>Count of request for information notices posted by agency***</i>	-0.00103	0.000289
<i>Percent of small business eligible dollars to HUBZone set-aside, HUBZone sole source, or price preference awards***</i>	1.126422	0.149515
<i>Percent of small business eligible dollars to Women Owned Small Businesses set-aside or sole source awards***</i>	1.721241	0.341986
<i>Percent of small business eligible dollars to Veteran Owned Small Businesses set-aside or sole source awards</i>	0.037716	0.049845
<i>Count of contracts awarded to small businesses new to the agency</i>	-7.8E-07	1.15E-06
<i>Percent of small business eligible dollars to IDV type - Basic Ordering Agreement***</i>	1.167178	0.204627
<i>Percent of small business eligible dollars to IDV type - Blanket Purchasing Agreement</i>	0.031832	0.029829
<i>Percent of small business eligible dollars to IDV type - Federal Supply Schedule</i>	0.006416	0.01758
<i>Percent of small business eligible dollars to IDV type - Government-Wide Acquisition Contract</i>	0.016532	0.031815
<i>Percent of small business eligible dollars to IDV type - Indefinite Delivery Contract</i>	-0.00682	0.00858
<i>Dollar value of expenditure through Spend Under Management</i>	-4E-11	3.77E-11
<i>Dollar value of expenditure through Best-in-Class vehicles</i>	3.22E-10	2.23E-10

³⁶ * Denotes statistical significance at 10 percent level

** Denotes statistical significance at 5 percent level

*** Denotes statistical significance at 1 percent level

Dependent Variable: Percent of small business eligible dollars to 8(a) set-aside or sole source award		
Independent Variables ³⁷	Coeff.	Std. Error
<i>Small Business Procurement Scorecard current methodology</i>	-0.91367	0.960045

Dependent Variable: Count of request for information notices posted by agency		
Independent Variables	Coeff.	Std. Error
<i>Small Business Procurement Scorecard current methodology</i>	70.36035	130.0729

Dependent Variable: Percent of small business eligible dollars to HUBZone set-aside, HUBZone sole source, or price preference awards		
Independent Variables	Coeff.	Std. Error
<i>Small Business Procurement Scorecard current methodology</i>	0.111073	0.163637

Dependent Variable: Percent of small business eligible dollars to Women Owned Small Businesses set-aside or sole source awards		
Independent Variables	Coeff.	Std. Error
<i>Small Business Procurement Scorecard current methodology**</i>	0.203792	0.070587

Dependent Variable: Percent of small business eligible dollars to Veteran Owned Small Businesses set-aside or sole source awards		
Independent Variables	Coeff.	Std. Error
<i>Small Business Procurement Scorecard current methodology</i>	0.300081	0.483528

Dependent Variable: Count of contracts awarded to small businesses new to the agency		
Independent Variables	Coeff.	Std. Error
<i>Small Business Procurement Scorecard current methodology</i>	28396.3	20296.42

³⁷ * Denotes statistical significance at 10 percent level

** Denotes statistical significance at 5 percent level

*** Denotes statistical significance at 1 percent level

The table below presents the results of the SEM model developed to answer the first research question by evaluating the effect of the scorecard methodology change on HUBZone contracting opportunities and HUBZone dollars controlling for NAICS codes. The unit of observation is *federal agency - fiscal year*.

Table 16: SEM model results for the effect of scorecard methodology change on HUBZone opportunities and dollars controlling for NAICS codes.

Dependent Variable: Percent of small business eligible dollars to HUBZone prime contract awards		
Independent Variables³⁸	Coeff.	Std. Error
<i>Percent of small business eligible dollars to 8(a) set-aside or sole source awards</i>	-0.02556	0.03393
<i>Count of request for information notices posted by agency</i>	-0.00044	0.000317
<i>Percent of small business eligible dollars to HUBZone set-aside, HUBZone sole source, or price preference awards***</i>	1.112797	0.133385
<i>Percent of small business eligible dollars to Women Owned Small Businesses set-aside or sole source awards***</i>	2.046185	0.337568
<i>Percent of small business eligible dollars to Veteran Owned Small Businesses set-aside or sole source awards</i>	0.018018	0.051353
<i>Count of contracts awarded to small businesses new to the agency</i>	-6.9E-07	1.02E-06
<i>Percent of small business eligible dollars to NAICS code 54 - professional, scientific, and technical services</i>	0.012128	0.00904
<i>Percent of small business eligible dollars to NAICS code 33 – manufacturing</i>	-0.01664	0.016064
<i>Percent of small business eligible dollars to NAICS code 23 - construction***</i>	0.098208	0.015905
<i>Percent of small business eligible dollars to NAICS code 56 - administrative and support, waste management and remediation services</i>	0.001394	0.008816
<i>Percent of small business eligible dollars to NAICS code 42 - wholesale trade</i>	-0.03801	0.099069
<i>Percent of small business eligible dollars to IDV type - Basic Ordering Agreement***</i>	0.886889	0.194157
<i>Percent of small business eligible dollars to IDV type - Blanket Purchasing Agreement**</i>	0.055428	0.027818
<i>Percent of small business eligible dollars to IDV type - Federal Supply Schedule</i>	0.024407	0.016428
<i>Percent of small business eligible dollars to IDV type - Government-Wide Acquisition Contract</i>	0.046778	0.03176
<i>Percent of small business eligible dollars to IDV type - Indefinite Delivery Contract</i>	-0.0115	0.008712
<i>Dollar value of expenditure through Spend Under Management</i>	-2.8E-11	3.74E-11
<i>Dollar value of expenditure through Best-in-Class vehicles</i>	1.3E-10	2.13E-10

³⁸ * Denotes statistical significance at 10 percent level

** Denotes statistical significance at 5 percent level

*** Denotes statistical significance at 1 percent level

Dependent Variable: Percent of small business eligible dollars to 8(a) set-aside or sole source award		
Independent Variables ³⁹	Coeff.	Std. Error
<i>Small Business Procurement Scorecard current methodology</i>	-0.90998	0.960053

Dependent Variable: Count of request for information notices posted by agency		
Independent Variables	Coeff.	Std. Error
<i>Small Business Procurement Scorecard current methodology</i>	70.07612	130.0733

Dependent Variable: Percent of small business eligible dollars to HUBZone set-aside, HUBZone sole source, or price preference awards		
Independent Variables	Coeff.	Std. Error
<i>Small Business Procurement Scorecard current methodology</i>	0.110625	0.163638

Dependent Variable: Percent of small business eligible dollars to Women Owned Small Businesses set-aside or sole source awards		
Independent Variables	Coeff.	Std. Error
<i>Small Business Procurement Scorecard current methodology**</i>	0.202968	0.070593

Dependent Variable: Percent of small business eligible dollars to Veteran Owned Small Businesses set-aside or sole source awards		
Independent Variables	Coeff.	Std. Error
<i>Small Business Procurement Scorecard current methodology</i>	0.298869	0.48353

Dependent Variable: Count of contracts awarded to small businesses new to the agency		
Independent Variables	Coeff.	Std. Error
<i>Small Business Procurement Scorecard current methodology</i>	28281.6	20296.8

³⁹ * Denotes statistical significance at 10 percent level

** Denotes statistical significance at 5 percent level

*** Denotes statistical significance at 1 percent level

The table below presents the results of the SEM model developed to answer the first research question by evaluating the effect of the scorecard overall on HUBZone contracting opportunities and HUBZone dollars without controlling for NAICS codes. The unit of observation is *federal agency - fiscal year*.

Table 17: SEM model results for the effect of scorecard overall HUBZone opportunities and dollars without controlling for NAICS codes.

Dependent Variable: Percent of small business eligible dollars to HUBZone prime contract awards		
Independent Variables⁴⁰	Coeff.	Std. Error
<i>Percent of small business eligible dollars to 8(a) set-aside or sole source awards**</i>	0.070864	0.0327091
<i>Count of request for information notices posted by agency***</i>	-0.00111	0.0002823
<i>Percent of small business eligible dollars to HUBZone set-aside, HUBZone sole source, or price preference awards***</i>	1.17015	0.1458573
<i>Percent of small business eligible dollars to Women Owned Small Businesses set-aside or sole source awards***</i>	1.954632	0.3339951
<i>Percent of small business eligible dollars to Veteran Owned Small Businesses set-aside or sole source awards</i>	0.034045	0.0486354
<i>Count of contracts awarded to small businesses new to the agency</i>	-9.1E-07	0.00000112
<i>Percent of small business eligible dollars to IDV type - Basic Ordering Agreement***</i>	1.152395	0.1996294
<i>Percent of small business eligible dollars to IDV type - Blanket Purchasing Agreement</i>	0.023437	0.0291193
<i>Percent of small business eligible dollars to IDV type - Federal Supply Schedule</i>	0.004718	0.01715
<i>Percent of small business eligible dollars to IDV type - Government-Wide Acquisition Contract</i>	0.015474	0.0310372
<i>Percent of small business eligible dollars to IDV type - Indefinite Delivery Contract</i>	-0.00863	0.0083734
<i>Dollar value of expenditure through Spend Under Management</i>	-4.3E-11	3.68E-11
<i>Dollar value of expenditure through Best in Class vehicles</i>	3.45E-10	2.17E-10

⁴⁰ * Denotes statistical significance at 10 percent level

** Denotes statistical significance at 5 percent level

*** Denotes statistical significance at 1 percent level

Dependent Variable: Percent of small business eligible dollars to 8(a) set-aside or sole source award		
Independent Variables ⁴¹	Coeff.	Std. Error
<i>Small Business Procurement Scorecard grade for the previous year***</i>	0.222462	0.036158

Dependent Variable: Count of request for information notices posted by agency		
Independent Variables	Coeff.	Std. Error
<i>Small Business Procurement Scorecard grade for the previous year**</i>	-16.1702	5.274992

Dependent Variable: Percent of small business eligible dollars to HUBZone set-aside, HUBZone sole source, or price preference awards		
Independent Variables	Coeff.	Std. Error
<i>Small Business Procurement Scorecard grade for the previous year***</i>	0.023467	0.0065828

Dependent Variable: Percent of small business eligible dollars to Women Owned Small Businesses set-aside or sole source awards		
Independent Variables	Coeff.	Std. Error
<i>Small Business Procurement Scorecard grade for the previous year***</i>	0.017067	0.0027135

Dependent Variable: Percent of small business eligible dollars to Veteran Owned Small Businesses set-aside or sole source awards		
Independent Variables	Coeff.	Std. Error
<i>Small Business Procurement Scorecard grade for the previous year</i>	-0.01914	0.0201408

Dependent Variable: Count of contracts awarded to small businesses new to the agency		
Independent Variables	Coeff.	Std. Error
<i>Small Business Procurement Scorecard grade for the previous year</i>	-769.397	850.186

⁴¹ * Denotes statistical significance at 10 percent level

** Denotes statistical significance at 5 percent level

*** Denotes statistical significance at 1 percent level

The table below presents the results of the SEM model developed to answer the first research question by evaluating the effect of the scorecard overall on HUBZone contracting opportunities and HUBZone dollars controlling for NAICS codes. The unit of observation is *federal agency - fiscal year*.

Table 18: SEM model results for the effect of scorecard overall on HUBZone opportunities and dollars controlling for NAICS codes.

Dependent Variable: Percent of small business eligible dollars to HUBZone prime contract awards		
Independent Variables⁴²	Coeff.	Std. Error
<i>Percent of small business eligible dollars to 8(a) set-aside or sole source awards</i>	-0.00535	0.033307
<i>Count of request for information notices posted by agency*</i>	-0.00052	0.000312
<i>Percent of small business eligible dollars to HUBZone set-aside, HUBZone sole source, or price preference awards***</i>	1.149437	0.13093
<i>Percent of small business eligible dollars to Women Owned Small Businesses set-aside or sole source awards***</i>	2.241689	0.331584
<i>Percent of small business eligible dollars to Veteran Owned Small Businesses set-aside or sole source awards</i>	0.024507	0.050445
<i>Count of contracts awarded to small businesses new to the agency</i>	-8E-07	0.000001
<i>Percent of small business eligible dollars to NAICS code 54 - professional, scientific, and technical services</i>	0.014338	0.008878
<i>Percent of small business eligible dollars to NAICS code 33 – manufacturing</i>	-0.01566	0.015769
<i>Percent of small business eligible dollars to NAICS code 23 - construction***</i>	0.094915	0.015618
<i>Percent of small business eligible dollars to NAICS code 56 - administrative and support, waste management and remediation services</i>	0.003854	0.00866
<i>Percent of small business eligible dollars to NAICS code 42 - wholesale trade</i>	-0.03677	0.097245
<i>Percent of small business eligible dollars to IDV type - Basic Ordering Agreement***</i>	0.901235	0.190592
<i>Percent of small business eligible dollars to IDV type - Blanket Purchasing Agreement*</i>	0.048036	0.027324
<i>Percent of small business eligible dollars to IDV type - Federal Supply Schedule</i>	0.023659	0.016126
<i>Percent of small business eligible dollars to IDV type - Government-Wide Acquisition Contract</i>	0.039622	0.031191
<i>Percent of small business eligible dollars to IDV type - Indefinite Delivery Contract</i>	-0.01395	0.008557
<i>Dollar value of expenditure through Spend Under Management</i>	-3.7E-11	3.67E-11
<i>Dollar value of expenditure through Best-in-Class vehicles</i>	1.8E-10	2.09E-10

⁴² * Denotes statistical significance at 10 percent level

** Denotes statistical significance at 5 percent level

*** Denotes statistical significance at 1 percent level

Dependent Variable: Percent of small business eligible dollars to 8(a) set-aside or sole source award		
Independent Variables ⁴³	Coeff.	Std. Error
<i>Small Business Procurement Scorecard grade for the previous year***</i>	0.217574	0.036295

Dependent Variable: Count of request for information notices posted by agency		
Independent Variables	Coeff.	Std. Error
<i>Small Business Procurement Scorecard grade for the previous year**</i>	-16.319	5.275665

Dependent Variable: Percent of small business eligible dollars to HUBZone set-aside, HUBZone sole source, or price preference awards		
Independent Variables	Coeff.	Std. Error
<i>Small Business Procurement Scorecard grade for the previous year***</i>	0.022952	0.00659

Dependent Variable: Percent of small business eligible dollars to Women Owned Small Businesses set-aside or sole source awards		
Independent Variables	Coeff.	Std. Error
<i>Small Business Procurement Scorecard grade for the previous year***</i>	0.016692	0.002724

Dependent Variable: Percent of small business eligible dollars to Veteran Owned Small Businesses set-aside or sole source awards		
Independent Variables	Coeff.	Std. Error
<i>Small Business Procurement Scorecard grade for the previous year</i>	-0.01872	0.020143

Dependent Variable: Count of contracts awarded to small businesses new to the agency		
Independent Variables	Coeff.	Std. Error
<i>Small Business Procurement Scorecard grade for the previous year</i>	-752.493	850.2559

⁴³ * Denotes statistical significance at 10 percent level

** Denotes statistical significance at 5 percent level

*** Denotes statistical significance at 1 percent level

The table below presents the results of the SEM model developed to answer the first research question by evaluating the effect of the scorecard methodology change on WOSB contracting opportunities and WOSB dollars without controlling for NAICS codes. The unit of observation is *federal agency - fiscal year*.

Table 19: SEM model results for the effect of scorecard methodology change on WOSB opportunities and dollars without controlling for NAICS codes.

Dependent Variable: Percent of small business eligible dollars to Women-Owned Small Business prime contract awards		
Independent Variables⁴⁴	Coeff.	Std. Error
<i>Percent of small business eligible dollars to 8(a) set-aside or sole source awards***</i>	0.347296	0.064847
<i>Count of request for information notices posted by agency</i>	6.14E-05	0.00056
<i>Percent of small business eligible dollars to HUBZone set-aside, HUBZone sole source, or price preference awards**</i>	0.667114	0.289243
<i>Percent of small business eligible dollars to Women Owned Small Businesses set-aside or sole source awards***</i>	4.124353	0.661606
<i>Percent of small business eligible dollars to Veteran Owned Small Businesses set-aside or sole source awards</i>	-0.01223	0.096427
<i>Count of contracts awarded to small businesses new to the agency</i>	2.88E-07	2.22E-06
<i>Percent of small business eligible dollars to IDV type - Basic Ordering Agreement</i>	-0.21609	0.395859
<i>Percent of small business eligible dollars to IDV type - Blanket Purchasing Agreement**</i>	0.175836	0.057705
<i>Percent of small business eligible dollars to IDV type - Federal Supply Schedule***</i>	0.140569	0.03401
<i>Percent of small business eligible dollars to IDV type - Government-Wide Acquisition Contract**</i>	-0.13542	0.06155
<i>Percent of small business eligible dollars to IDV type - Indefinite Delivery Contract</i>	0.012153	0.016598
<i>Dollar value of expenditure through Spend Under Management</i>	-9.9E-11	7.3E-11
<i>Dollar value of expenditure through Best in Class vehicles</i>	-3.9E-11	4.31E-10

⁴⁴ * Denotes statistical significance at 10 percent level

** Denotes statistical significance at 5 percent level

*** Denotes statistical significance at 1 percent level

Dependent Variable: Percent of small business eligible dollars to 8(a) set-aside or sole source award		
Independent Variables	Coeff.	Std. Error
<i>Small Business Procurement Scorecard current methodology</i>	-0.9223	0.960026

Dependent Variable: Count of request for information notices posted by agency		
Independent Variables	Coeff.	Std. Error
<i>Small Business Procurement Scorecard current methodology</i>	71.0243	130.0721

Dependent Variable: Percent of small business eligible dollars to HUBZone set-aside, HUBZone sole source, or price preference awards		
Independent Variables ⁴⁵	Coeff.	Std. Error
<i>Small Business Procurement Scorecard current methodology</i>	0.112121	0.163636

Dependent Variable: Percent of small business eligible dollars to Women Owned Small Businesses set-aside or sole source awards		
Independent Variables	Coeff.	Std. Error
<i>Small Business Procurement Scorecard current methodology**</i>	0.205715	0.070575

Dependent Variable: Percent of small business eligible dollars to Veteran Owned Small Businesses set-aside or sole source awards		
Independent Variables	Coeff.	Std. Error
<i>Small Business Procurement Scorecard current methodology</i>	0.302913	0.483524

Dependent Variable: Count of contracts awarded to small businesses new to the agency		
Independent Variables	Coeff.	Std. Error
<i>Small Business Procurement Scorecard current methodology</i>	28664.27	20295.57

⁴⁵ * Denotes statistical significance at 10 percent level

** Denotes statistical significance at 5 percent level

*** Denotes statistical significance at 1 percent level

The table below presents the results of the SEM model developed to answer the first research question by evaluating the effect of the scorecard methodology change on WOSB contracting opportunities and WOSB dollars controlling for NAICS codes. The unit of observation is *federal agency - fiscal year*.

Table 20: SEM model results for the effect of scorecard methodology change on WOSB opportunities and dollars controlling for NAICS codes.

