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Ranking Small Business Resistance Criteria Toward the Affordable Care Act

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This is to certify that the doctoral study by

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has been found to be complete and satisfactory in all respects,
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Abstract

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Doctoral Study Submitted in Partial Fulfillment

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Abstract

Following the enactment of the Affordable Care Act (ACA) in 2010, politicians, media, and lobbyists rendered a number of conflicting and confusing interpretations of its merits and demerits. Such interpretations intensified the skepticism and concerns of small business enterprise (SBE) owners. The purpose of this study was to develop a representative, prioritized list of SBE owners' concerns or resistance factors. The goal was to create a useful guide for SBE owners who are seeking ways to reducing the adverse financial impact of the law. With social choice theory as the theoretical framework, 50 randomly selected SBE owners across 5 distinct industry groups from Richmond, Virginia, participated in an online, cross-sectional, pairwise comparison survey. The overall results of an analytic hierarchy process indicated that the top-ranked resistance factor of SBE owners was insurance premiums, followed by quality of care and the tax burden. However, these rankings were not uniform among industry groups. With a focus on these crucial concerns, SBE owners could benefit by seeking approaches to reduce the business costs of health care. The implications for positive social change include the potential for business organizations, researchers, and policymakers to channel SBE owners' voice for a socioeconomic growth by addressing their concerns in seeking improvements from the ACA.

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Dedication

To those, striving to reach puberty of their soul (Dr. Asha Mishra).

I reached this pinnacle of my life with the strength and support of many. I elicited inspiration from Sant Kabir Das, Pope Francis, President Barack Obama, President Nelson Mandela, and Prime Ministers Indira Gandhi and Narendra Modi. My dedication is for their vision and guiding light of social change.

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Section 1: Foundation of the Study

According to Cutler and Ly (2011), Americans believe the United States has one of the best health care systems in the world. However, the system lacks comprehensive access for all legal residents and is the most expensive in the world (Oberlander, 2012b). The Affordable Care Act (ACA) was a politically and socioeconomically motivated attempt to widen the provision of health care, as well as its affordability, in the United States. The ACA, which contains 10 titles (as shown in Table 1), became law in 2010 and covers both individuals and businesses. The issue of accessibility is addressed in numerous of its subtitles, sections, and provisions (Healthcare, n.d.; Lindsey, Spake, & Joseph, 2011).

Table 1

The Affordable Care Act Titles

ACA Title Number	ACA Title Heading
I	Quality, Affordable Health Care for All Americans
II	The Role of Public Programs
III	Improving the Quality and Efficiency of Health Care
IV	Prevention of Chronic Disease and Improving Public Health
V	Health Care Workforce
VI	Transparency and Program Integrity
VII	Improving Access to Innovative Medical Therapies
VIII	Community Living Assistance Services and Supports Act (CLASS Act)
IX	Revenue Provisions
X	Strengthening Quality, Affordable Health Care for All Americans

The literature includes numerous studies, research articles, and books on the ACA and its impact on businesses. Concerns about the adverse financial impact on businesses—based on the work of Geyman (2012) and Hellander and Bhargavan (2012)—led owners of small business enterprises (SBEs) to resist the law. The two

primary concerns were the high cost of providing health insurance and the difficulties enrolling in appropriate health insurance programs (Geyman, 2012; Hellander & Bhargavan, 2012; Miller, 2011; Neiburger, 2011; Oberlander, 2012a).

The relatively new literature lacks studies that quantify the intensity of concerns and thus rank the factors of SBE owners' resistance to the ACA. In this research study, I reviewed surveys and research articles as primary sources to develop a list of resistance factors. Additionally, lack of quantification of the importance, weighting, or ranking of such factors relative to each other provided the motivation for this research to measure the intensity of SBE owners' worries or concerns. To develop a ranked hierarchy of the resistance factors, I used the analytic hierarchy process (AHP) technique (Ishizaka & Labib, 2011). SBE owners can act on the key factors to reduce the potential adverse financial impact on their business. U.S. government, academic, and professional organizations can focus on high-ranking resistance factors to alleviate or reduce SBE owners' concerns about the adverse financial impact of the law on businesses.

Background of the Problem

Several U.S. presidents—President Theodore Roosevelt, President Harry Truman, and President William Clinton—were unsuccessful previously in their efforts to create a comprehensive health care system (Oberlander, 2012b; Parks, 2011). In the midst of a highly charged political battle, President Barack Obama signed the ACA into law on March 23, 2010 (U.S. Department of Health and Human Services, n.d.). Although the ACA is not a right to health insurance, the law mandates comprehensive health insurance to those covered (Gable, 2011; Record, 2012). Despite several challenges to the ACA,

U.S. Supreme Court justices upheld the law in 2012, requiring individuals to buy health insurance (Curfman, Abel, & Landers, 2012).

Researchers have conducted studies to identify barriers to SBE health care coverage and the response of SBE owners to the ACA (Leonard, 2011; Lepard, 2013; McMorrow, Blumberg, & Buettgens, 2011). The barriers included high administrative costs and limited ability to spread insurance risks for small businesses; these barriers resulted in lower employee health coverage than in big companies. I found no studies that accounted for the fears, worries, and concerns of SBE owners about the adverse financial impact of the ACA (Miller, 2011; Oberlander, 2012b). SBE owners' concerns about the potential effects of the ACA on companies compelled them to resist the law (Jacobe, 2013a).

Problem Statement

Passage of the ACA in 2010 mandated comprehensive health care to legal U.S. residents; however, controlling health care costs remains a difficult challenge (Oberlander, 2012a). For example, a survey conducted in 2010 revealed that the cost of health coverage provided by employers more than doubled since 2000 (Hellander & Bhargavan, 2012). According to a 2013 survey, 48% of SBE owners said the ACA was bad for business; 54% of U.S. SBE owners found that health care costs were hurting their business a lot (Jacobe, 2013b).

The general business problem was that the experts' conflicting and confusing interpretations of the law caused SBE owners concern about the law's potential adverse financial impact on businesses. The specific business problem was how prioritization of

SBE owners' concerns could help them in focusing on approaches to reduce the law's potential for creating an adverse impact.

Purpose Statement

The purpose of the quantitative, cross-sectional, and descriptive study was to examine which SBE owners' concerns ranked high as resistance criteria or factors (Ernstmann et al., 2012). The prioritization of SBE owners' concerns about the law required identification and ranking of the resistance factors to the ACA. The AHP was the analysis technique (Ishizaka & Labib, 2011; Saaty & Vargas, 2012). Thus, no independent and dependent variables were associated with this study. The ranking of resistance factors could provide a venue for SBE owners for exploring cost-effective and efficient measures to reduce the potential adverse financial impact of the ACA.

Nature of the Study

Researchers can apply various methodologies to generate a prioritized list or ranking of factors related to SBE owners' resistance to the ACA. Irrespective of the methodology, the first phase always involves the collection of data needed to perform the ranking calculations. The second phase involves the application of a technique that generates the ranked order of resistance factors. For example, one could apply a qualitative, quantitative, or hybrid methodology that mixes the qualitative and quantitative methodologies (Walliman, 2006).

In this research, I adopted a quantitative methodology based on the AHP technique to rank the SBE owners' resistance factors. In the first phase, to collect the data needed to perform ranking calculations, the survey design was cross-sectional. Langabeer

and DelliFraine (2011) explained that a cross-sectional survey design allows the researcher to obtain a sample representative of the population, thus allowing generalizations of research findings to the population itself. Because of the specialized nature of a pairwise-comparison survey instrument and the need to collect consistent comparisons from participants, each small business owner willing to participate in the survey received elaborate instructions on the steps of AHP. In addition, SBE owners received satisfactory answers to all questions prior to survey administration.

Upon data collection in the second phase, I executed a technique for ranking the factors of SBE owners' resistance to the ACA. Several qualitative and quantitative techniques are available to researchers for ranking, using decision alternatives such as opinion-based Delphi or nominal group and ordering or weighting techniques (Joshi, Banwet, & Shankar, 2011). Ishizaka and Labib (2011) asserted the pairwise comparison of criteria is more appropriate than simple ranking methods and suitable for ranking qualitative and quantitative measurements of factors or criteria simultaneously in complex systems. AHP is a quantitative structured decision-making approach, in which one uses pairwise comparisons to determine the relative importance of criteria and the relative strengths of decision alternatives.

In general, quantitative studies are better than qualitative or mixed methods when using survey instruments to assess trends, attitudes, or opinions of a population (Nejadirani, Matin, & Farshad, 2011). Qualitative studies such as ethnography, grounded theory, case studies, phenomenological, and narrative research involve open-ended interviews for determining themes or patterns interpreted to understand a phenomenon

(Walliman, 2006). Mixed-methods research includes both quantitative and qualitative approaches. As a triangulation method, a mixed-method research would have extended the scope of the study beyond this research study's intended purpose. Qualitative and mixed-methods research approaches did not meet the requirements of prioritizing the resistance factors based on ranking them through the SBE owners' judgment of pairwise comparison questions. Therefore, I selected the quantitative method involving the AHP technique for this study.

Research Question

In this study, I examined the question, what is the ranking of resistance factors to the ACA exhibited by SBE owners? From this overarching question, the following lower-level research questions developed:

RQ1: What are the main resistance factors to the ACA characterizing SBE owners' perceptions?

RQ2: What is the relative ranking of SBE owners' resistance factors to the ACA?

RQ3: How uniform is the assessment of rankings of resistance factors among various industry groups of participating SBE owners?

Hypotheses

The AHP technique can be useful in analyzing data with a combination of qualitative and quantitative measurements of the factors or criteria. Researchers can determine rankings with the AHP technique by comparing any factors in a pairwise fashion and combining the comparisons in a composite weight. According to Danner et al. (2011), AHP is a quantitative method that involves Saaty's mathematical algorithm

using matrices of pairwise comparisons to calculate right eigenvector or preference weights of decision criteria; thus, AHP does not involve statistical hypotheses, computations, and analyses. While statistical techniques require the establishment of statistical or inferential hypotheses, AHP relies solely on developing working hypotheses (WHs). Oppenheim and Putnam (1958) provided a broad definition of a WH, which emanates from the assumption one can achieve unitary science through cumulative microreduction. Since the AHP is not a statistical method, researchers can apply the AHP technique using a set of WHs to address the research questions. Based on this deduction, the following WHs evolved in support of the research questions:

WH1: Main resistance factors, as criteria for a complex decision-making problem, exist for SBE owners resisting the ACA.

WH2: Prioritization of factors of SBE owners' resistance to the ACA, based on relative ranking, could be useful to decision makers (e.g., U.S. government officials and SBE owners).

WH3: The rankings of key SBE owners' resistance factors to the ACA are the same, indicating uniformity among participating SBE industry groups.

The primary goal of asking the survey questions was to rank the relative importance of factors of SBE owners' resistance to the ACA. Saaty and Vargas (2012) provided a fundamental scale to answer pairwise comparison questions by rating the importance of one factor in comparison to another. While surveying SBE owners, I did not collect any information that would identify their names or small businesses participating in the survey. The informed consent form, provided to the survey

participants, specified study details and participants' role through survey participation. Upon receiving approval from the Institutional Review Board (IRB), the updated informed consent form included the IRB approval number (01-21-15-0352226) with the expiration date of January 20, 2015. Appendix A contains a pairwise questionnaire based on online software Goepel (2013) provided and instructions to participating SBE owners or their authorized representatives.

Theoretical Framework

Social change theory, behavioral momentum theory, and social choice theory provided the foundation to study the research problem (Diaby, Ferrer, & Valognes, 2013; Lewin, 1947; Nevin, Mandell, & Atak, 1983). Social change theory helps explain passage of the ACA, which followed a century of attempts for comprehensive health care reform in the United States (Oberlander, 2012a, 2012b). Resistance to change is natural, according to Gardner (2009). Gardner found similar challenges in social change theory and the push to pass the ACA such as resistance to change. To study the resistance to change, behavioral momentum theory (BMT) works well (DeCanio & Fremstad, 2013; Kothiyal, Spinu, & Wakker, 2014).

Elements of operations research formed another key component of the theoretical foundation for this study. One of the growing segments of operations research is the field of multi-criteria decision-making (MCDM). Some of the MCDM techniques, such as AHP and measuring attractiveness by a categorical based evaluation technique (MACBETH), rely on social choice theory. In 1951, Kenneth Arrow provided an axiomatic method of pairwise aggregation of individual preferences or votes, which

means combining utility functions to establish social welfare function (Diaby, Ferrer, & Valognes, 2013). Within the framework of theories presented, I applied pairwise comparison choices to address the research problem of prioritizing factors of SBE owners' resistance to the ACA using the decision-making technique AHP.

Operational Definitions

Affordable Care Act (ACA): The ACA is a comprehensive health care reform law that mandates qualifying legal U.S. residents and businesses to purchase health insurance (U.S. Department of Health and Human Services, n.d.).

Analytic hierarchy process (AHP): AHP is a multicriteria decision-making approach that uses the pairwise comparison of factors or criteria of qualitative or quantitative data. The prioritization steps indicate the use of hierarchical tree structure of the factors and ratio scale measurements (Ishizaka & Labib, 2011).

Full-time equivalent (FTE): FTE is a measure that includes employees working 30 or more hours per week and the aggregate number of hours of part-time employees of a business divided by 120 (Tacchino, 2013b).

Industry group: An industry group identifies a group of small business industries in the industry sectors (U.S. Small Business Administration, n.d.).

Multicriteria decision-making (MCDM): MCDM is a group of techniques involving multiple criteria or objectives for making decisions (Ishizaka & Labib, 2011).

Small business enterprise (SBE): An SBE is a business in the United States that employs up to 50 FTE employees (Healthcare, n.d.).

Assumptions, Limitations, and Delimitations

The following three subsections indicate a focus on the research assumptions, limitations, and delimitations. The assumptions stipulate various research controls without which this research becomes irrelevant (Chin-Pyke, 2014). Limitations identify several weaknesses of the study that are out of the researcher's control (Chin-Pyke, 2014). Delimitations are the boundaries of the study pertaining to characteristics of the research problem, participants, and data collection (Dahlkemper, 2009).

Assumptions

The assumptions applicable to the research study, as shown in Table 2, include a category, description, justification for the assumption, and any risks associated with the assumption. For any identified risks, I provided appropriate risk mitigation approaches to removing the risks. The category of assumptions encompassed topics pertaining to (a) research methodology and theory, (b) survey instrument and sample, and (c) analysis and results.

Table 2

Assumptions

Category	Description	Justification	Associated Risk	Risk Mitigation
Theory	The AHP technique is the appropriate MCDM theory to study the phenomenon.	Among various techniques used for structuring complex problems and ranking criteria of the problem, the AHP technique is the most suitable method.	None	Not necessary
Phenomenon	The factors of SBE owners' resistance to the ACA identify the fears, worries, and concerns.	The factors of SBE owners' resistance to the ACA are homogeneous and do not overlap.	No associated risks found because of the absence of prior studies	Not necessary
Instrument	The survey designed to collect data is easy to understand and appropriate for research.	The quality of the survey directly affects the quality of data collected from survey participants.	Survey participants may get confused and uninterested	Participant's review and explanation of the survey instrument necessary
Sample Size	The sampling frame provides a sufficient number of small businesses to reach a saturation point.	No mandatory sample size requirements associated with the AHP technique; sample saturation is sufficient for the study.	None	Not necessary
Methodology	The research methodology, using the AHP technique, includes all elements of the process.	The research methodology and design are thorough and complete for the findings to meet validity requirements.	Any missing elements may render the research methodology incomplete.	A review of research methodology and design necessary
Analysis	The data analysis is free of bias and errors. Validation using prevailing standards is necessary.	The accuracy of data analysis is essential to the research findings.	Any bias or errors may render the findings questionable.	Validate results using validity requirements
Significance	Prioritization of resistance factors may be useful to U.S. government, businesses, and academics.	The objective of conducting this study is the identification and prioritization of factors of SBE owners' resistance to the ACA.	None	Not necessary

(table continues)

Category	Description	Justification	Associated Risk	Risk Mitigation
Participants	The study participants being from several industries provide business diversity.	The intent of having SBEs from several industries is to assess the uniformity of their opinions.	None	Not necessary
Results	The findings from the study may assist in finding opportunities to reduce or eliminate SBE owners' resistance.	The goal is to make recommendations for potential further action on key SBE owners' resistance issues.	None	Not necessary

Limitations

The limitations, as shown in Table 3, include the identified constraints on the study. The goal of listing the limitations was to document weaknesses of the study only. Because of inherent weaknesses of the limitations, one cannot take any remedial actions.

Table 3

Limitations

Category	Description	Justification
Phenomenon	The literature is the primary source of factors of SBE owners' resistance to the ACA for the study.	Peer-reviewed research articles and reports provided SBE owners' resistance factors for the study.
Instrument	The calibration of the survey instrument may inadvertently miss some resistance factors not known during the study.	Because the survey instrument calibration relies on the phenomenon, the calibrated survey represents only the phenomenon for the study.
Sample	The sampling frame includes survey participants from only one metropolitan area.	The sampling frame fulfills requirements of the study.
Participants	The study participants belong to the industry groups prevalent in the sampling frame.	Some industry groups prevalent in other sampling frames may not be available for this study.
Results	The sample population limits the potential for generalization of the findings because of the sampling frame.	The survey participants are from a single location.

Delimitations

The delimitations, as shown in Table 4, include the boundaries of the study. The boundaries encompass (a) the research problem, (b) the survey instrument, (c) sample size, and (d) characteristics of the study participants. The delimitations also include the study participants belong to SBEs from Richmond, Virginia.

Table 4

Delimitations

Category	Description	Justification
Phenomenon	The aim of the study is to focus only on SBE owners' resistance to ACA.	Small businesses make the largest segment of businesses in the United States.
Instrument	Saaty's fundamental scale is a measure for pairwise comparison of resistance factors.	A pairwise comparison of the criteria for AHP technique requires measurements based on a 9-point scale.
Sample	Study participants include 50 small businesses, 10 each from five industry groups.	The total number of small businesses participating in the study meets the sample saturation requirements.
Participants	Participants of the study are SBE owners as the ACA defined.	The focus of the study is on concerns of SBE owners pertaining to the ACA.

Significance of the Study

This research study of SBE owners' resistance is significant because of the paradigm shift resulting from the enactment of the ACA that has led to a need to understand various perspectives on the ACA. First, the study is helpful to small business practices because it provides a quantitative assessment of the factors influencing SBE owners' resistance to the ACA. The research findings are also significant because SBE owners could find cost-effective and efficient measures to reduce the potential adverse financial impact of the ACA on businesses. Second, the study has significant socioeconomic implications for the entrepreneurs, the workers, and those served by SBEs of the United States. Last, with this study, I filled a significant gap in existing academic literature—the lack of quantitative assessment of SBE owners' resistance to the ACA.

Contribution to Business Practice

The focus of this study was on highlighting the worries of SBE owners about the potential adverse financial impact of the ACA on their businesses. These concerns are

significant because 99.7% of U.S. businesses are SBEs (U.S. Small Business Administration, n.d.). SBE owners rely on the economic principles of increasing revenue and reducing expenses to maximize profit. The primary contribution of this study to business practice was providing a quantitative method for SBE owners to develop cost-effective and efficient measures to reduce the potential adverse financial impact of the ACA. In addition, U.S. government authorities could pay more attention to addressing the concerns about the ACA that weigh heavily on SBE owners.

Implications for Social Change

The ACA has been controversial since its passage in 2010 because of political, legal, and regulatory confusion about the law (Dalen, 2011; Oberlander, 2012a). Employers, especially SBE owners, perceived a negative impact of the provisions of the ACA pertaining to health insurance coverage, particularly the adverse financial impact on their businesses (Jacobe, 2013a, 2013b). The knowledge acquired from this study could be useful to SBE owners to focus on critical issues related to the ACA. Because of the changes to health insurance coverage from the ACA, SBE owners could also utilize a representative voice to highlight those issues that are crucial to their businesses' financial success. With this study, SBE owners could leverage this voice to influence the provisions of the ACA to benefit enterprises, employees, and society. SBE owners could seek redress for their concerns from appropriate authorities and find ways to mitigate any financial risks attributable to the resistance factors. In addition, U.S. government officials at the state and federal levels could benefit from the findings for prioritizing any remedial

actions or improvements to reduce or remove the stigma resulting from SBE owners' concerns.

A review of the academic and professional literature pointed to numerous studies and reports for identifying various factors of SBE owners' resistance to the ACA. However, no research studies existed in which the researcher conducted a quantitative assessment of the intensity of such resistance factors. With this research study, I was able to bridge the gap in the literature by highlighting key concerns of the SBE owners that compelled them to resist the ACA.

A Review of the Professional and Academic Literature

The purpose of this quantitative study was to identify and rank various factors that led to SBE owners' resistance toward the ACA. The aim of prioritization was to allow U.S. government, business organizations, and academics to develop a prioritized approach to alleviating or reducing SBE concerns. With this overall aim in mind, I gathered and critically assessed related research literature to develop an initial list of SBE owners' resistance factors to the ACA. From a review of relevant literature, the following three themes emerged: health care reform and the ACA, small business and the ACA, and the AHP.

The first theme includes a brief history of health care reform efforts over the past century, followed by a discussion of recent health care practices in the United States and other countries for comparison purposes. The focus then shifts to the legal, social, and economic challenges encountered during the implementation of the ACA and to planning for the future of the law. Lewin's (1947) social change theory helps explain the changes

resulting from passage of the ACA and subsequent adjustments to processes, policy, and procedures with the implementation of the law.

The second theme consists of the definition of SBEs and the known and conjectured impact of the ACA on small businesses and individuals employed in these businesses. Next, the review includes the role of: (a) self-insurance, (b) small group insurance, and (c) health insurance exchanges providing crucial health insurance coverage to individuals and families. A review of this literature revealed a dearth of studies on SBE owners' resistance to the ACA but helped with identification of an initial list of resistance factors. In addition, the second theme includes a review of the BMT, which is applicable to the study of resistance to change (Nevin et al., 1983).

The focus of the third and last theme is on the review of decision sciences through the lens of decision theory and social choice theory, devised by Arrow in 1951 (Diaby et al., 2013). The application of decision theory to this research study was through an MCDM method known as the AHP first described by T. L. Saaty (Ishizaka & Labib, 2011). An overview of the AHP literature encompasses the application of the technique to various complex problem-solving requirements in U.S. government, business, and industrial disciplines. Section 2 contains details of the AHP method.

Literature Search Process

To identify peer-reviewed articles, dissertations, and books, I searched the following databases: ProQuest Dissertations & Theses databases, Google Scholar, ABI/INFORM Complete, Business Source Complete/Premier, LexisNexis Academic, ProQuest Central, ScienceDirect, Emerald Management Journals, and SAGE Journals.

The keywords used in the literature search included: *health reform*, *health care reform*, *health insurance*, *Affordable Care Act*, *Obamacare*; *small business* in conjunction with *worries*, *fears*, *concerns*, and *resistance* to the ACA; *multi-criteria decision-making*, *social change theory*, *behavioral momentum theory*, *social choice theory*, *analytic hierarchy process*, *reliability*, and *validity; ACA, AHP, MCDM,* and *SBE*. I used Boolean operators, including AND and OR, to maximize the results.