Dependent Variable: Percent of small business eligible dollars to Women-Owned Small Business prime contract awards		
Independent Variables⁴⁶	Coeff.	Std. Error
<i>Percent of small business eligible dollars to 8(a) set-aside or sole source awards***</i>	0.360451	0.067494
<i>Count of request for information notices posted by agency</i>	0.00072	0.000631
<i>Percent of small business eligible dollars to HUBZone set-aside, HUBZone sole source, or price preference awards**</i>	0.639834	0.265318
<i>Percent of small business eligible dollars to Women Owned Small Businesses set-aside or sole source awards***</i>	4.161387	0.67149
<i>Percent of small business eligible dollars to Veteran Owned Small Businesses set-aside or sole source awards**</i>	-0.2764	0.102146
<i>Count of contracts awarded to small businesses new to the agency</i>	1.22E-06	2.03E-06
<i>Percent of small business eligible dollars to NAICS code 54 - professional, scientific, and technical services***</i>	-0.07433	0.017982
<i>Percent of small business eligible dollars to NAICS code 33 – manufacturing**</i>	-0.10606	0.031954
<i>Percent of small business eligible dollars to NAICS code 23 - construction</i>	-0.03669	0.031636
<i>Percent of small business eligible dollars to NAICS code 56 - administrative and support, waste management and remediation services***</i>	-0.06853	0.017536
<i>Percent of small business eligible dollars to NAICS code 42 - wholesale trade</i>	0.319172	0.197057
<i>Percent of small business eligible dollars to IDV type - Basic Ordering Agreement*</i>	-0.70366	0.386197
<i>Percent of small business eligible dollars to IDV type - Blanket Purchasing Agreement***</i>	0.193276	0.055333
<i>Percent of small business eligible dollars to IDV type - Federal Supply Schedule**</i>	0.088938	0.032679
<i>Percent of small business eligible dollars to IDV type - Government-Wide Acquisition Contract</i>	-0.01396	0.063175
<i>Percent of small business eligible dollars to IDV type - Indefinite Delivery Contract**</i>	0.053358	0.017328
<i>Dollar value of expenditure through Spend Under Management</i>	3.51E-11	7.44E-11
<i>Dollar value of expenditure through Best-in-Class vehicles</i>	-6.9E-10	4.24E-10

⁴⁶ * Denotes statistical significance at 10 percent level

** Denotes statistical significance at 5 percent level

*** Denotes statistical significance at 1 percent level

Dependent Variable: Percent of small business eligible dollars to 8(a) set-aside or sole source award		
Independent Variables ⁴⁷	Coeff.	Std. Error
<i>Small Business Procurement Scorecard current methodology</i>	-0.92296	0.960026

Dependent Variable: Count of request for information notices posted by agency		
Independent Variables	Coeff.	Std. Error
<i>Small Business Procurement Scorecard current methodology</i>	71.07574	130.0721

Dependent Variable: Percent of small business eligible dollars to HUBZone set-aside, HUBZone sole source, or price preference awards		
Independent Variables	Coeff.	Std. Error
<i>Small Business Procurement Scorecard current methodology</i>	0.112203	0.163636

Dependent Variable: Percent of small business eligible dollars to Women Owned Small Businesses set-aside or sole source awards		
Independent Variables	Coeff.	Std. Error
<i>Small Business Procurement Scorecard current methodology**</i>	0.205864	0.070575

Dependent Variable: Percent of small business eligible dollars to Veteran Owned Small Businesses set-aside or sole source awards		
Independent Variables	Coeff.	Std. Error
<i>Small Business Procurement Scorecard current methodology</i>	0.303132	0.483524

Dependent Variable: Count of contracts awarded to small businesses new to the agency		
Independent Variables	Coeff.	Std. Error
<i>Small Business Procurement Scorecard current methodology</i>	28685.02	20295.56

⁴⁷ * Denotes statistical significance at 10 percent level

** Denotes statistical significance at 5 percent level

*** Denotes statistical significance at 1 percent level

The table below presents the results of the SEM model developed to answer the first research question by evaluating the effect of the scorecard overall on WOSB contracting opportunities and WOSB dollars without controlling for NAICS codes. The unit of observation is *federal agency - fiscal year*.

Table 21: SEM model results for the effect of scorecard overall on small business opportunities and dollars without controlling for NAICS codes.

Dependent Variable: Percent of small business eligible dollars to Women-Owned Small Business prime contract awards		
Independent Variables⁴⁸	Coeff.	Std. Error
<i>Percent of small business eligible dollars to 8(a) set-aside or sole source awards***</i>	0.3898226	0.0644629
<i>Count of request for information notices posted by agency</i>	-0.0000351	0.0005564
<i>Percent of small business eligible dollars to HUBZone set-aside, HUBZone sole source, or price preference awards**</i>	0.6751825	0.2875178
<i>Percent of small business eligible dollars to Women Owned Small Businesses set-aside or sole source awards***</i>	4.15961	0.6578484
<i>Percent of small business eligible dollars to Veteran Owned Small Businesses set-aside or sole source awards</i>	-0.0211893	0.0958578
<i>Count of contracts awarded to small businesses new to the agency</i>	0.000000106	0.00000221
<i>Percent of small business eligible dollars to IDV type - Basic Ordering Agreement</i>	-0.2300882	0.3935044
<i>Percent of small business eligible dollars to IDV type - Blanket Purchasing Agreement**</i>	0.1680587	0.057373
<i>Percent of small business eligible dollars to IDV type - Federal Supply Schedule***</i>	0.1377698	0.033806
<i>Percent of small business eligible dollars to IDV type - Government-Wide Acquisition Contract**</i>	-0.1344317	0.0611802
<i>Percent of small business eligible dollars to IDV type - Indefinite Delivery Contract</i>	0.0105506	0.0165013
<i>Dollar value of expenditure through Spend Under Management</i>	-1.01E-10	7.26E-11
<i>Dollar value of expenditure through Best-in-Class vehicles</i>	4.99E-12	4.28E-10

⁴⁸ * Denotes statistical significance at 10 percent level

** Denotes statistical significance at 5 percent level

*** Denotes statistical significance at 1 percent level

Dependent Variable: Percent of small business eligible dollars to 8(a) set-aside or sole source award		
Independent Variables ⁴⁹	Coeff.	Std. Error
<i>Small Business Procurement Scorecard grade for the previous year***</i>	0.2068505	0.0364292

Dependent Variable: Count of request for information notices posted by agency		
Independent Variables	Coeff.	Std. Error
<i>Small Business Procurement Scorecard grade for the previous year**</i>	-15.51468	5.280866

Dependent Variable: Percent of small business eligible dollars to HUBZone set-aside, HUBZone sole source, or price preference awards		
Independent Variables	Coeff.	Std. Error
<i>Small Business Procurement Scorecard grade for the previous year**</i>	0.0218203	0.0065995

Dependent Variable: Percent of small business eligible dollars to Women Owned Small Businesses set-aside or sole source awards		
Independent Variables	Coeff.	Std. Error
<i>Small Business Procurement Scorecard grade for the previous year***</i>	0.0158696	0.0027347

Dependent Variable: Percent of small business eligible dollars to Veteran Owned Small Businesses set-aside or sole source awards		
Independent Variables	Coeff.	Std. Error
<i>Small Business Procurement Scorecard grade for the previous year</i>	-0.0178002	0.0201445

Dependent Variable: Count of contracts awarded to small businesses new to the agency		
Independent Variables	Coeff.	Std. Error
<i>Small Business Procurement Scorecard grade for the previous year</i>	-715.4037	850.3245

⁴⁹ * Denotes statistical significance at 10 percent level

** Denotes statistical significance at 5 percent level

*** Denotes statistical significance at 1 percent level

The table below presents the results of the SEM model developed to answer the first research question by evaluating the effect of the scorecard overall on WOSB business contracting opportunities and WOSB business dollars controlling for NAICS codes. The unit of observation is *federal agency - fiscal year*.

Table 22: SEM model results for the effect of scorecard overall on WOSB opportunities and dollars controlling for NAICS codes.

Dependent Variable: Percent of small business eligible dollars to Women-Owned Small Business prime contract awards		
Independent Variables⁵⁰	Coeff.	Std. Error
<i>Percent of small business eligible dollars to 8(a) set-aside or sole source awards***</i>	0.39677	0.067284
<i>Count of request for information notices posted by agency</i>	0.000645	0.00063
<i>Percent of small business eligible dollars to HUBZone set-aside, HUBZone sole source, or price preference awards**</i>	0.633165	0.264506
<i>Percent of small business eligible dollars to Women Owned Small Businesses set-aside or sole source awards***</i>	4.117225	0.669511
<i>Percent of small business eligible dollars to Veteran Owned Small Businesses set-aside or sole source awards**</i>	-0.27624	0.101852
<i>Count of contracts awarded to small businesses new to the agency</i>	8.35E-07	2.02E-06
<i>Percent of small business eligible dollars to NAICS code 54 - professional, scientific, and technical services***</i>	-0.07216	0.017929
<i>Percent of small business eligible dollars to NAICS code 33 – manufacturing**</i>	-0.10598	0.031856
<i>Percent of small business eligible dollars to NAICS code 23 - construction</i>	-0.03915	0.031543
<i>Percent of small business eligible dollars to NAICS code 56 - administrative and support, waste management and remediation services***</i>	-0.06626	0.017485
<i>Percent of small business eligible dollars to NAICS code 42 - wholesale trade</i>	0.320125	0.196455
<i>Percent of small business eligible dollars to IDV type - Basic Ordering Agreement*</i>	-0.69208	0.385022
<i>Percent of small business eligible dollars to IDV type - Blanket Purchasing Agreement**</i>	0.18718	0.055172
<i>Percent of small business eligible dollars to IDV type - Federal Supply Schedule**</i>	0.087036	0.032577
<i>Percent of small business eligible dollars to IDV type - Government-Wide Acquisition Contract</i>	-0.01831	0.062987
<i>Percent of small business eligible dollars to IDV type - Indefinite Delivery Contract**</i>	0.051264	0.017278
<i>Dollar value of expenditure through Spend Under Management</i>	2.82E-11	7.42E-11
<i>Dollar value of expenditure through Best-in-Class vehicles</i>	-6.2E-10	4.23E-10

⁵⁰ * Denotes statistical significance at 10 percent level

** Denotes statistical significance at 5 percent level

*** Denotes statistical significance at 1 percent level

Dependent Variable: Percent of small business eligible dollars to 8(a) set-aside or sole source award		
Independent Variables ⁵¹	Coeff.	Std. Error
<i>Small Business Procurement Scorecard grade for the previous year***</i>	0.204526	0.036482

Dependent Variable: Count of request for information notices posted by agency		
Independent Variables	Coeff.	Std. Error
<i>Small Business Procurement Scorecard grade for the previous year**</i>	-15.3403	5.282924

Dependent Variable: Percent of small business eligible dollars to HUBZone set-aside, HUBZone sole source, or price preference awards		
Independent Variables	Coeff.	Std. Error
<i>Small Business Procurement Scorecard grade for the previous year**</i>	0.021575	0.006603

Dependent Variable: Percent of small business eligible dollars to Women Owned Small Businesses set-aside or sole source awards		
Independent Variables	Coeff.	Std. Error
<i>Small Business Procurement Scorecard grade for the previous year***</i>	0.015691	0.002739

Dependent Variable: Percent of small business eligible dollars to Veteran Owned Small Businesses set-aside or sole source awards		
Independent Variables	Coeff.	Std. Error
<i>Small Business Procurement Scorecard grade for the previous year</i>	-0.0176	0.020145

Dependent Variable: Count of contracts awarded to small businesses new to the agency		
Independent Variables	Coeff.	Std. Error
<i>Small Business Procurement Scorecard grade for the previous year</i>	-707.363	850.3517

⁵¹ * Denotes statistical significance at 10 percent level

** Denotes statistical significance at 5 percent level

*** Denotes statistical significance at 1 percent level

The table below presents the results of the SEM model developed to answer the first research question by evaluating the effect of the scorecard methodology change on SDVOSB contracting opportunities and SDVOSB dollars without controlling for NAICS codes. The unit of observation is *federal agency - fiscal year*.

Table 23: SEM model results for the effect of scorecard methodology change on SDVOSB opportunities and dollars without controlling for NAICS codes.

Dependent Variable: Percent of small business eligible dollars to Service-Disabled Veteran-Owned Small Business prime contract awards		
Independent Variables⁵²	Coeff.	Std. Error
<i>Percent of small business eligible dollars to 8(a) set-aside or sole source awards***</i>	0.122745	0.0309836
<i>Count of request for information notices posted by agency</i>	0.000238	0.0002675
<i>Percent of small business eligible dollars to HUBZone set-aside, HUBZone sole source, or price preference awards</i>	-0.13338	0.1382002
<i>Percent of small business eligible dollars to Women Owned Small Businesses set-aside or sole source awards***</i>	2.218587	0.3161133
<i>Percent of small business eligible dollars to Veteran Owned Small Businesses set-aside or sole source awards***</i>	1.227854	0.0460729
<i>Count of contracts awarded to small businesses new to the agency</i>	5.16E-07	0.00000106
<i>Percent of small business eligible dollars to IDV type - Basic Ordering Agreement</i>	0.285158	0.1891409
<i>Percent of small business eligible dollars to IDV type - Blanket Purchasing Agreement***</i>	0.098547	0.0275715
<i>Percent of small business eligible dollars to IDV type - Federal Supply Schedule</i>	-0.00147	0.01625
<i>Percent of small business eligible dollars to IDV type - Government-Wide Acquisition Contract*</i>	0.055364	0.0294083
<i>Percent of small business eligible dollars to IDV type - Indefinite Delivery Contract</i>	0.000781	0.0079307
<i>Dollar value of expenditure through Spend Under Management</i>	2.66E-11	3.49E-11
<i>Dollar value of expenditure through Best-in-Class vehicles*</i>	-3.6E-10	2.06E-10

⁵² * Denotes statistical significance at 10 percent level

** Denotes statistical significance at 5 percent level

*** Denotes statistical significance at 1 percent level

Dependent Variable: Percent of small business eligible dollars to 8(a) set-aside or sole source award		
Independent Variables ⁵³	Coeff.	Std. Error
<i>Small Business Procurement Scorecard current methodology</i>	-0.92119	0.9600283

Dependent Variable: Count of request for information notices posted by agency		
Independent Variables	Coeff.	Std. Error
<i>Small Business Procurement Scorecard current methodology</i>	70.93891	130.0722

Dependent Variable: Percent of small business eligible dollars to HUBZone set-aside, HUBZone sole source, or price preference awards		
Independent Variables	Coeff.	Std. Error
<i>Small Business Procurement Scorecard current methodology</i>	0.111987	0.1636358

Dependent Variable: Percent of small business eligible dollars to Women Owned Small Businesses set-aside or sole source awards		
Independent Variables	Coeff.	Std. Error
<i>Small Business Procurement Scorecard current methodology**</i>	0.205467	0.0705762

Dependent Variable: Percent of small business eligible dollars to Veteran Owned Small Businesses set-aside or sole source awards		
Independent Variables	Coeff.	Std. Error
<i>Small Business Procurement Scorecard current methodology</i>	0.302549	0.4835244

Dependent Variable: Count of contracts awarded to small businesses new to the agency		
Independent Variables	Coeff.	Std. Error
<i>Small Business Procurement Scorecard current methodology</i>	28629.8	20295.68

⁵³ * Denotes statistical significance at 10 percent level

** Denotes statistical significance at 5 percent level

*** Denotes statistical significance at 1 percent level

The table below presents the results of the SEM model developed to answer the first research question by evaluating the effect of the scorecard methodology change on SDVOSB business contracting opportunities and SDVOSB dollars controlling for NAICS codes. The unit of observation is *federal agency - fiscal year*.

Table 24: SEM model results for the effect of scorecard methodology change on SDVOSB opportunities and dollars controlling for NAICS codes.

Dependent Variable: Percent of small business eligible dollars to Service-Disabled Veteran-Owned Small Business prime contract awards		
Independent Variables⁵⁴	Coeff.	Std. Error
<i>Percent of small business eligible dollars to 8(a) set-aside or sole source awards***</i>	0.119056	0.034031
<i>Count of request for information notices posted by agency</i>	0.00023	0.000318
<i>Percent of small business eligible dollars to HUBZone set-aside, HUBZone sole source, or price preference awards</i>	-0.21167	0.133783
<i>Percent of small business eligible dollars to Women Owned Small Businesses set-aside or sole source awards***</i>	1.862089	0.338573
<i>Percent of small business eligible dollars to Veteran Owned Small Businesses set-aside or sole source awards***</i>	1.260964	0.051506
<i>Count of contracts awarded to small businesses new to the agency</i>	3.75E-07	1.02E-06
<i>Percent of small business eligible dollars to NAICS code 54 - professional, scientific, and technical services**</i>	0.022975	0.009067
<i>Percent of small business eligible dollars to NAICS code 33 – manufacturing</i>	0.007609	0.016112
<i>Percent of small business eligible dollars to NAICS code 23 - construction</i>	0.015008	0.015952
<i>Percent of small business eligible dollars to NAICS code 56 - administrative and support, waste management and remediation services</i>	-0.00975	0.008843
<i>Percent of small business eligible dollars to NAICS code 42 - wholesale trade</i>	-0.08752	0.099364
<i>Percent of small business eligible dollars to IDV type - Basic Ordering Agreement</i>	0.298693	0.194736
<i>Percent of small business eligible dollars to IDV type - Blanket Purchasing Agreement***</i>	0.123155	0.027901
<i>Percent of small business eligible dollars to IDV type - Federal Supply Schedule</i>	-0.00232	0.016477
<i>Percent of small business eligible dollars to IDV type - Government-Wide Acquisition Contract</i>	0.046798	0.031854
<i>Percent of small business eligible dollars to IDV type - Indefinite Delivery Contract</i>	-0.00977	0.008738
<i>Dollar value of expenditure through Spend Under Management</i>	2.51E-11	3.75E-11
<i>Dollar value of expenditure through Best-in-Class vehicles</i>	-2.9E-10	2.14E-10

⁵⁴ * Denotes statistical significance at 10 percent level

** Denotes statistical significance at 5 percent level

*** Denotes statistical significance at 1 percent level

Dependent Variable: Percent of small business eligible dollars to 8(a) set-aside or sole source award		
Independent Variables ⁵⁵	Coeff.	Std. Error
<i>Small Business Procurement Scorecard grade for the previous year***</i>	0.200487	0.03654

Dependent Variable: Count of request for information notices posted by agency		
Independent Variables	Coeff.	Std. Error
<i>Small Business Procurement Scorecard grade for the previous year**</i>	-15.0374	5.285169

Dependent Variable: Percent of small business eligible dollars to HUBZone set-aside, HUBZone sole source, or price preference awards		
Independent Variables	Coeff.	Std. Error
<i>Small Business Procurement Scorecard grade for the previous year**</i>	0.021149	0.006606

Dependent Variable: Percent of small business eligible dollars to Women Owned Small Businesses set-aside or sole source awards		
Independent Variables	Coeff.	Std. Error
<i>Small Business Procurement Scorecard grade for the previous year***</i>	0.015381	0.002743

Dependent Variable: Percent of small business eligible dollars to Veteran Owned Small Businesses set-aside or sole source awards		
Independent Variables	Coeff.	Std. Error
<i>Small Business Procurement Scorecard grade for the previous year</i>	-0.01725	0.020146

Dependent Variable: Count of contracts awarded to small businesses new to the agency		
Independent Variables	Coeff.	Std. Error
<i>Small Business Procurement Scorecard grade for the previous year</i>	-693.394	850.3814

⁵⁵ * Denotes statistical significance at 10 percent level

** Denotes statistical significance at 5 percent level

*** Denotes statistical significance at 1 percent level

The table below presents the results of the SEM model developed to answer the first research question by evaluating the effect of the scorecard overall on SDVOSB business contracting opportunities and SDVOSB dollars without controlling for NAICS codes. The unit of observation is *federal agency - fiscal year*.

Table 25: SEM model results for the effect of scorecard overall on SDVOSB opportunities and dollars without controlling for NAICS codes.

Dependent Variable: Percent of small business eligible dollars to Service-Disabled Veteran-Owned Small Business prime contract awards		
Independent Variables⁵⁶	Coeff.	Std. Error
<i>Percent of small business eligible dollars to 8(a) set-aside or sole source awards***</i>	0.1354583	0.031019
<i>Count of request for information notices posted by agency</i>	0.0002269	0.0002678
<i>Percent of small business eligible dollars to HUBZone set-aside, HUBZone sole source, or price preference awards</i>	-0.1556713	0.1383637
<i>Percent of small business eligible dollars to Women Owned Small Businesses set-aside or sole source awards***</i>	2.089917	0.3164752
<i>Percent of small business eligible dollars to Veteran Owned Small Businesses set-aside or sole source awards***</i>	1.224362	0.0461275
<i>Count of contracts awarded to small businesses new to the agency</i>	0.000000327	0.00000106
<i>Percent of small business eligible dollars to IDV type - Basic Ordering Agreement</i>	0.2842634	0.1893662
<i>Percent of small business eligible dollars to IDV type - Blanket Purchasing Agreement***</i>	0.0981546	0.0276044
<i>Percent of small business eligible dollars to IDV type - Federal Supply Schedule</i>	-0.0023561	0.0162685
<i>Percent of small business eligible dollars to IDV type - Government-Wide Acquisition Contract*</i>	0.0566107	0.0294418
<i>Percent of small business eligible dollars to IDV type - Indefinite Delivery Contract</i>	0.0007425	0.0079401
<i>Dollar value of expenditure through Spend Under Management</i>	2.73E-11	3.49E-11
<i>Dollar value of expenditure through Best in Class vehicles*</i>	-3.45E-10	2.06E-10

⁵⁶ * Denotes statistical significance at 10 percent level

** Denotes statistical significance at 5 percent level

*** Denotes statistical significance at 1 percent level

Dependent Variable: Percent of small business eligible dollars to 8(a) set-aside or sole source award		
Independent Variables ⁵⁷	Coeff.	Std. Error
<i>Small Business Procurement Scorecard grade for the previous year***</i>	0.2004679	0.0365395

Dependent Variable: Count of request for information notices posted by agency		
Independent Variables	Coeff.	Std. Error
<i>Small Business Procurement Scorecard grade for the previous year**</i>	-15.03596	5.285152

Dependent Variable: Percent of small business eligible dollars to HUBZone set-aside, HUBZone sole source, or price preference awards		
Independent Variables	Coeff.	Std. Error
<i>Small Business Procurement Scorecard grade for the previous year**</i>	0.021147	0.0066062

Dependent Variable: Percent of small business eligible dollars to Women Owned Small Businesses set-aside or sole source awards		
Independent Variables	Coeff.	Std. Error
<i>Small Business Procurement Scorecard grade for the previous year***</i>	0.0153799	0.0027434

Dependent Variable: Percent of small business eligible dollars to Veteran Owned Small Businesses set-aside or sole source awards		
Independent Variables	Coeff.	Std. Error
<i>Small Business Procurement Scorecard grade for the previous year</i>	-0.017251	0.0201459

Dependent Variable: Count of contracts awarded to small businesses new to the agency		
Independent Variables	Coeff.	Std. Error
<i>Small Business Procurement Scorecard grade for the previous year</i>	-693.3291	850.3811

⁵⁷ * Denotes statistical significance at 10 percent level

** Denotes statistical significance at 5 percent level

*** Denotes statistical significance at 1 percent level

The table below presents the results of the SEM model developed to answer the first research question by evaluating the effect of the scorecard overall on SDVOSB contracting opportunities and SDVOSB business dollars controlling for NAICS codes. The unit of observation is *federal agency - fiscal year*.

Table 26: SEM model results for the effect of scorecard overall on SDVOSB opportunities and dollars controlling for NAICS codes.

Dependent Variable: Percent of small business eligible dollars to Service-Disabled Veteran-Owned Small Business prime contract awards		
Independent Variables⁵⁸	Coeff.	Std. Error
<i>Percent of small business eligible dollars to 8(a) set-aside or sole source awards***</i>	0.119056	0.034031
<i>Count of request for information notices posted by agency</i>	0.00023	0.000318
<i>Percent of small business eligible dollars to HUBZone set-aside, HUBZone sole source, or price preference awards</i>	-0.21167	0.133783
<i>Percent of small business eligible dollars to Women Owned Small Businesses set-aside or sole source awards***</i>	1.862089	0.338573
<i>Percent of small business eligible dollars to Veteran Owned Small Businesses set-aside or sole source awards***</i>	1.260964	0.051506
<i>Count of contracts awarded to small businesses new to the agency</i>	3.75E-07	1.02E-06
<i>Percent of small business eligible dollars to NAICS code 54 - professional, scientific, and technical services**</i>	0.022975	0.009067
<i>Percent of small business eligible dollars to NAICS code 33 – manufacturing</i>	0.007609	0.016112
<i>Percent of small business eligible dollars to NAICS code 23 - construction</i>	0.015008	0.015952
<i>Percent of small business eligible dollars to NAICS code 56 - administrative and support, waste management and remediation services</i>	-0.00975	0.008843
<i>Percent of small business eligible dollars to NAICS code 42 - wholesale trade</i>	-0.08752	0.099364
<i>Percent of small business eligible dollars to IDV type - Basic Ordering Agreement</i>	0.298693	0.194736
<i>Percent of small business eligible dollars to IDV type - Blanket Purchasing Agreement***</i>	0.123155	0.027901
<i>Percent of small business eligible dollars to IDV type - Federal Supply Schedule</i>	-0.00232	0.016477
<i>Percent of small business eligible dollars to IDV type - Government-Wide Acquisition Contract</i>	0.046798	0.031854
<i>Percent of small business eligible dollars to IDV type - Indefinite Delivery Contract</i>	-0.00977	0.008738
<i>Dollar value of expenditure through Spend Under Management</i>	2.51E-11	3.75E-11
<i>Dollar value of expenditure through Best-in-Class vehicles</i>	-2.9E-10	2.14E-10

⁵⁸ * Denotes statistical significance at 10 percent level

** Denotes statistical significance at 5 percent level

*** Denotes statistical significance at 1 percent level

Dependent Variable: Percent of small business eligible dollars to 8(a) set-aside or sole source award		
Independent Variables ⁵⁹	Coeff.	Std. Error
<i>Small Business Procurement Scorecard grade for the previous year***</i>	0.200487	0.03654

Dependent Variable: Count of request for information notices posted by agency		
Independent Variables	Coeff.	Std. Error
<i>Small Business Procurement Scorecard grade for the previous year**</i>	-15.0374	5.285169

Dependent Variable: Percent of small business eligible dollars to HUBZone set-aside, HUBZone sole source, or price preference awards		
Independent Variables	Coeff.	Std. Error
<i>Small Business Procurement Scorecard grade for the previous year**</i>	0.021149	0.006606

Dependent Variable: Percent of small business eligible dollars to Women Owned Small Businesses set-aside or sole source awards		
Independent Variables	Coeff.	Std. Error
<i>Small Business Procurement Scorecard grade for the previous year***</i>	0.015381	0.002743

Dependent Variable: Percent of small business eligible dollars to Veteran Owned Small Businesses set-aside or sole source awards		
Independent Variables	Coeff.	Std. Error
<i>Small Business Procurement Scorecard grade for the previous year</i>	-0.01725	0.020146

Dependent Variable: Count of contracts awarded to small businesses new to the agency		
Independent Variables	Coeff.	Std. Error
<i>Small Business Procurement Scorecard grade for the previous year</i>	-693.394	850.3814

⁵⁹ * Denotes statistical significance at 10 percent level

** Denotes statistical significance at 5 percent level

*** Denotes statistical significance at 1 percent level

Appendix B: Research Question 1 Summary Statistics, Model Specifications, and Results for Small Business Subcontracting

The table below presents the summary statistics of the analytical dataset developed to answer the first research question for small business subcontracting. The unit of observation of the dataset is *federal agency - fiscal year*.

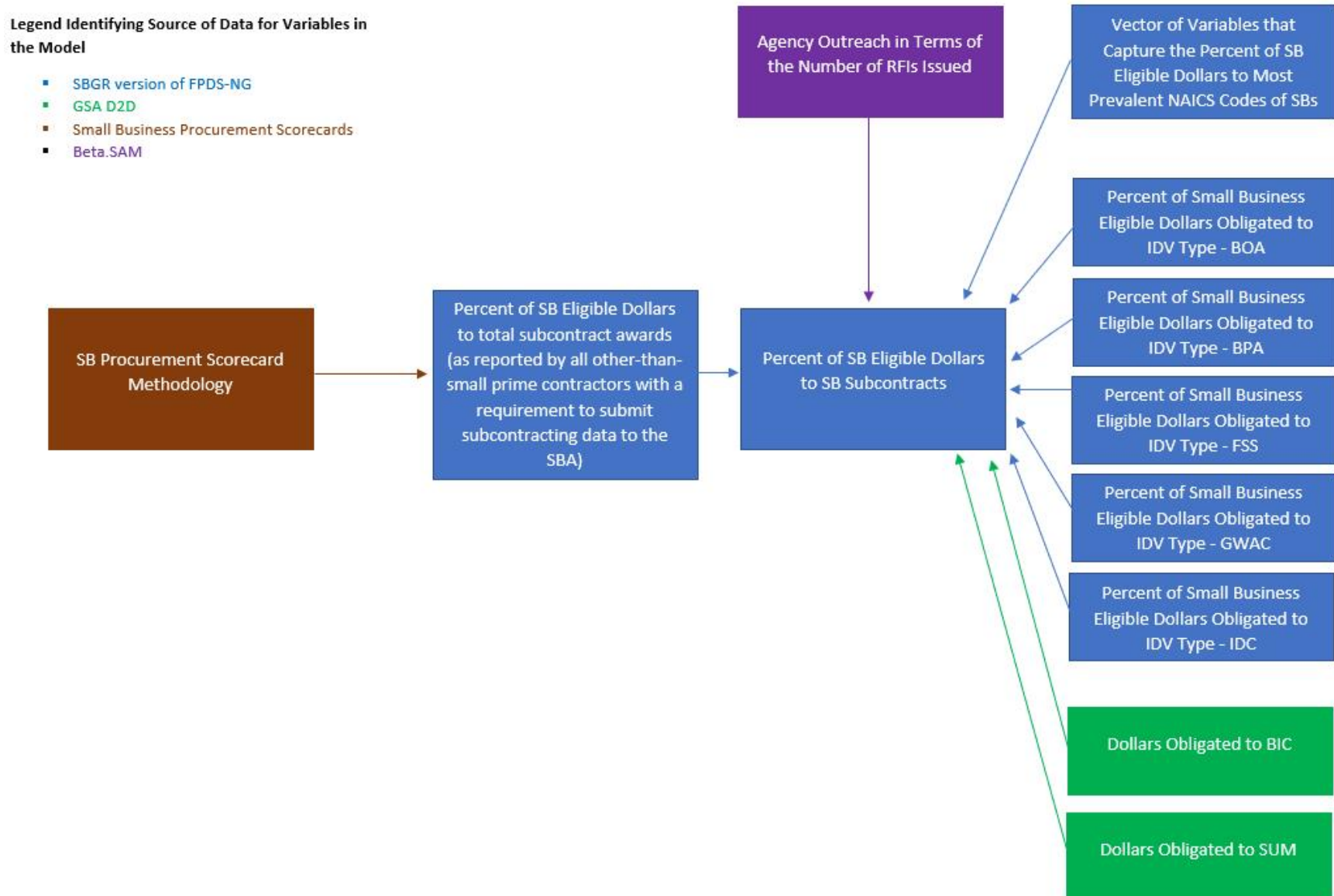
Table 27: Summary statistics for the analytical dataset to answer the first research questions for subcontracting.

Variable	Mean	Std. Dev.	Min.	Max.
<i>Percent of small business eligible dollars to small business subcontract awards</i>	22.59583	66.91672	0.005024	474.0386
<i>Percent of small business eligible dollars to Small Disadvantaged Business subcontract awards</i>	5.340107	18.17985	3.28E-05	119.1436
<i>Percent of small business eligible dollars to HUBZone subcontract awards</i>	0.663133	1.316558	0	8.812263
<i>Percent of small business eligible dollars to Women-owned subcontract awards</i>	4.976921	15.05628	0.000806	91.21529
<i>Percent of small business eligible dollars to Service-Disabled Veteran-Owned Small Business subcontract awards</i>	1.047176	2.498346	0	16.45013
<i>Percent of small business eligible dollars to total subcontract awards (as reported by all other-than-small prime contractors with a requirement to submit subcontracting data to the SBA)</i>	74.65778	249.6508	0.015569	1512.554
<i>Count of request for information notices posted by agency</i>	278.7708	783.9477	0	3929
<i>Percent of small business eligible dollars to NAICS code 54 - professional, scientific, and technical services</i>	0.886271	1.270051	-0.00013	9.338916
<i>Percent of small business eligible dollars to NAICS code 33 – manufacturing</i>	0.467301	0.963876	-0.00521	4.224934
<i>Percent of small business eligible dollars to NAICS code 23 - construction</i>	5.764062	4.814391	0.336108	24.52803
<i>Percent of small business eligible dollars to NAICS code 56 - administrative and support, waste management and remediation services</i>	12.18205	8.111313	-1.08138	46.51278
<i>Percent of small business eligible dollars to NAICS code 42 - wholesale trade</i>	6.645489	5.987651	0.287059	30.11059
<i>Percent of small business eligible dollars to IDV type - Basic Ordering Agreement</i>	38.84017	17.23998	1.712606	77.35905
<i>Percent of small business eligible dollars</i>	2.65E+09	5.1E+09	0	2.22E+10
<i>Percent of small business eligible dollars to IDV type - Federal Supply Schedule</i>	4.35E+08	8.34E+08	0	5.35E+09

Variable	Mean	Std. Dev.	Min.	Max.
<i>Percent of small business eligible dollars to IDV type - Government-Wide Acquisition Contract</i>	6.645489	5.987651	0.287059	30.11059
<i>Percent of small business eligible dollars to IDV type - Indefinite Delivery Contract</i>	38.84017	17.23998	1.712606	77.35905
<i>Dollar value of expenditure through Spend Under Management</i>	2.65E+09	5.1E+09	0	2.22E+10
<i>Dollar value of expenditure through Best-in-Class vehicles</i>	4.35E+08	8.34E+08	0	5.35E+09
No. of observations	144			

The diagram below presents the specifications of the SEM model developed to answer the first research question by evaluating the effect of the scorecard methodology change on small business subcontracting opportunities and subcontracting dollars. The unit of observation of the model is *federal agency - fiscal year*.

Figure 12: Specifications for SEM model assessing the effect of the scorecard methodology change for subcontracting.

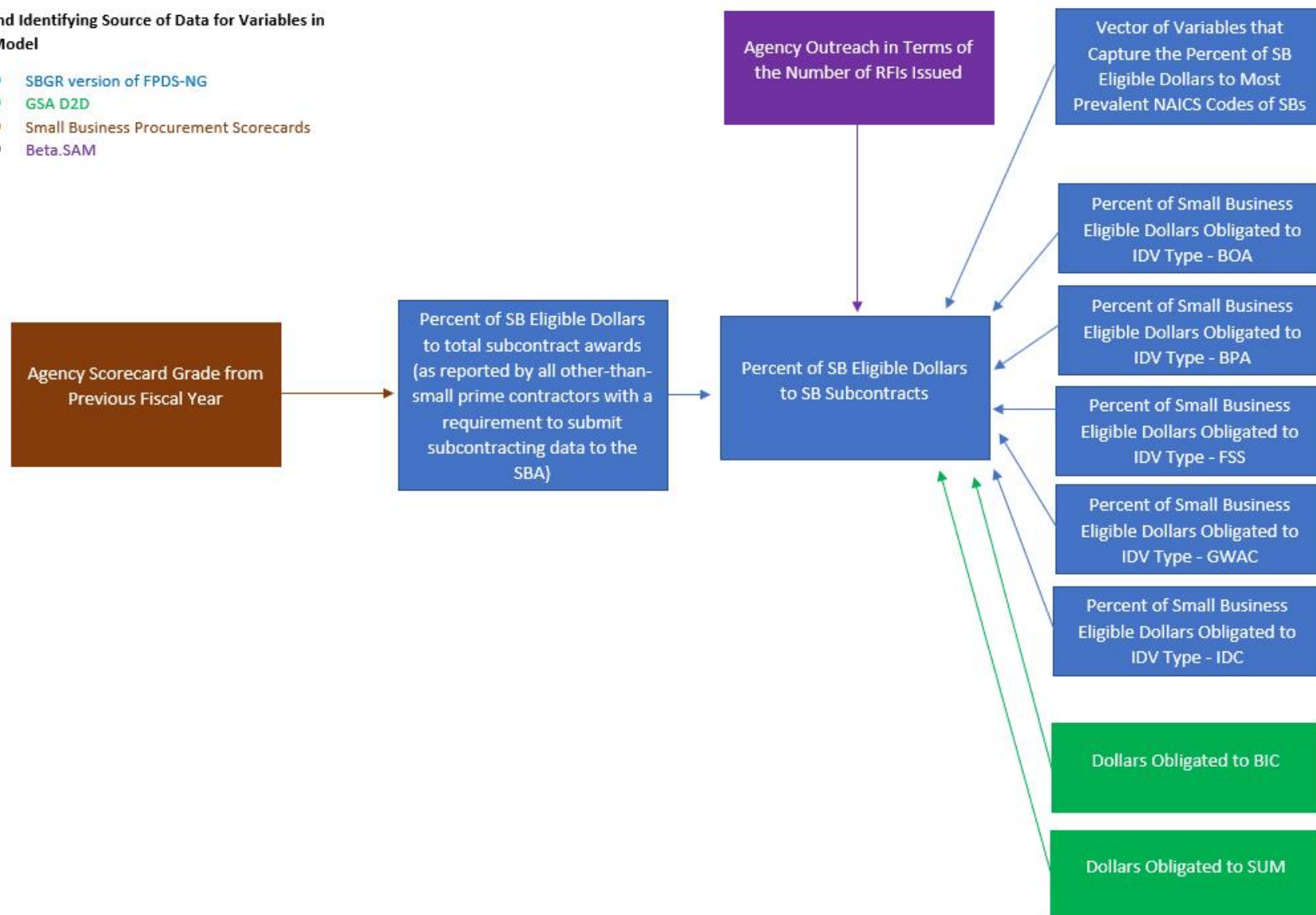


The diagram below presents the specifications of the SEM model developed to answer the first research question by evaluating the effect of the scorecard overall on small business subcontracting opportunities and small business subcontracting dollars. The unit of observation of the model is *federal agency - fiscal year*.

Figure 13: Specifications for SEM model assessing the effect of the scorecard overall on subcontracting.

Legend Identifying Source of Data for Variables in the Model

- SBGR version of FPDS-NG
- GSA D2D
- Small Business Procurement Scorecards
- Beta.SAM



The table below presents the results of the SEM model developed to answer the first research question by evaluating the effect of the scorecard methodology change on small business subcontracting opportunities and subcontracting dollars controlling for NAICS codes. The unit of observation is *federal agency - fiscal year*.

Table 28: SEM model results for the effect of scorecard methodology change on small business subcontracting opportunities and subcontracting dollars controlling for NAICS codes.