I limited the literature search primarily to full-text, peer-reviewed articles published within the past 5 years. Some of the reviewed literature occasionally yielded additional sources of literature for an in-depth understanding of the research problem and research method. Table 5 contains the numbers of professional and academic literature reviewed and all references used in the study.

Table 5

Reviewed Literature and All References Statistics

Reference Type	Total count
Total number of all references:	159
Total number of all references 5 or fewer years old:	149
Percentage of all references 5 or fewer years old:	94
Total number of all peer-reviewed references:	146
Percentage of all peer-reviewed references:	92

Theme 1: Health Care Reform and the Affordable Care Act

This subsection contains a brief description of the origin of health care reform and the historical background of the ACA. The subsection also provides a discussion of the practice, challenges, and future of the ACA. Finally, I highlight how social change theory explains the development, passage, and implementation of the ACA.

Origin of health care reform. Plans for health care reform started in 1912 when President Theodore Roosevelt attempted to provide health insurance to U.S. citizens (Parks, 2011). His efforts did not succeed because of opposition from political leaders, businesses, and the insurance industry to socialized medicine (Parks, 2011). However, public–private partnership evolved to provide health insurance to U.S. citizens (Parks, 2011). In 1915, reformers tried to involve physicians, with the support of the American Medical Association (AMA), to create a national health insurance bill modeled on European countries' health insurance systems. Because of the intense opposition of business and insurance industry, the bill failed in 1920 (Oberlander, 2012b). After World War II, several presidents, including Harry Truman, Richard Nixon, James Carter, and William Clinton, tried to pass a universal health insurance law (Oberlander, 2012b). Again, mistrust in U.S. federal government control, political opposition, and opposition from business and industry contributed to the failure of passage of a health insurance law (Gable, 2011; Oberlander, 2012b).

The failure of a comprehensive national health insurance program has resulted in a myriad of public and private health insurance plans provided by employers. The passage of 1965 Medicare and Medicaid act allowed U.S. government programs to insure elderly and low-income people (Oberlander, 2012b). In 2006, Massachusetts implemented health care reform that provided a framework for comprehensive health care. Eventually, in 2010, following acrimonious and political wrangling of lawmakers, the ACA became law with the signature of President Barack Obama (Oberlander, 2012b). According to Mekel (2012), because of the individual mandate, business owners filed

many lawsuits against the ACA. Addressing the individual mandate of the ACA, Kapp (2012) commented individual mandate requiring health insurance purchase implies the person must also receive cost-effective medical intervention.

The ACA has many complex health insurance provisions; and, the provisions have a potential to improve the health of those covered by the law (Gable, 2011). Gable (2011) suggested the provisions of the ACA removes some of the burdens individuals faced because of insufficient health insurance coverage and limited access to health care. As an example, Claxton et al. (2012) remarked because of a provision of the ACA, 2.9 million young adults received health insurance coverage from their parents' health insurance plan in 2012. Gable pointed out while the ACA was an effort to contain cost, expand the availability, and improve access to health care goods and services, it fell short of declaring health a right for the public. Concerned about the future of the ACA, Gardner (2012) discussed the law's obstacles, shortcomings, and improvement opportunities.

Gardner (2012) lamented obstacles to the ACA were from ongoing legal challenges and efforts by the U.S. House of Representatives to repeal the law. According to Gardner, the ACA encompasses a vision to invest in new infrastructure for improving the quality and reducing the cost of health care. In addition, improving the quality of information, infrastructure, and incentives are primary objectives of the ACA (Gardner, 2012). Moreover, Gardner recommended changing the provider–payer system from a fee-for-service to value-based service for successful implementation of the ACA.

Taking a contrasting view, Wilensky (2012) remarked U.S. health care encountered three key problems: millions of uninsured people, high costs of health care, and diminishing quality of care. The ACA addressed only the first problem by expanding health care coverage to uninsured people. Wilensky highlighted several issues with payment and delivery of health care including 8,000 service codes for payment of physician services; lack of financial incentives to promote the value over volume; and lack of market-friendly reforms.

Wilensky (2012) identified a high cost of health care being one of the key problems. Berwick and Hackbarth (2012) pointed out the strategy to maintain a sustainable range of health care costs was to reduce waste. Berwick and Hackbarth focused on six categories of waste: overtreatment, failure of care coordination, failure of care processes execution, administrative complexity, pricing failure, and fraud and abuse. Estimated savings from systematic, comprehensive, and cooperative efforts to reduce waste could reach 20% of total health care costs (Berwick & Hackbarth, 2012).

Health care reform of U.S. states. Ayanian (2012) noted Massachusetts instituted a statewide reform of the health care system that included an individual mandate in 2006. The reform has been mostly successful in expanding health coverage, even during the economic recession period from 2006 to 2010. In this period, the number of uninsured, low-income adults got down by 16% (Graves & Swartz, 2012). However, Graves and Swartz (2012) found a decrease in people's average duration of being uninsured after the enactment of the ACA resulted primarily from a decrease in the number of uninsured individuals without insurance for up to 20 months. The goal of (a)

achieving near-universal insurance, (b) containing the cost of health insurance, and (c) increasing health care employment remained unfulfilled, even with improved number of low-income insured adults (Staiger, Auerbach, & Buerhaus, 2011). Staiger et al. (2011) pointed to the need for a larger health care workforce supporting physicians and nurses.

To investigate why some adults remained uninsured after 4 years, Nardin, Sayah, Lokko, Woolhandler, and McCormick (2012) conducted a survey of emergency department patients. The convenience sampling of 431 patients yielded 189 uninsured individuals. Key findings of the quantitative study revealed the uninsured were low-income patients and lacked employer-based insurance or state subsidies to afford health insurance (Nardin, Sayah, Lokko, Woolhandler, & McCormick, 2012). Miller (2012a) investigated the utilization of health care since the reform in 2006 and remarked lower cost of out-of-pocket expenses allowed patients to seek additional services. Seeking these services, patients managed their health care by avoiding costly emergency hospital visits. The health insurance coverage of children increased, and health services utilization and outcomes improved since Massachusetts' health care reform in 2006 (Miller, 2012b).

Grubb (2013) noted Vermont instituted the Green Mountain Care (GMC) universal health care system in 2011. According to Grubb, the Vermont administration involved local citizens and stakeholders in the structure of a single-payer system. The state had an independent board responsible for oversight to managing costs in areas such as: (a) payment reform, (b) insurance exchanges, and (c) rate setting. The state insurance exchange offered three tiers of insurance packages. The fully- and federally-funded state health exchange provides an opportunity for cost containment (Grubb, 2013).

Miller, Trivedi, Kuo, and Mor (2011) focused on the health insurance plan HEALTHpact offered in Rhode Island and analyzed enrollment issues with the program. Their qualitative study involved analysis of archival documents and interviews with 23 experts. Miller et al. concluded health insurance enrollment increased with the inclusion of subsidies to businesses and individuals. In addition, balancing the complexity of the program with innovation could have a favorable public response.

Health care practice. Several researchers reviewed the impact of the ACA on growing demand for primary care providers, expanding the role of nurses, changing hospital–physician relationships, and improving payment and delivery systems. Because of expanded health insurance coverage, Schwartz (2012) focused on the need for funding of the ACA provisions to grow a primary care workforce that meets increased demand for health care. The demand growth was a projection based on 80 million people retiring and an additional 32 million people receiving health insurance coverage in next 20 years (Schwartz, 2012). Moreover, general internists could provide leadership using bold policies to attract, train, and retain the required number of primary care personnel (Schwartz, 2012).

Kirch, Henderson, and Dill (2012) estimated a potential shortage of 45,000 primary care physicians and 46,100 medical specialists in the year 2020. Reviewing issues of staff shortages and demand, Kirch et al. recommended the implementation of the ACA required an understanding of projected shortcomings and increased demand for health care. The implications of shortages on the society meant access to primary and specialist care might be problematic, resulting in a longer wait for service, shorter time

with a physician, and potential higher cost of care. Kirch et al. suggested to meet growing demand, plans of action should include: expanding graduate medical education, expanding the use of nurse practitioners and physician assistants, and increasing physician productivity.

Within the context of the ACA, Buerhaus et al. (2012) analyzed biennial data of the past decade using national surveys of registered nurses. Accountable care organizations (ACOs) developed to improve health care delivery also expanded the role of nurses in health care delivery systems. The research findings revealed many registered nurses had a pessimistic view of the impact of the ACA on health care delivery, yet held an optimistic view of the equity of care. In addition, the relationship between nurses and physicians did not improve over the survey period. However, more nurses reported improvements with respect to safe, effective, equitable, and patient-centered health care (Buerhaus et al., 2012).

Pate (2012) reported a change in hospital–physician relationships accelerated after the passage of the ACA. The projected number of physicians joining the hospitals could increase by up to 25% during 2011–2016 period (Pate, 2012). Reasons for increased physician employment included (a) decreased growth in revenue, (b) increased expenses, and (c) lack of access to capital in private practice. The business model supporting the ACA required the accountable care of patients, which involves better care and health, but lower per capita cost. Pate suggested a change to develop an accountable care mechanism should rely on effective, aligned, and better hospital–physician relationship from physician-centered leadership.

Principe, Adams, Maynard, and Becker (2012) investigated the concern nonprofit hospitals were not providing enough health insurance benefits to individuals. Moreover, Internal Revenue Service (IRS) increased its financial oversight requiring nonprofit hospitals to document volume of services rendered to the community. According to Principe et al., the ACA allowed nonprofit hospitals to take advantage of available subsidies for health services and uncompensated care for rendering better services to their community.

Baron (2012) revealed the creation of an Innovation Center at Center for Medicare and Medicaid Services (CMS) resulting from the ACA. The Innovation Center created to test new health care delivery models would improve the quality and lower the cost of care. Programs originating from the Innovation Center were test beds for primary care that changes payment and delivery of health care. Based on new models physicians received rewards for quality instead of the volume of the care provided (Baron, 2012). These programs included (a) Multipayer Advanced Primary Care Program (MAPCP), (b) Federally Qualified Health Center (FQHC), and (c) Comprehensive Primary Care Program (CPCP). Payers and practitioners could use these programs as a road map to improve significantly the payment and delivery services of the future (Baron, 2012).

In a study of health care practices, Odeyemi and Nixon (2013) assessed international quality and accessibility to health care and health insurance. Odeyemi and Nixon analyzed health and economic data for 2000–2010 period to ascertain equity in health care financing and access in developing countries, such as Ghana and Nigeria. Recent universal health care coverage initiatives in these countries with the introduction

of National Health Insurance Scheme (NHIS) provided improved economic and health indicators in Ghana. These indicators included (a) lower financial burden of catastrophic diseases, (b) higher life expectancy, and (c) lower infant and age under 5-year mortality. Nigeria, when compared to Ghana, had (a) lower percentage of NHIS membership, (b) higher out-of-pocket expenses, and (c) lower access to financing (Odeyemi & Nixon, 2013). The success of Ghana, although weaker than Organisation for Economic Cooperation and Development (OECD) countries, resulted from the number of available exemptions to NHIS members. Using Ghana model, Nigeria could substantially improve its NHIS membership as well as economic and health indicators (Odeyemi & Nixon, 2013).

Witter, Garshong, and Ridde (2013) conducted a qualitative study of NHIS coverage of pregnant women within the context of access to health care in Ghana. The study involved a review of existing literature and interviews with 13 key stakeholders during March 2012–June 2012 period. Several issues related to financial barriers, such as timely reimbursement for health care facilities and patient costs, highlighted the weaknesses in the system (Witter, Garshong, & Ridde, 2013). According to Witter et al., improving the quality of care and access to poor women required stronger commitment and long-term effective policy implementation in Ghana.

Nguyen and Rohlf (2012) examined effects of Germany's statutory and private insurance systems on quality and price of innovative drugs using the game theory approach. The theoretical research involved health care systems based on two-country models. Nguyen and Rohlf emphasized health insurance converged towards universal or

citizen's insurance because of legal pressures, and the insurance being 90% statutory and 10% private. Using the game theory approach, Nguyen and Rohlf contended universal insurance contributed to poor innovative drug quality. The universal insurance was a factor also in increased drug prices for statutory health care and decreased drug prices for private health care.

Okorafor (2012) studied the impact of South African national health insurance payroll tax on private health insurance demand and health policy implications. The quantitative study involved the application of probit regression analysis to estimate the change in demand. The analysis of income and expenditure survey data of 21,144 households and 84,978 individuals revealed a remarkably small impact on demand for insurance. However, Okorafor recommended the national health insurance plan without addressing whether the quality of health care challenges burdened the families.

Sarwar and Qureshi (2012) focused their research on reviewing satisfaction level of employer-provided health insurance to employees of public and private organizations in Pakistan. The quantitative study involved a multistage random sampling of 370 employees in Lahore, Pakistan. Sarwar and Qureshi administered a survey of 15 demographic questions and 35 questions to measure the satisfaction level on a 5-point Likert scale. The research findings from Mann–Whitney test and Kruskal–Wallis test revealed a higher level of satisfaction in employees. The employees categories included (a) employees over age 27, (b) organizations having more than 500 employees, and (c) employees with more than 5 years health insurance participation. Moreover, employees

of telecommunications organizations expressed higher satisfaction level with their health insurance coverage (Sarwar & Qureshi, 2012).

Challenges to the ACA. Numerous U.S. states and interest groups filed several lawsuits challenging the legality of the ACA (Sheen, 2012). Curfman, Abel, and Landers (2012) noted U.S. Supreme Court accepted two lawsuits to review the issue of the ACA violating Constitution of the United States. Moreover, the lawsuits covered the issues whether U.S. Congress could require legal U.S. residents to buy health insurance or pay a penalty. In addition, the issues included whether the expansion of Medicaid was constitutional (Curfman et al., 2012; Goldman, 2012; Sheen, 2012).Goldman (2012) suggested legal scholars were in concurrence that the court would uphold the ACA.

Weinick and Hasnain-Wynia (2011) studied challenges arising from quality improvement initiatives of the ACA. The challenges highlighted the need to reduce any racial and ethnic disparities from quality improvement efforts. Weinick and Hasnain-Wynia cautioned these efforts should not incentivize providers for diminished services to minority patients. The challenges to achieving equity by integrating quality improvement with reduction in disparities included:

- Meaningful measurement,
- Proper incentive,
- Appropriate sites,
- Existing barriers, and
- Providers' concerns.

Weinick and Hasnain-Wynia emphasized the disparities affected assessment measures. However, the quality provisions of the ACA were effective mechanisms to reduce any disparities. Nickitas (2012) recognized the need for cross-disciplinary and cross-institutional collaborative leadership in education, research, and delivery of health care from the ACA. Nickitas suggested nurse leaders should promote patients' health and wellness by spending on necessary medical supplies and services instead of avoiding medical care.

Oberlander (2012a) noted the ACA passed the U.S. House of Representatives without a single vote by Republican members of the legislature. However, the Supreme Court upheld the individual mandate of the ACA as constitutional (Meadors, 2012). The reelection of President Barack Obama in 2012 confirmed the core provisions of the ACA would be in place until 2017 (Oberlander, 2012a).

Future of health care. Planning for the future of the ACA, Iglehart (2011) noted essential health benefit (EHB) plans as the Institute of Medicine (IOM) defined, contained the benefits categories as shown in Table 6. These EHBs resulted from a mandate of the ACA to match typical employer health benefits plans. U.S. states could provide other benefits not included in the benefits categories, but they must absorb any additional costs.

Table 6

Essential Health Benefits Plan Categories

Benefit Category	Description
1.	Ambulatory patient services
2.	Emergency services
3.	Hospitalization
4.	Maternity and newborn care
5.	Mental health and substance abuse disorder services
6.	Prescription drugs
7.	Rehabilitative services and devices
8.	Laboratory services
9.	Preventive and wellness services, and chronic disease management
10.	Pediatric services, including oral and vision care

Recognizing the complexity and controversy of EHBs, the IOM committee recommended the interactive processes should balance between affordability and comprehensiveness of health insurance benefits (Iglehart, 2011).

Comparing the health care proposal of 1995 with the ACA, Briggs (2012) posited a need for transitional leadership. Briggs asked physician leaders to lead the way through the chaos resulting from dramatic changes attributed to the ACA. The rising cost of unfunded Medicare and Medicaid commitment from $30–$60 trillion to $120–$150 trillion during 2009–2012 period, allowed physician leaders to lead in all accountability measures. These measures include (a) certification of patient-centered medical home (PCMH), (b) ACOs, (c) value-based reimbursement, and (d) meaningful use (Briggs, 2012).

Prior to the ACA, the cost of health care was rising at an alarming rate of 4% to 12% (Young & DeVoe, 2012). Even with passage and implementation of the ACA, the optimistic estimates of cost revealed family health insurance premium would surpass

median household income by 2037. Young and DeVoe (2012) contended aggressive and expensive care does not mean better care; thus, only substantial changes to the health care system would be necessary to achieving cost control. Lockwood (2012) envisioned by 2016 value-based payments would replace volume-driven and fee-for-service payments. In addition, in the future:

- Health systems would consolidate with hospitals,
- Physicians would contract directly with employers and insurers,
- PCMH would proliferate,
- Innovative personalized care coupled with reduced medication costs would be available, and
- Integrated electronic health records and decision-support systems would be available extensively.

Emphasizing the role of PCMH in promoting health and dispensing primary care, Barnes, Kroening-Roche, and Comfort (2012) envisioned a team of members from various disciplines providing coordinated care to patients. According to Barnes et al., more than 50% of patient mortality was because of patient behavior and societal factors. Transforming primary care through innovative concepts, such as: (a) shared or group medical appointments, (b) accountability for behavior change, and (c) support from the community, would render improved primary care (Barnes, Kroening-Roche, & Comfort, 2012).

The future of health care as envisioned by the two leading candidates for 2012 U.S. presidential election President Barack Obama and Governor Mitt Romney provided

contrasting views. Obama (2012) elaborated the ACA provided health security through: (a) affordable coverage, (b) preventive care without copay or deductibles, and (c) eliminating lifetime cap on coverage. In addition, the ACA should (d) lower family premiums by 2019, (e) provide ACOs, and (f) reduce Medicare and Medicaid waste and fraud. The ACA is a critical step to repairing the fractured health care system that would require necessary improvements during the implementation process (Obama, 2012). Obama also claimed by repealing the ACA, the country would face: (a) increased copay for primary care, (b) slashed funds for medical research, and (c) replacement of the Medicare program. Romney (2012) refuted by remarking the tax increase attributed to the ACA would hurt the middle class and medical research. Medicare cuts would reduce the care for senior citizens, and millions of people would lose existing health insurance coverage. Romney also suggested the ACA did not control costs and lacked a long-term solution to the entitlement crisis. Romney envisioned repealing the ACA and replacing with a system that has cost control by incentivizing consumers, insurers, and service providers. The system would provide more choices, portability, and security to families having features that are price and quality sensitive. However, Romney suggested many similarities between his system and the ACA such as preventing discrimination based on preexisting conditions and medical malpractice reform.

Social change theory. Contentious beginning of health care reform, controversial enactment of the ACA, and confrontational implementation of the law since 2010 are examples of systemic changes occurring in the United States. Lewin (1947) postulated the social change theory in 1940s, which identifies stages of a system undergoing

changes and a structured approach to addressing changes to the system. The social change theory applicable to social, political, and economic systems has three stages: (a) unfreezing, (b) changing, and (c) refreezing (Middaugh & Grissom, 2012; Rezvani, Dehkordi, & Shamsollahi, 2012; Stichler, 2011).

In the unfreezing stage, one finds the motivation to change by exploring new ideas and creating a sense of urgency for a vision. In complex systems, changes planned in a component may affect other parts. Therefore, a systematic approach to a defined structure is necessary (McGarry, Cashin, & Fowler, 2012). In the changing stage, one adopts actions to make the change by implementing a blueprint for the changed system. Finally, in refreezing stage one integrates new practices into the modified system (McGarry et al., 2012).

Based on Lewin's social change theory, McGarry et al. (2012) highlighted issues of change management to adopt a simulation technique in nursing education discipline. Middaugh and Grissom (2012) showed the application of social change theory with an example of a salon going through a change that could be useful to improve nursing units or any business. Rezvani, Dehkordi, and Shamsollahi (2012) described steps organizations should take to institute the vision of strategic organizational change in an economy that is competitive and global.

Stichler (2011) remarked change is complex for everyone including individuals and organizations. Stichler highlighted the importance of planning and managing organizational change because people would continue to support the constancy and resist any changes even when existing systems had too many problems. As an example,

physicians and staff involved in the design and approval of a new children's hospital building expressed their dissatisfaction after the building became operational (Stichler, 2011).

Gardner (2009) used the social change theory to relate to external and internal drivers responsible for the success or failure of health care policy or organizations. Gardner (2009) found similarities of challenges from policy and complexity perspectives between social change theory and changes envisioned from the ACA. The social change theory concepts include (a) drivers, (b) vision, (c) current and future states, and (d) social acceptance. Key drivers for the ACA included a number of uninsured (47 million) and rising cost of health care ($1 trillion). The vision of quality, portability, and affordability of health care for all legal residents resonated with the public, but the political approach to providing health care was divisive. Finally, the resistance to change from individuals and businesses continued because of conflicting information, propaganda, and expert opinions from news media (Gardner, 2009).

Contributions to the theme of health care reform and the ACA by Parks (2011) and Oberlander (2012b) included a brief history of the reform efforts since 1912. Oberlander and Parks suggested initial reform efforts failed because of the opposition to socialized medicine. In addition, subsequent efforts also failed because of resistance to U.S. federal government control and opposition from various sections of political, business, and industrial membership. Passage of the ACA improved the potential for health care to those covered and cost containment. However, legal challenges to the ACA from businesses and political organizations, rising cost of health care, and waste, were

critical issues that required strategic sustainable solutions. Prior to the ACA, several U.S. states instituted health reforms that expanded health coverage to individuals and families. These reforms created a growing need for the health care workforce, physicians, nurses, and facilities. Several authors such as Odeyemi and Nixon (2013), Nguyen and Rohlf (2012), and Okorafor (2012) reviewed and compared the experiences of other nations to ascertain health insurance and pharmaceutical drug quality. Addressing future of health care, the authors also posited a need for transitional leadership of physician leaders to lead through changes attributed to the ACA. Finally, a discussion of social change theory contributed to an understanding of the stages when a system, such as the health care system, goes through significant changes.

Theme 2: Small Business and the Affordable Care Act

This subsection contains a description of SBEs and impact of the ACA on SBE owners and individuals. I reviewed health insurance coverage options such as: (a) self-insurance, (b) small group insurance, and (c) health insurance exchanges available to SBE owners. The literature search for SBE owners' resistance to the ACA provided the factors based on: (a) surveys, (b) perceptions, (c) expert opinions, and (d) legal findings. A review of health insurance exchanges known as Small business Health Options Program (SHOP) provided SHOP design and service considerations for SBE owners' and their employees' health insurance coverage. Finally, the focus of the review was on BMT with an emphasis on resistance to change, providing a framework for the research study.