Dependent Variable: Percent of small business eligible dollars to small business subcontract awards		
Independent Variables⁶⁰	Coeff.	Std. Error
<i>Percent of small business eligible dollars to total subcontract awards (as reported by all other-than-small prime contractors with a requirement to submit subcontracting data to the SBA) ***</i>	0.265449	0.004361
<i>Count of request for information notices posted by agency</i>	-0.00065	0.002117
<i>Percent of small business eligible dollars to NAICS code 54 - professional, scientific, and technical services*</i>	0.106281	0.05479
<i>Percent of small business eligible dollars to NAICS code 33 – manufacturing</i>	0.07757	0.116507
<i>Percent of small business eligible dollars to NAICS code 23 - construction</i>	0.121574	0.114901
<i>Percent of small business eligible dollars to NAICS code 56 - administrative and support, waste management and remediation services</i>	0.075381	0.054523
<i>Percent of small business eligible dollars to NAICS code 42 - wholesale trade</i>	-0.5818	0.648877
<i>Percent of small business eligible dollars to IDV type - Basic Ordering Agreement</i>	1.358713	1.366349
<i>Percent of small business eligible dollars to IDV type - Blanket Purchasing Agreement</i>	-0.15379	0.17158
<i>Percent of small business eligible dollars to IDV type - Federal Supply Schedule</i>	0.025236	0.113584
<i>Percent of small business eligible dollars to IDV type - Government-Wide Acquisition Contract</i>	-0.22178	0.17595
<i>Percent of small business eligible dollars to IDV type - Indefinite Delivery Contract</i>	-0.06617	0.052464
<i>Dollar value of expenditure through Spend Under Management</i>	3.21E-11	2.31E-10
<i>Dollar value of expenditure through Best-in-Class vehicles*</i>	-2.5E-09	1.33E-09

Dependent Variable: Percent of small business eligible dollars to total subcontract awards		
Independent Variables	Coeff.	Std. Error
<i>Small Business Procurement Scorecard current methodology</i>	-13.4024	41.44878

⁶⁰ * Denotes statistical significance at 10 percent level

** Denotes statistical significance at 5 percent level

*** Denotes statistical significance at 1 percent level

The table below presents the results of the SEM model developed to answer the first research question by evaluating the effect of the scorecard overall on small business subcontracting opportunities and subcontracting dollars controlling for NAICS codes. The unit of observation is *federal agency - fiscal year*.

Table 29: SEM model results for the effect of scorecard overall on small business subcontracting opportunities and subcontracting dollars controlling for NAICS codes.

Dependent Variable: Percent of dollars to small business subcontract awards		
Independent Variables⁶¹	Coeff.	Std. Error
<i>Percent of small business eligible dollars to total subcontract awards (as reported by all other-than-small prime contractors with a requirement to submit subcontracting data to the SBA)***</i>	0.2657915	0.0043603
<i>Count of request for information notices posted by agency</i>	-0.0006466	0.0021165
<i>Percent of small business eligible dollars to NAICS code 54 - professional, scientific, and technical services*</i>	0.1063255	0.0547867
<i>Percent of small business eligible dollars to NAICS code 33 – manufacturing</i>	0.0774961	0.1164995
<i>Percent of small business eligible dollars to NAICS code 23 - construction</i>	0.1213024	0.1148942
<i>Percent of small business eligible dollars to NAICS code 56 - administrative and support, waste management and remediation services</i>	0.0755037	0.0545199
<i>Percent of small business eligible dollars to NAICS code 42 - wholesale trade</i>	-0.5813614	0.6488376
<i>Percent of small business eligible dollars to IDV type - Basic Ordering Agreement</i>	1.359227	1.366266
<i>Percent of small business eligible dollars to IDV type - Blanket Purchasing Agreement</i>	-0.1543543	0.1715702
<i>Percent of small business eligible dollars to IDV type - Federal Supply Schedule</i>	0.0252457	0.1135767
<i>Percent of small business eligible dollars to IDV type - Government-Wide Acquisition Contract</i>	-0.2222981	0.1759397
<i>Percent of small business eligible dollars to IDV type - Indefinite Delivery Contract</i>	-0.0662299	0.0524607
<i>Dollar value of expenditure through Spend Under Management</i>	3.18E-11	2.31E-10
<i>Dollar value of expenditure through Best-in-Class vehicles*</i>	-2.51E-09	1.33E-09

Dependent Variable: Percent of small business eligible dollars to total subcontract awards		
Independent Variables	Coeff.	Std. Error
<i>Small Business Procurement Scorecard grade for the previous year</i>	1.860108	1.722848

⁶¹ * Denotes statistical significance at 10 percent level

** Denotes statistical significance at 5 percent level

*** Denotes statistical significance at 1 percent level

The table below presents the results of the SEM model developed to answer the first research question by evaluating the effect of the scorecard methodology change on SDB subcontracting opportunities and subcontracting dollars controlling for NAICS codes. The unit of observation is *federal agency - fiscal year*.

Table 30: SEM model results for the effect of scorecard methodology change on SDB subcontracting opportunities and subcontracting dollars controlling for NAICS codes.

Dependent Variable: Percent of small business eligible dollars to Small Disadvantaged Business subcontract awards		
Independent Variables⁶²	Coeff.	Std. Error
<i>Percent of small business eligible dollars to total subcontract awards (as reported by all other-than-small prime contractors with a requirement to submit subcontracting data to the SBA)***</i>	0.069429	0.002602
<i>Count of request for information notices posted by agency</i>	-0.00029	0.001263
<i>Percent of small business eligible dollars to NAICS code 54 - professional, scientific, and technical services</i>	0.016323	0.032695
<i>Percent of small business eligible dollars to NAICS code 33 – manufacturing</i>	0.075199	0.069523
<i>Percent of small business eligible dollars to NAICS code 23 - construction</i>	-0.00686	0.068565
<i>Percent of small business eligible dollars to NAICS code 56 - administrative and support, waste management and remediation services</i>	0.009495	0.032536
<i>Percent of small business eligible dollars to NAICS code 42 - wholesale trade</i>	-0.29724	0.387207
<i>Percent of small business eligible dollars to IDV type - Basic Ordering Agreement</i>	0.00864	0.815346
<i>Percent of small business eligible dollars to IDV type - Blanket Purchasing Agreement</i>	-0.06426	0.102388
<i>Percent of small business eligible dollars to IDV type - Federal Supply Schedule</i>	0.002533	0.067779
<i>Percent of small business eligible dollars to IDV type - Government-Wide Acquisition Contract</i>	0.000781	0.104995
<i>Percent of small business eligible dollars to IDV type - Indefinite Delivery Contract</i>	-0.00471	0.031307
<i>Dollar value of expenditure through Spend Under Management</i>	5.49E-11	1.38E-10
<i>Dollar value of expenditure through Best-in-Class vehicles**</i>	-2.2E-09	7.93E-10

Dependent Variable: Percent of small business eligible dollars to total subcontract awards		
Independent Variables	Coeff.	Std. Error
<i>Small Business Procurement Scorecard current methodology</i>	-13.3754	41.4488

⁶² * Denotes statistical significance at 10 percent level

** Denotes statistical significance at 5 percent level

*** Denotes statistical significance at 1 percent level

The table below presents the results of the SEM model developed to answer the first research question by evaluating the effect of the scorecard overall on SDB subcontracting opportunities and subcontracting dollars controlling for NAICS codes. The unit of observation is *federal agency - fiscal year*.

Table 31: SEM model results for the effect of scorecard overall on SDB subcontracting opportunities and subcontracting dollars controlling for NAICS codes.

Dependent Variable: Percent of small business eligible dollars to Small Disadvantaged Business subcontract awards		
Independent Variables⁶³	Coeff.	Std. Error
<i>Percent of small business eligible dollars to total subcontract awards (as reported by all other-than-small prime contractors with a requirement to submit subcontracting data to the SBA)***</i>	0.069429	0.0026021
<i>Count of request for information notices posted by agency</i>	-0.00029	0.0012631
<i>Percent of small business eligible dollars to NAICS code 54 - professional, scientific, and technical services</i>	0.016323	0.032695
<i>Percent of small business eligible dollars to NAICS code 33 – manufacturing</i>	0.075199	0.0695234
<i>Percent of small business eligible dollars to NAICS code 23 - construction</i>	-0.00686	0.0685652
<i>Percent of small business eligible dollars to NAICS code 56 - administrative and support, waste management and remediation services</i>	0.009495	0.0325358
<i>Percent of small business eligible dollars to NAICS code 42 - wholesale trade</i>	-0.29724	0.3872065
<i>Percent of small business eligible dollars to IDV type - Basic Ordering Agreement</i>	0.00864	0.8153462
<i>Percent of small business eligible dollars to IDV type - Blanket Purchasing Agreement</i>	-0.06426	0.1023875
<i>Percent of small business eligible dollars to IDV type - Federal Supply Schedule</i>	0.002533	0.0677791
<i>Percent of small business eligible dollars to IDV type - Government-Wide Acquisition Contract</i>	0.000781	0.1049952
<i>Percent of small business eligible dollars to IDV type - Indefinite Delivery Contract</i>	-0.00471	0.0313069
<i>Dollar value of expenditure through Spend Under Management</i>	5.49E-11	1.38E-10
<i>Dollar value of expenditure through Best-in-Class vehicles**</i>	-2.2E-09	7.93E-10

Dependent Variable: Percent of small business eligible dollars to total subcontract awards		
Independent Variables	Coeff.	Std. Error
<i>Small Business Procurement Scorecard grade for the previous year</i>	1.83779	1.722905

⁶³ * Denotes statistical significance at 10 percent level

** Denotes statistical significance at 5 percent level

*** Denotes statistical significance at 1 percent level

The table below presents the results of the SEM model developed to answer the first research question by evaluating the effect of the scorecard methodology change on HUBZone subcontracting opportunities and subcontracting dollars controlling for NAICS codes. The unit of observation is *federal agency - fiscal year*.

Table 32: SEM model results for the effect of scorecard methodology change on HUBZone subcontracting opportunities and subcontracting dollars controlling for NAICS codes.

Dependent Variable: Percent of small business eligible dollars to HUBZone subcontracts		
Independent Variables⁶⁴	Coeff.	Std. Error
<i>Percent of small business eligible dollars to total subcontract awards (as reported by all other-than-small prime contractors with a requirement to submit subcontracting data to the SBA)***</i>	0.004293	0.0003096
<i>Count of request for information notices posted by agency</i>	-9.3E-05	0.0001503
<i>Percent of small business eligible dollars to NAICS code 54 - professional, scientific, and technical services</i>	0.004611	0.00389
<i>Percent of small business eligible dollars to NAICS code 33 – manufacturing*</i>	0.01553	0.0082718
<i>Percent of small business eligible dollars to NAICS code 23 - construction</i>	0.001785	0.0081578
<i>Percent of small business eligible dollars to NAICS code 56 - administrative and support, waste management and remediation services*</i>	0.006902	0.0038711
<i>Percent of small business eligible dollars to NAICS code 42 - wholesale trade</i>	-0.02706	0.0460696
<i>Percent of small business eligible dollars to IDV type - Basic Ordering Agreement</i>	-0.09179	0.0970093
<i>Percent of small business eligible dollars to IDV type - Blanket Purchasing Agreement</i>	0.007542	0.012182
<i>Percent of small business eligible dollars to IDV type - Federal Supply Schedule</i>	0.004376	0.0080643
<i>Percent of small business eligible dollars to IDV type - Government-Wide Acquisition Contract**</i>	-0.03751	0.0124922
<i>Percent of small business eligible dollars to IDV type - Indefinite Delivery Contract**</i>	-0.00875	0.0037249
<i>Dollar value of expenditure through Spend Under Management</i>	-7.4E-13	1.64E-11
<i>Dollar value of expenditure through Best-in-Class vehicles**</i>	1.91E-10	9.43E-11

Dependent Variable: Percent of small business eligible dollars to total subcontract awards		
Independent Variables	Coeff.	Std. Error
<i>Small Business Procurement Scorecard current methodology</i>	-13.6559	41.4486

⁶⁴ * Denotes statistical significance at 10 percent level

** Denotes statistical significance at 5 percent level

*** Denotes statistical significance at 1 percent level

The table below presents the results of the SEM model developed to answer the first research question by evaluating the effect of the scorecard overall on HUBZone subcontracting opportunities and subcontracting dollars controlling for NAICS codes. The unit of observation is *federal agency - fiscal year*.

Table 33: SEM model results for the effect of scorecard overall on HUBZone subcontracting opportunities and subcontracting dollars controlling for NAICS codes.

Dependent Variable: Percent of small business eligible dollars to HUBZone subcontracts		
Independent Variables⁶⁵	Coeff.	Std. Error
<i>Percent of small business eligible dollars to total subcontract awards (as reported by all other-than-small prime contractors with a requirement to submit subcontracting data to the SBA)***</i>	0.004272	0.00031
<i>Count of request for information notices posted by agency</i>	-9.3E-05	0.00015
<i>Percent of small business eligible dollars to NAICS code 54 - professional, scientific, and technical services</i>	0.004607	0.00389
<i>Percent of small business eligible dollars to NAICS code 33 – manufacturing*</i>	0.015536	0.008271
<i>Percent of small business eligible dollars to NAICS code 23 - construction</i>	0.001807	0.008157
<i>Percent of small business eligible dollars to NAICS code 56 - administrative and support, waste management and remediation services*</i>	0.006893	0.003871
<i>Percent of small business eligible dollars to NAICS code 42 - wholesale trade</i>	-0.0271	0.046066
<i>Percent of small business eligible dollars to IDV type - Basic Ordering Agreement</i>	-0.09183	0.097003
<i>Percent of small business eligible dollars to IDV type - Blanket Purchasing Agreement</i>	0.007587	0.012181
<i>Percent of small business eligible dollars to IDV type - Federal Supply Schedule</i>	0.004374	0.008064
<i>Percent of small business eligible dollars to IDV type - Government-Wide Acquisition Contract**</i>	-0.03747	0.012491
<i>Percent of small business eligible dollars to IDV type - Indefinite Delivery Contract**</i>	-0.00875	0.003725
<i>Dollar value of expenditure through Spend Under Management</i>	-7.1E-13	1.64E-11
<i>Dollar value of expenditure through Best-in-Class vehicles**</i>	1.91E-10	9.43E-11

Dependent Variable: Percent of small business eligible dollars to total subcontract awards		
Independent Variables	Coeff.	Std. Error
<i>Small Business Procurement Scorecard grade for the previous year</i>	1.866674	1.722831

⁶⁵ * Denotes statistical significance at 10 percent level

** Denotes statistical significance at 5 percent level

*** Denotes statistical significance at 1 percent level

The table below presents the results of the SEM model developed to answer the first research question by evaluating the effect of the scorecard methodology change on WOSB subcontracting opportunities and subcontracting dollars controlling for NAICS codes. The unit of observation is *federal agency - fiscal year*.

Table 34: SEM model results for the effect of scorecard methodology change on WOSB subcontracting opportunities and subcontracting dollars controlling for NAICS codes.

Dependent Variable: Percent of small business eligible dollars to Women-Owned Small Business subcontract awards		
Independent Variables⁶⁶	Coeff.	Std. Error
<i>Percent of small business eligible dollars to total subcontract awards (as reported by all other-than-small prime contractors with a requirement to submit subcontracting data to the SBA)***</i>	0.0593248	0.0013304
<i>Count of request for information notices posted by agency</i>	-0.000092	0.0006458
<i>Percent of small business eligible dollars to NAICS code 54 - professional, scientific, and technical services</i>	0.0274992	0.0167159
<i>Percent of small business eligible dollars to NAICS code 33 – manufacturing</i>	0.0350631	0.0355449
<i>Percent of small business eligible dollars to NAICS code 23 - construction</i>	0.0111357	0.0350551
<i>Percent of small business eligible dollars to NAICS code 56 - administrative and support, waste management and remediation services</i>	0.0176622	0.0166344
<i>Percent of small business eligible dollars to NAICS code 42 - wholesale trade</i>	-0.1752254	0.1979656
<i>Percent of small business eligible dollars to IDV type - Basic Ordering Agreement</i>	-0.0188237	0.4168589
<i>Percent of small business eligible dollars to IDV type - Blanket Purchasing Agreement</i>	-0.0269394	0.0523472
<i>Percent of small business eligible dollars to IDV type - Federal Supply Schedule</i>	0.017382	0.0346532
<i>Percent of small business eligible dollars to IDV type - Government-Wide Acquisition Contract</i>	-0.0590307	0.0536804
<i>Percent of small business eligible dollars to IDV type - Indefinite Delivery Contract</i>	-0.0194022	0.0160062
<i>Dollar value of expenditure through Spend Under Management</i>	-1.72E-11	7.05E-11
<i>Dollar value of expenditure through Best-in-Class vehicles*</i>	-6.77E-10	4.05E-10

Dependent Variable: Percent of small business eligible dollars to total subcontract awards		
Independent Variables	Coeff.	Std. Error
<i>Small Business Procurement Scorecard current methodology</i>	-13.35629	41.44881

⁶⁶ * Denotes statistical significance at 10 percent level

** Denotes statistical significance at 5 percent level

*** Denotes statistical significance at 1 percent level

The table below presents the results of the SEM model developed to answer the first research question by evaluating the effect of the scorecard overall on WOSB business subcontracting opportunities and subcontracting dollars controlling for NAICS codes. The unit of observation is *federal agency - fiscal year*.

Table 35: SEM model results for the effect of scorecard methodology change on WOSB subcontracting opportunities and subcontracting dollars controlling for NAICS codes.

Dependent Variable: Percent of small business eligible dollars to Women-Owned Small Business subcontract awards		
Independent Variables⁶⁷	Coeff.	Std. Error
<i>Percent of small business eligible dollars to total subcontract awards (as reported by all other-than-small prime contractors with a requirement to submit subcontracting data to the SBA)***</i>	0.0593741	0.0013304
<i>Count of request for information notices posted by agency</i>	-0.0000917	0.0006458
<i>Percent of small business eligible dollars to NAICS code 54 - professional, scientific, and technical services</i>	0.0275041	0.0167157
<i>Percent of small business eligible dollars to NAICS code 33 – manufacturing</i>	0.035055	0.0355447
<i>Percent of small business eligible dollars to NAICS code 23 - construction</i>	0.0111069	0.0350548
<i>Percent of small business eligible dollars to NAICS code 56 - administrative and support, waste management and remediation services</i>	0.0176752	0.0166343
<i>Percent of small business eligible dollars to NAICS code 42 - wholesale trade</i>	-0.1751852	0.197964
<i>Percent of small business eligible dollars to IDV type - Basic Ordering Agreement</i>	-0.0187696	0.4168556
<i>Percent of small business eligible dollars to IDV type - Blanket Purchasing Agreement</i>	-0.0269985	0.0523468
<i>Percent of small business eligible dollars to IDV type - Federal Supply Schedule</i>	0.0173809	0.0346529
<i>Percent of small business eligible dollars to IDV type - Government-Wide Acquisition Contract</i>	-0.0590843	0.05368
<i>Percent of small business eligible dollars to IDV type - Indefinite Delivery Contract</i>	-0.0194086	0.0160061
<i>Dollar value of expenditure through Spend Under Management</i>	-1.72E-11	7.05E-11
<i>Dollar value of expenditure through Best-in-Class vehicles*</i>	-6.77E-10	4.05E-10

Dependent Variable: Percent of small business eligible dollars to total subcontract awards		
Independent Variables	Coeff.	Std. Error
<i>Small Business Procurement Scorecard grade for the previous year</i>	1.834933	1.722913

⁶⁷ * Denotes statistical significance at 10 percent level

** Denotes statistical significance at 5 percent level

*** Denotes statistical significance at 1 percent level

The table below presents the results of the SEM model developed to answer the first research question by evaluating the effect of the scorecard methodology change on SDVOSB business subcontracting opportunities and subcontracting dollars controlling for NAICS codes. The unit of observation is *federal agency - fiscal year*.

Table 36: SEM model results for the effect of scorecard methodology change on SDVOSB subcontracting opportunities and subcontracting dollars controlling for NAICS codes.

Dependent Variable: Percent of small business eligible dollars to Service-Disabled Veteran-Owned Small Business subcontract awards		
Independent Variables⁶⁸	Coeff.	Std. Error
<i>Percent of small business eligible dollars to total subcontract awards (as reported by all other-than-small prime contractors with a requirement to submit subcontracting data to the SBA)***</i>	0.008569	0.000438
<i>Count of request for information notices posted by agency</i>	-0.00014	0.000212
<i>Percent of small business eligible dollars to NAICS code 54 - professional, scientific, and technical services</i>	0.006434	0.005497
<i>Percent of small business eligible dollars to NAICS code 33 – manufacturing**</i>	0.025987	0.011688
<i>Percent of small business eligible dollars to NAICS code 23 - construction</i>	0.015497	0.011527
<i>Percent of small business eligible dollars to NAICS code 56 - administrative and support, waste management and remediation services*</i>	0.010219	0.00547
<i>Percent of small business eligible dollars to NAICS code 42 - wholesale trade</i>	-0.08222	0.065097
<i>Percent of small business eligible dollars to IDV type - Basic Ordering Agreement</i>	-0.09292	0.137076
<i>Percent of small business eligible dollars to IDV type - Blanket Purchasing Agreement</i>	-0.01665	0.017213
<i>Percent of small business eligible dollars to IDV type - Federal Supply Schedule</i>	0.005594	0.011395
<i>Percent of small business eligible dollars to IDV type - Government-Wide Acquisition Contract</i>	-0.01141	0.017652
<i>Percent of small business eligible dollars to IDV type - Indefinite Delivery Contract**</i>	-0.01218	0.005263
<i>Dollar value of expenditure through Spend Under Management</i>	-2.4E-11	2.32E-11
<i>Dollar value of expenditure through Best-in-Class vehicles**</i>	3.62E-10	1.33E-10

Dependent Variable: Percent of small business eligible dollars to total subcontract awards		
Independent Variables	Coeff.	Std. Error
<i>Small Business Procurement Scorecard current methodology</i>	-13.394	41.44878

⁶⁸ * Denotes statistical significance at 10 percent level

** Denotes statistical significance at 5 percent level

*** Denotes statistical significance at 1 percent level

The table below presents the results of the SEM model developed to answer the first research question by evaluating the effect of the scorecard overall on SDVOSB subcontracting opportunities and subcontracting business dollars controlling for NAICS codes. The unit of observation is *federal agency - fiscal year*.

Table 37: SEM model results for the effect of scorecard overall on SDVOSB subcontracting opportunities and subcontracting dollars controlling for NAICS codes.

Dependent Variable: Percent of small business eligible dollars to Service-Disabled Veteran-Owned Small Business subcontract awards		
Independent Variables⁶⁹	Coeff.	Std. Error
<i>Percent of small business eligible dollars to total subcontract awards (as reported by all other-than-small prime contractors with a requirement to submit subcontracting data to the SBA)***</i>	0.008535	0.000437
<i>Count of request for information notices posted by agency</i>	-0.00014	0.000212
<i>Percent of small business eligible dollars to NAICS code 54 - professional, scientific, and technical services</i>	0.00643	0.005496
<i>Percent of small business eligible dollars to NAICS code 33 – manufacturing**</i>	0.025994	0.011688
<i>Percent of small business eligible dollars to NAICS code 23 - construction</i>	0.015524	0.011527
<i>Percent of small business eligible dollars to NAICS code 56 - administrative and support, waste management and remediation services*</i>	0.010207	0.00547
<i>Percent of small business eligible dollars to NAICS code 42 - wholesale trade</i>	-0.08227	0.065093
<i>Percent of small business eligible dollars to IDV type - Basic Ordering Agreement</i>	-0.09297	0.137068
<i>Percent of small business eligible dollars to IDV type - Blanket Purchasing Agreement</i>	-0.0166	0.017212
<i>Percent of small business eligible dollars to IDV type - Federal Supply Schedule</i>	0.005593	0.011394
<i>Percent of small business eligible dollars to IDV type - Government-Wide Acquisition Contract</i>	-0.01136	0.017651
<i>Percent of small business eligible dollars to IDV type - Indefinite Delivery Contract**</i>	-0.01217	0.005263
<i>Dollar value of expenditure through Spend Under Management</i>	-2.4E-11	2.32E-11
<i>Dollar value of expenditure through Best-in-Class vehicles**</i>	3.62E-10	1.33E-10

Dependent Variable: Percent of small business eligible dollars to total subcontract awards		
Independent Variables	Coeff.	Std. Error
<i>Small Business Procurement Scorecard grade for the previous year</i>	1.859189	1.72285

⁶⁹ * Denotes statistical significance at 10 percent level

** Denotes statistical significance at 5 percent level

*** Denotes statistical significance at 1 percent level

Appendix C: Research Question 2 Results

The table below presents the results of the paired sample t-tests performed to answer the second research question by testing the hypotheses that assessed whether small business prime and subcontracting opportunities changed after the introduction of the new scorecard methodology in FY 2017.

Table 38: Results of the independent group t-tests performed to answer Research Question 2.

#	Measure of Small Business Contracting Opportunity ⁷⁰	Before Scorecard Methodology Change	After Scorecard Methodology Change
1	Dollar value of contracts that are HUBZONE set-aside**	\$67,200,000.00	\$75,800,000.00
2	Dollar value of contracts that are HUBZONE sole source	\$1,689,245.00	\$4,093,558.00
3	Dollar value of contracts that are 8(a) sole source**	\$350,000,000.00	\$374,000,000.00
4	Dollar value of contracts that are 8(a) set-aside	\$338,000,000.00	\$374,000,000.00
5	Dollar value of contracts that are WOSB set-aside*	\$12,000,000.00	\$34,400,000.00
6	Dollar value of contracts that are WOSB sole source**	\$634,469.80	\$4,023,435.00
7	Dollar value of contracts that are VOSB set-aside	\$214,000,000.00	\$340,000,000.00
8	Dollar value of contracts that are VOSB sole source	\$4,715,553.00	\$9,061,005.00
9	Dollar value of contracts to firms with multiple certifications**	\$423,000,000.00	\$481,000,000.00
10	Dollar value of contracts that are 8(a) set-aside for NAICS code 54	\$157,000,000.00	\$175,000,000.00
11	Dollar value of contracts that are 8(a) sole source for NAICS code 54*	\$128,000,000.00	\$150,000,000.00
12	Dollar value of contracts that are HUBZONE set-aside for NAICS code 54**	\$18,000,000.00	\$28,900,000.00
13	Dollar value of contracts that are HUBZONE sole source for NAICS code 54	\$744,203.60	\$2,509,576.00
14	Dollar value of contracts that are WOSB set-aside for NAICS code 54**	\$6,257,149.00	\$18,900,000.00
15	Dollar value of contracts that are WOSB sole source for NAICS code 54**	\$358,289.10	\$2,272,947.00
16	Dollar value of contracts that are VOSB set-aside for NAICS code 54	\$81,300,000.00	\$160,000,000.00

⁷⁰ * Denotes statistical significance at 10 percent level

** Denotes statistical significance at 5 percent level

*** Denotes statistical significance at 1 percent level

#	Measure of Small Business Contracting Opportunity ⁷⁰	Before Scorecard Methodology Change	After Scorecard Methodology Change
17	Dollar value of contracts that are VOSB sole source for NAICS code 54	\$1,872,461.00	\$4,099,519.00
18	Dollar value of contracts to firms with multiple certifications for NAICS code 54**	\$168,000,000.00	\$215,000,000.00
19	Count of unique contracts that are 8(a) set-aside for NAICS code 54	107.92	109.04
20	Count of unique contracts that are 8(a) sole source for NAICS code 54**	163.22	134.31
21	Count of unique contracts that are HUBZONE set-aside for NAICS code 54**	65.92	92.78
22	Count of unique contracts that are HUBZONE sole source for NAICS code 54	1.08	1.61
23	Count of unique contracts that are WOSB set-aside for NAICS code 54	14.07	20.43
24	Count of unique contracts that are WOSB sole source for NAICS code 54**	0.93	3.24
25	Count of unique contracts that are VOSB set-aside for NAICS code 54	175.44	238.90
26	Count of unique contracts that are VOSB sole source for NAICS code 54	5.03	5.61
27	Count of unique contracts to firms with multiple certifications for NAICS code 54	272.97	272.24
28	Count of unique contracts for NAICS code 54	4497.79	4628.63
29	Count of unique small business contracts for NAICS code 54	2686.53	2473.93
30	Dollar value of all contracts through IDV type BOA for NAICS code 54	\$24,800,000.00	\$57,500,000.00
31	Dollar value of all contracts through IDV type BPA for NAICS code 54**	\$169,000,000.00	\$270,000,000.00
32	Dollar value of all contracts through IDV type FSS for NAICS code 54	\$411,000,000.00	\$452,000,000.00
33	Dollar value of all contracts through IDV type GWAC for NAICS code 54**	\$372,000,000.00	\$590,000,000.00
34	Dollar value of all contracts through IDV type IDC for NAICS code 54	\$2,330,000,000.00	\$2,940,000,000.00
35	Dollar value of all contracts through IDV type BOA to small businesses for NAICS code 54	\$6,340,560.00	\$5,894,627.00
36	Dollar value of all contracts through IDV type BPA to small businesses for NAICS code 54**	\$70,400,000.00	\$101,000,000.00
37	Dollar value of all contracts through IDV type FSS to small businesses for NAICS code 54*	\$180,000,000.00	\$221,000,000.00
38	Dollar value of all contracts through IDV type GWAC to small businesses for NAICS code 54**	\$186,000,000.00	\$268,000,000.00
39	Dollar value of all contracts through IDV type IDC to small businesses for NAICS code 54	\$617,000,000.00	\$845,000,000.00
40	Count of unique contracts through IDV type BOA for NAICS code 54	14.38	19.33
41	Count of unique contracts through IDV type BPA for NAICS code 54	424.10	284.90
42	Count of unique contracts through IDV type FSS for NAICS code 54	638.93	524.92
43	Count of unique contracts through IDV type GWAC for NAICS code 54**	528.61	689.63
44	Count of unique contracts through IDV type IDC for NAICS code 54	1758.81	2081.82

#	Measure of Small Business Contracting Opportunity ⁷⁰	Before Scorecard Methodology Change	After Scorecard Methodology Change
45	Count of unique contracts to small business through IDV type BOA for NAICS code 54	3.88	9.29
46	Count of unique contracts to small business through IDV type BPA for NAICS code 54	317.19	134.76
47	Count of unique contracts to small business through IDV type FSS for NAICS code 54	367.06	311.64
48	Count of unique contracts to small business through IDV type GWAC for NAICS code 54**	447.94	639.32
49	Count of unique contracts to small business through IDV type IDC for NAICS code 54**	809.89	736.65
50	Dollar value of contracts that are 8(a) set-aside for NAICS code 33	\$20,000,000.00	\$18,000,000.00
51	Dollar value of contracts that are 8(a) sole source for NAICS code 33	\$18,300,000.00	\$15,200,000.00
52	Dollar value of contracts that are HUBZONE set-aside for NAICS code 33	\$1,302,023.00	\$2,228,500.00
53	Dollar value of contracts that are HUBZONE sole source for NAICS code 33	\$150,585.50	\$308,181.70
54	Dollar value of contracts that are WOSB set-aside for NAICS code 33	\$779,003.20	\$1,288,911.00
55	Dollar value of contracts that are WOSB sole source for NAICS code 33	\$44,406.46	\$223,217.20
56	Dollar value of contracts that are VOSB set-aside for NAICS code 33	\$9,597,791.00	\$26,600,000.00
57	Dollar value of contracts that are VOSB sole source for NAICS code 33	\$789,679.80	\$1,733,875.00
58	Dollar value of contracts to firms with multiple certifications for NAICS code 33	\$27,900,000.00	\$34,200,000.00
59	Count of unique contracts that are 8(a) set-aside for NAICS code 33	19.89	22.60
60	Count of unique contracts that are 8(a) sole source for NAICS code 33	104.60	61.11
61	Count of unique contracts that are HUBZONE set-aside for NAICS code 33	34.01	51.24
62	Count of unique contracts that are HUBZONE sole source for NAICS code 33	1.08	1.54
63	Count of unique contracts that are WOSB set-aside for NAICS code 33	11.86	14.69
64	Count of unique contracts that are WOSB sole source for NAICS code 33*	0.43	2.17
65	Count of unique contracts that are VOSB set-aside for NAICS code 33	173.89	415.58
66	Count of unique contracts that are VOSB sole source for NAICS code 33	8.94	18.85
67	Count of unique contracts to firms with multiple certifications for NAICS code 33	397.79	706.78
68	Count of unique contracts for NAICS code 33	34598.22	49426.63
69	Count of unique small business contracts for NAICS code 33	19477.81	28919.00
70	Dollar value of all contracts through IDV type BOA for NAICS code 33	\$288,000,000.00	\$365,000,000.00
71	Dollar value of all contracts through IDV type BPA for NAICS code 33	\$28,300,000.00	\$43,400,000.00
72	Dollar value of all contracts through IDV type FSS for NAICS code 33	\$130,000,000.00	\$127,000,000.00

#	Measure of Small Business Contracting Opportunity ⁷⁰	Before Scorecard Methodology Change	After Scorecard Methodology Change
73	Dollar value of all contracts through IDV type GWAC for NAICS code 33	\$23,600,000.00	\$28,800,000.00
74	Dollar value of all contracts through IDV type IDC for NAICS code 33	\$1,330,000,000.00	\$1,940,000,000.00
75	Dollar value of all contracts through IDV type BOA to small businesses for NAICS code 33	\$9,703,544.00	\$7,189,434.00
76	Dollar value of all contracts through IDV type BPA to small businesses for NAICS code 33**	\$10,900,000.00	\$17,800,000.00
77	Dollar value of all contracts through IDV type FSS to small businesses for NAICS code 33	\$68,000,000.00	\$69,200,000.00
78	Dollar value of all contracts through IDV type GWAC to small businesses for NAICS code 33	\$12,500,000.00	\$18,600,000.00
79	Dollar value of all contracts through IDV type IDC to small businesses for NAICS code 33	\$264,000,000.00	\$349,000,000.00
80	Count of unique contracts through IDV type BOA for NAICS code 33	948.83	1313.06
81	Count of unique contracts through IDV type BPA for NAICS code 33	319.68	1090.61
82	Count of unique contracts through IDV type FSS for NAICS code 33	2680.10	2364.25
83	Count of unique contracts through IDV type GWAC for NAICS code 33	133.76	97.39
84	Count of unique contracts through IDV type IDC for NAICS code 33	14698.46	23867.32
85	Count of unique contracts to small business through IDV type BOA for NAICS code 33	32.18	45.89
86	Count of unique contracts to small business through IDV type BPA for NAICS code 33	161.85	926.53
87	Count of unique contracts to small business through IDV type FSS for NAICS code 33	1729.19	1613.92
88	Count of unique contracts to small business through IDV type GWAC for NAICS code 33	69.13	65.86
89	Count of unique contracts to small business through IDV type IDC for NAICS code 33	5933.57	10241.00
90	Dollar value of contracts that are 8(a) set-aside for NAICS code 23	\$67,300,000.00	\$59,400,000.00
91	Dollar value of contracts that are 8(a) sole source for NAICS code 23	\$115,000,000.00	\$109,000,000.00
92	Dollar value of contracts that are HUBZONE set-aside for NAICS code 23	\$32,800,000.00	\$33,100,000.00
93	Dollar value of contracts that are HUBZONE sole source for NAICS code 23	\$413,553.90	\$286,071.60
94	Dollar value of contracts that are WOSB set-aside for NAICS code 23	\$2,541,252.00	\$6,802,415.00
95	Dollar value of contracts that are WOSB sole source for NAICS code 23**	\$32,098.02	\$669,602.40
96	Dollar value of contracts that are VOSB set-aside for NAICS code 23	\$83,000,000.00	\$92,000,000.00
97	Dollar value of contracts that are VOSB sole source for NAICS code 23	\$877,909.80	\$1,316,725.00
98	Dollar value of contracts to firms with multiple certifications for NAICS code 23	\$126,000,000.00	\$125,000,000.00
99	Count of unique contracts that are 8(a) set-aside for NAICS code 23	171.49	139.13
100	Count of unique contracts that are 8(a) sole source for NAICS code 23	306.07	233.31

#	Measure of Small Business Contracting Opportunity ⁷⁰	Before Scorecard Methodology Change	After Scorecard Methodology Change
101	Count of unique contracts that are HUBZONE set-aside for NAICS code 23	64.83	54.56
102	Count of unique contracts that are HUBZONE sole source for NAICS code 23	1.08	0.96
103	Count of unique contracts that are WOSB set-aside for NAICS code 23	7.46	15.96
104	Count of unique contracts that are WOSB sole source for NAICS code 23**	0.35	1.29
105	Count of unique contracts that are VOSB set-aside for NAICS code 23	110.32	119.24
106	Count of unique contracts that are VOSB sole source for NAICS code 23	5.44	5.51
107	Count of unique contracts to firms with multiple certifications for NAICS code 23	308.50	239.15
108	Count of unique contracts for NAICS code 23	1688.65	1537.22
109	Count of unique small business contracts for NAICS code 23	1447.13	1245.69
110	Dollar value of all contracts through IDV type BOA for NAICS code 23	\$3,379,232.00	\$9,595,825.00
111	Dollar value of all contracts through IDV type BPA for NAICS code 23	\$663,282.50	\$608,781.60
112	Dollar value of all contracts through IDV type FSS for NAICS code 23	\$5,010,171.00	\$4,361,644.00
113	Dollar value of all contracts through IDV type GWAC for NAICS code 23	\$0.00	\$5,117.55
114	Dollar value of all contracts through IDV type IDC for NAICS code 23	\$426,000,000.00	\$469,000,000.00
115	Dollar value of all contracts through IDV type BOA to small businesses for NAICS code 23	\$2,406,588.00	\$2,133,629.00
116	Dollar value of all contracts through IDV type BPA to small businesses for NAICS code 23	\$343,507.90	\$515,319.20
117	Dollar value of all contracts through IDV type FSS to small businesses for NAICS code 23	\$3,197,192.00	\$3,231,432.00
118	Dollar value of all contracts through IDV type GWAC to small businesses for NAICS code 23	\$0.00	\$1,649.00
119	Dollar value of all contracts through IDV type IDC to small businesses for NAICS code 23**	\$290,000,000.00	\$311,000,000.00
120	Count of unique contracts through IDV type BOA for NAICS code 23	9.03	7.24
121	Count of unique contracts through IDV type BPA for NAICS code 23	5.54	3.24
122	Count of unique contracts through IDV type FSS for NAICS code 23	66.94	63.17
123	Count of unique contracts through IDV type GWAC for NAICS code 23	0.00	0.06
124	Count of unique contracts through IDV type IDC for NAICS code 23	865.18	766.22
125	Count of unique contracts to small business through IDV type BOA for NAICS code 23	8.35	6.89
126	Count of unique contracts to small business through IDV type BPA for NAICS code 23	2.57	2.03
127	Count of unique contracts to small business through IDV type FSS for NAICS code 23	55.63	52.47
128	Count of unique contracts to small business through IDV type GWAC for NAICS code 23	0.00	0.01