SBE definition and health insurance. Attempting to provide a legal definition of small business, Eyal-Cohen (2013) asserted there was a lack of standard definition in

business and industry. According to Eyal-Cohen, legal definitions of small business vary in sections of the law. For a legal definition, a firm's size was not an important measure (Eyal-Cohen, 2013). Eyal-Cohen provided definitions of small business based on securities law, health care coverage, labor and employment, patent law, and internal revenue code. Eyal-Cohen described the small employer as an employer hiring up to 100 employees. However, as stated in Health care (n.d.), SBEs can have only up to 50 FTE employees. Tacchino (2013b) further explained the number of FTEs include monthly aggregated hours of part-time employees divided by 120. In this research study, I used the definition of small business as stated in Health care (n.d.).

Cordova, Eibner, Vardavas, Broyles, and Girosi (2013) used a microsimulation model for estimating an entrepreneur's decision to self-insure and addressed inherent challenges of risk and opportunity for stop-loss insurance coverage. The findings included an increase in self-insurance rates for small businesses, with the increase attributed to generous reinsurance by the market and a negligible adverse financial impact on insurance selection by businesses. Hall (2012) commented availability of stop-loss coverage could encourage SBE owners to self-insure instead of participating in health insurance markets. Hall pointed out self-insurance coverage for young and healthy employees could seriously affect the regulated market, and premiums for insured plans could rise. Hall recommended U.S. states should seek federal guidance to regulate stop-loss coverage and implement crucial provisions of the ACA.

Miller, Eibner, and Gresenz (2013) conducted a study of the impact of financial regulatory arbitrage of employment-based, self-insured plans on employees. These

programs received the exempt status from the provisions of the ACA and were not under the purview of state health insurance regulations. Miller et al. evaluated employee concerns about: (a) employer's financial stability, (b) health benefits and claims adjudication, and (c) appeal process. The findings revealed similarities of health benefits between self-insured and fully insured plans. According to Miller et al., the ACA would improve appeal processing for both types of insurance plans. About the financial stability, SBE owners having stop-loss coverage to manage risk depended on the reliability of the insurer. Miller et al. recommended state regulators should review the oversight regime of insurers as SBE owners continue to use self-insurance and stop-loss coverage.

Kapur, Karaca-Mandic, Gates, and Fulton (2012) examined the relationship between the size of small business and small group health insurance regulations for offering health insurance to their employees and controlling health insurance cost. Remarking on these regulations, Kapur et al. noted small group insurance reform regulated insurance policies based on a business size threshold, from two or three employees to 25 or 50 employees. The descriptive and multivariate analysis of: (a) SBE size, (b) threshold, and (c) U.S. states revealed small group insurance reform did not improve access to health care. SBE owners increased their size to circumvent the regulations. According to Kapur et al., the employment threshold of 25 employees stipulated by the ACA would encourage SBEs staying small to qualify for tax credit.

To ascertain the quality of jobs that included health care coverage, Litwin and Phan (2013) examined 5,000 businesses operating since 2004. The determinants of quality included (a) business size and life cycle, (b) institutional pressures, and (c)

resource slack. The findings of the quantitative study revealed start-up business owners did not provide health and retirement benefits. The probability of providing such benefits slightly improved following 6 years of business operation (Litwin & Phan, 2013). The recommendations supported encouraging employers to create quality jobs for stability and growth of their business.

In a study of small business owners, Sommers, Abraham, Spicer, Mikow, and Spaulding-Bynon (2011) investigated factors associated with participation in the group insurance program. The quantitative research involved telephone interviews of 269 participating and 148 inquiring employers in New Mexico's state coverage insurance program, during September 2008–January 2009 period. The descriptive and multivariate analysis of differences between various factors revealed the barriers to participation in state coverage insurance were administrative, and cost associated. According to Sommers et al., tax credit and additional support to SBE owners could improve participation in the state coverage insurance program.

SBE owners' resistance factors to the ACA. Since the passage of the ACA in 2010, SBE owners have not been able to understand the complexity of the law and its impact on their business. As a result, numerous SBE owners resist participating in the health insurance provisions of the ACA. The resistance reflects small business owners' fears, worries, and apprehensions pertaining to business market uncertainties.

Speculating how many employers would stop offering health insurance coverage to employees, Buchmueller, Carey, and Levy (2013) examined theoretical and empirical evidence of health insurance changes since the enactment of the ACA. For this purpose,

Buchmueller et al. studied (a) economic rationale for employers, (b) relevant provisions of the law, and (c) predictions of experts. Employer-sponsored health insurance had three advantages over the individual market: (a) no income tax on insurance premiums, (b) adverse selection mitigation, and (c) economies of scale. Businesses of all sizes could benefit from these advantages by offering health insurance to their employees. However, the complexity of the law that SBE owners misunderstood rendered small employers confused and indecisive about relevant provisions of the ACA (Buchmueller, Carey, & Levy, 2013).

Addressing the issues of health care and financial planning attributed to the ACA, Cordell and Langdon (2011, 2012) remarked the rules for tax savings from various pretax accounts would change. These accounts included (a) flexible spending, (b) health savings, and (c) medical savings for health care expenses, Nonmedical expenses would incur additional penalties. The new cap on contributions to these accounts would increase the tax burden on employees (Cordell & Langdon, 2011). The tax burden and penalties envisioned in the ACA would motivate individuals to purchase health insurance. In addition, small business employers would either offer health coverage or pay additional nondeductible tax for every full-time employee (Cordell & Langdon, 2012). The individual mandate tax could prevent SBE owners from adding another FTE, which according to the ACA equates to two half-time employees.

Geyman (2012) argued consumer-driven health care was ineffective in controlling cost and contributed to restricted access, underutilization, and lower quality of health care. Consumer-driven health care relies on the premise of the moral hazard theory,

which implies patients will over-utilize health care services without cost-sharing arrangements and so will contribute to rising cost of services. Geyman identified three issues health care reform should address: (a) management and administration cost, (b) rising cost of health care, and (c) access to and quality of care.

Dahlkemper (2009), Hausman (2011), and Chin-Pyke (2014) focused their attention on the effect of rising health insurance costs on small business growth. SBE owners facing the dilemma of passing health insurance costs to employees could find a higher value in offering health insurance to hire and retain employees (Hausman, 2011). On the contrary, Dahlkemper found employers favored, providing high deductible managed care plans instead of consumer-driven plans, which led to employee resistance to such plans. To reduce employee turnover in business organizations, Chin-Pyke found a moderately strong positive relationship existed between satisfaction with health care benefits and employee's job.

Hardin (2011) conducted a study to assess tax effects of the ACA on small businesses. Employers having more than 50 FTEs would face penalties for not providing health insurance coverage to employees. The maximum penalty for failing to provide health insurance for over 30 FTEs was $2,000 per year per employee. Hardin discussed tax-planning strategies, such as using seasonal employees or reducing the number of FTEs to reduce tax consequences for SBE owners. Hardin suggested the complexity of the ACA require SBE owners to consult tax professionals for maximizing tax benefits from the law.

Hellander and Bhargavan (2012) prepared a report on U.S. health system in 2011 using data on uninsured and underinsured individuals. In addition, the report included (a) analysis of rising costs of health care, (b) socioeconomic inequality, and (c) the role of corporate financial interests in the pharmaceutical industry. The number of uninsured people increased from 58.5 million in 2009 to 60.3 million in 2010. In addition, the number of underinsured people was 49 million because they were spending more than 10% of their income on health care expenses. Of the uninsured, 85% delayed medical care because of cost, as well as access to and quality of care (Hellander & Bhargavan, 2012). According to Hellander and Bhargavan, health care premiums would rise in 2012 with a growing number of employees pushed into high-deductible health plans. The estimated cost of health care for a family of four in 2011 was $19,393, an increase of 7.3% from 2010. The average cost of health insurance in 2010 increased by 5% over the previous year. The reported statistics indicated individuals and employers encountered high health care costs including administrative and premium costs (Hellander & Bhargavan, 2012).

In a survey of U.S. small businesses, Jacobe (2013a) reported 48% of the SBE owners thought the ACA was inadequate for their business. A Gallup survey conducted in April 2013 with 603 SBE owners also revealed 52% of employers said the ACA would reduce quality of care, and 55% thought cost of health care would increase (Jacobe, 2013a). In another survey, Jacobe (2013b) reported key concerns of SBE owners were health care costs (54%), taxes on businesses (53%), and U.S. government regulations (46%).

Lepard (2013) presented a legal issue with contraceptive coverage mandate of the ACA and religious rights of corporations. According to the provisions of the ACA, for-profit businesses must provide health insurance coverage, including coverage for contraceptive services, or face a penalty of more than $1 million per day. U.S. courts previously did not take up the issue of businesses having religious rights. Lepard provided arguments in support of extending religious rights to corporations. The reasons included:

- Corporate personhood development,
- Constitutional right extension to corporations,
- Contraception coverage mandate controversy and U.S. courts' willingness to extend religious rights,
- Legal challenges initiation against the mandate, and
- First Amendment right to religion extension to corporations.

In the absence of a final decision, Lepard recommended U.S. Congress either should include for-profit corporations in religious employer exemption or require U.S. government to provide free contraceptive coverage.

Similar to Lepard's (2013) argument, Loewentheil (2014) argued for religious accommodations based on the free exercise rights whenever such accommodations impose any burdens on others. Loewentheil used the example of contraceptive coverage mandate of the ACA to explain the failure of existing principles supporting religious accommodations. Loewentheil proposed a theoretical framework, balancing the burdens on both religious rights objectors and supporters. According to legal scholars, the

challenge to contraceptive coverage mandate based on First Amendment would likely fail. Rendering the decision in Hobby Lobby case, U.S. Supreme Court justices rejected the contraceptive mandate of the ACA for violating religious freedom protection provided by Religious Freedom Restoration Act (Barnes, 2014).

U.S. citizens with private health insurance coverage participated in two surveys conducted by Loewenstein et al. (2013). In the first survey, Loewenstein et al. examined whether individuals understood or believed they did understand their health insurance coverage. In the second survey, Loewenstein et al. measured insured individuals' preferences for various health insurance plans. Findings from the analysis of surveys revealed individuals found the ACA to be complex and did not understand their health insurance plans. Individuals would prefer simplified plans and would not make a change even if simplified plans did not have a stronger appeal (Loewenstein et al., 2013).

Consolidating results of several studies, McMorrow, Blumberg, and Buettgens (2011) reported effects of the ACA on SBEs. In their remarks, McMorrow et al. pointed out administrative costs and limited ability to spread risks adversely affected small businesses because of the ACA. However, SBE owners could expect substantial: (a) savings on the cost of health care, (b) increase in health insurance coverage, and (c) benefits from Medicaid expansion of SHOP exchanges. Furthermore, tax credits were helpful to SBE owners to provide health insurance to their employees.

Miller (2011) noted the cost of health insurance coverage during a 10-year period ending in 2009 increased by 123% for small to medium-sized businesses. During the same period, insurance coverage dropped from 65% to 59% for small to medium-sized

businesses and from 56% to 46% for very small businesses. Miller commented several factors such as subsidies and premiums could affect the ability of SBE owners to provide health insurance coverage based on the ACA. Most of the small business employees might purchase health insurance on SHOP exchanges by 2020 (Miller, 2011). Miller remarked an increase in health insurance coverage of small business employees would depend on available subsidies and insurance premiums.

While discussing the impact of the ACA on small businesses and individuals, Neiburger (2011) identified advantages and disadvantages to those covered by the law. The ACA provided an expansion of health insurance coverage through several provisions. These provisions included (a) prohibition against insurance coverage limits and preexisting conditions, (b) tax deductions for coverage of children under age 27, and (c) small business simple cafeteria plans. In addition, the law allowed the availability of subsidies such as tax credits, premium assistance, and other income-based plans. The law imposed penalties on individuals for not purchasing health insurance and employers for noncompliance. Furthermore, the law increased (a) income tax and reporting burden, (b) excise tax, (c) Medicare tax, (d) limits on reimbursements for medicine, and (e) limits on medical expense deductions (Neiburger, 2011).

Presenting the history of health care reform, Oberlander (2012b) reviewed problems inherited by the ACA. One of the problems pertained to deteriorating quality of care that became inadequate and inconsistent over time (Oberlander, 2012b). The other problem was health care costs continued to rise leaving the goal of cost containment

unfulfilled. Staggering administrative costs added to the problems because of using antiquated and inefficient insurance systems.

Reviewing impact of the ACA on employer-sponsored health insurance plans, Tacchino (2013a) explained rising insurance premiums and *play or pay* tax requirements of the ACA became an opportunity for employers to reevaluate their existing plans and offer coverage through health insurance exchanges. Tacchino recognized the need to evaluate other strategies for providing health insurance such as: (a) continuing current coverage, (b) reducing employer contributions, and (c) switching to a cheaper plan. Tacchino (2013b) analyzed the impact of the employer's shared responsibility tax on employer-sponsored health insurance coverage. Specifically, Tacchino (2013b) reviewed criteria for identifying employers impacted by the tax and the method of calculating potential employer tax liability. SBE owners either met the requirements or incurred a tax liability for FTEs without health insurance coverage or unaffordable minimum essential health insurance coverage.

Searching for relevant literature and identifying factors of SBE owners' resistance to the ACA were tedious and cumbersome efforts, as no prior research study specified these as resistance factors. Identification of these resistance factors became possible from: (a) survey results, (b) legal opinions and analyses, and (c) expert perspectives as shown in Table 7. The authors referenced in the table contributed the resistance factors either in the discussion of issues or as problems attributed to the ACA.

Table 7

SBE Owners' Resistance Factors to the Affordable Care Act

Resistance Factor	Reference
Administrative Cost	Geyman, 2012
	Hellander and Bhargavan, 2012
	Jacobe, 2013b
	McMorrow et al., 2011
	Oberlander, 2012b
Complexity of the ACA	Buchmueller et al., 2013
	Hardin, 2011
	Loewenstein et al., 2013
Insurance Premium	Geyman, 2012
	Hellander and Bhargavan, 2012
	Jacobe, 2013a
	Miller, 2011
	Tacchino, 2013a
Plan Choice	Leonard, 2011
	McMorrow et al., 2011
	Tacchino, 2013a
Penalty	Cordell and Langdon, 2012
	Hardin, 2011
	Neiburger, 2011
Quality of Care	Geyman, 2012
	Hellander and Bhargavan, 2012
	Jacobe, 2013a
	Oberlander, 2012b
Religious Objection	Lepard, 2013
	Loewentheil, 2014
Reporting Burden	Hardin, 2011
	Neiburger, 2011
Tax Burden	Cordell and Langdon, 2012
	Hardin, 2011
	Jacobe, 2013b
	Neiburger, 2011
	Tacchino, 2013b

From literature attributed to SBE owners' resistance to the ACA, while SBE owners expected to benefit from Medicaid expansion and premium subsidies, they were encountering rising administrative costs (Geyman, 2012; McMorrow et al., 2011). Among the cost concerns (a) insurance premium, (b) penalties, and (c) tax burden also worried SBE owners (Cordell & Langdon, 2012; Jacobe, 2013b; Miller, 2011; Neiburger,

2011; Tacchino, 2013a, 2013b). Other than costs, SBE owners found (a) complexity of the ACA regulations, (b) choice of insurance plans, and (c) quality of care cumbersome contributing to inaction on their instance (Hardin, 2011; Hellander & Bhargavan, 2012; Loewenstein et al., 2013; Oberlander, 2012b). The legal case against contraceptive mandate of the ACA by Hobby Lobby and U.S. Supreme Court decision, rejecting validity of the mandate, culminated from religious objection of businesses (Barnes, 2014; Lepard, 2013; Loewentheil, 2014). Finally, SBE owners continued to encounter reporting burden resulting from expanded requirements and often conflicting regulations and procedures (Hardin, 2011; Neiburger, 2011).

Small business health options program (SHOP) exchanges. As a requirement of the ACA, SHOP exchanges became an opportunity for more choices to SBE owners (Dentzer, 2012). Small employers found SHOP exchanges a venue where they could avail health insurance coverage or choose suitable health plans. Interested in researching the issue of risk selection across health plans, Weiner, Trish, Abrams, and Lemke (2012) created a model simulating plans using premium-rating restrictions of the ACA. In their remarks, Weiner et al. noted insurers found incentives in enrolling healthier individuals than sicker individuals to their plans so the plans would have a credit balance. The insurers determined adjustments to risks depending on patients' medical needs rather than age or other rating criteria would yield a better outcome (Weiner, Trish, Abrams, & Lemke, 2012).

Commenting on the design considerations of SHOP exchanges, Kingsdale (2012) pointed out the key to the success of these exchanges depended on providing

administrative efficiencies and choice of high-value, low-cost health plans. Kingsdale suggested SHOP exchanges could offer combined small business and individual exchange services based on an employee choice model. Moreover, Kingsdale suggested commercially licensed Medicaid plans of these exchanges could serve low-wage employees with subsidized coverage. The challenge of attracting large insurers to join SHOP exchanges for offering multiple choices of plans required combining several state exchanges into one large exchange serving everyone (Kingsdale, 2012).

Blavin, Blumberg, Buettgens, Holahan, and McMorrow (2012) supported Kingsdale's (2012) suggestion of having combined exchanges, which U.S. states had the option to create per the ACA. To analyze several models, Blavin et al. used criteria such as creating markets that were separate or merged, eliminating age rating, and removing small business credits. In their findings, Blavin et al. noted merging risk pools would increase the participation of members. Moreover, U.S. states could design SHOP exchanges specifying precise requirements without worrying about premium costs and coverage (Blavin, Blumberg, Buettgens, Holahan, & McMorrow, 2012).

Gardiner (2012) pointed out SHOP exchanges would provide several benefits to SBE owners including (a) buying power, (b) health plan choice, and (c) affordable health insurance. In addition, Jost (2012) remarked these exchanges provided an opportunity for improving small group coverage. The SHOP exchanges supporting the ACA could take advantage of the experience of existing exchanges in structuring the role, plan features, and services of the exchanges (Gardiner, 2012). Brokers and navigators could assist individuals and SBE owners during enrollment, plan selection, and benefits selection

process (Gardiner, 2012). Jost cautioned participation of large employers in exchanges posed the problem of adverse selection.

Eibner, Price, Vardavas, Cordova, and Girosi (2012) used a microsimulation model to study the effect on coverage and premiums through exchange plans from factors such as self-insurance and grandfathering exemptions. The ACA restrictions on grandfathering would reduce premium with a little drop in enrollment on SHOP exchanges (Eibner, Price, Vardavas, Cordova, & Girosi, 2012). Reviewing the findings from the model, Eibner et al. suggested the restrictions are essential to affordable insurance premiums on the exchanges. However, restrictions on self-insurance would result in lower enrollment and higher insurance premiums (Eibner et al., 2012).

Kramer (2012) remarked some large employers considered using SHOP exchanges to provide health insurance to part-time employees and retirees under age 65. Beginning 2017, large employers envision SHOP exchanges would be a vehicle providing health insurance to all employees. According to Kramer, drivers for large employers making use of SHOP exchanges included (a) insurance premiums, (b) human resource plans, (c) competition, and (d) U.S. government policies. Moreover, Kramer suggested following SHOP exchange setup the next challenges required creating organizational and information technology infrastructure to manage all aspects of SHOP exchanges.

Gabel, Whitmore, Pickreign, Satorius, and Stromberg (2013) remarked SBE owners could shop for health insurance for their employees on SHOP exchanges starting from January 1, 2014. In a telephone survey of 604 SBE owners, Gabel et al. attempted to

obtain the perspective of SBE owners on SHOP exchange experience, insurance premiums, and self-insurance. Findings from the survey revealed SBE owners did not highly rate the exchanges. Most of the business owners would offer coverage if insurance premiums were lower than existing premiums (Gabel, Whitmore, Pickreign, Satorius, & Stromberg, 2013). Key finding revealed self-insured SBE owners might adversely affect the future of SHOP exchanges (Gabel et al., 2013).

Behavioral momentum theory. According to Nevin et al. (1983), BMT pertains to change in behavior resulting from conditions of disruption or resistance to change and response or reinforcement rate. Nevin, Mandell, and Atak (1983) suggested BMT has characteristics of the laws of physics such as Sir Isaac Newton's second law of motion. BMT involves the use of three operands: force (F) or momentum, mass (m), and velocity (v), to establish a relationship, $F = m \times v$. In BMT, force equates to behavioral momentum or resistance to change; mass, tendency to persist or resist change; and velocity, response rate. In brief, positive change in behavior or behavioral momentum depends on increased persistent behavior thereby reducing resistance to change (Nevin et al., 1983).

Sweeney and Shahan (2013) remarked alternative reinforcement provides a standard treatment for operant problem behavior and that removing or reducing alternative reinforcement could contribute to a resurgence of the target behavior. Using their previously developed quantitative model of resurgence based on BMT, Sweeney and Shahan (2013) examined the effects of high, low, and thinning rates of alternative reinforcement on the response elimination and resurgence. The experiment involved three

phases: (a) baseline reinforcement of target response, (b) extinction of target response and reinforcement for an alternative response, and (c) removal of alternative reinforcement. The findings revealed high rates of alternative reinforcement had better response suppression than low or thinning rates, but the resurgence occurred upon discontinuing alternative reinforcement.

Using a quantitative model, Podlesnik, Thrailkill, and Shahan (2012) examined effects of conditions of reinforcement under the condition of disruption or resistance to change of divided attention performance on operant behavior. The model involved an experiment using probabilities of reinforcement and resistance to change in which pigeons responded to a procedure with compound samples and element comparisons. In their findings, Podlesnik et al. (2012) noted the resistance to change of divided attention performance was greater in rich components than in the reduction of sample duration. Findings from the experiment revealed the quantitative model of operant behavior has an application to divided attention performance studies.

In a study involving four children with autism spectrum disorder, MacDonald, Ahearn, Parry-Cruwys, Bancroft, and Dube (2013) examined effects of continuous and intermittent reinforcement on problem behavior. The children engaged in problem behavior that existed through the social reinforcement mechanism. The experiment consisted of four successive 5-minute sessions. The research findings revealed the problem behavior persisted among all participants during extinction after continuous reinforcement. Further, the preceding schedule of reinforcement affected the problem behavior of children during extinction.

The theme of small business and the ACA included the definition of small business in the United States. Several authors posited one could define small businesses in myriad of ways (Eyal-Cohen, 2013; Health care, n.d.; Tacchino, 2013b). The definition of SBEs, as described by Health care (n.d.), became the standard for this research study. The focus of some studies was on the concerns of SBE owners to the ACA (Buchmueller et al., 2013; Geyman, 2012; Hardin, 2011). While SBE owners looked forward to the setup of SHOP exchanges, several researchers determined the insurers found incentive in enrolling healthier individuals (Gardiner, 2012; Kingsdale, 2012; Kramer, 2012). Finally, BMT provided a mechanism to understand the relationship of resistance to change and response rate to attain a change in the behavior of SBE owners. The BMT became one of the foundational theories for reducing SBE owners' resistance to the ACA (Nevin et al., 1983).

Theme 3: Analytic Hierarchy Process

A review of the literature pertaining to AHP method involves a discussion of journal articles covering the technique and its application. The method consists of the process, aggregation, prioritization, and sensitivity analysis. The application aspects of the AHP method include (a) government, (b) medical and health care, (c) industrial, and (d) business disciplines. The review of this subsection concludes with the contribution of social choice theory to AHP and this research study.

AHP technique. Being one of the many MCDM techniques, AHP was a topic of Guitouni and Martel's evaluation (as cited in Ishizaka, Balkenborg, & Kaplan, 2011). Guitouni and Martel compared 29 MCDM techniques and concluded all methods were

similar for complex decision-making purposes. The selection of an MCDM method depended on the problem and intended outcome. In separate studies Huizingh and Vrolijk, as well as Korhonen and Topdagi reported the AHP technique was suitable when the criteria were subjective (as cited in Ishizaka et al., 2011). Thomas L. Saaty, the proponent of the AHP technique in 1970s, provided a comprehensive framework to address prioritization problems that had complex and conflicting criteria (Ishizaka & Labib, 2011).

As Ishizaka and Labib (2011) pointed out, AHP was an MCDM method for solving complex decision-making problems that have multiple, conflicting, and subjective criteria. Key steps to apply the AHP technique are (a) problem modeling, (b) weights valuation or ranking, (c) weights aggregation, and (d) sensitivity analysis. Ishizaka and Labib highlighted advantages of AHP in the possibility of:

- Creating a hierarchical structure of criteria or factors applicable to objective of the problem in clusters,
- Using verbal judgments instead of numerical judgments, and
- Verifying the consistency of judgments.

Groselj and Stirn (2012) confirmed the group decision-making property of the AHP model by providing a new proof. Groselj and Stirn established when the comparison matrices of all decision makers were consistent the weighted geometric mean of complex judgment matrix also was consistent. Moreover, Groselj and Stirn described conditions for consistency of the weighted geometric mean of complex judgment matrix when not all comparison matrices are consistent. Bernasconi, Choirat, and Seri (2014) evaluated

several methods of individual judgments aggregation and individual priorities in AHP group decision-making. Evaluating the aggregation approaches, Bernasconi et al. identified five categories that resulted in identical outcomes:

- Insensitive to normalization,
- Normalized results,
- Not normalized results of priority vector,
- Normalized with expansion, and
- Eigenvector not normalized.

In addition to aggregation for group decision-making, Bernasconi et al. suggested an approach to identify and correct perturbation cognitive biases caused in AHP response matrix.

Benitez, Delgado-Galvin, Izquierdo, and Perez-Garcia (2012), concerned with the weakness of pairwise comparisons because of the static nature of judgments, developed a framework to achieve coherent aggregate results from user preferences. The structure allowed decision makers to provide incomplete preference data and preference data at multiple times. Assuming the dynamic input of preferences, Benitez et al. defined the linearization process to achieve consistency when adding or removing a criterion to the structure of AHP. As an example, Benitez et al. demonstrated the linearization process through a problem of water leakage management in Valencia, Spain. In the context of group decision-making, Benitez et al. suggested a future enhancement to the dynamic AHP method such as unfamiliarity with effects of various changes or addition of a criterion.

Ergu and Kou (2012) identified issues with survey design for emergency decision-making problems such as earthquakes, hurricanes, or terrorist attacks. In addition, the issues included estimation of missing item scores of reciprocal pairwise comparison matrix using the AHP technique. The issues with the questionnaire included (a) structure of hierarchy, (b) redundant criteria, and (c) a large number of criteria, which could be reasons for inconsistent responses from decision-makers. In addition, a large number of pairwise comparison questions resulting in an extended survey could increase the inconsistency of responses. Ergu and Kou provided a scale format for the design of score items of comparison matrix. Moreover, Ergu and Kou provided an induced bias matrix model to estimate missing item scores and several examples to demonstrate the effectiveness of the estimation model. Findings revealed the use of an induced bias matrix model allows reducing the number of survey questions by intentionally ignoring some comparison questions according to the importance and emergency level. In addition, application of an induced bias matrix model was useful to estimate missing item scores and preserving the consistency of the AHP model (Ergu & Kou, 2012).

An overview of sample AHP applications. Researchers found one could apply the AHP technique to address many complex problems such as: (a) prioritization, (b) alternative selection, (c) risk management, and (d) decision comparison. Some of the disciplines of these applications included (a) government, (b) medical and health care, (c) manufacturing, and (d) business. A discussion of AHP applications in each of these disciplines ensues.

Government. Kalbar, Karmakar, and Asolekar (2013) applied environmental factors for group decision-making of selecting wastewater treatment technology in India. The structure of the AHP decision tree had (a) four levels, (b) seven criteria, (c) 12 attributes, and (d) four alternatives. All 84 pairwise comparison matrices, testing for consistency of expert judgments, corresponded to the consistency requirements. The geometric mean method was the recommended approach for aggregation of opinions of 12 experts using a scenario-based decision-making process. Using the AHP technique, Kalbar et al. revealed scenario-based decision-making process addressed two challenges: (a) avoiding information loss and (b) including expert opinions.

Bhatt and Macwan (2012) applied the AHP technique to global weights of criteria for sustainable building assessment. The AHP structure involved (a) four levels, (b) nine Level 2 criteria, (c) 43 Level 3 criteria, and (d) 76 Level 4 criteria. In a nationwide survey of experts in India, 37 consultants provided consistent responses. Bhatt and Macwan used geometric mean approach aggregating individual judgments to compute global weights of criteria. According to the findings, the prioritized rankings revealed (a) renewable energy, (b) optimum energy performance, and (c) water use reduction were criteria preferred by consultants for sustainable building construction.

Kim (2013) developed a hybrid cost-estimating model for early stages of a highway project development in South Korea. Kim designed the hybrid model based on AHP technique and case-based reasoning and demonstrated benefits of the model through real case studies. Kim described a process that one could use by applying case-based reasoning to extract the determinants of the project cost, which would then generate

weights using the AHP technique. Kim noted AHP provided accurate, reliable, and explanatory preliminary estimates instead of other methods to determine relative weights. Kim pointed to four contributions of the model:

- High predictive accuracy of the cost estimate,
- Improved system performance through extracted cost factors,
- Alternative similarity measuring formula, and
- Weights of cost factors calculated using AHP.

Orencio and Fujii (2013) used the AHP method to develop weights of criteria to reduce the vulnerability of coastal communities in the Philippines. Using a Delphi technique, 20 experts identified the criteria used in the AHP method. The findings revealed 70% of the overall weight resulted from: (a) environmental and natural resource management, (b) sustainable livelihood, (c) social protection, and (d) planning system. The composite index for a disaster-resilient coastal community developed from the prioritized criteria could provide a mechanism to local authorities for reducing and managing risk from disasters (Orencio & Fujii, 2013).

Medical and health care. Danner et al. (2011) provided a means, among unique applications of the AHP technique, to incorporate patient preferences in health technology assessment. Prior to Danner et al., one did not apply quantitative approaches to integrating patient preferences for treatment endpoints. Using the AHP technique, Danner et al. were the first to integrate patient and professional viewpoints in their research. Even when patient and professional groups differed in their rating of

antidepressant treatment, Danner et al. found six of the 11 criteria matched 80% of the global weight of the treatment endpoints.

Sharma, Eden, Guise, Jimison, and Dolan (2011) used the AHP technique to prioritize subjective risk decisions in post-cesarean births. For the research, Sharma et al. compared the AHP model using subjective criteria with a hybrid model using objective criteria for birthing recommendation. Remarking on the findings, Sharma et al. noted women preferred four times the AHP model's repeat cesarean birth recommendation, avoiding any risk to the baby, to the hybrid model's trial of labor recommendation.

Industrial. Al-Hawari, Al-Bo'ol, and Momani (2011) used the AHP technique to select the best temperature sensor in industrial applications. The purpose of the research was to select the best automotive catalytic converter. Experts provided their preferences using four evaluation criteria and 23 subcriteria to select from three sensor choices. Using five scenarios, Al-Hawari et al. conducted a sensitivity analysis of the model by varying weights of criteria, changing the number of alternatives, or altering applications. Without describing the sampled data, Al-Hawari et al. revealed the best automotive catalytic converters were thermocouple type converters.

Asamoah, Annan, and Nyarko (2012) applied the AHP technique for supplier evaluation and selection in a pharmaceutical manufacturing company in Ghana. The objective of the study was to select the best raw material supplier based on three criteria from a list of eight criteria. The selected criteria included (a) quality, (b) price, and (c) reliability. The research findings revealed decision makers preferred the quality criterion followed by reliability and price. The selection of suppliers in two categories of raw

materials enabled the company to reduce the cost and improve the quality of manufactured products (Asamoah, Annan, & Nyarko, 2012).

Borchardt, Sellitto, Pereira, and Gomes (2012) proposed a method to determine the extent of environmental considerations applied to furniture manufacturing by enterprises in Brazil. Using the AHP technique, Borchardt et al. structured a hierarchy of criteria selected from the literature pertaining to environmental practices. Three companies participated in the study, in 2008 and then again in 2010, using a pairwise comparison questionnaire of criteria. The findings revealed there were gaps in the importance and application of environmental parameters such as product distribution and packaging.

Ramanathan and Karpuzcu (2011) applied the AHP technique to measure the service quality of a single pharmaceutical distribution company in Turkey using a homogeneous sample selection. The sample included 100 randomly selected customers, 25 each from four categories of purchasing power, and data collection involved face-to-face interviews with the customers. The AHP model had (a) three levels, (b) seven criteria, and (c) two alternatives. Ramanathan and Karpuzcu pointed out two limitations of the AHP technique: (a) increasing the number of pairwise comparison questions and (b) rank reversal. To avoid these problems, Ramanathan and Karpuzcu replaced pairwise comparisons with direct rating. The rank reversal was not an issue for two alternatives. The findings revealed high levels of satisfaction among most customers, and reliability, assurance, and personal contact quality ranked higher than the remaining criteria. Implications from the study included potential for:

- Closing gaps between expectations and perceptions,
- Tracking results over time,
- Benchmarking with competitors, and
- Baselining for future research.

De Mare, Morano, and Nestico (2012) used the AHP technique in conjunction with a geographical information system to design a model to solve localization issues of industrial areas and improving the efficiency of investment projects. The study involved the industrial area of Tito, Italy, with four areas as a potential solution. Using SuperDecisions (n.d.) software, De Mare et al. created an AHP model to collect the required data. The multi-criteria spatial analysis model combining geographical information system and AHP became a useful evaluation tool to solve localization problems.

Business. Khamkanya, Heaney, and McGreal (2012) filled the gap by using the importance of environmental factors to study user satisfaction in a workplace environment. For this purpose, Khamkanya et al. conducted a survey focusing on levels of satisfaction and perceived productivity to create a satisfaction index, and compared the index with average scores. The AHP satisfaction index resulting from the study contained a useful explanation of user satisfaction in support of average scores.

Erbasi and Parlakkaya (2012) applied the AHP technique to create a balanced scorecard for performance measurement of a hotel in Antalya, Turkey. The model had (a) four levels, (b) four criteria, and (c) 18 subcriteria for the determination of scorecard

categories and the importance level of strategies. The findings revealed customer loyalty was the most influential approach in the customer group.

Chen, Cheng, and Lee (2011) used the AHP technique to conduct a case study of the risky behavior of Taiwanese investors. For the study, Chen et al. considered factors of the market environment to investigate the relationship between factors and preferences of investors' asset allocation. Using Expert Choice software, Chen et al. designed the AHP model to calculate results by aggregating valid responses of 50 sampled investors. Findings revealed the most significant factor was risk tolerance. Investors most preferred stocks and least preferred bonds. Considering the market environment and risk tolerance, investors preferred mutual funds to stocks. The recommendations of Chen et al. included a model development to select investment options for each asset type and design portfolio of assets based on investors' preference.

Nikou and Mezei (2013) conducted a study to identify the drivers for adopting mobile services and the factors for influencing customer preferences. Two AHP models, one for mobile services, and the other for customer preferences represented the design of the study. Nikou and Mezei used hard copy questionnaire of pairwise comparison questions in 2010 to survey a convenient sample of 100 students and staff of two universities in Finland. Of the 66 responses received, 50 responses corresponded to the consistency requirement allowing for a consistency ratio (CR) of 12% and 14% for Models 1 and 2, respectively. Analysis of the results revealed service functionality, including accessibility and usability, ranked high for the adoption of mobile services. Among customer preferences, mobile communications services, including short message

service (SMS) text messaging and mobile e-mail, ranked the highest while mobile TV and mobile ringtones ranked among the lowest.

Effective knowledge management in service-oriented organizations was the topic of Jivan and Zarandi's (2012) research to provide a competitive advantage to businesses. Jivan and Zarandi employed the AHP technique to identify and establish priorities of the factors crucial to knowledge management implementation. Twenty senior managers of service-oriented businesses participated in a survey containing pairwise comparison questions using five key factors. The findings revealed (a) organizational culture, (b) personal relationships, and (c) interpersonal networking were the top three priorities. The remaining priorities were information technology infrastructure and knowledge coding in that order.

Mohammadi, Esmaeily, and Salehi (2012) used the AHP technique to select a promotional mix for the sports industry. For this purpose, Mohammadi et al. designed an AHP model using the expertise of 30 marketing managers of sport product companies and the attention, interest, desire, and action known as the AIDA model. At the fourth level of promotional mix, the highest factors revealed by the analysis of results were:

- Advertisement by TV,
- Gifts for sales promotion,
- Face-to-face selling, and
- Seminar and conference.

For supplier selection, Nejadirani, Matin, and Farshad (2011) investigated 13 techniques and models of evaluation including the AHP method. The criteria used for

evaluation of these methods included (a) accuracy, (b) celerity, (c) cost, (d) comprehensibility, and (e) software applicability. The AHP method had the highest priority in three of the five criteria: (a) accuracy, (b) comprehensibility, and (c) software applicability. Taksonomi was of highest priority in celerity while linear programming was of highest priority in cost criterion. Overall, the highest ranked methods were Topsis, Taksonomi, and AHP.

Social choice theory. According to Diaby et al. (2013), Kenneth Arrow was the first to name the social choice theory in 1951, which was an axiomatic method of pairwise aggregation of individual preferences combining individual utility functions. The social choice theory relies on four components: (a) voters, (b) choice alternatives, (c) voters' preferences, and (d) aggregation method. To address the management of the rubber tree resources, Diaby et al. applied the social choice theory to this decision-making problem using an approval voting approach. Using this MCDM approach to environmental decision-making, Diaby et al. demonstrated by choosing the best variety of rubber trees for known environmental constraints one could improve peak performance of the plantation.

Smith and Pitts (2014) used the social choice theory to examine social preference of drug self-administration within peer groups. The study design involved laboratory rats using three compartments to self-administer cocaine simultaneously. The findings revealed during drug self-administration the rats preferred to stay close to those rats that had a shared behavior (Smith & Pitts, 2014).

Duddy and Piggins (2012) investigated implications of social choice known as the proximity condition. Proximity condition is the normative intuition, which means an individual's social choice cannot vary from the individual's intuition. Duddy and Piggins tested the condition on two requirements: (a) aggregating functions and (b) preference aggregation. Duddy and Piggins proved the only social welfare functions that could meet the proximity condition and Pareto criterion for aggregating functions were dictatorships. For preference aggregation, one could only satisfy either the proximity condition or the Pareto criterion. Mongin (2012) attempted to generalize the social choice theory through judgment aggregation theory or logical aggregation theory, which allows application of aggregation rule for all judgments instead of only preference judgments.

Emphasizing the role of intuition, Hill (2012) addressed the issue of lack of confidence in preferences by providing the axiomatic role of confidence in the choice. Hill advanced the theory that the importance of a decision dictated the degree of confidence required for selection preferences. Moreover, one should defer a decision when the importance of the decision exceeds the confidence in preferences. Hill provided examples requiring confidence in preferences such as: (a) the importance of governing body for making recycling policy decisions or (b) the importance of audience for the presentation making decisions.

Contemplating the reach of social choice theory, Sen (2012) suggested the method should become a contributing factor to the following:

- Welfare economics,
- Voting analysis,

- Implementation theory,
- Game theory,
- Decision theory, and
- Mathematics of measurement.

Saaty and Vargas (2012) investigated the possibility of group choice with social choice theory's merging functions and decision theory's pairwise comparisons. Saaty and Vargas (2012) demonstrated a 2-stage social choice process could construct the social welfare function by aggregating individual choice functions. The geometric mean aggregation of pairwise comparisons of individual judgments in a group corresponded to Arrow's conditions. The geometric mean corresponded to the social reciprocal pairwise relation, which matched all four conditions. To illustrate with an example, Saaty and Vargas used ranking of various objectives and tradeoffs for allocation of funds in 2009 Defense Appropriation Bill. The estimated funding priorities, using the AHP technique, closely matched those of the appropriations subcommittee.

The AHP themed literature involved (a) the process, (b) application to various problem areas of several disciplines of complex problems, and (c) contribution of the social choice theory to complex decision-making. Researchers found one could apply the AHP technique to solve problems that have multiple, conflicting, and subjective criteria (Ishizaka & Labib, 2011; Groselj & Stirn, 2012). One could use individual decisions or group decisions for problem-solving using the AHP technique. Some researchers posited the AHP technique could apply to emergency decision-making problems such as earthquakes, hurricanes, and terrorist attacks management (Ergu & Kou, 2012; Orencio &

Fujii, 2013). Other applications of the AHP technique included disciplines of: (a) government, (b) business, (c) medical and health care, and (d) manufacturing and industry. The social choice theory, which relies on four components: (a) voters, (b) choice alternatives, (c) voters' preference, and (d) aggregation method, provided the theoretical foundation for the selection of AHP.

The review of professional and academic literature was a contribution to the identification of SBE owners' resistance factors to the ACA and gaps of studies on health insurance issues adversely affecting the SBEs. The review of: (a) social change theory, (b) behavioral momentum theory, and (c) social choice theory provided a theoretical foundation for this research study. Finally, the literature on AHP technique and applications provided an insight of the technique's applicability to address the research problem.

Transition

Section 1 contained foundation and background on the topic of small business owners' dilemmas following the passage of the ACA. Such dilemmas led to the identification of the research problem pertaining to the prioritization of small business owners' resistance to the ACA because of concerns about the adverse financial impact of the law on businesses. The focus of the Purpose Statement and Nature of the Study subsections was on the suitability of quantitative methods of research for this study. The remainder of the section included (a) research questions and hypotheses, (b) theories underpinning the theoretical framework, and (c) assumptions, limitations, and delimitations defining the boundaries of the study. Next, the significance of the study

entailed a discussion of the contributions of this study to business practice and implications of the research for influencing social change. Finally, the literature selected and reviewed established (a) historical developments in health care reform and the ACA, (b) SBE dilemmas and involvement in health insurance, and (c) AHP technique application.

In Section 2, I built upon the foundation of the study by developing the research project. The project structure includes the research method and design, survey design; and the approach to sampling, collecting, and analyzing data. Section 3 provides the findings from survey results and data analysis, and application and implications of the findings for professional practice and social change. Moreover, Section 3 includes the recommendations for future action, further research, and research study reflections.

Section 2: The Project

Section 1 contained research questions with a discussion of the background of the problem, the problem, and purpose of the research study. A review of the literature revealed a gap in existing studies to address the overarching question of prioritizing SBE owners' resistance factors to the ACA using the AHP technique. In Section 2, I expounded on the foundation of the study described in Section 1 as building blocks to develop the methodology. Details of the methodology include an approach to executing each of these steps and address relevant research questions and working hypotheses. In addition, Section 2 contains essential information about the purpose of the research project, and the research method and design. Furthermore, Section 2 includes a description of the population and sampling approach, survey design, and data collection and data analysis approach. Moreover, Section 2 contains supporting information of: (a) role of the researcher, (b) participants description, (c) ethical aspects of research, and (d) validity considerations of research design.

Purpose Statement

The purpose of the quantitative, cross-sectional, and descriptive study was to examine which SBE owners' concerns ranked high as resistance criteria or factors (Ernstmann et al., 2012). The prioritization of SBE owners' concerns about the law required identification and ranking of the resistance factors to the ACA. The AHP was the analysis technique (Ishizaka & Labib, 2011; Saaty & Vargas, 2012). Thus, no independent and dependent variables were associated with this study. The ranking of

resistance factors could provide a venue for SBE owners for exploring cost-effective and efficient measures to reduce the potential adverse financial impact of the ACA.

Role of the Researcher

According to Kyvik (2013), the role of the academic researcher includes (a) networking, (b) collaboration, and (c) conducting research. However, from the data collection viewpoint the role included that of: (a) selector, (b) visitor, (c) communicator, (d) data collector, and (e) custodian. The role of a selector involved identifying local SBE owners as participants for survey responses. The participant selection approach included a process described in subsection Population and Sampling of Section 2. No conflict of interest during data collection existed from SBE owners because I followed the requirements of ethical research as described in subsection Ethical Research of Section 2.

The role of visitor included personally traveling to physical premises of selected local businesses to administer the survey. A scheduled appointment or walk-in visit allowed access to the owner or authorized representatives of the SBEs. The role of a communicator required providing a brief introduction and purpose of visit, requesting survey participation, describing the survey process, and rendering necessary assistance to participants. The role as a data collector needed (a) answering questions by the participants, (b) providing necessary clarifications, and (c) ensuring completeness and consistency of survey responses. Finally, the role of custodian of data involved maintaining the data in a safe and secure environment and meeting the requirements of anonymity, confidentiality, and security of data.

Participants

Participants of this study were SBE owners or authorized representatives in Richmond, Virginia. SBE owners or authorized representatives were at least 18 years of age. Moreover, SBE owners had no more than 50 FTE employees in the previous year of operation (Tacchino, 2013a). These participants, randomly selected local small businesses from Manta (n.d.) database, met the requirements of a cross-sectional study and stratified sampling frame (Niedhammer, Kerrad, Schutte, Chastang, & Kelleher, 2013). For stratified sampling, one divides the population into subpopulation or stratum and then creates a random sample from the selected stratum (Khayatmoghadam & Seraj, 2013). I selected five SBE industry groups for stratified sampling. With this approach, the sample yielded homogeneous data for the research study.

Manta (n.d.) is an online organization that maintains a database of small businesses in the United States. I validated address and phone number of 150 businesses from local yellow pages directory to ensure the business information was accurate. From this list of randomly selected SBEs, 50 participants provided a sample size that exceeds the sample saturation required for the study (Aull-Hyde, Erdogan, & Duke, 2006). Subsection Population and Sampling of Section 2 contains a further justification of the sample selection and sample size determination.

Research Method and Design

In this subsection, I described the research method selected to solve a complex decision-making problem of prioritization of SBE owners' resistance factors. In addition, the description included a rationale for the selection of the research method for the

project. A description of the research design evolving from the research method became the blueprint for the survey instrument, data collection, and data analysis. Moreover, the efficacy of the selected research design in support of the research questions highlighted the applicability of the technique to solve complex decision-making problems with qualitative or quantitative characteristics of the factors or criteria.