#	Measure of Small Business Contracting Opportunity ⁷⁰	Before Scorecard Methodology Change	After Scorecard Methodology Change
129	Count of unique contracts to small business through IDV type IDC for NAICS code 23	763.90	643.33
130	Dollar value of contracts that are 8(a) set-aside for NAICS code 56	\$65,500,000.00	\$73,000,000.00
131	Dollar value of contracts that are 8(a) sole source for NAICS code 56**	\$55,100,000.00	\$64,200,000.00
132	Dollar value of contracts that are HUBZONE set-aside for NAICS code 56	\$10,200,000.00	\$6,465,120.00
133	Dollar value of contracts that are HUBZONE sole source for NAICS code 56	\$141,991.20	\$519,235.10
134	Dollar value of contracts that are WOSB set-aside for NAICS code 56*	\$1,250,976.00	\$3,847,254.00
135	Dollar value of contracts that are WOSB sole source for NAICS code 56	\$47,137.85	\$409,776.40
136	Dollar value of contracts that are VOSB set-aside for NAICS code 56	\$21,600,000.00	\$28,400,000.00
137	Dollar value of contracts that are VOSB sole source for NAICS code 56	\$318,968.30	\$716,215.20
138	Dollar value of contracts to firms with multiple certifications for NAICS code 56	\$57,900,000.00	\$58,500,000.00
139	Count of unique contracts that are 8(a) set-aside for NAICS code 56	98.06	92.17
140	Count of unique contracts that are 8(a) sole source for NAICS code 56	125.39	132.01
141	Count of unique contracts that are HUBZONE set-aside for NAICS code 56	20.06	12.81
142	Count of unique contracts that are HUBZONE sole source for NAICS code 56	1.50	1.64
143	Count of unique contracts that are WOSB set-aside for NAICS code 56	24.86	65.08
144	Count of unique contracts that are WOSB sole source for NAICS code 56**	0.50	1.89
145	Count of unique contracts that are VOSB set-aside for NAICS code 56	39.78	60.07
146	Count of unique contracts that are VOSB sole source for NAICS code 56	1.81	2.33
147	Count of unique contracts to firms with multiple certifications for NAICS code 56	137.51	141.63
148	Count of unique contracts for NAICS code 56	2018.42	1911.39
149	Count of unique small business contracts for NAICS code 56	1386.06	1347.44
150	Dollar value of all contracts through IDV type BOA for NAICS code 56	\$12,700,000.00	\$43,000,000.00
151	Dollar value of all contracts through IDV type BPA for NAICS code 56	\$19,400,000.00	\$20,600,000.00
152	Dollar value of all contracts through IDV type FSS for NAICS code 56	\$52,400,000.00	\$59,100,000.00
153	Dollar value of all contracts through IDV type GWAC for NAICS code 56	-\$2,213.30	\$5,030.28
154	Dollar value of all contracts through IDV type IDC for NAICS code 56**	\$444,000,000.00	\$563,000,000.00
155	Dollar value of all contracts through IDV type BOA to small businesses for NAICS code 56	\$4,605,123.00	\$13,900,000.00
156	Dollar value of all contracts through IDV type BPA to small businesses for NAICS code 56	\$10,800,000.00	\$10,600,000.00

#	Measure of Small Business Contracting Opportunity ⁷⁰	Before Scorecard Methodology Change	After Scorecard Methodology Change
157	Dollar value of all contracts through IDV type FSS to small businesses for NAICS code 56	\$31,000,000.00	\$32,800,000.00
158	Dollar value of all contracts through IDV type GWAC to small businesses for NAICS code 56	-\$2,213.30	\$5,514.69
159	Dollar value of all contracts through IDV type IDC to small businesses for NAICS code 56**	\$179,000,000.00	\$224,000,000.00
160	Count of unique contracts through IDV type BOA for NAICS code 56	14.64	22.49
161	Count of unique contracts through IDV type BPA for NAICS code 56	89.50	98.96
162	Count of unique contracts through IDV type FSS for NAICS code 56	316.93	266.97
163	Count of unique contracts through IDV type GWAC for NAICS code 56	0.00	0.04
164	Count of unique contracts through IDV type IDC for NAICS code 56	990.54	961.57
165	Count of unique contracts to small business through IDV type BOA for NAICS code 56	7.64	13.68
166	Count of unique contracts to small business through IDV type BPA for NAICS code 56	66.94	75.54
167	Count of unique contracts to small business through IDV type FSS for NAICS code 56	235.36	198.86
168	Count of unique contracts to small business through IDV type GWAC for NAICS code 56	0.00	0.04
169	Count of unique contracts to small business through IDV type IDC for NAICS code 56	691.97	706.96
170	Dollar value of contracts that are 8(a) set-aside for NAICS code 42	\$1,010,067.00	\$435,704.30
171	Dollar value of contracts that are 8(a) sole source for NAICS code 42**	\$1,544,476.00	\$593,763.00
172	Dollar value of contracts that are HUBZONE set-aside for NAICS code 42	\$228,462.40	\$185,924.00
173	Dollar value of contracts that are HUBZONE sole source for NAICS code 42	\$27,544.14	\$42,289.82
174	Dollar value of contracts that are WOSB set-aside for NAICS code 42	\$95,510.52	\$28,048.27
175	Dollar value of contracts that are WOSB sole source for NAICS code 42	\$452.65	\$2,903.26
176	Dollar value of contracts that are VOSB set-aside for NAICS code 42	\$684,286.50	\$427,823.80
177	Dollar value of contracts that are VOSB sole source for NAICS code 42	\$92,427.76	\$22,669.50
178	Dollar value of contracts to firms with multiple certifications for NAICS code 42**	\$1,977,673.00	\$1,015,023.00
179	Count of unique contracts that are 8(a) set-aside for NAICS code 42	1.74	0.21
180	Count of unique contracts that are 8(a) sole source for NAICS code 42**	8.21	1.93
181	Count of unique contracts that are HUBZONE set-aside for NAICS code 42	1.90	0.72
182	Count of unique contracts that are HUBZONE sole source for NAICS code 42	0.24	0.35
183	Count of unique contracts that are WOSB set-aside for NAICS code 42**	2.46	0.69
184	Count of unique contracts that are WOSB sole source for NAICS code 42**	0.03	0.08

#	Measure of Small Business Contracting Opportunity ⁷⁰	Before Scorecard Methodology Change	After Scorecard Methodology Change
185	Count of unique contracts that are VOSB set-aside for NAICS code 42	6.31	71.08
186	Count of unique contracts that are VOSB sole source for NAICS code 42	0.58	0.36
187	Count of unique contracts to firms with multiple certifications for NAICS code 42	50.00	31.96
188	Count of unique contracts for NAICS code 42	30947.71	53118.28
189	Count of unique small business contracts for NAICS code 42	6778.51	14963.25
190	Dollar value of all contracts through IDV type BOA for NAICS code 42	\$1,243,852.00	\$6,050,279.00
191	Dollar value of all contracts through IDV type BPA for NAICS code 42	\$1,962,980.00	\$2,062,889.00
192	Dollar value of all contracts through IDV type FSS for NAICS code 42	\$19,700,000.00	\$9,167,604.00
193	Dollar value of all contracts through IDV type GWAC for NAICS code 42*	\$22,016.12	\$7,687.35
194	Dollar value of all contracts through IDV type IDC for NAICS code 42	\$233,000,000.00	\$320,000,000.00
195	Dollar value of all contracts through IDV type BOA to small businesses for NAICS code 42	\$268,271.20	\$5,681,367.00
196	Dollar value of all contracts through IDV type BPA to small businesses for NAICS code 42	\$1,003,540.00	\$1,959,257.00
197	Dollar value of all contracts through IDV type FSS to small businesses for NAICS code 42*	\$11,700,000.00	\$4,834,699.00
198	Dollar value of all contracts through IDV type GWAC to small businesses for NAICS code 42	\$4,210.44	\$1,232.00
199	Dollar value of all contracts through IDV type IDC to small businesses for NAICS code 42	\$80,000,000.00	\$176,000,000.00
200	Count of unique contracts through IDV type BOA for NAICS code 42	1.92	2.71
201	Count of unique contracts through IDV type BPA for NAICS code 42	115.13	1750.22
202	Count of unique contracts through IDV type FSS for NAICS code 42	648.24	398.78
203	Count of unique contracts through IDV type GWAC for NAICS code 42	0.13	0.10
204	Count of unique contracts through IDV type IDC for NAICS code 42	29321.11	50210.40
205	Count of unique contracts to small business through IDV type BOA for NAICS code 42	0.58	2.65
206	Count of unique contracts to small business through IDV type BPA for NAICS code 42	30.58	1749.90
207	Count of unique contracts to small business through IDV type FSS for NAICS code 42	502.54	334.82
208	Count of unique contracts to small business through IDV type GWAC for NAICS code 42	0.07	0.04
209	Count of unique contracts to small business through IDV type IDC for NAICS code 42	5698.94	12378.26
210	Dollar value of contracts that are 8(a) set-aside for NAICS code 31	\$2,854,325.00	\$2,005,867.00
211	Dollar value of contracts that are 8(a) sole source for NAICS code 31	\$845,460.10	\$1,049,837.00
212	Dollar value of contracts that are HUBZONE set-aside for NAICS code 31	\$2,126,416.00	\$1,919,367.00

#	Measure of Small Business Contracting Opportunity ⁷⁰	Before Scorecard Methodology Change	After Scorecard Methodology Change
213	Dollar value of contracts that are HUBZONE sole source for NAICS code 31	\$3,900.18	\$2,796.83
214	Dollar value of contracts that are WOSB set-aside for NAICS code 31	\$82,841.80	\$106,813.20
215	Dollar value of contracts that are WOSB sole source for NAICS code 31	\$3,482.10	\$15,862.81
216	Dollar value of contracts that are VOSB set-aside for NAICS code 31	\$2,910,272.00	\$2,817,205.00
217	Dollar value of contracts that are VOSB sole source for NAICS code 31	\$130,904.10	\$6,957.84
218	Dollar value of contracts to firms with multiple certifications for NAICS code 31	\$4,166,013.00	\$5,608,010.00
219	Count of unique contracts that are 8(a) set-aside for NAICS code 31	4.69	3.42
220	Count of unique contracts that are 8(a) sole source for NAICS code 31	3.01	3.97
221	Count of unique contracts that are HUBZONE set-aside for NAICS code 31	3.78	3.81
222	Count of unique contracts that are HUBZONE sole source for NAICS code 31	0.10	0.06
223	Count of unique contracts that are WOSB set-aside for NAICS code 31	1.00	1.68
224	Count of unique contracts that are WOSB sole source for NAICS code 31	0.04	0.06
225	Count of unique contracts that are VOSB set-aside for NAICS code 31	9.31	10.10
226	Count of unique contracts that are VOSB sole source for NAICS code 31	0.28	0.26
227	Count of unique contracts to firms with multiple certifications for NAICS code 31	154.38	125.46
228	Count of unique contracts for NAICS code 31	6290.24	19170.00
229	Count of unique small business contracts for NAICS code 31	2846.71	11960.18
230	Dollar value of all contracts through IDV type BOA for NAICS code 31	\$362.40	\$45,783.40
231	Dollar value of all contracts through IDV type BPA for NAICS code 31*	\$955,646.20	\$1,992,063.00
232	Dollar value of all contracts through IDV type FSS for NAICS code 31	\$9,946,016.00	\$10,700,000.00
233	Dollar value of all contracts through IDV type GWAC for NAICS code 31	\$0.00	\$0.00
234	Dollar value of all contracts through IDV type IDC for NAICS code 31	\$103,000,000.00	\$141,000,000.00
235	Dollar value of all contracts through IDV type BOA to small businesses for NAICS code 31	\$206.24	\$0.00
236	Dollar value of all contracts through IDV type BPA to small businesses for NAICS code 31*	\$703,552.50	\$1,892,790.00
237	Dollar value of all contracts through IDV type FSS to small businesses for NAICS code 31	\$7,313,354.00	\$7,908,444.00
238	Dollar value of all contracts through IDV type GWAC to small businesses for NAICS code 31	\$0.00	\$0.00
239	Dollar value of all contracts through IDV type IDC to small businesses for NAICS code 31	\$50,400,000.00	\$70,500,000.00
240	Count of unique contracts through IDV type BOA for NAICS code 31	0.42	0.28

#	Measure of Small Business Contracting Opportunity ⁷⁰	Before Scorecard Methodology Change	After Scorecard Methodology Change
241	Count of unique contracts through IDV type BPA for NAICS code 31	30.71	305.44
242	Count of unique contracts through IDV type FSS for NAICS code 31	367.17	401.85
243	Count of unique contracts through IDV type GWAC for NAICS code 31	0.00	0.00
244	Count of unique contracts through IDV type IDC for NAICS code 31	5124.01	17600.83
245	Count of unique contracts to small business through IDV type BOA for NAICS code 31	0.28	0.00
246	Count of unique contracts to small business through IDV type BPA for NAICS code 31	22.65	283.42
247	Count of unique contracts to small business through IDV type FSS for NAICS code 31	165.15	143.69
248	Count of unique contracts to small business through IDV type GWAC for NAICS code 31	0.00	0.00
249	Count of unique contracts to small business through IDV type IDC for NAICS code 31	2011.64	10799.01
250	Dollar value of contracts that are 8(a) set-aside for NAICS code 51	\$5,248,486.00	\$4,255,246.00
251	Dollar value of contracts that are 8(a) sole source for NAICS code 51	\$8,891,273.00	\$8,866,190.00
252	Dollar value of contracts that are HUBZONE set-aside for NAICS code 51	\$657,205.20	\$1,585,153.00
253	Dollar value of contracts that are HUBZONE sole source for NAICS code 51**	\$7,944.05	\$38,019.81
254	Dollar value of contracts that are WOSB set-aside for NAICS code 51	\$133,292.50	\$317,112.50
255	Dollar value of contracts that are WOSB sole source for NAICS code 51	\$10,880.22	\$67,262.46
256	Dollar value of contracts that are VOSB set-aside for NAICS code 51	\$751,610.20	\$2,326,776.00
257	Dollar value of contracts that are VOSB sole source for NAICS code 51	\$108,157.40	\$185,240.50
258	Dollar value of contracts to firms with multiple certifications for NAICS code 51	\$5,541,559.00	\$5,850,408.00
259	Count of unique contracts that are 8(a) set-aside for NAICS code 51	3.79	3.25
260	Count of unique contracts that are 8(a) sole source for NAICS code 51	12.39	11.92
261	Count of unique contracts that are HUBZONE set-aside for NAICS code 51	0.67	0.53
262	Count of unique contracts that are HUBZONE sole source for NAICS code 51*	0.04	0.24
263	Count of unique contracts that are WOSB set-aside for NAICS code 51	0.86	0.75
264	Count of unique contracts that are WOSB sole source for NAICS code 51*	0.13	0.43
265	Count of unique contracts that are VOSB set-aside for NAICS code 51	1.75	3.14
266	Count of unique contracts that are VOSB sole source for NAICS code 51	0.31	0.50
267	Count of unique contracts to firms with multiple certifications for NAICS code 51	11.92	13.79
268	Count of unique contracts for NAICS code 51	1420.94	1303.33

#	Measure of Small Business Contracting Opportunity ⁷⁰	Before Scorecard Methodology Change	After Scorecard Methodology Change
269	Count of unique small business contracts for NAICS code 51**	441.08	362.36
270	Dollar value of all contracts through IDV type BOA for NAICS code 51	\$1,070,661.00	\$1,052,873.00
271	Dollar value of all contracts through IDV type BPA for NAICS code 51**	\$10,900,000.00	\$20,500,000.00
272	Dollar value of all contracts through IDV type FSS for NAICS code 51	\$50,400,000.00	\$78,000,000.00
273	Dollar value of all contracts through IDV type GWAC for NAICS code 51	\$363,548.00	-\$6,306.02
274	Dollar value of all contracts through IDV type IDC for NAICS code 51**	\$223,000,000.00	\$278,000,000.00
275	Dollar value of all contracts through IDV type BOA to small businesses for NAICS code 51	\$752,240.20	\$620,779.70
276	Dollar value of all contracts through IDV type BPA to small businesses for NAICS code 51	\$6,802,737.00	\$7,517,801.00
277	Dollar value of all contracts through IDV type FSS to small businesses for NAICS code 51*	\$18,000,000.00	\$24,600,000.00
278	Dollar value of all contracts through IDV type GWAC to small businesses for NAICS code 51	\$344,858.00	\$14,993.63
279	Dollar value of all contracts through IDV type IDC to small businesses for NAICS code 51	\$40,700,000.00	\$57,900,000.00
280	Count of unique contracts through IDV type BOA for NAICS code 51	3.15	1.85
281	Count of unique contracts through IDV type BPA for NAICS code 51	25.54	41.50
282	Count of unique contracts through IDV type FSS for NAICS code 51	297.54	295.85
283	Count of unique contracts through IDV type GWAC for NAICS code 51	0.36	0.06
284	Count of unique contracts through IDV type IDC for NAICS code 51	468.65	398.54
285	Count of unique contracts to small business through IDV type BOA for NAICS code 51	1.13	0.76
286	Count of unique contracts to small business through IDV type BPA for NAICS code 51	13.26	21.71
287	Count of unique contracts to small business through IDV type FSS for NAICS code 51	96.79	91.06
288	Count of unique contracts to small business through IDV type GWAC for NAICS code 51	0.06	0.01
289	Count of unique contracts to small business through IDV type IDC for NAICS code 51	81.61	53.54
290	Dollar value of contracts that are 8(a) set-aside for NAICS code 32	\$259,917.70	\$121,465.20
291	Dollar value of contracts that are 8(a) sole source for NAICS code 32	\$756,577.40	\$415,523.30
292	Dollar value of contracts that are HUBZONE set-aside for NAICS code 32	\$78,385.27	\$114,974.00
293	Dollar value of contracts that are HUBZONE sole source for NAICS code 32	\$43,329.07	\$98,568.70
294	Dollar value of contracts that are WOSB set-aside for NAICS code 32	\$21,553.74	\$34,498.62
295	Dollar value of contracts that are WOSB sole source for NAICS code 32	\$1,190.53	\$9,867.96
296	Dollar value of contracts that are VOSB set-aside for NAICS code 32	\$1,398,141.00	\$3,327,518.00

#	Measure of Small Business Contracting Opportunity ⁷⁰	Before Scorecard Methodology Change	After Scorecard Methodology Change
297	Dollar value of contracts that are VOSB sole source for NAICS code 32	\$20,157.99	\$144,375.60
298	Dollar value of contracts to firms with multiple certifications for NAICS code 32	\$2,767,569.00	\$1,719,447.00
299	Count of unique contracts that are 8(a) set-aside for NAICS code 32	0.86	0.26
300	Count of unique contracts that are 8(a) sole source for NAICS code 32*	4.54	1.81
301	Count of unique contracts that are HUBZONE set-aside for NAICS code 32	1.10	1.11
302	Count of unique contracts that are HUBZONE sole source for NAICS code 32	1.42	2.25
303	Count of unique contracts that are WOSB set-aside for NAICS code 32	1.01	0.94
304	Count of unique contracts that are WOSB sole source for NAICS code 32	0.04	0.19
305	Count of unique contracts that are VOSB set-aside for NAICS code 32	11.68	54.14
306	Count of unique contracts that are VOSB sole source for NAICS code 32	0.28	0.88
307	Count of unique contracts to firms with multiple certifications for NAICS code 32	37.83	82.63
308	Count of unique contracts for NAICS code 32	12216.17	30022.53
309	Count of unique small business contracts for NAICS code 32	4301.44	9041.54
310	Dollar value of all contracts through IDV type BOA for NAICS code 32	\$2,016,317.00	\$1,948,902.00
311	Dollar value of all contracts through IDV type BPA for NAICS code 32	\$3,865,451.00	\$3,702,505.00
312	Dollar value of all contracts through IDV type FSS for NAICS code 32	\$11,800,000.00	\$10,800,000.00
313	Dollar value of all contracts through IDV type GWAC for NAICS code 32	\$0.00	\$18,536.32
314	Dollar value of all contracts through IDV type IDC for NAICS code 32*	\$694,000,000.00	\$823,000,000.00
315	Dollar value of all contracts through IDV type BOA to small businesses for NAICS code 32	\$648,747.20	\$4,496.78
316	Dollar value of all contracts through IDV type BPA to small businesses for NAICS code 32*	\$1,236,158.00	\$2,484,194.00
317	Dollar value of all contracts through IDV type FSS to small businesses for NAICS code 32	\$5,836,558.00	\$5,300,610.00
318	Dollar value of all contracts through IDV type GWAC to small businesses for NAICS code 32	\$0.00	\$18,536.32
319	Dollar value of all contracts through IDV type IDC to small businesses for NAICS code 32	\$71,900,000.00	\$92,200,000.00
320	Count of unique contracts through IDV type BOA for NAICS code 32	1.13	0.60
321	Count of unique contracts through IDV type BPA for NAICS code 32	106.39	659.35
322	Count of unique contracts through IDV type FSS for NAICS code 32	349.42	371.00
323	Count of unique contracts through IDV type GWAC for NAICS code 32	0.00	0.10
324	Count of unique contracts through IDV type IDC for NAICS code 32	10614.96	27354.18