Research Method

To address the research problem one could choose from any one of the three types of studies: (a) qualitative, (b) quantitative, or (c) mixed. Qualitative studies involve open-ended interviews to study a phenomenon by identifying themes and evaluating or interpreting lived experiences of the participants (Walliman, 2006). However, the focus of quantitative studies is on examining trends, perceptions, or attitudes of the population (Nejadirani et al., 2011). Because the research problem pertained to quantifying and prioritizing SBE owners' resistance factors to the ACA, I selected a quantitative study approach for the project. Moreover, prioritization requires quantitative measures to rank the SBE owners' resistance factors using verbal judgments to pairwise questions. A mixed method study would not be appropriate also because such studies involve qualitative aspects of research.

The purpose of my research study was to rank or prioritize the resistance factors to the ACA by SBE participants. Ranking methods are indeed many; some are subjective while others are objective in nature (Chatterjee, & Chakraborty, 2014; Ishizaka & Labib, 2011; Wang, Liang, & Qian, 2014). Some rank on an ordinal basis while others rank on a fractional basis where the ranking index would be subjective weights or equal weights. In

addition, any combination of these ranking methods is useful to create the rank (Wang, Liang, & Qian, 2014). When one wants to rank using multiple votes, some of the methods are not suitable. For example, Delphi is a research design or technique that involves group communication and consensus of opinions (Xie, Liu, Chen, Wang, & Chaudhry, 2012). However, such a method is not applicable because Delphi is iterative in nature and requires the researcher to visit and revisit each of the sampled participants until a consensus vote (Joshi et al., 2011).

Ishizaka and Labib (2011) identified several MCDM methods for consideration to address the research problem at hand. These methods include:

- Analytic Hierarchy Process (AHP),
- ELimination Et Choix Traduisant la Realité or Elimination and choice expressing reality (ELECTRE),
- Measuring Attractiveness by a Categorical Based Evaluation TecHnique (MACBETH), and
- Preference Ranking Organization METHod for Enrichment of Evaluations (PROMETHEE).

From the findings of theoretical and experimental validation, Ishizaka, Balkenborg, and Kaplan (2011) revealed no single MCDM method was better than the other method. Some MCDM methods, such as PROMETHEE and ELECTRE, required only quantitative measurements for decision-making. The AHP technique has an advantage over other MCDM methods because of its ability to check the consistency of judgments and eliminate or reduce such inconsistencies (Aminbakhsh, Gunduz, & Sonmez, 2013). I

applied the AHP method to the research problem for its: (a) widespread usage, (b) application of qualitative or quantitative criteria, and (c) ease of use in solving complex decision-making problems.

One can apply the AHP method to solve decision-making problems that involve (a) selection of an alternative, (b) prioritization of factors or criteria, or (c) evaluation of heterogeneous criteria (Al-Hawari, Al-Bo'ol, & Momani, 2011; Saaty & Shang, 2011; Talib, Rahman, & Qureshi, 2011). The AHP method is a structured technique T. L. Saaty devised in 1970s. One can use AHP to address the myriad of decision-making problems having qualitative and quantitative criteria simultaneously (Ishizaka & Labib, 2011). To solve prioritization problems with AHP technique, one relies on the judgment of pairwise comparison criteria using a ratio, verbal, or graphical scale (Talib et al., 2011). The AHP method involves a qualitative approach for determining the objective, criteria, and subcriteria and structuring the hierarchy. Furthermore, the AHP method requires a quantitative approach for pairwise comparison, consistency checking, and aggregation of judgments.

Aminbakhsh, Gunduz, and Sonmez (2013), Ishizaka and Labib (2011), and Saaty and Vargas (2012) provided the theory of the AHP method applicable to prioritization problems. An example of an MCDM problem is a person looking to buy a car among four models with the goal, what car do I purchase? Assuming the person identifies three criteria: (a) cost, (b) features, and (c) safety to select the best car, Figure 1 represents a sample hierarchical structure of the problem (Ergu & Kou, 2012).

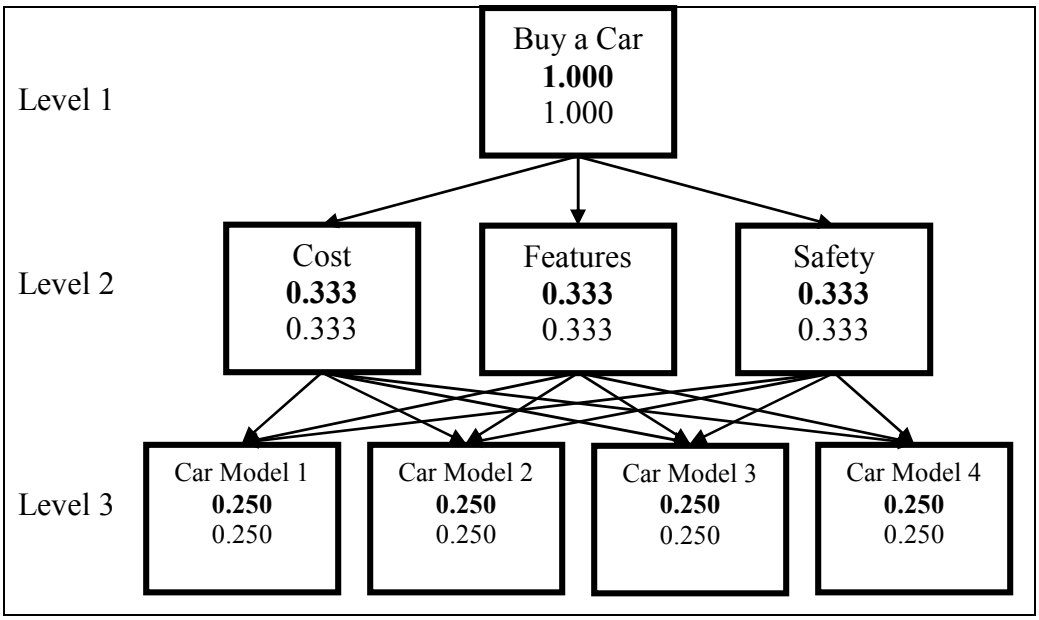

Figure 1. Sample AHP structure. Bold font numbers in the format **9.999** represent a criterion's or alternative's default local priority weight, regular font numbers in the format 9.999 represent default global priority weight.

The sample structure contains a 3-level decomposition of the problem. AHP is a distributive mathematical method, which at Level 1 has a goal or objective of the problem. One decomposes the problem into factors or criteria required to solve the problem. Subsequent Level 2 has an association or relationship between these criteria establishing a hierarchy of the structure. The last level, Level 3, has alternatives that one prioritizes using the criteria. The number of levels of a hierarchical structure depends on the distribution level of the criteria. To apply the AHP method, one performs a pairwise comparison of the criteria or alternatives to calculate numerical weights or priorities at each node level of the hierarchical tree structure independent of other nodes. The numerical weights are absolute numbers ranging between 0.000 and 1.000. One can measure the weight of a criterion similar to the probability of statistical measures using a

ratio scale. Each criterion has a local weight and global weight. The priority weight of the goal is always 1.000. The local priority weights of all criterion in a node add to 1.000. The global priority weights of all criterion at each level also add to 1.000. A ratio scale, based on the fundamental scale Saaty and Vargas (2012) described, provides the pairwise comparison judgments of the criteria as shown in Table 8.

Table 8

Saaty's Scale of Pairwise Comparison Judgment

Intensity of importance	Definition	Explanation
1	**Equal importance**	Two activities contribute equally to the objective
2	Weak	
3	**Moderate importance**	Experience and judgment slightly favor one activity over another
4	Moderate plus	
5	**Strong importance**	Experience and judgment strongly favor one activity over another
6	Strong plus	
7	**Very strong or demonstrated importance**	An activity Is favored very strongly over another, Its dominance demonstrated In practice
8	Very, very strong	
9	**Extreme importance**	The evidence favoring one activity over another is of the highest possible order of affirmation
1.1–1.9	When activities are very close	
Reciprocals of above	If activity *i* has one of the above nonzero of above numbers assigned to it when compared with activity *j*.then *j* has the reciprocal value when compared with *i*	A reasonable assumption
Rationals	Ratios arising from the scale	If consistency were to be forced by obtaining *n* numerical values to span the matrix

Note. From "The possibility of group choice: Pairwise comparisons and merging functions," by T. L. Saaty and L. G. Vargas, 2012, *Social Choice and Welfare*, *38*, p. 493. Copyright 2011 by the Springer-Verlag. Reprinted with permission (Appendix B).

For example, Figure 2 represented a sample of pairwise comparison questionnaire of the person's three criteria: (a) cost, (b) features, and (c) safety using AHP–OS software (Goepel, 2013). In addition, a person could use separate pairwise comparison

questionnaires to prioritize four alternatives (i.e., car models) by determining priority weights of the alternatives. Based on priority weights of the criteria and the alternatives, a person could choose the best car model to purchase a car.

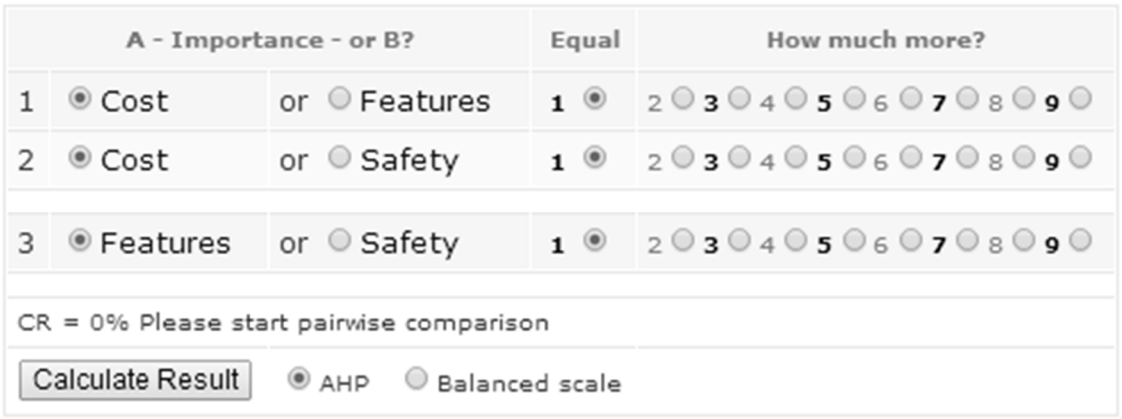

Figure 2. An example of pairwise comparison questionnaire. Adapted from "Implementing the analytic hierarchy process as a standard method for multi-criteria decision making in corporate enterprises: A new AHP Excel template with multiple inputs," by K. D. Goepel, 2013, *Proceedings of the International Symposium on the Analytic Hierarchy Process 2013*. Copyright 2013 by Creative Decision Foundation. Reprinted with permission (Appendix C).

Next, I used eight steps of the AHP method for conducting the study of the research problem as shown in Figure 3.

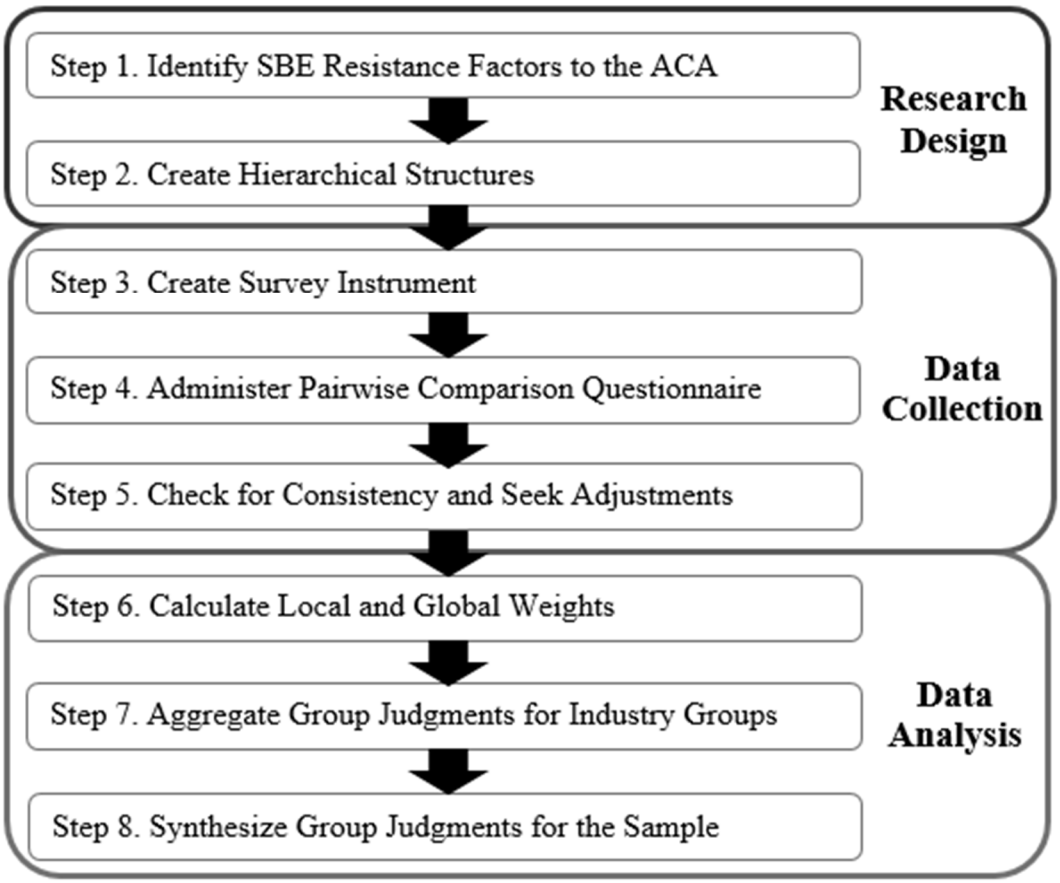

Figure 3. Eight steps of the analytic hierarchy process

Steps 1 and Step 2 pertain to Research Design; Steps 3 through Step 5, Data Collection; and Steps 6 through Step 8, Data Analysis, subsections of Section 2. First, a theoretical discussion of the AHP software, technique, and mathematical formulae ensues.

To perform the computations required for application of the AHP method to complex decision-making problems, one could use academic or commercial software such as:

- AHP–OS and AHP Excel template,
- Expert Choice,

- Decision Lens, and
- SuperDecisions.

I used the AHP–OS software and AHP Excel template from Goepel (2013) during Steps 4 through Step 8. The software encodes the following formulas of the AHP method to compute the consistency of: (a) judgments, (b) group judgment aggregation, and (c) local and global priority weights. A decision maker could create an independent judgment matrix applying the eigenvector method to each node of the hierarchical tree. For a node having n number of criteria, the $n \times n$ judgment matrix is as follows:

$$A = \begin{bmatrix} 1 & a_{12} & \cdots & a_{1n} \\ a_{21} & 1 & \cdots & a_{2n} \\ \vdots & \vdots & \vdots & \vdots \\ a_{n1} & a_{n2} & \cdots & 1 \end{bmatrix}$$, where, a_{ij} is a pairwise comparison between criterion i and j.

For a matrix, the following rules apply:

- Positive value: $A = 1;\ a_{ii} = 1;\ a_{ij} > 0,\ i, j = 1, 2, 3 \ldots n$;
- Relative value: $a_{ij} = \frac{1}{a_{ji}}$, (i.e., if a_{ij} is 5 times a_{ji} then a_{ji} is 1/5 times a_{ij}); and
- Transitivity or consistency of values: $a_{ij} = a_{ik} \times a_{kj}$, that is, if A is greater than B and B is greater than C then A should be greater than C. A violation of this rule renders the judgments inconsistent.

According to Aminbakhsh et al. (2013), Saaty provided a maximum eigenvalue approach for individual judgment matrix as $Ap = \lambda_{\max} \times p$, where, $\lambda_{\max}$ is the

maximum eigenvalue of the matrix A and p is the vector priority (Aminbakhsh et al., 2013). Ishizaka and Labib (2011) pointed out for an inconsistent judgment matrix to be acceptable, the consistency ratio (CR) should be no more than 10%. To calculate the CR of a judgment matrix, one should first determine the consistency index (CI) using the formula:

$$CI = \frac{\lambda_{\max} - n}{n-1}$$, where, n is the number of pairwise comparison criteria.

Next, to calculate the CR, one selects the applicable value of the random index (RI) as shown in Table 9 (Ishizaka & Labib, 2011).

Table 9

Random Indices of Average Consistency Index

n	3	4	5	6	7	8	9	10
RI	0.58	0.9	1.12	1.24	1.32	1.41	1.45	1.49

Note. *n* = dimension of judgment matrix. Reprinted from "Review of the main developments in the analytic hierarchy process," by A. Ishizaka and A. Labib, 2011, *Expert Systems with Applications*, *38*, p. 14339. Copyright 2011 by the Elsevier Ltd. Reprinted with permission (Appendix D).

Saaty created the table of random indices using average CI of 500 randomly completed matrices (Ishizaka & Labib, 2011). One can calculate the CR using the following formula:

$$CR = \frac{CI}{RI}.$$

The RI of judgment matrices of size 1 × 1 and 2 × 2, being dependent, is always equal to zero. The CR for these matrices tends to infinity, implying the judgment matrices of size 1 × 1 and 2 × 2 are always consistent (Aminbakhsh et al., 2013). With consistent judgment matrices, one can obtain local weights or priorities of the criteria belonging to the nodes of the hierarchical tree.

For group decision-making, one could aggregate local weights of judgments of all participants by using geometrical mean of individual judgments of a node as follows (Aminbakhsh et al., 2013):

$a_{ij} = \sqrt[z]{a_{ij1} \times a_{ij2} \times ... \times a_{ijz}}$, where, z is the number of participants.

Once again, CR of the group judgment matrix should be no more than 10% to have acceptable inconsistencies. Finally, to obtain global priorities or overall weights of judgments, one could apply synthesis of individual priorities weights. The synthesis requires a multiplication of local weights by weights of all parent nodes (Bhatt & Macwan, 2012). In addition, one can use the simplified formula:

$P_i = p_i \times p_l$, where P_i is the global priority; p_i, the local priority; and p_l, the local priority of the parent node of the hierarchical level.

Weights of local or global priorities independently add to 1.

Research Design

The study had a cross-sectional survey design, which possesses three characteristics: (a) conclusive, (b) descriptive, and (c) single cross-sectional. The research design was conclusive because the structured AHP method provided the decision-making

approach to solving complex business problems (Tan, Kwek, & Li, 2013). An exploratory design would not meet the requirements as one seeks to understand the problem because of the unstructured research process and tentative findings (Ioannidis et al., 2014).

The research design was descriptive because I used a pairwise questionnaire for applying SBE owners' perceptions to make accurate predictions (Tan et al., 2013). For exploratory design, one would conduct open-ended interviews or pilot surveys (Kaur, Gupta, & Syal, 2014). Finally, the research had a single cross-sectional design because the random sample of participants provided data one time only to determine the ranking of SBE owners' resistance factors (Langabeer & DelliFraine, 2011). For longitudinal research design, one would use the same sample over time (Barlett et al., 2014). The structured design of the research study was also a single-group and non-experimental.

In Step 1 of the AHP method, one identifies the factors or criteria to meet the goal of the study. I already executed this foundational research step to completion. An understanding of the literature was essential to determine the factors of SBE owners' resistance to the ACA. The findings from the review of professional and academic literature revealed nine SBE owners' resistance factors as shown in Table 10:

Table 10

Resistance Factors to the Affordable Care Act

Resistance Factor	Definition
Administrative Cost	Administrative, management, and overhead costs associated with implementing the provisions of the ACA
Complexity of ACA	Understanding the rules and regulations applicable to SBEs
Insurance Premium	Employer contribution for health insurance coverage of employees
Penalty	Amount per employee, an employer must pay for noncompliance
Plan Choice	Number of available health insurance plan choices
Quality of Care	Quality of medical care and coverage available through health insurance programs
Religious Objection	Objection by employers on religious grounds about specific health insurance coverage
Reporting Burden	Document collection and filing requirements for employers in support of the ACA
Tax Burden	Additional tax burden including excise tax on employers

In Step 2 of the AHP method, I applied the nine SBE owners' resistance factors identified previously to create an AHP structure for the research study. After careful consideration, two possible hierarchical structures emerged leading to a subsequent decision to adopt the better one of the two structures. AHP Structure #1 contained two levels while AHP Structure #2 contained three levels as shown in Figure 4.

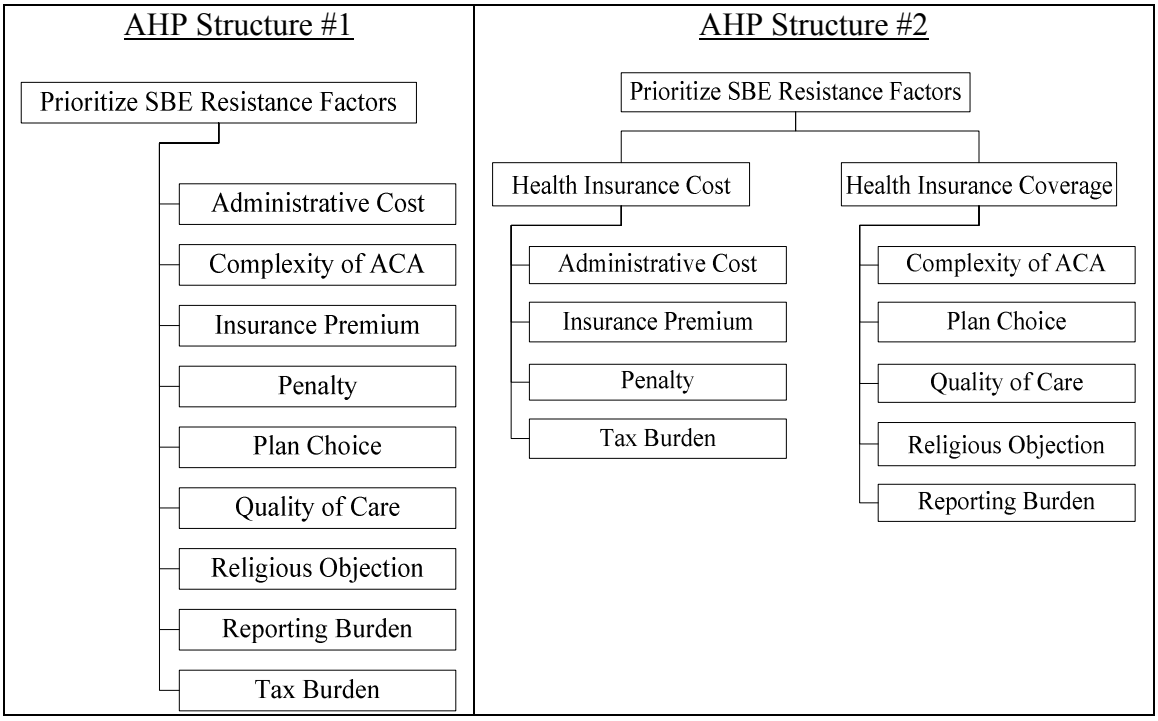

Figure 4. Two possible AHP structures

From the appearance of the structures, AHP Structure #1 appeared to be the obvious choice because AHP Structure #1 had fewer structure levels than AHP Structure #2. A comparison of the two structures, however, revealed AHP Structure #2 had distinct advantages over AHP Structure #1 as shown in Table 11.

Table 11

Comparison of the Two Possible AHP Structures

Consideration	AHP Structure #1	AHP Structure #2	Advantage	Justification
Number of pairwise comparisons	36	17	Structure #2	Lower number of comparisons
Consistency ratio adjustments	High complexity	Low complexity	Structure #2	Fewer inconsistency adjustments
Estimated participant time	30 minutes	20 minutes	Structure #2	Lower number of questions and adjustments
Accuracy of ranks	Global, hard tradeoffs	Local and global, easy tradeoffs	Structure #2	Easier to develop local ranks
Computational analysis	Low granularity	High granularity	Structure #2	Supported by AHP Excel template of Goepel (2013)

Based on the comparisons indicated in Table 11, I selected AHP Structure #2 for the research study. For consistency and acceptability of collected data, the driving consideration to select the AHP Structure #2 was a fewer *inconsistency adjustments* requirement. Furthermore, Geyman (2012), Jacobe (2013b), and Jost (2012) identified health care costs were crucial to SBE owners' resistance supporting the internal consistency of AHP Structure #2.

One last consideration in the choice of one structure over the other was whether one could model the selected hierarchical structure to solve the research problem using the identified AHP software. The tool selected was the AHP–OS software used with permission from Dr. Goepel (2013) as shown in Appendix C. One can model both AHP Structures #1 and #2 with this software. Figure 5 shows an AHP–OS software model of the AHP Structure #2 (Goepel, 2013). The numbers inside the boxes represent default local priority weights of SBE owners' resistance factors distributed equally among the factors of that node.

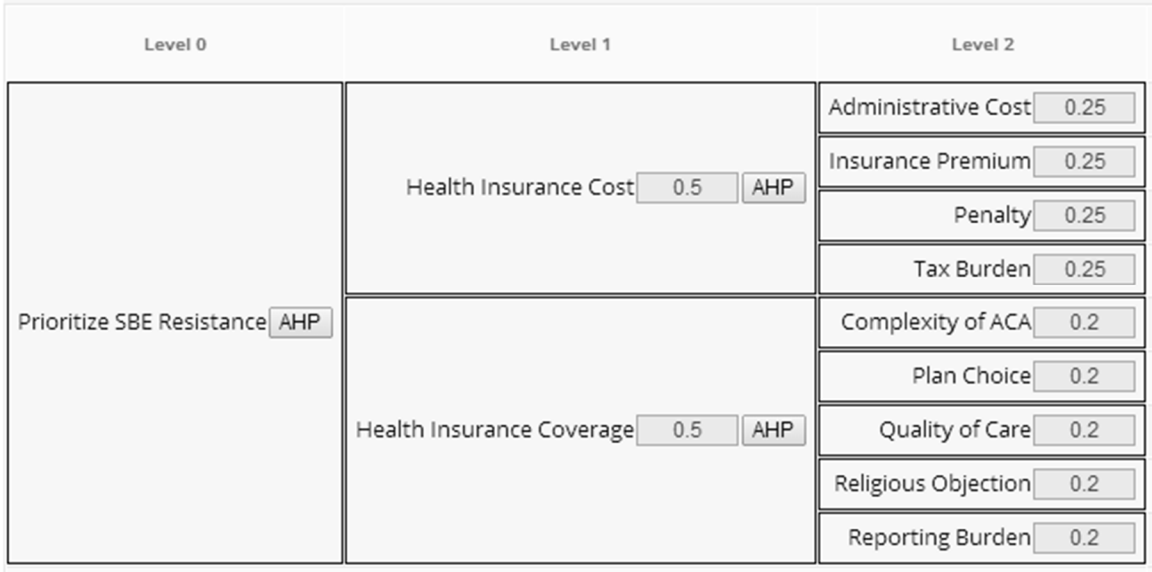

Figure 5. Representation of AHP structure #2 in AHP–OS software. Adapted from "Implementing the analytic hierarchy process as a standard method for multi-criteria decision making in corporate enterprises: A new AHP Excel template with multiple inputs," by K. D. Goepel, 2013, *Proceedings of the International Symposium on the Analytic Hierarchy Process 2013*. Copyright 2013 by Creative Decision Foundation. Reprinted with permission (Appendix C).

I provided further information about next steps of the AHP method and survey instrument in Data Collection Instruments subsection of Section 2.

Population and Sampling

The aim of sampling the population for the study is to obtain representative data for research because accessing the entire population is not feasible. To prioritize the factors of SBE owners' resistance to the ACA, the population for this research study included small businesses in the United States as Health care (n.d.) defined. SBE participants met two key requirements: (a) must be at least 18 years of age and (b) no more than 50 FTEs in an SBE (Healthcare, n.d.). The sample population was the SBE owners in Richmond, Virginia. From this sample population, stratified sampling frame

rendered five industry groups representing a cross section of SBEs. Finally, a simple probability sampling yielded a random sample of 50 SBE participants from the stratified sampling frame of 150 SBEs for this cross-sectional descriptive study (Niedhammer et al., 2013).

With respect to sample size determination, one could not use power analysis, as AHP does not require hypotheses like statistical processes such as ANOVA or regression. Data for AHP stem from mathematical evaluations by an expert group. Statistical randomness was not relevant, as one does not need to distribute the errors. The strength of the AHP technique is that one can conduct a study using one participant (Ramanathan, 2001), which may introduce, however, a participant bias in research findings. AHP should already render a satisfactory result with the participation of a single subject matter expert. However, the use of an expert panel creates a more reliable base. For AHP sample size considerations, Goepel (2012) recommended one should select people with various backgrounds and viewpoints.

I considered the issue of creating inconsistent comparisons with a large sample carefully to arrive at the sample size, $N = 50$ SBEs. A key consideration was a Monte Carlo simulation study by Aull-Hyde, Erdogan, and Duke (2006). Aull-Hyde et at. demonstrated the conditions when an aggregated geometric mean of a pairwise comparison matrix would yield acceptable consistency regardless of individual comparison matrices not being consistent. Figure 6 shows the group size of participants exceeding the threshold number for the various size of aggregated pairwise comparison matrices.

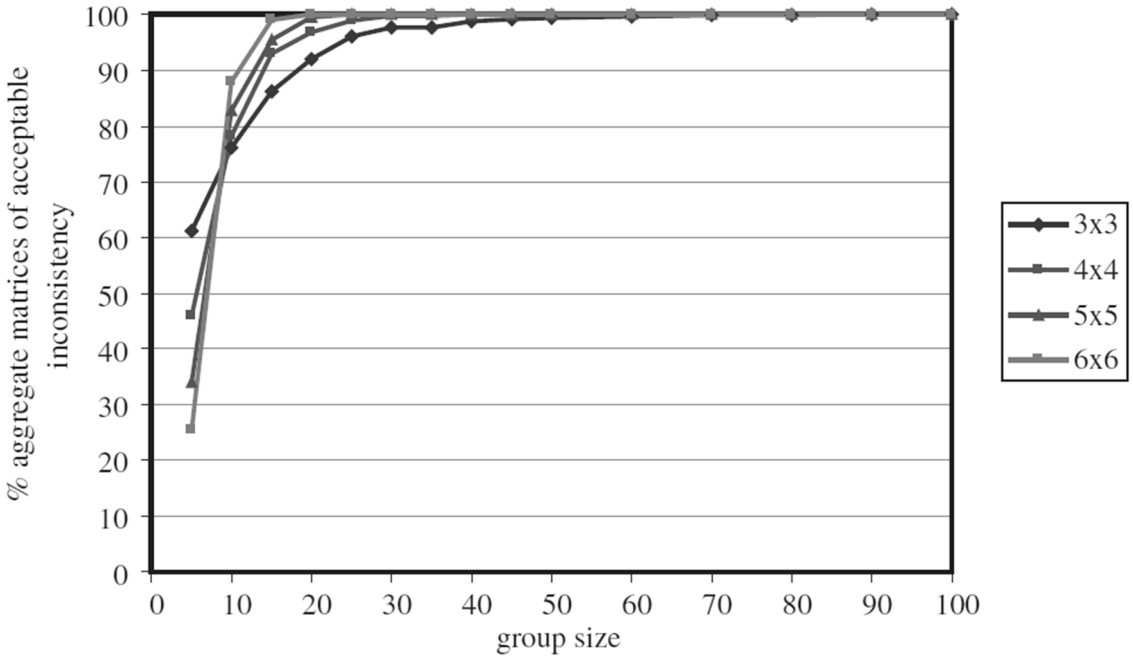

Figure 6. Group size of the acceptable inconsistency of a pairwise comparison matrix. Reprinted from "An experiment on the consistency of aggregated comparison matrices in AHP," by R. Aull-Hyde, S. Erdogan, and J. M. Duke, 2006, *European Journal of Operational Research*, *171*, p. 294. Copyright 2006 by Elsevier B.V. Reprinted with permission (Appendix E).

According to Aull-Hyde et al. (2006), a comparison matrix of size 4 × 4 had a threshold of group size 40 and a comparison matrix of size 5 × 5, that of 25. Mason (2010) found the mean size of sample saturation in 560 qualitative or non-statistical Ph.D. dissertations was 31, and the preferred sample size was 20 or 30 participants. In summary: (a) design of the AHP structure, (b) consistency requirements, and (c) sample saturation perspective led to the selection of a sample size of 50 SBEs.

Finally, yet importantly, in order to form the stratified sampling frame from which to select 50 participants, one could first construct five industry groups of SBEs. With separate Excel worksheets of small businesses by industry groups, one could create

random numbers by using the Excel function =RAND(). One sorts the list then in ascending order of random numbers (Trochim, 2006). I administered surveys to each of the 10 SBE owners from five independently sorted lists of industry groups. Using this approach, one could eliminate sampling bias and selection bias from sample selection process, and ensure homogeneity of the sample. The random selection of SBEs with a sample size of 50 participants allowed for the spread of study participants necessary for the cross-sectional research study.

Ethical Research

When conducting research involving human participants, the obligation of the researcher is to protect their rights and welfare. For this purpose, I completed an online training from National Institutes of Health (NIH), consisting of the codes and regulations that embodied respect, welfare, and fairness for individuals. The involvement comprised of obtaining their opinions or judgments to the survey's pairwise comparison questions because the research study was not an experiment on or examination of human participants. Based on the research design and survey instrument, participants of the research study were at no risk.

All participants of the study received a copy of an informed consent. The informed consent form contained information on: (a) nature of participation, (b) risks and incentives, and (c) security and privacy of the participants. As described in detail in the Population and Sampling subsection of Section 2, the selection of SBE owners was random. The owners or their authorized representatives could choose to participate or decline to participate because of the voluntary nature of participation in the study. In

addition, the participants had the ability to withdraw from or end their participation at any time during the administration of the survey instrument. Although participants got no payment or compensation, they would receive via e-mail an executive summary describing the results upon completion of the research study.

The survey participants, providing opinions or judgments, did not furnish any personally identifiable information during the administration of the survey instrument. The collected data was anonymous and confidential and maintained in a secured environment as required by Walden University. For the security of the collected data, the data remains in a password-protected electronic environment for 5 years.

Data Collection Instruments

Upon identifying SBE owners' resistance factors to the ACA and selecting the hierarchical structure, a description of the survey instrument used to address the research problem follows. I elaborate on administering the pairwise comparison questionnaire, checking for consistency of responses from the participants, and seeking adjustments to responses to meet consistency requirements of the AHP method. Furthermore, the description involves data organization approach for storing, retaining, and purging the collected data.

The AHP–OS software and AHP Excel template Goepel (2013) provided were crucial tools for data collection and aggregation process. Given the academic nature of these tools, one must check their validity for the research study. For this purpose, I applied sample published data on these tools and then compared the outputs against those of the commercially available AHP/ANP software by SuperDecisions (n.d.). The results

of prioritization calculations for matching AHP structures were congruent. Thus, the AHP–OS software provided acceptable consistency of judgments through online data collection, real-time computation of CRs, and adjustment of participants' responses (Goepel, 2013). Goepel provided the AHP Excel template for aggregation of group judgments. The strength of the AHP method establishes validity and consistency of the survey instrument through the computation of CR individually at each node of the structure (Aull-Hyde et al., 2006).

In Step 3 of the AHP method, I created a survey instrument using the AHP–OS software (Goepel, 2013). The scale of measurement was a ratio scale known as Saaty's fundamental scale (Saaty & Vargas, 2012). The survey instrument was a pairwise comparison questionnaire that consisted of three parts. Part 1 of the questionnaire contained one pairwise comparison question for the node Prioritize SBE owners' resistance, which was the goal to rank SBE owners' resistance factors using the AHP method. Part 2 of the questionnaire contained six pairwise comparison questions for the node Health Insurance Cost. Part 3 of the questionnaire contained 10 pairwise comparison questions for the node Health Insurance Coverage. The pairwise comparison questionnaire covered all three parts as shown in Figure 7 using the AHP–OS software (Goepel, 2013).

Part 1. Prioritize SBE Resistance

	A - Importance - or B?			Equal	How much more?
1	Health Insurance Cost	or	Health Insurance Coverage	1	2 3 4 5 6 7 8 9

Part 2. Health Insurance Cost

	A - Importance - or B?			Equal	How much more?
1	Administrative Cost	or	Insurance Premium	1	2 3 4 5 6 7 8 9
2	Administrative Cost	or	Penalty	1	2 3 4 5 6 7 8 9
3	Administrative Cost	or	Tax Burden	1	2 3 4 5 6 7 8 9
4	Insurance Premium	or	Penalty	1	2 3 4 5 6 7 8 9
5	Insurance Premium	or	Tax Burden	1	2 3 4 5 6 7 8 9
6	Penalty	or	Tax Burden	1	2 3 4 5 6 7 8 9

Part 3. Health Insurance Coverage

	A - Importance - or B?			Equal	How much more?
1	Complexity of ACA	or	Plan Choice	1	2 3 4 5 6 7 8 9
2	Complexity of ACA	or	Quality of Care	1	2 3 4 5 6 7 8 9
3	Complexity of ACA	or	Religious Objection	1	2 3 4 5 6 7 8 9
4	Complexity of ACA	or	Reporting Burden	1	2 3 4 5 6 7 8 9
5	Plan Choice	or	Quality of Care	1	2 3 4 5 6 7 8 9
6	Plan Choice	or	Religious Objection	1	2 3 4 5 6 7 8 9
7	Plan Choice	or	Reporting Burden	1	2 3 4 5 6 7 8 9
8	Quality of Care	or	Religious Objection	1	2 3 4 5 6 7 8 9
9	Quality of Care	or	Reporting Burden	1	2 3 4 5 6 7 8 9
10	Religious Objection	or	Reporting Burden	1	2 3 4 5 6 7 8 9

Figure 7. SBE owners' resistance survey instrument. Adapted from "Implementing the analytic hierarchy process as a standard method for multi-criteria decision making in corporate enterprises: A new AHP Excel template with multiple inputs," by K. D. Goepel, 2013, *Proceedings of the International Symposium on the Analytic Hierarchy Process 2013*. Copyright 2013 by Creative Decision Foundation. Reprinted with permission (Appendix C).

The survey instrument requirements consisted of using the AHP–OS software without making any modifications or revisions to the instrument. Similarly, the administration of the survey instrument to SBE participants involved no changes to the tool. I saved and maintained the data, collected from the participants, in electronic files for use in data analysis activities. Upon data collection, the data would be available in future only to personnel authorized by Walden University.

Data Collection Technique

The survey participants used the SBE owners' resistance survey to provide their opinions (Tan et al., 2013). Using the survey instrument as shown in Appendix A, the participants provided their judgment to pairwise comparison questions pertaining to factors of SBE owners' resistance to the ACA. The resistance factors, identified previously in Research Design subsection of Section 2, are:

- Administrative cost,
- Complexity of ACA,
- Insurance premium,
- Penalty,
- Plan choice,
- Quality of care,
- Religious objection,
- Reporting burden, and
- Tax burden.

The Study Validity subsection of Section 2 contains further information on the validity of the survey instrument.

For data collection, the participants used my laptop computer to participate in the SBE owners' resistance survey by answering the pairwise comparisons questions. The participants responded to the survey questions using two measurements. First, the participants selected which one of the two resistance factors of a pairwise comparison question was more important to them. Next, on a measure of 1 to 9 using Saaty's fundamental scale (Saaty & Vargas, 2012), the participants specified the strength of their choice. The SBE participants followed a workflow as shown in Figure 8.

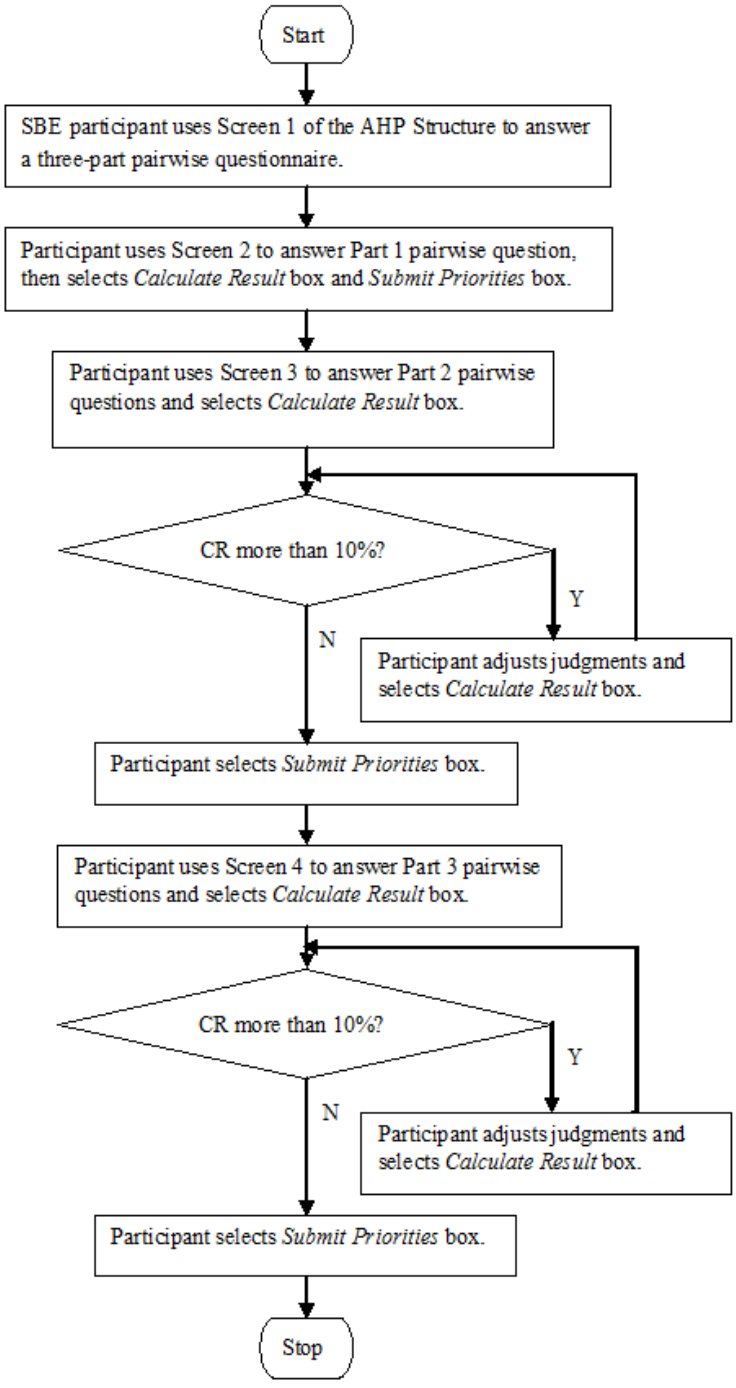

Figure 8. SBE participant workflow

The first screen displayed the hierarchical structure of the resistance factors as shown in Figure 9 using AHP–OS software (Goepel, 2013).

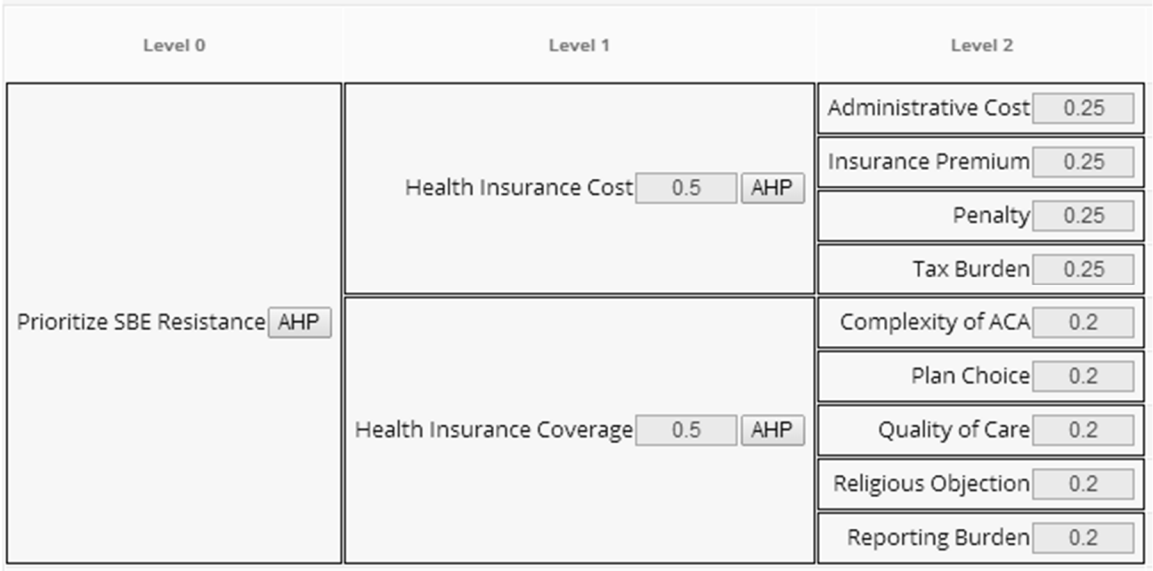

Figure 9. Screen 1 of SBE owners' resistance pairwise comparison survey. Adapted from "Implementing the analytic hierarchy process as a standard method for multi-criteria decision making in corporate enterprises: A new AHP Excel template with multiple inputs," by K. D. Goepel, 2013, *Proceedings of the International Symposium on the Analytic Hierarchy Process 2013*. Copyright 2013 by Creative Decision Foundation. Reprinted with permission (Appendix C).

As mentioned in Research Design subsection of Section 2, the survey has three parts.

In Step 4 of the AHP method, a survey participant selected the AHP box of Prioritize SBE Resistance to take Part 1 of the survey as shown in Figure 10.

Figure 10. Screen 2 of SBE participant survey instrument part 1. Adapted from "Implementing the analytic hierarchy process as a standard method for multi-criteria decision making in corporate enterprises: A new AHP Excel template with multiple inputs," by K. D. Goepel, 2013, *Proceedings of the International Symposium on the Analytic Hierarchy Process 2013*. Copyright 2013 by Creative Decision Foundation. Reprinted with permission (Appendix C).

The participant answered the 2-part pairwise comparison question first by choosing the importance of the resistance factor, and then by rating its importance on a scale of 1 to 9. The participant selected *Calculate Result* box upon completing survey Part 1 to rank the group of factors. The participant then selected *Submit Priorities* box to complete the first part of the survey.