#	Measure of Small Business Contracting Opportunity ⁷⁰	Before Scorecard Methodology Change	After Scorecard Methodology Change
325	Count of unique contracts to small business through IDV type BOA for NAICS code 32	0.15	0.06
326	Count of unique contracts to small business through IDV type BPA for NAICS code 32	76.19	633.47
327	Count of unique contracts to small business through IDV type FSS for NAICS code 32	208.71	274.65
328	Count of unique contracts to small business through IDV type GWAC for NAICS code 32	0.00	0.10
329	Count of unique contracts to small business through IDV type IDC for NAICS code 32	3221.25	6869.51
330	Dollar value of contracts that are 8(a) set-aside for NAICS code 48	\$4,832,784.00	\$5,343,484.00
331	Dollar value of contracts that are 8(a) sole source for NAICS code 48*	\$1,802,611.00	\$2,492,966.00
332	Dollar value of contracts that are HUBZONE set-aside for NAICS code 48	\$111,439.30	\$93,079.11
333	Dollar value of contracts that are HUBZONE sole source for NAICS code 48	\$8,694.44	\$52,216.98
334	Dollar value of contracts that are WOSB set-aside for NAICS code 48	\$17,635.62	\$70,179.78
335	Dollar value of contracts that are WOSB sole source for NAICS code 48	\$8,161.39	\$92,071.24
336	Dollar value of contracts that are VOSB set-aside for NAICS code 48	\$2,334,586.00	\$3,718,394.00
337	Dollar value of contracts that are VOSB sole source for NAICS code 48	\$143,781.30	\$84,474.86
338	Dollar value of contracts to firms with multiple certifications for NAICS code 48	\$2,819,477.00	\$3,044,741.00
339	Count of unique contracts that are 8(a) set-aside for NAICS code 48	2.72	2.11
340	Count of unique contracts that are 8(a) sole source for NAICS code 48	5.72	6.25
341	Count of unique contracts that are HUBZONE set-aside for NAICS code 48	0.92	0.40
342	Count of unique contracts that are HUBZONE sole source for NAICS code 48	0.28	0.29
343	Count of unique contracts that are WOSB set-aside for NAICS code 48	0.33	0.47
344	Count of unique contracts that are WOSB sole source for NAICS code 48	0.03	0.54
345	Count of unique contracts that are VOSB set-aside for NAICS code 48	2.71	4.19
346	Count of unique contracts that are VOSB sole source for NAICS code 48	0.21	0.26
347	Count of unique contracts to firms with multiple certifications for NAICS code 48	11.67	15.81
348	Count of unique contracts for NAICS code 48	654.40	816.24
349	Count of unique small business contracts for NAICS code 48	369.85	440.69
350	Dollar value of all contracts through IDV type BOA for NAICS code 48	\$2,953,587.00	\$6,646,508.00
351	Dollar value of all contracts through IDV type BPA for NAICS code 48	\$940,188.20	\$821,055.90
352	Dollar value of all contracts through IDV type FSS for NAICS code 48	\$5,037,953.00	\$6,361,615.00

#	Measure of Small Business Contracting Opportunity ⁷⁰	Before Scorecard Methodology Change	After Scorecard Methodology Change
353	Dollar value of all contracts through IDV type GWAC for NAICS code 48	\$0.00	\$138.89
354	Dollar value of all contracts through IDV type IDC for NAICS code 48	\$176,000,000.00	\$302,000,000.00
355	Dollar value of all contracts through IDV type BOA to small businesses for NAICS code 48	\$2,599,616.00	\$6,160,416.00
356	Dollar value of all contracts through IDV type BPA to small businesses for NAICS code 48	\$547,716.10	\$674,206.20
357	Dollar value of all contracts through IDV type FSS to small businesses for NAICS code 48	\$2,985,339.00	\$5,832,940.00
358	Dollar value of all contracts through IDV type GWAC to small businesses for NAICS code 48	\$0.00	\$138.89
359	Dollar value of all contracts through IDV type IDC to small businesses for NAICS code 48	\$27,100,000.00	\$50,300,000.00
360	Count of unique contracts through IDV type BOA for NAICS code 48	1.54	2.40
361	Count of unique contracts through IDV type BPA for NAICS code 48	6.93	5.33
362	Count of unique contracts through IDV type FSS for NAICS code 48*	105.08	66.93
363	Count of unique contracts through IDV type GWAC for NAICS code 48	0.00	0.01
364	Count of unique contracts through IDV type IDC for NAICS code 48	251.75	412.57
365	Count of unique contracts to small business through IDV type BOA for NAICS code 48	1.08	1.22
366	Count of unique contracts to small business through IDV type BPA for NAICS code 48	4.40	4.97
367	Count of unique contracts to small business through IDV type FSS for NAICS code 48	77.42	52.00
368	Count of unique contracts to small business through IDV type GWAC for NAICS code 48	0.00	0.01
369	Count of unique contracts to small business through IDV type IDC for NAICS code 48	94.85	170.43
370	Dollar value of contracts that are 8(a) set-aside for NAICS code 62	\$5,940,511.00	\$6,175,841.00
371	Dollar value of contracts that are 8(a) sole source for NAICS code 62	\$6,680,974.00	\$7,087,852.00
372	Dollar value of contracts that are HUBZONE set-aside for NAICS code 62	\$298,353.80	\$113,649.10
373	Dollar value of contracts that are HUBZONE sole source for NAICS code 62	\$0.00	\$53,874.23
374	Dollar value of contracts that are WOSB set-aside for NAICS code 62	\$55,217.85	\$619,143.90
375	Dollar value of contracts that are WOSB sole source for NAICS code 62	\$4,654.17	\$22,253.24
376	Dollar value of contracts that are VOSB set-aside for NAICS code 62	\$3,411,219.00	\$5,302,701.00
377	Dollar value of contracts that are VOSB sole source for NAICS code 62	\$78,487.95	\$155,656.60
378	Dollar value of contracts to firms with multiple certifications for NAICS code 62	\$8,334,009.00	\$9,270,649.00
379	Count of unique contracts that are 8(a) set-aside for NAICS code 62	1.54	1.83
380	Count of unique contracts that are 8(a) sole source for NAICS code 62	8.17	7.22

#	Measure of Small Business Contracting Opportunity ⁷⁰	Before Scorecard Methodology Change	After Scorecard Methodology Change
381	Count of unique contracts that are HUBZONE set-aside for NAICS code 62	0.11	0.04
382	Count of unique contracts that are HUBZONE sole source for NAICS code 62	0.00	0.03
383	Count of unique contracts that are WOSB set-aside for NAICS code 62	0.56	1.47
384	Count of unique contracts that are WOSB sole source for NAICS code 62	0.03	0.21
385	Count of unique contracts that are VOSB set-aside for NAICS code 62	6.68	6.56
386	Count of unique contracts that are VOSB sole source for NAICS code 62	0.31	0.35
387	Count of unique contracts to firms with multiple certifications for NAICS code 62	10.22	12.58
388	Count of unique contracts for NAICS code 62	986.86	1003.69
389	Count of unique small business contracts for NAICS code 62	490.75	574.53
390	Dollar value of all contracts through IDV type BOA for NAICS code 62	\$17,000,000.00	\$21,400,000.00
391	Dollar value of all contracts through IDV type BPA for NAICS code 62	\$4,612,538.00	\$3,406,274.00
392	Dollar value of all contracts through IDV type FSS for NAICS code 62*	\$19,800,000.00	\$15,600,000.00
393	Dollar value of all contracts through IDV type GWAC for NAICS code 62	\$0.00	-\$0.94
394	Dollar value of all contracts through IDV type IDC for NAICS code 62	\$169,000,000.00	\$320,000,000.00
395	Dollar value of all contracts through IDV type BOA to small businesses for NAICS code 62	\$6,386,656.00	\$8,228,177.00
396	Dollar value of all contracts through IDV type BPA to small businesses for NAICS code 62	\$778,963.40	\$180,389.70
397	Dollar value of all contracts through IDV type FSS to small businesses for NAICS code 62	\$11,600,000.00	\$10,300,000.00
398	Dollar value of all contracts through IDV type GWAC to small businesses for NAICS code 62	\$0.00	-\$0.94
399	Dollar value of all contracts through IDV type IDC to small businesses for NAICS code 62	\$51,300,000.00	\$57,500,000.00
400	Count of unique contracts through IDV type BOA for NAICS code 62	132.07	142.04
401	Count of unique contracts through IDV type BPA for NAICS code 62	22.01	19.94
402	Count of unique contracts through IDV type FSS for NAICS code 62	239.74	340.26
403	Count of unique contracts through IDV type GWAC for NAICS code 62	0.00	0.00
404	Count of unique contracts through IDV type IDC for NAICS code 62	326.35	268.68
405	Count of unique contracts to small business through IDV type BOA for NAICS code 62	48.51	48.50
406	Count of unique contracts to small business through IDV type BPA for NAICS code 62	7.63	2.72
407	Count of unique contracts to small business through IDV type FSS for NAICS code 62	166.42	285.25
408	Count of unique contracts to small business through IDV type GWAC for NAICS code 62	0.00	0.00

#	Measure of Small Business Contracting Opportunity ⁷⁰	Before Scorecard Methodology Change	After Scorecard Methodology Change
409	Count of unique contracts to small business through IDV type IDC for NAICS code 62	172.85	131.24
410	Count of unique contracts through IDV type BOA	1142.49	1529.75
411	Count of unique contracts through IDV type BPA	1340.86	8406.94
412	Count of unique contracts through IDV type FSS	7085.85	6362.33
413	Count of unique contracts through IDV type GWAC**	662.88	787.38
414	Count of unique contracts through IDV type IDC	65199.57	124921.30
415	Count of unique contracts to small business through IDV type BOA	105.24	130.38
416	Count of unique contracts to small business through IDV type BPA	778.86	5939.43
417	Count of unique contracts to small business through IDV type FSS	4383.60	4195.31
418	Count of unique contracts to small business through IDV type GWAC**	517.21	705.40
419	Count of unique contracts to small business through IDV type IDC	19785.38	43029.61
420	Number of RFIs issued	243.89	313.65
421	Small business dollars obligated to small business subcontract awards	\$3,170,000,000.00	\$3,430,000,000.00
422	Value of total subcontract dollars (as reported by all other-than-small prime contractors with a requirement to submit subcontracting data to the SBA)	\$9,880,000,000.00	\$10,500,000,000.00
423	Small business eligible dollars obligated to small disadvantaged business subcontract awards	\$571,000,000.00	\$505,000,000.00
424	Small business eligible dollars obligated to women owned small business subcontract awards	\$591,000,000.00	\$602,000,000.00
425	Small business eligible dollars obligated to HUBZone subcontract awards*	\$118,000,000.00	\$148,000,000.00
426	Small business eligible dollars obligated to veteran owned small business subcontract awards*	\$167,000,000.00	\$209,000,000.00
427	Count of unique contracts that are 8(a) set-aside	421.42	381.36
428	Count of unique contracts that are 8(a) sole source	775.81	627.68
429	Count of unique contract that are HUBZONE set-aside *	201.50	222.31
430	Count of unique contract that are HUBZONE set-source	7.39	11.63
431	Count of unique contracts that are WOSB set-aside	69.00	130.00
432	Count of unique contracts that are WOSB sole source**	2.85	11.25
433	Count of unique contracts that are VOSB set-aside	557.60	1014.61
434	Count of unique contracts that are VOSB sole source	25.94	37.63
435	Count of unique contracts to firms with multiple certifications	1501.64	1746.32

#	Measure of Small Business Contracting Opportunity ⁷⁰	Before Scorecard Methodology Change	After Scorecard Methodology Change
436	Dollar value of all contracts to small business through IDV type BOA*	\$35,200,000.00	\$50,900,000.00
437	Dollar value of all contracts to small business through IDV type BPA	\$127,000,000.00	\$156,000,000.00
438	Dollar value of all contracts to small business through IDV type FSS	\$401,000,000.00	\$424,000,000.00
439	Dollar value of all contracts to small business through IDV type GWAC**	\$199,000,000.00	\$287,000,000.00
440	Dollar value of all contracts to small business through IDV type IDC	\$1,720,000,000.00	\$2,320,000,000.00
441	Dollar value of all contracts through IDV type BOA	\$359,000,000.00	\$519,000,000.00
442	Dollar value of all contracts through IDV type BPA**	\$293,000,000.00	\$399,000,000.00
443	Dollar value of all contracts through IDV type FSS	\$839,000,000.00	\$842,000,000.00
444	Dollar value of all contracts through IDV type GWAC**	\$396,000,000.00	\$618,000,000.00
445	Dollar value of all contracts through IDV type IDC	\$6,340,000,000.00	\$8,410,000,000.00

Appendix D: Research Question 3 Hypotheses for Semi-Structured Interviews

The hypotheses and assumptions for the qualitative data collection through semi-structured interviews with the SBA, federal agencies, and small business advocates and the direct content analysis to analyze the data to answer Research Question 3 are presented below.

1. The SBA's goal setting process increases the achievement of federal agencies' small business contracting goals.
 - i. Negotiated small business contracting goals are achievable by all federal agencies.
 - ii. Federal agencies think the goal setting process results in fair and achievable goals for their agency.
 - iii. Federal agencies are motivated to achieve goals that they helped create.
2. The small business procurement scorecard's revised methodology increases the achievement of federal agencies' small business contracting goals.
 - i. Federal agencies are motivated to increase opportunities for small businesses.
 1. The small business procurement scorecard's revised methodology will provide additional motivation for federal agencies to improve opportunities for small businesses.
 - a. Federal agencies buy-in to the revised scorecard methodology's components and weights.
 - ii. The creation of the "Subcontracting" achievement category will lead to federal agencies requiring small business contracting plans in more of their requests for proposal, bids, and contracts.
 1. Other-than-small prime contractors will subcontract with more qualified small businesses.
 - iii. The creation of the "Comparison of the Number of Small Business Prime Contractors in each of the Five Small Business Categories in the Agency's Top 100 Small Business North American Industry Classification System (NAICS) Codes Between [Financial Years]" achievement category will motivate federal agencies to contract with a greater number of small businesses generally and across all NAICS codes from year to year.
 1. Federal agencies will increase small business opportunities for new and increasingly diverse⁷¹ businesses from year to year.
 - a. Federal agencies increase their level of engagement with new and diverse small businesses.

⁷¹ Increased diversity among small disadvantaged, women-owned, service-disabled veteran owned, and Historically Underutilized Business Zone-certified businesses.

- i. Increase the number and improving the quality of engagement with small businesses during outreach events.
 - ii. Increase the number of response for information (RFI) notices released.
 - iii. More small businesses respond to RFIs as a result of increased and positive engagement with federal agencies.
 - b. Federal agencies will assess and identify more qualified small businesses.
 - c. Federal agencies will designate more solicitations as small business set-asides and sole-source.
 - iv. The creation of the OSDBU Peer Review on Agency Compliance with Section 15(k) of the Small Business Act achievement category will increase federal agencies' offices' compliance with Section 15(k) of the Small Business Act.
3. There are additional and better ways for the SBA to incentivize federal agencies to support the achievement of small business contracting goals.
- i. Federal agencies are motivated by rewards for meeting contracting goals.
 - ii. Federal agencies are motivated by penalties for not meeting contracting goals.
4. The public reporting of the small business procurement scorecard increases the achievement of federal agencies' small business contracting goals.
- i. The public reporting of the small business procurement scorecard increases general public and stakeholder engagement in small business advocacy.
 - ii. Increased small business advocacy will increase federal agencies' motivation to achieve small business contracting goals.
5. The scorecard needs to be based on quality data.
- i. Federal agencies have adequate reporting mechanisms for collecting contracting data from their internal divisions and report them in a timely way.

Appendix E: Research Question 3 Semi-Structured Interview Protocols

Protocols for Interview with the Small Business Administration

Introduction

Hello, my name is [insert name], and I am a [insert title] for Optimal Solutions Group (Optimal), a public policy research firm, conducting research on behalf of the U.S. Small Business Administration (SBA). Thank you for agreeing to participate in this interview on the effects of the Small Business Procurement Scorecard on small business contracting opportunities and the effects of the [changes made to the Small Business Procurement Scorecard Methodology in 2017](#). I expect that the interview will take approximately 1 hour. Your individual answers will be deidentified and your name will never be used in any report for this study. Your participation in this study is completely voluntary. You are able to stop the interview at any time and you do not have to answer any questions that you do not want to.

Do I have your permission to begin the interview?

Do I have your permission to record this interview? [Start recording]

Changes to the Small Business Procurement Scorecard

1. In your opinion, what is the overall impact of the Small Business Procurement Scorecard?
 - a. Who does the scorecard impact at the agency-level?
 - b. How does the small business procurement scorecard impact opportunities for small business contracting?
2. Could you describe how the Small Business Procurement Scorecard methodology changed in 2017?
 - a. Why did the SBA decide to change the scorecard methodology in 2017?
 - b. How did the SBA decide which achievement categories of the scorecard to change?
 - c. How were the different weights of achievement categories toward the overall grade determined?

- d. How did the SBA envision the introduction of the new methodology would change federal procurement practices?
 - i. Has the new methodology produced the expected changes to procurement practices?
 - ii. Has the new methodology produced any unexpected changes to procurement practices?
 - iii. What, if anything, is the SBA doing to measure and track these changes?
3. If you could change anything about the scorecard methodology now, what would you change?

Goal Setting and Achievement

4. Could you describe federal agencies' goal setting process and the SBA's role in that process?
5. How has the SBA's role in negotiating federal agencies' goals changed as a result of the new methodology?
 - a. What approaches taken by the SBA have been the most effective in influencing federal agencies to meet their goals?
 - i. **[Prompt]** Why do you think those approaches were more effective?
 - b. What approaches taken by the SBA have been the least effective in influencing federal agencies to meet their goals?
 - i. **[Prompt]** Why do you think those approaches were less effective?
6. From your perspective, what kinds of additional support are federal agencies asking for to reach their goals?
7. From your perspective, do federal agencies change their procurement practices or OSDBU activities to increase opportunities to small businesses based on the scorecard and goals? If so, are there any examples you can provide?
8. What do think are the biggest factor(s) in an agency meeting its small business contracting goal? In meeting its socioeconomic goals?
9. What additional steps do you think the SBA could take to support federal agencies in reaching their procurement goals?
 - a. Are there any rewards (including options that would require legislative action for SBA authority) that you believe would be effective?
 - b. Are there any penalties (including options that would require legislative action for SBA authority) that you believe would be effective?
10. What are the biggest challenges in preparing the Small Business Procurement Scorecard?
 - a. **[Prompt]** Do agencies consistently provide complete and quality data?
 - i. **If no**, what challenges do you believe agencies face with providing complete and quality data?
 - b. **[Prompt]** Do agencies consistently provide data in a timely fashion?

- i. **If no**, what challenges do you believe agencies face with providing data in a timely fashion?
- 11. What changes would you make to the scorecard to alleviate reporting challenges?
- 12. What changes would you make to the reporting process to alleviate reporting challenges?

Do you have anything else that you would like to share that I have not covered?