Next, the participant selected the AHP box of *Health Insurance Cost* to complete Part 2 of the survey as shown in Figure 11 using AHP–OS software (Goepel, 2013).

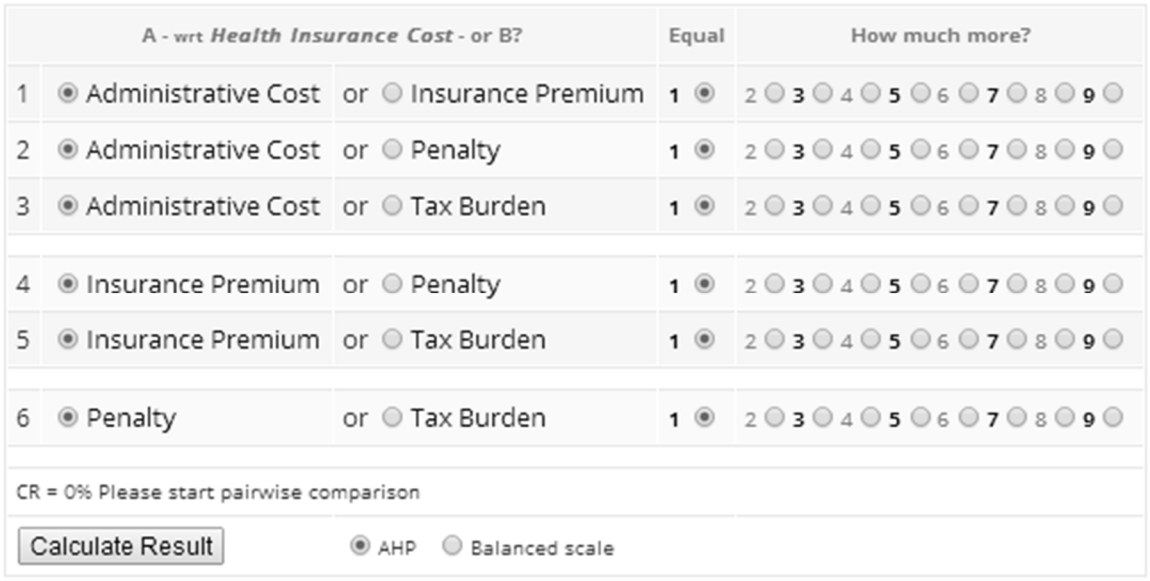

Figure 11. Screen 3 of SBE participant survey instrument part 2. Adapted from "Implementing the analytic hierarchy process as a standard method for multi-criteria decision making in corporate enterprises: A new AHP Excel template with multiple inputs," by K. D. Goepel, 2013, *Proceedings of the International Symposium on the Analytic Hierarchy Process 2013*. Copyright 2013 by Creative Decision Foundation. Reprinted with permission (Appendix C).

Once again, the participant provided 2-part responses to six questions on the second part of the survey and selected the *Calculate Result* box. The software then automatically calculated the CR. If CR was no more than 10%, the participant chose the *Submit Priorities* box to complete this part of the survey. If, however, the CR was more than 10%, the participant followed Step 5 of the AHP method discussed in this subsection. As shown in Figure 12, the process for Part 3 of the survey was similar to the process of completing Part 2 described earlier using AHP–OS software(Goepel, 2013).

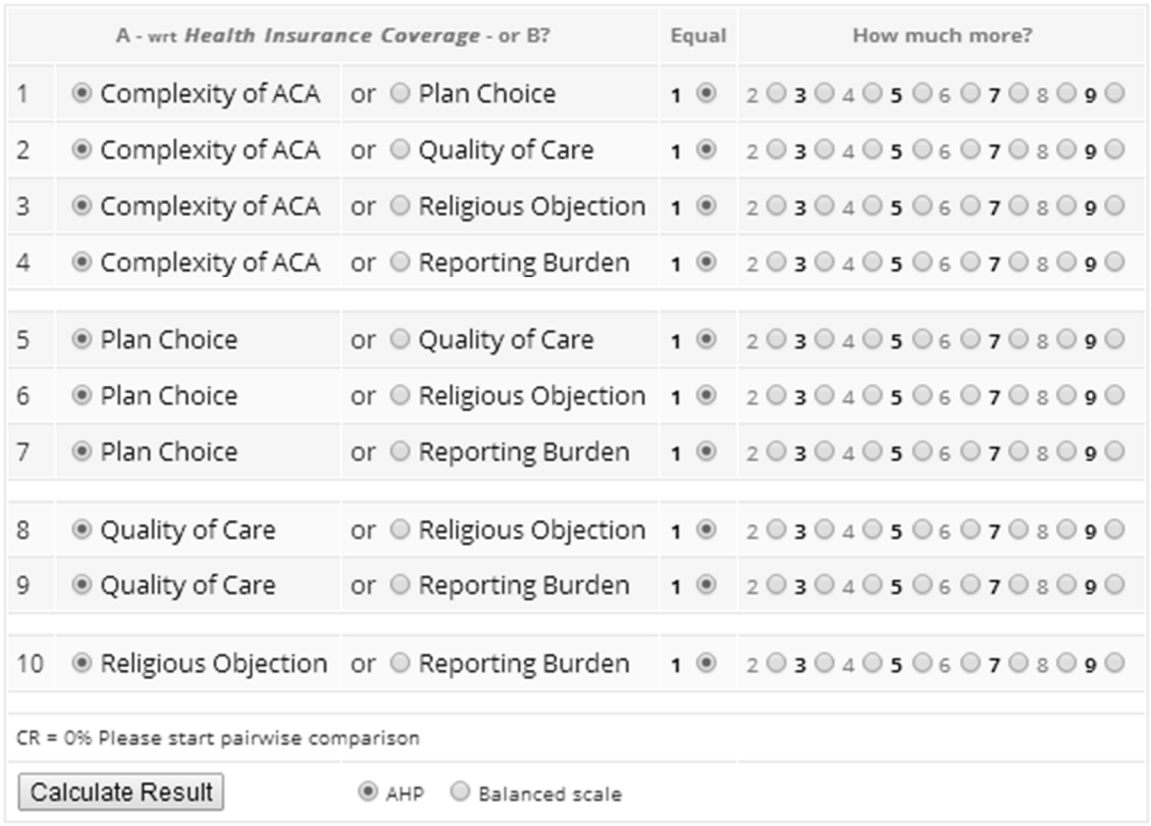

Figure 12. Screen 4 of SBE participant survey instrument part 3. Adapted from "Implementing the analytic hierarchy process as a standard method for multi-criteria decision making in corporate enterprises: A new AHP Excel template with multiple inputs," by K. D. Goepel, 2013, *Proceedings of the International Symposium on the Analytic Hierarchy Process 2013*. Copyright 2013 by Creative Decision Foundation. Reprinted with permission (Appendix C).

In Step 5 of the AHP method, if the CR was more than 10% for any node, the participant reviewed the responses for inconsistencies. The action was necessary to survey responses to be consistent and acceptable. The AHP–OS software can identify and highlight inconsistencies based on survey responses. The participant could adjust the responses to make them consistent and acceptable. An example of inconsistent responses

had a CR of 28.1%, as shown in Figure 13 using AHP–OS software, which was more than 10% (Goepel, 2013).

Figure 13. An example of inconsistent responses (CR>10%). Adapted from "Implementing the analytic hierarchy process as a standard method for multi-criteria decision making in corporate enterprises: A new AHP Excel template with multiple inputs," by K. D. Goepel, 2013, *Proceedings of the International Symposium on the Analytic Hierarchy Process 2013*. Copyright 2013 by Creative Decision Foundation. Reprinted with permission (Appendix C).

The participant could make the adjustments either by using suggestions provided by the software logic or by changing the judgments slightly as shown in Figure 14 using AHP–OS software (Goepel, 2013).

Figure 14. An example of consistent responses (CR<10%). Adapted from "Implementing the analytic hierarchy process as a standard method for multi-criteria decision making in corporate enterprises: A new AHP Excel template with multiple inputs," by K. D. Goepel, 2013, *Proceedings of the International Symposium on the Analytic Hierarchy Process 2013*. Copyright 2013 by Creative Decision Foundation. Reprinted with permission (Appendix C).

In this example, the responses to questions 4 and 6 matched the suggested responses. However, there was no change to question 3 response. The participant might need to conduct iterative adjustments ensuring consistency of judgment to survey questions.

Finally, I did not conduct a pilot study because the design of the study was conclusive and non-exploratory. In addition, the AHP–OS software for the survey instrument remains acceptable to conduct research studies. A discussion of the remaining three steps of the AHP method follows in Data Analysis subsection of Section 2.

The collected pairwise-comparison questionnaire data exist in AHP Excel worksheets. There is no paper trail of the collected data. I saved the files on a personal computer in related folders identified by industry groups (e.g., IG1, IG2 . . . IG5). Each

AHP Excel filename has a number prefixed with the industry group identification representing each participant's judgment (e.g., IG1-1.csv, IG1-2.csv . . . IG5-10.csv).

I created a backup of the collected data and AHP Excel worksheets used to store the data for any contingencies. The primary data, software, and any backup copies remain in a password-protected environment for 5 years as stipulated by Walden University. Purging of the data from primary and backup folders and files will occur following the expiration of 5-year time limit.

Data Analysis

The software tools selected for this study included the AHP–OS software and AHP Excel template for collecting and analyzing the pairwise comparison data (Goepel, 2013). As shown in Appendix C, Goepel (2013) provided both of these tools with permission to use. Figure 15 shows an overview of the analysis of collected data for Step 6 through Step 8.

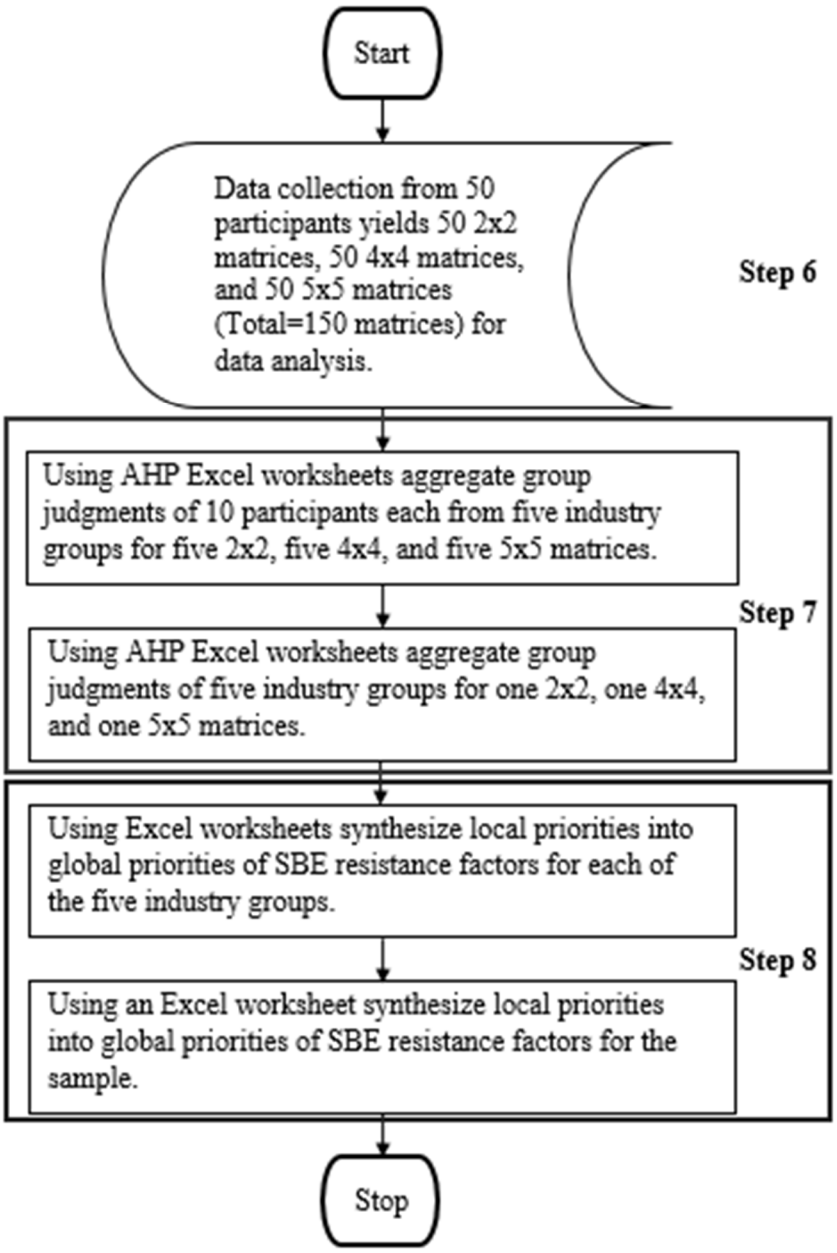

Figure 15. Data analysis flowchart for SBE owners' resistance factors

Step 6 entails the calculation of local weights or priorities and global weights from participants' individual judgments. As mentioned previously in Population and

Sampling subsection of Section 2, I collected data from 50 SBE participants including 10 SBE participants from each of five industry groups. The data collected from the participants, using the pairwise comparison questionnaire, included:

- Fifty matrices of size 2 × 2 for local weights from Part 1,
- Fifty matrices of size 4 × 4 for local weights from Part 2, and
- Fifty matrices of size 5 × 5 for local weights from Part 3 of the questionnaire.

Local priority weights provided initial data to perform aggregation and synthesis, first by industry groups and then by all SBE participants.

To execute Step 7 of the AHP method, the AHP Excel worksheets contained the data transferred from Step 6 to aggregate by industry groups. Each industry group had three AHP Excel worksheets (one each for Part 1, 2, and 3, of the pairwise comparison questionnaire). For each AHP Excel worksheet, the data included corresponding matrices of 10 SBE participants of that industry group in sheets labeled In1, In2 . . . In10. Using the geometric mean method, the aggregation of 10 individual eigenvector matrices provided group ranking or local weights for an industry group at the Prioritize SBE Resistance node (Ishizaka & Labib, 2011). Similarly, the aggregation of 10 4 × 4 matrices provided local weights of the *Health Insurance Cost*, and 10 5 × 5 matrices, local weights of the *Health Insurance Coverage* nodes for that industry group. I repeated this process for the remaining four industry groups. Thus, 3 × 5 = 15 AHP Excel worksheets of aggregated group judgments existed for the industry groups of the research study.

Next, in a separate AHP Excel worksheet, aggregation of the five 2 × 2 matrices of the industry group aggregation occurred to calculate local weights of all SBE participants at the *Prioritize SBE Resistance* node. All AHP aggregation procedures involved the use of a geometric mean method (Ishizaka & Labib, 2011). Similarly, the aggregation of five 4 × 4 matrices of the industry groups provided overall local weights of the *Health Insurance Cost*, and five 5 × 5 matrices, those of the *Health Insurance Coverage* nodes. For an example of AHP Excel worksheet, Figure 16 shows a matrix of size 2 × 2 for all SBE participants' group aggregation (Goepel, 2013). I provided local weights of the five industry groups and inserted those weights in sheets labeled In1 through In5.

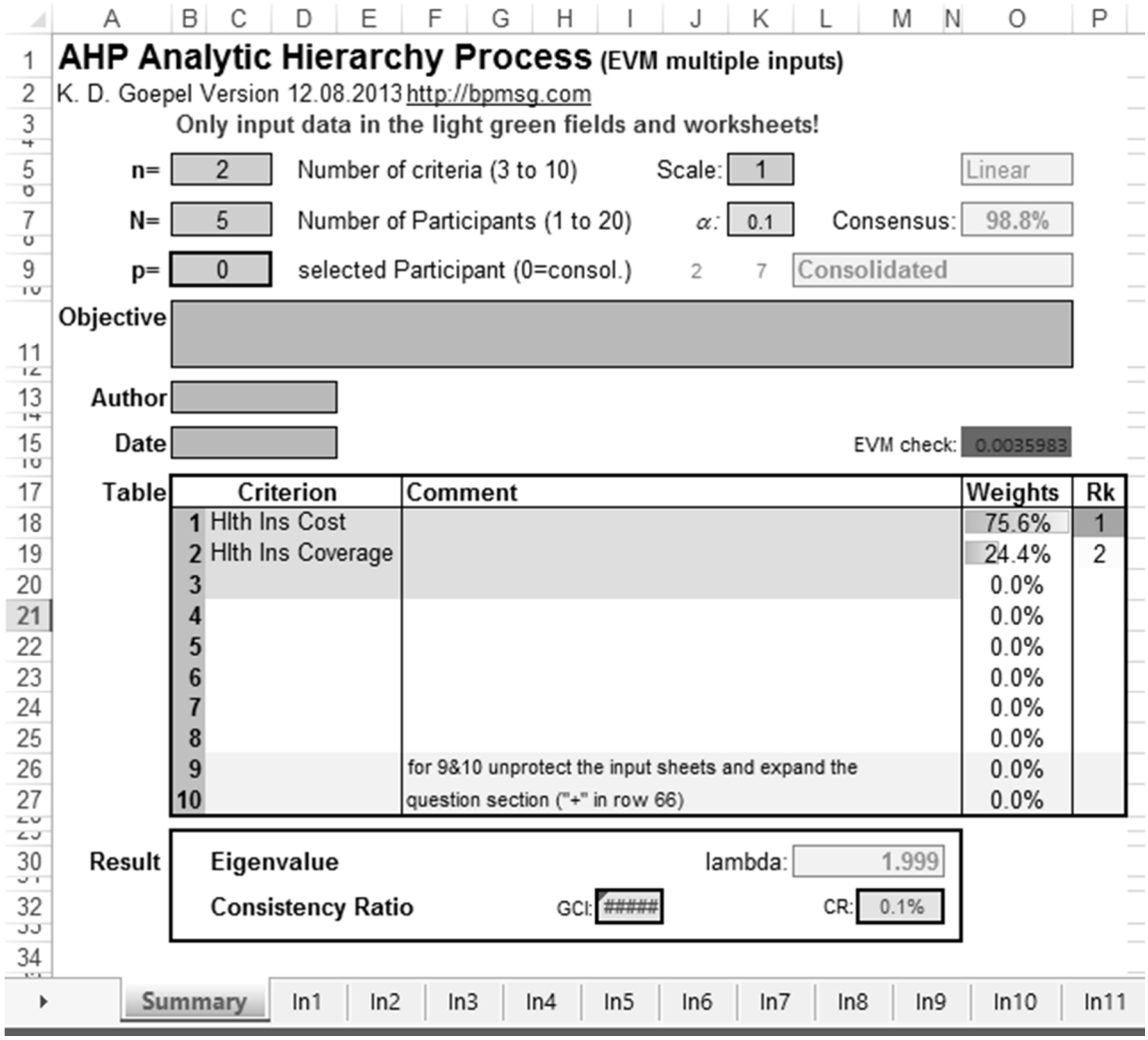

Figure 16. An example of 2 x 2 matrix group aggregations for all SBE participants. Adapted from "Implementing the analytic hierarchy process as a standard method for multi-criteria decision making in corporate enterprises: A new AHP Excel template with multiple inputs," by K. D. Goepel, 2013, *Proceedings of the International Symposium on the Analytic Hierarchy Process 2013*. Copyright 2013 by Creative Decision Foundation. Reprinted with permission (Appendix C).

In Step 8 of the AHP method, a synthesis of local weights occurred using Excel worksheets to determine global weights for industry groups and all participants. For this purpose, one converts and combines the industry group's local weights. First, one

multiplies the local weights of an industry group according to the hierarchy with the local weight of its parent node. Next, one distributes the resulting weights of all factors at the lowest level (i.e., Level 3). These final weights constitute the global weights for that industry group. I performed this step for each of the five industry groups. Similarly, one can synthesize all SBE participants' local weights to obtain the global weights of all SBE participants (Al-Hawari et al., 2011). Finally, the global weights of all SBE participants constituted the ranking of SBE owners' resistance factors to the ACA.

For the presentation of results of data analysis, I created appropriate charts using Microsoft Excel software. The resulting figures and rankings provided answers to the working hypotheses described in the Hypotheses subsection of Section 1. Specifically, for working hypothesis WH1, which stipulated determining the main SBE owners' resistance factors to the ACA, Step 1 and Step 2 of the Research Design subsection of Section 2 provided nine factors.

For working hypothesis WH2, which stipulated ranking of the SBE owners' resistance factors for decision-making, the global priority weights revealed the ranking and intensity of the resistance factors. I quantified how much a factor was greater than the other factors. Finally, for working hypothesis WH3, which stipulated determining the uniformity of the prioritized list of SBE owners' resistance factors among the industry groups, the findings from the analysis revealed the priorities were not uniform. Since industry groups represented the sample population, findings from the analysis of the rankings could have a crucial positive impact on the population of the research study.

Study Validity

Validity refers to construct validity of the survey instrument, which measures all of the identified variables of the experiment (Venkatesh, Brown, & Bala, 2013). The variables for the survey instrument of the research study are SBE owners' resistance factors to the ACA. Since the survey instrument has all of the SBE owners' resistance factors identified from the literature, therefore, the instrument was valid. To design the AHP structure of the research study, I relied on the findings of Geyman (2012), Jacobe (2013b), and Jost (2012) who identified health care costs as crucial SBE owners' concerns. The knowledge was useful to create a survey instrument by categorizing SBE owners' resistance factors.

The validity of a survey instrument implies the device meets construct validity requirements, which are overarching to content and empirical validity (Trochim, 2006). The content validity requires face and sampling validity. The empirical validity includes (a) predictive, (b) concurrent, (c) convergent, and (d) discriminant validity (Trochim, 2006). The sampling validity requirements apply because the design of the quantitative research study is (a) conclusive, (b) descriptive, and (c) cross-sectional.

Venkatesh, Brown, and Bala (2013) referred to sampling validity as design validity, which has two types: external and internal. In addition to the design validity, measurement validity, and inferential validity are essential to the quantitative research study. The validity requirements applicable to the study included external validity and measurement validity because the internal validity and inferential validity apply to statistical research studies only. The sampling criteria, with stratified sampling frame and

random sample selection, established external validity allowing for generalization applicable to one location namely Richmond, Virginia. The survey instrument established measurement validity by having all SBE owners' resistance factors identified from the literature.

Transition and Summary

In Section 2, the primary objective was to describe the conduct of the research study for finding answers to the research questions described in Section 1. For this purpose, Section 2 included the role of a researcher, participants of the research study, and population and sampling approach to select the participants. A description of the research project included a discussion of: (a) research method and design, (b) data collection, and (c) data analysis, to address the research problem. In addition, the discussion contained ethical and validity considerations of the research design and survey instrument to project the inherent quality of the research project. Upon receiving Walden University IRB approval, I proceeded with conducting a survey of randomly selected SBE participants, analyzing results, and presenting the findings from survey results in Section 3. Section 3 contains (a) application and implications of the findings, (b) recommendations, and (c) reflections from the research project.

Section 3: Application to Professional Practice and Implications for Change

Introduction

Section 1 comprised of the research work elements describing the problem, purpose, and theoretical framework. Section 2 evolved to provide the description of research method and design, survey instruments, and data collection and data analysis approach in support of the problem. Section 3 contains results and findings of the data collection and analysis from sampled population using the survey instrument. The section concludes with the presentation of application and implications of the findings, recommendations for action and further research, and my experience reflecting on the research process.