Protocols for Interviews with Federal Agencies

Introduction

Hello, my name is [insert name], and I am a [insert title] for Optimal Solutions Group (Optimal), a public policy research firm, conducting research on behalf of the U.S. Small Business Administration (SBA). Thank you for agreeing to participate in this interview on the effects of the Small Business Procurement Scorecard on small business contracting opportunities and the effects of the [changes made to the Small Business Procurement Scorecard Methodology in 2017](#). I expect that the interview will take approximately 1 hour. Your individual answers will be deidentified and your name will never be used in any report for this study. Your participation in this study is completely voluntary. You are able to stop the interview at any time and you do not have to answer any questions that you do not want to.

Do I have your permission to begin the interview?

Do I have your permission to record this interview? [Start recording]

Goal Setting Process

13. Could you describe the steps of the [federal agency]'s small business contracting goal setting process?
 - a. **[Prompt]** Who is involved in the goal setting process?
 - i. **[Prompt]** Head of the agency?
 - ii. **[Prompt]** Department heads?
 - iii. **[Prompt]** Senior Procurement Executives?
 - iv. **[Prompt]** Chief Acquisition Officers?
 - b. **[Prompt]** How are the initial goal proposals and rebuttals determined?
 - c. **[Prompt]** How are the department's bureaus involved in the process, if at all?
 - d. **[Prompt]** What factors do you consider when developing your goals? For example, do you take historical acquisition rates or future acquisition needs into account?
14. What challenges or limitations has the [federal agency] encountered while setting contracting goals with the SBA?
15. What would you change, if anything, about the steps in the small business goaling process?
 - a. **[Prompt]** Development of the initial contracting goals?
 - b. **[Prompt]** Negotiation with the SBA on your agency's initial contracting goals?

16. How confident are you in the methods that the SBA uses to develop the [federal agency]’s contracting goals?
- [**Prompt**] Highly confident, somewhat confident, not confident? And why?

Meeting Goals

17. In your experience, what are some of the common benefits and challenges to contracting with small businesses?
- What about Historically Underutilized Business Zone certified small businesses?
 - What about 8(a) certified small businesses?
 - What about women owned small businesses?
 - What about veteran owned small businesses?
18. Did [federal agency] reach all of their set goals for 2019?
- If yes, why do you believe [federal agency] was able to reach its goal?
 - [**Prompt**] What was the most important factor in [federal agency] reaching its goal?
 - If no, could you explain which goals were reached and which goals were not reached? [If the respondent is not aware of the specifics, refer to the provided list of unreached goals for that federal agency and continue to probe.]
 - What challenges did you encounter with trying to accomplish your unreached goals?
 - Are there any consequences for not meeting the scorecard goals? If so, could you explain what those consequences are and to whom they apply?
19. How engaged are the following stakeholders in helping [federal agency] meet its small business contracting goal?
- Head of the department/agency?
 - Deputy Head of the department/agency?
 - Chief Acquisition Officer?
 - Senior Procurement Executive?
 - Contracting Officers?
 - Heads of Components/Bureaus/Sub-agencies)?
 - Are there other officials involved that I did not mention?
20. How does the agency monitor progress towards its goals throughout the year?
21. How does the agency communicate the release of the final scorecard at the end of the year? Who within the agency receives this information?
22. Do you believe that meeting or not meeting your [federal agency]’s procurement goals shapes public perceptions of your agency? If so, how?
23. In your opinion, how important is it to [federal agency] to meet its small business contracting goal?

- a. **[Prompt]** Why do you believe meeting small business contracting goals is [response] to [federal agency]?
- 24. How does the SBA assist [federal agency] in meeting your procurement goals?
 - a. Which approaches taken by the SBA have been the most effective in helping [federal agency] meet its procurement goals?
 - b. Which approaches taken by the SBA have been the least effective in helping [federal agency] meet its procurement goals?
- 25. What kinds of additional support from the SBA would be beneficial for meeting [federal agency's] procurement goals?
 - a. Are there any rewards (including options that would require legislative action for SBA authority) that you believe would be effective for encouraging federal agencies to reach their procurement goals?
 - b. Are there any penalties (including options that would require legislative action for SBA authority) that you believe would be effective for encouraging federal agencies to reach their procurement goals?

Scorecard Methodology

- 26. Congress directed the SBA to change the Small Business Procurement Scorecard methodology for FY2017. The changes to the methodology increased emphasis on small business subcontracting in addition to prime contracting, added a peer review score of each Office of Small and Disadvantaged Business Utilization (OSDBU), and increased emphasis on the number of small businesses across North American Industry Classification System (NAICS) codes. Has [federal agency]'s procurement strategy changed since the scorecard methodology modification in 2017? How?
- 27. Overall, do you believe that the scorecard methodology change in 2017 was beneficial, had no effect, or hurt [federal agency's] procurement practices?
 - a. Could you provide examples of why you believe the change was [beneficial/ had no effect, or hurt]?
 - b. What were some of the expected changes to [federal agency's] procurement practices?
 - c. Were any of these changes unexpected? If so, why?
 - d. Would you attribute those changes to the new scorecard methodology's achievement categories and/or their weights? If so, please describe.
- 28. How would you say [federal agency]'s OSDBU practices have changed since the scorecard methodology change in 2017?
- 29. Has [federal agency] undertaken initiatives to improve small business procurement practices since the adoption of the new scorecard methodology in 2017?
 - a. Could you provide examples of some of those initiatives?
 - i. **[Prompt]** Outreach events?
 - ii. **[Prompt]** Adoption of small business set-asides?

- iii. **[Prompt]** Sole sourcing?
 - b. Do you believe these initiatives will improve [federal agency]’s ability to meet small business contracting goals? Why or why not?
- 30. What, if anything, does the [federal agency] do to document and track the changes made to procurement and OSDBU practices?
- 31. In your opinion, does the existence of the Small Business Procurement Scorecard and associated goals increase small business contracting opportunities within your agency? Why or why not?
 - a. What, if anything, do you think would better incentivize the [federal agency] to increase small business contracting opportunities?
 - i. **[Prompt]** Why do you believe that approach would be more successful than the Small Business Procurement Scorecard?

Reporting

- 32. Could you describe how you use the data in the Federal Procurement Data System – Next Generation?
 - a. Do you encounter any challenges with the quality or completeness of data?
- 33. Could you describe how you use the data in the electronic Subcontracting Reporting System (eSRS)?
 - a. Do you encounter any challenges with the quality or completeness of data?
- 34. Could you describe how you collect the data that you use to complete the OSDBU peer review form?
 - a. Do you encounter any challenges to collecting data for this requirement? If so, please describe.
- 35. What changes would you make to the scorecard to alleviate reporting challenges?
- 36. What changes would you make to the reporting process to alleviate reporting challenges?
- 37. How confident are you in SBA’s ability to accurately score your agency using the data available? What concerns, if any, do you have about receiving an accurate score?

Do you have anything else that you would like to share that I have not covered?

Our next phase of evaluation interviews includes interviewing leaders of small business advocacy organizations, are there organizations that your agency’s Office of Small & Disadvantaged Business Utilization works closely with for which you could provide us with contact information and/or an introduction?

Protocols for Interviews with Small Business Advocates

Introduction

Hello, my name is [insert name], and I am a [insert title] for Optimal Solutions Group (Optimal), a public policy research firm, conducting research on behalf of the U.S. Small Business Administration (SBA). Thank you for agreeing to participate in this interview on the effects of the Small Business Procurement Scorecard on small business contracting opportunities and the effects of the [changes made to the Small Business Procurement Scorecard Methodology in 2017](#). I expect that the interview will take approximately 1 hour. Your individual answers will be deidentified and your name will never be used in any report for this study. Your participation in this study is completely voluntary. You are able to stop the interview at any time and you do not have to answer any questions that you do not want to.

Do I have your permission to begin the interview?

Do I have your permission to record this interview? [Start recording]

Advocacy

1. What kinds of small businesses does your organization advocate on behalf of?
 - a. **[Prompt]** Women-owned, service-disabled veteran-owned, HUB-zone, etc.?
2. Could you describe how your organization advocates to the Federal Government on behalf of [SBA-designated group] small businesses?
3. Could you describe the common challenges that [SBA-designated group] small businesses face when they want to work as a contractor for the Federal Government?
4. Are you familiar with the Federal Government's overall procurement goals for small businesses? [If no, read background information on overall federal procurement goals then proceed to sub-questions. If yes, proceed immediately to sub-questions.]
 - a. Are you satisfied with the Federal Government's overall procurement goals for small business prime and subcontracting? Why or why not?
 - b. Are you satisfied with the Federal Government's procurement goals for [SBA-designated group] small businesses?
 - c. How would you change the Federal Government's [SBA-designated group] procurement goals for small businesses, if at all?
5. What kinds of rewards or penalties do you believe would encourage federal agencies to meet their [SBA-designated group] small business procurement goals?

6. Do you believe that your association members' perceptions of the Federal Government are shaped by whether or not they meet their small business procurement goals?

Scorecard Methodology

7. The annual Small Business Procurement Scorecard assesses how well federal agencies reach their small business and socio-economic prime contracting and subcontracting goals and reports agency-specific progress toward their contracting goals. Do you believe that the procurement scorecard is an adequate tool for improving federal agencies' procurement practices? Why or why not?
8. Congress directed the SBA to change the Small Business Procurement Scorecard methodology for FY2017. The changes to the methodology increased emphasis on small business subcontracting in addition to prime contracting, added a peer review score of each Office of Small and Disadvantaged Business Utilization, and increased emphasis on the number of small businesses across North American Industry Classification System (NAICS) codes. Were you aware of the changes that were made to the Small Business Procurement Scorecard methodology in 2017?
 - a. Why do you think the scorecard methodology was changed?
 - b. What changes, if any, have you noticed in the Federal Government's procurement approach as a result of the new methodology?
 - i. **[Prompt]** For example, increased outreach events or increased adoption of small business set-asides?
 - ii. To which portion of the new methodology would you attribute that change and why?
 - c. How, if at all, did the change to the scorecard methodology in 2017 affect contracting opportunities for the [SBA-designated group] small businesses that you advocate on behalf of?
 - i. To which portion of the new methodology would you attribute that change and why?

SBA Support

9. What kinds of support does the SBA provide [SBA-designated group] small businesses for contracting with the Federal Government?
 - a. In your opinion, which aspects of SBA support are most effective?
 - b. Which are least effective?
10. What kinds of additional support or activities could the SBA provide to increase contracting opportunities for [SBA-designated group] small businesses?
11. What kinds of additional support or activities by federal agencies would be beneficial for engaging and contracting with [SBA-specific group] small businesses?

Do you have anything else that you would like to share that I have not covered?

Appendix F: Research Question 3 Information Sheet on the Evaluation Provided to Respondents of the Semi-Structured Interviews

The U.S. Small Business Administration (SBA) is conducting a program evaluation of the Small Business Procurement Scorecard. We invite you to participate in this study to help the SBA improve the process of establishing federal agency goals, garnering agency support, ensure achievement of the federal small business contracting goals, and increase contracting opportunities for small businesses.

What is this study and what will you ask me to do during the interview?

The goals of this study are to understand the process of how small business contracting goals are set, how they are measured, how they may influence contracting opportunities for small businesses and whether the changes made to the Small Business Procurement Scorecard Methodology in 2017 has had any impact on agencies' ability to meet their goals.

Who is conducting these interviews?

This mixed-methods evaluation, including semi-structured interviews, is being conducted by a public policy research organization, Optimal Solutions Group, LLC (Optimal), under contract with the SBA.

What is the time required to participate in this project?

We expect that the semi-structured interviews will take up to 1 hour.

How will my answers be used?

The interview will be recorded and a transcript of the interview will be produced. The transcript of the interview will be limited to and analyzed by Optimal's research team. Your individual answers will be deidentified in reporting to the SBA so that you cannot be identified.

Do I have to participate in this project?

Your participation in this study is completely voluntary. You have the right to not participate. You can stop participating at any time, and you do not have to answer any questions that you do not want to.

What if I want more information?

If you have questions or concerns about this study, please contact Optimal at 301-918-2816 x156 or email sbacfo@optimalsolutionsgroup.com.

If you have questions about the program, please contact Brittany Borg at the SBA, (202) 401-1354, Brittany.Borg@sba.gov.

Appendix G: Supplementary Tables

Tables 39-42 below contain data presented in Figures 1, 2, 8, and 9 respectively in the report. The tables are included in the appendix to supplement the information presented in the figures in the report.

Table 39: Small business prime contracting achievement by agencies: FY 2014 – FY 2019⁷²

Federal Agency	2014	2015	2016	2017	2018	2019
U.S. Department of Agriculture	53.68	50.00	56.24	58.05	63.41	57.96
U.S. Department of Commerce	41.00	43.24	41.44	43.33	46.00	42.73
U.S. Department of the Interior	55.27	55.20	59.67	57.04	58.48	57.06
U.S. Department of Justice	32.45	29.79	31.72	29.87	34.11	31.38
U.S. Department of Labor	36.00	34.86	36.04	39.41	39.40	40.34
U.S. Department of State	43.54	43.95	28.56	22.89	27.62	31.81
U.S. Department of the Treasury	36.67	34.69	36.17	35.68	42.59	42.71
U.S. Office of Personnel Management	23.46	33.85	31.40	33.97	30.93	30.07
U.S. Social Security Administration	38.32	39.76	36.67	33.57	36.13	48.60
U.S. Nuclear Regulatory Commission	35.52	31.14	37.12	36.82	41.09	57.46
U.S. Department of Veterans Affairs	34.42	30.80	29.88	29.72	30.90	32.23
U.S. General Services Administration	38.97	44.16	39.23	42.68	39.37	42.69
National Science Foundation	17.00	21.68	18.64	18.79	11.25	15.55
U.S. Environmental Protection Agency	40.72	39.75	40.09	40.48	43.35	43.25
U.S. Department of Transportation	44.58	50.94	51.77	48.75	33.54	37.12
U.S. Department of Homeland Security	35.06	34.05	36.95	34.75	35.53	36.96
U.S. Agency for International Development	20.81	18.13	13.12	13.18	14.08	14.80
U.S. Small Business Administration	77.48	78.18	73.70	79.53	78.49	81.02
U.S. Department of Health and Human Services	21.56	23.30	23.02	22.60	22.41	25.26
National Aeronautics and Space Administration	18.34	17.33	16.67	17.02	17.00	17.68
U.S. Department of Housing and Urban Development	40.32	38.20	46.34	49.36	41.34	28.27
U.S. Department of Energy	5.25	8.97	9.57	13.79	13.78	17.84
U.S. Department of Education	28.68	28.44	23.35	26.85	34.91	35.48
U.S. Department of Defense	23.47	24.64	22.94	23.26	24.12	24.16

⁷² Table 39 contains data for Figure 1 in the report.

Table 40: Scorecard grade by agencies: FY 2014 – FY 2019⁷³

Federal Agency	2014	2015	2016	2017	2018	2019
U.S. Department of Agriculture	111.12	103.72	112.84	111.93	118.85	108.66
U.S. Department of Commerce	120.12	119.70	120.65	134.05	134.39	133.49
U.S. Department of the Interior	113.15	119.09	121.47	122.88	127.59	117.93
U.S. Department of Justice	106.44	105.12	104.55	103.67	114.08	108.31
U.S. Department of Labor	106.35	116.93	115.52	123.59	123.40	126.45
U.S. Department of State	114.06	119.26	123.56	108.37	116.74	123.24
U.S. Department of the Treasury	117.07	117.57	116.84	118.83	131.89	124.89
U.S. Office of Personnel Management	110.76	113.33	116.21	120.72	96.41	110.88
U.S. Social Security Administration	112.09	114.05	104.68	107.74	110.14	110.50
U.S. Nuclear Regulatory Commission	118.21	117.90	122.52	125.95	109.46	122.69
U.S. Department of Veterans Affairs	98.85	97.12	93.66	98.34	100.49	100.15
U.S. General Services Administration	111.91	132.49	117.30	107.43	116.12	121.76
National Science Foundation	104.88	118.13	123.52	110.67	85.54	96.63
U.S. Environmental Protection Agency	106.72	106.17	102.91	108.59	115.31	113.54
U.S. Department of Transportation	113.57	120.72	113.50	111.36	107.11	116.82
U.S. Department of Homeland Security	120.11	118.85	122.20	122.12	122.56	122.32
U.S. Agency for International Development	126.45	109.93	95.47	89.43	95.80	96.31
U.S. Small Business Administration	117.06	124.37	118.19	137.60	127.48	131.95
U.S. Department of Health and Human Services	93.68	94.93	97.47	99.79	94.45	108.05
National Aeronautics and Space Administration	87.17	90.90	91.72	105.64	103.10	107.22
U.S. Department of Housing and Urban Development	104.72	102.52	123.18	124.93	124.39	110.26
U.S. Department of Energy	66.90	104.38	105.13	102.09	107.49	116.83
U.S. Department of Education	112.97	113.06	89.27	114.33	131.30	118.43
U.S. Department of Defense	103.02	106.34	102.24	100.97	102.56	104.04

⁷³ Table 40 contains data for Figure 2 in the report.

Table 41: Scorecard grades calculated using pre-2017 methodology by CFO Act agencies: FY 2014 – FY 2019⁷⁴

Federal Agency	FY 2014 - FY 2016	FY 2017 - FY 2019
U.S. Department of Agriculture	109.23	126.82
U.S. Department of Commerce	120.16	140.50
U.S. Department of the Interior	117.90	134.48
U.S. Department of Justice	105.37	114.81
U.S. Department of Labor	112.93	133.83
U.S. Department of State	118.96	122.72
U.S. Department of the Treasury	117.16	130.70
U.S. Office of Personnel Management	113.43	118.16
U.S. Social Security Administration	110.27	115.78
U.S. Nuclear Regulatory Commission	119.54	137.07
U.S. Department of Veterans Affairs	96.54	108.53
U.S. General Services Administration	120.57	134.15
National Science Foundation	115.51	99.31
U.S. Environmental Protection Agency	105.27	115.94
U.S. Department of Transportation	115.93	116.22
U.S. Department of Homeland Security	120.39	129.24
U.S. Agency for International Development	110.62	96.57
U.S. Small Business Administration	119.87	142.18
U.S. Department of Health and Human Services	95.36	104.72
National Aeronautics and Space Administration	89.93	101.45
U.S. Department of Housing and Urban Development	110.14	131.37
U.S. Department of Energy	92.14	109.39
U.S. Department of Education	105.08	130.10
U.S. Department of Defense	103.87	105.95

⁷⁴ Table 41 contains data for Figure 8 in the report.

Table 42: Actual scorecard grades by CFO Act agencies: FY 2014 – FY 2019⁷⁵

Federal Agency	FY 2014 - FY 2016	FY 2017 - FY 2019
U.S. Department of Agriculture	109.23	113.15
U.S. Department of Commerce	120.16	133.98
U.S. Department of the Interior	117.90	122.80
U.S. Department of Justice	105.37	108.69
U.S. Department of Labor	112.93	124.48
U.S. Department of State	118.96	116.12
U.S. Department of the Treasury	117.16	125.20
U.S. Office of Personnel Management	113.43	109.34
U.S. Social Security Administration	110.27	109.46
U.S. Nuclear Regulatory Commission	119.54	119.37
U.S. Department of Veterans Affairs	96.54	99.66
U.S. General Services Administration	120.57	115.10
National Science Foundation	115.51	97.61
U.S. Environmental Protection Agency	105.27	112.48
U.S. Department of Transportation	115.93	111.76
U.S. Department of Homeland Security	120.39	122.33
U.S. Agency for International Development	110.62	93.85
U.S. Small Business Administration	119.87	132.34
U.S. Department of Health and Human Services	95.36	100.76
National Aeronautics and Space Administration	89.93	105.32
U.S. Department of Housing and Urban Development	110.14	119.86
U.S. Department of Energy	92.14	108.80
U.S. Department of Education	105.10	121.35
U.S. Department of Defense	103.87	102.52

⁷⁵ Table 42 contains data for Figure 9 in the report.