The purpose of the quantitative, cross-sectional, and descriptive study was to examine which SBE owners concerns ranked high as resistance criteria or factors (Ernstmann et al., 2012). I examined the following overarching research question, what is the ranking of resistance factors to the ACA exhibited by SBE owners? The ranking of SBE owners concerns of the ACA required identification and prioritization of the resistance factors to the ACA. The AHP method was the analysis technique applied using the AHP–OS software and AHP Excel template (Goepel, 2013).

A summary of the key findings resulting from the data analysis is as follows:

1. Health insurance cost was the highest concern of all SBE owners when compared with health insurance coverage.
2. Among health insurance cost concerns, the insurance premium was the top-ranked concern followed by the tax burden.

3. Among health insurance coverage concerns, quality of care was the top-ranked concern followed by plan choice.
4. Among all participants, the top ranked concern was insurance premium followed by quality of care, tax burden, and plan choice. In addition, the bottom ranked concerns were the complexity of ACA, religious objection, and reporting burden.
5. Among industry groups, the overall rankings of resistance factors were not uniform. However, the insurance premium was the top-ranked and reporting burden, the bottom ranked concern of SBE owners in each industry group.

Presentation of the Findings

In preparation to begin the data collection process, I conducted an online search of small business enterprises in Manta (n.d.). A search on companies in Richmond, Virginia, provided subcategories of business industries similar to those provided by U.S. Small Business Administration (n.d.). Using the operational definition of industry group, the classification of industries resulted in five industry groups as shown in Table 12.

Table 12

SBE Industry Group Code, Name, and Classification

Industry Group		
Code	Name	Key Industries
IG1	Construction, Housing, & Real Estate	Construction, Housing, Commercial and Residential Real Estate
IG2	Food, Beverages, Consumer Goods, & Services	Food, Beverage, Restaurants, Retail Goods and Services
IG3	Health care, Pharmaceuticals, & Biotechnology	Dental and Medical Clinics, Pharmaceutical, Health care Facilities and Services
IG4	Financial, Legal, & Professional Services	Accounting, Financial, Educational, Legal, and Professional Services
IG5	Remaining Goods & Services	Agriculture, Automotive, Energy, Technology, Transportation and Logistics

From these industry groups, I randomly selected 150 SBEs that included 30 SBEs in each of the five industry groups. With an assumed response rate of 1 in 3, 150 samples met the requirements to attain the minimum sample size of 50 SBEs or 10 SBEs from each of the five industry groups. Upon verifying SBE contact information, the =RAND() function of Excel software assigned random numbers to SBEs for each industry group in five separate Excel worksheets. The random numbers, known as random uniform deviate, are real numbers between 0 and 1. Since the random numbers get updated with any change in Excel worksheet, copied instances of these random numbers in a separate column yielded the sorted randomized list of SBEs. Table 13 shows a sample of the random list of SBEs in Industry Group 1 excluding the SBE information. Similarly, random lists of SBEs for the remaining industry groups provided the stratified random sample for the study.

Table 13

A Sample Random List of SBEs in IG1

Random #	SBEs in IG1	Construction, Housing, & Real Estate
0.003177915	1	-
0.037030553	2	-
0.04444888	3	-
0.139428946	4	-
.	.	.
.	.	.
.	.	.
0.905271549	28	-
0.912938613	29	-
0.92384427	30	-

Upon IRB approval, I started contacting the SBEs and setting up appointments to survey the owners or their authorized representatives. The data collection efforts continued until 50 participants completed the surveys providing consistent responses to pairwise comparison questions. Table 14 shows the SBE number of participating, unavailable, or unused for the survey from the randomized lists by an industry group.

Table 14

SBEs Participating in the Survey

SBE Industry Group Code	SBE Number from Randomized List		
	Participating	Unavailable	Unused
IG1	1, 2, 4, 7, 10, 11, 12, 14, 15, 16	3, 5, 6, 8, 9, 13	17-30
IG2	1, 2, 4, 5, 10, 12, 15, 16, 18, 19	3, 6, 7, 8, 9, 11, 13, 14, 17	20-30
IG3	1, 3, 4, 5, 6, 8, 9, 10, 12, 13	2, 7, 11	14-30
IG4	1, 2, 3, 4, 5, 7, 8, 11, 12, 13	6, 9, 10	14-30
IG5	1, 3, 4, 5, 7, 11, 13, 15, 17, 18	2, 6, 8, 9, 10, 12, 14, 16	19-30

While administering the surveys, I advised the participants to ensure the consistency of their judgments for a valid outcome. The survey questionnaire responses using the AHP technique showed all judgments were complete and consistent. As shown

in Table 15, the survey participants required up to four iterations to achieve consistency of their judgments. Since a 2 × 2 matrix resulting from survey Part 1 is always consistent, all participants required only one iteration for judgment consistency.

Table 15

Iterations Required by Survey Participants for Judgment Consistency

SBE Owners' Resistance Survey	Number of Pairwise Questions	Number of Iterations Required by Participants to Achieve CR < 10%				Total Participants
		One	Two	Three	Four	
Part 1	1	50	0	0	0	50
Part 2	6	6	44	0	0	50
Part 3	10	2	34	10	4	50

Analysis of a Sample Response

This paragraph contains the analysis of a sample participant's responses to survey questionnaire. The participant was the first SBE owner from Industry Group 1, that is, participant IG1-1. Since the judgment of the pairwise comparison question by participant IG1-1 for survey Part 1 was consistent (CR=0%), it yielded the 2 × 2 matrix, as shown in Table 16.

Table 16

A 2×2 Matrix from Participant IG1-1 Response to Survey Part 1

AHP Factors/Criteria	Health Insurance Cost	Health Insurance Coverage	Normalized Principal Eigenvector	Local Priority
Health Insurance Cost	1	5	0.833333	83%
Health Insurance Coverage	0.2	1	0.166667	17%

CR = 0.00

The normalized principal eigenvector or local priority in Table 16 shows the local ranking of survey Part 1 at Level 1 of the AHP hierarchy. Next, the survey Part 2 yielded a 4 × 4 matrix as shown in Table 17.

Table 17

A 4×4 Matrix from Participant IG1-1 Response to Survey Part 2

SBE Resistance Factor	Administrative Cost	Insurance Premium	Penalty	Tax Burden	Normalized Principal Eigenvector	Local Priority
Administrative Cost	1	0.2	0.333333	0.333333	0.073637	7%
Insurance Premium	5	1	3	5	0.549502	55%
Penalty	3	0.333333	1	3	0.247618	25%
Tax Burden	3	0.2	0.333333	1	0.129244	13%

CR = 0.07

The normalized principal eigenvector or local priority in Table 17 shows the local ranking of survey Part 2 at Level 2 of the AHP hierarchy. The survey Part 3 yielded a 5 × 5 matrix as shown in Table 18.

Table 18

A 5×5 Matrix from Participant IG1-1 Response to Survey Part 3

SBE Resistance Factor	Complexity of ACA	Plan Choice	Quality of Care	Religious Objection	Reporting Burden	Normalized Principal Eigenvector	Local Priority
Complexity of ACA	1	5	4	0.5	5	0.304375	30%
Plan Choice	0.2	1	0.5	0.2	5	0.088876	9%
Quality of Care	0.25	2	1	0.2	5	0.119499	12%
Religious Objection	2	5	5	1	9	0.452127	45%
Reporting Burden	0.2	0.2	0.2	0.111111	1	0.035124	4%

CR = 0.08

The normalized principal eigenvector or local priority in Table 18 shows the local ranking of survey Part 3 at Level 2 of the AHP hierarchy.

Synthesis of a Sample Response

To obtain the global priority weights of individual judgments, one could apply synthesis of individual priorities approach that requires a multiplication of local priority weights by weights of all parent nodes (Bhatt & Macwan, 2012). A synthesis of normalized principal eigenvectors or local priority weights following the AHP hierarchical structure yielded the global priority weights of the sample responses of participant IG1-1 as shown in Table 19.

Table 19

Global Priority of Participant IG1-1 Judgments

AHP Factor	Local Priority at Level 1	SBE Resistance Factor	Local Priority at Level 2	Global Priority.
Health Insurance Cost	0.833333	Administrative Cost	0.073637	0.061364
		Insurance Premium	0.549502	0.457919
		Penalty	0.247618	0.206348
		Tax Burden	0.129244	0.107703
Health Insurance Coverage	0.166667	Complexity of ACA	0.304375	0.050729
		Plan Choice	0.088876	0.014813
		Quality of Care	0.119499	0.019917
		Religious Objection	0.452127	0.075354
		Reporting Burden	0.035124	0.005854

The data collection from the sampled population continued until 50 SBE participants provided complete and consistent survey responses to the pairwise comparison questionnaire. The following subsection contains a detailed description of the data analysis results from the collected data. These results pertain to aggregation and synthesis of judgments for the SBE industry groups and sampled population.

Results of Data Analysis

Following data collection from 50 survey participants, the AHP Excel template of Goepel (2013) provided aggregation of the individual judgments matrices to obtain group judgments. Goepel (2013) used row geometric mean method (RGMM) to aggregate the individual judgment or group judgment matrices in AHP Excel worksheet. Bernasconi et al. (2014) pointed out the geometric mean method is the preferred method for ratio scale measurements over arithmetic mean method, which is suitable for interval scale measurements. In addition, the geometric mean method is more suitable for aggregation because it directly satisfies the homogeneity requirements of the sample (Bernasconi, Choirat, & Seri, 2014). For an aggregation of individual or group judgments, I used the AHP Excel template to create three AHP Excel worksheets as shown in Figure 17, Figure, 18, and Figure 19 (Goepel, 2013).

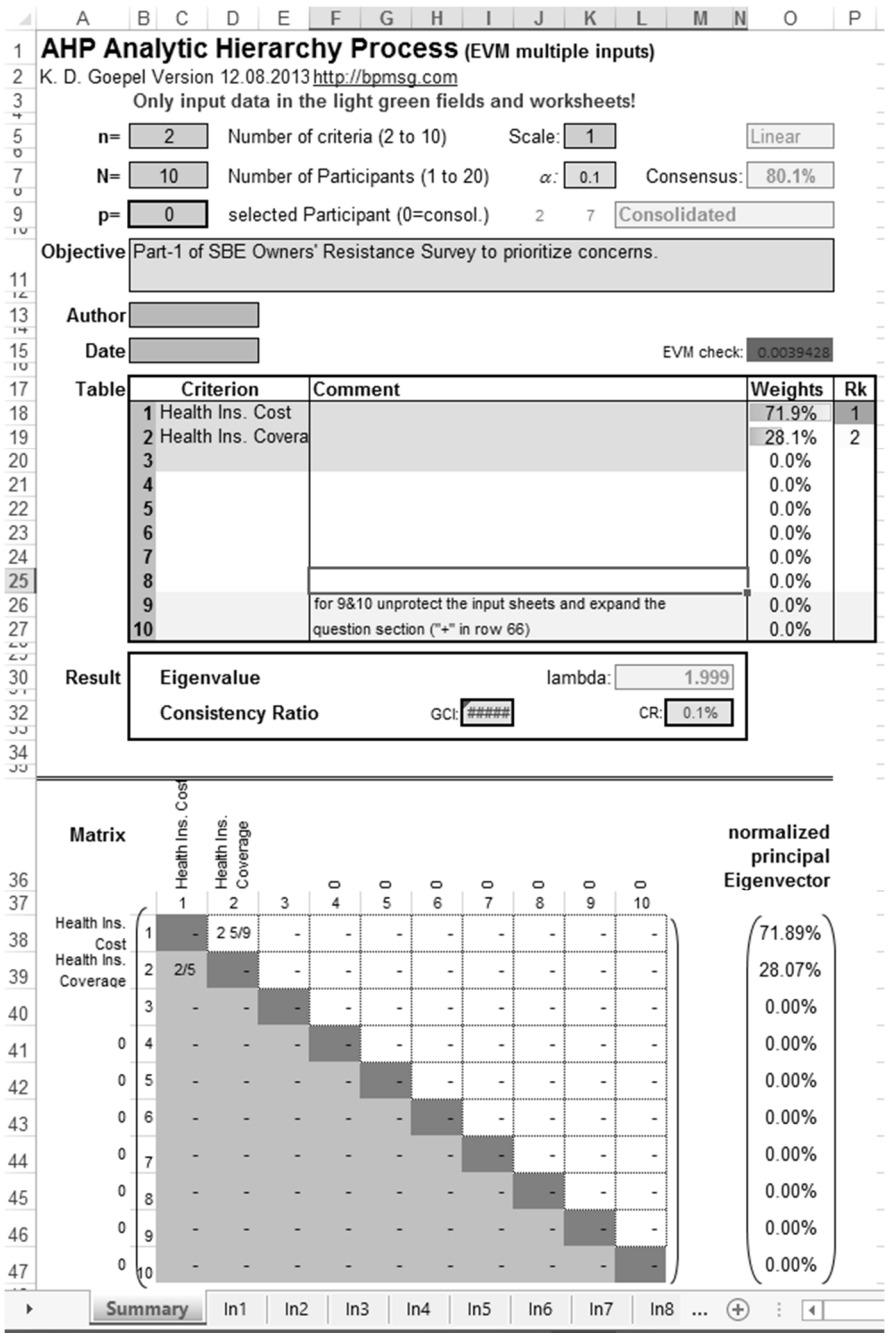

Figure 17. AHP Excel worksheet for aggregation of survey part 1 results. Adapted from "Implementing the analytic hierarchy process as a standard method for multi-criteria decision making in corporate enterprises: A new AHP Excel template with multiple inputs," by K. D. Goepel, 2013, *Proceedings of the International Symposium on the Analytic Hierarchy Process 2013*. Copyright 2013 by Creative Decision Foundation. Reprinted with permission (Appendix C).

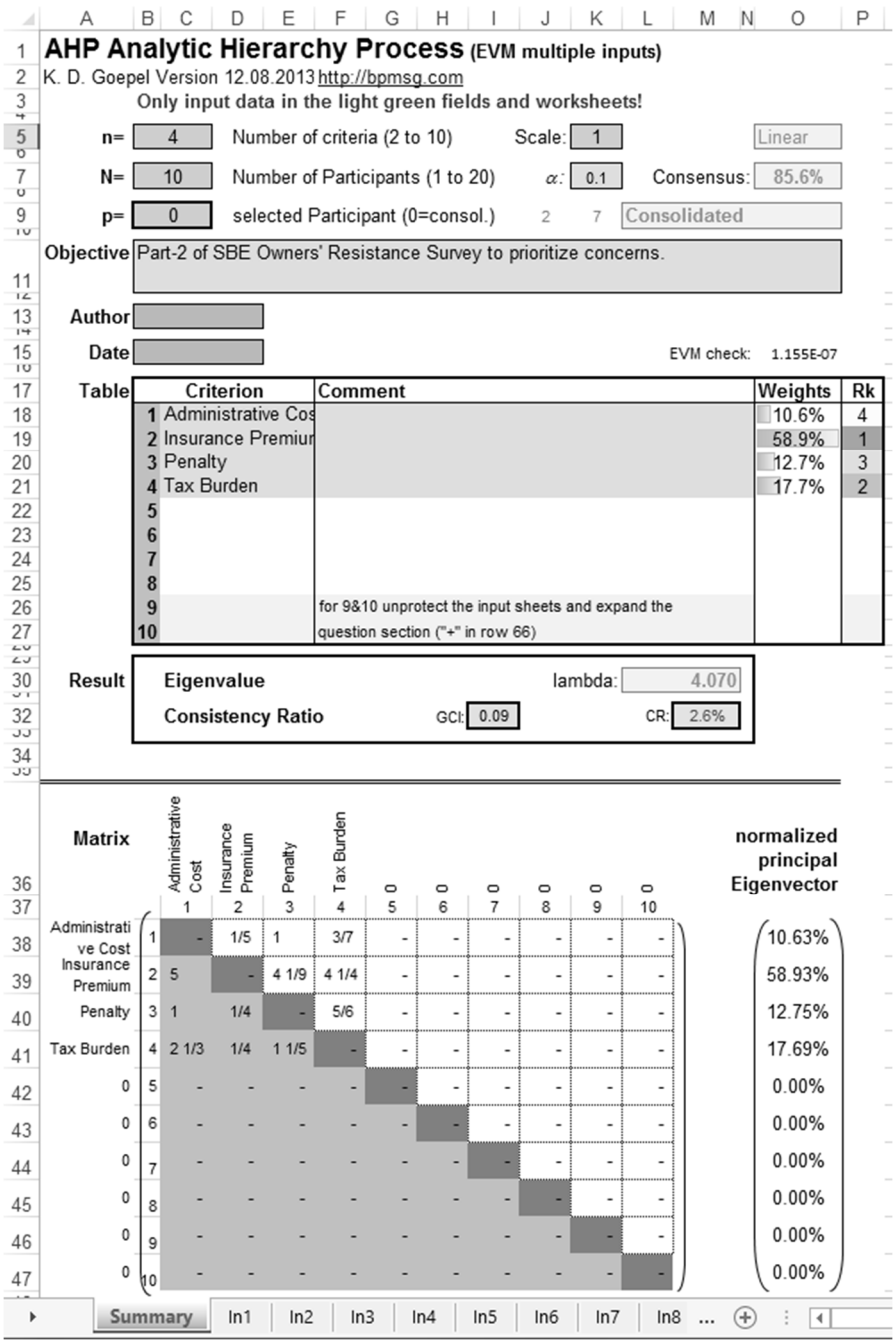

Figure 18. AHP Excel worksheet for aggregation of survey part 2 results. Adapted from "Implementing the analytic hierarchy process as a standard method for multi-criteria decision making in corporate enterprises: A new AHP Excel template with multiple inputs," by K. D. Goepel, 2013, *Proceedings of the International Symposium on the Analytic Hierarchy Process 2013*. Copyright 2013 by Creative Decision Foundation. Reprinted with permission (Appendix C).

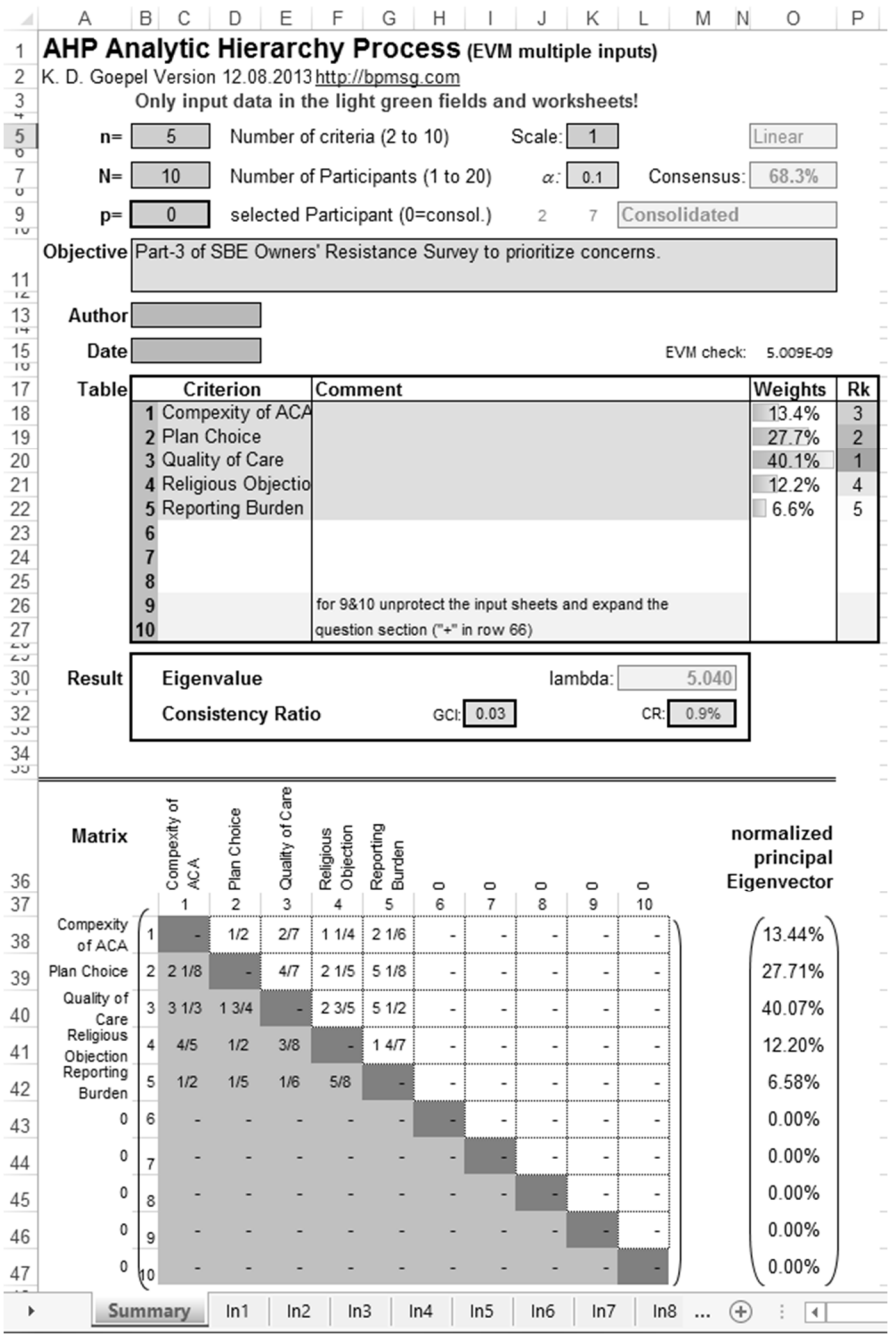

Figure 19. AHP Excel worksheet for aggregation of survey part 3 results. Adapted from "Implementing the analytic hierarchy process as a standard method for multi-criteria decision making in corporate enterprises: A new AHP Excel template with multiple inputs," by K. D. Goepel, 2013, *Proceedings of the International Symposium on the Analytic Hierarchy Process 2013*. Copyright 2013 by Creative Decision Foundation. Reprinted with permission (Appendix C).

Aggregation and synthesis by industry groups. For the aggregation of Industry Group 1 (IG1) matrices data, I inserted the matrices data in AHP Excel worksheets for each of the survey participants. For example, the AHP Excel worksheet in Figure 17 contains the 2 × 2 matrix data of participant IG1-1 in the sheet labeled In1. The sheet labeled In2 contains the 2 × 2 matrix data of participant IG1-2. The remaining sheets labeled In3 through In10 contain the 2 × 2 matrix data of participants IG1-3 through IG1-10 respectively. Upon inserting the 2 × 2 matrices data of Industry Group 1 participants, the computations in the sheet labeled Summary provided the aggregated results. Figure 17 shows the aggregated results in the 2 × 2 matrix data, normalized priority vectors or local priority weights, and consistency ratio (CR). For a 2 × 2 matrix, the calculation of CR was not necessary since the CR is always zero.

For IG1, I inserted all participants' 4 × 4 matrices data in the AHP Excel worksheet matching Figure 18 and 5 × 5 matrices data in the AHP Excel worksheet matching Figure 19. The resulting aggregated matrices, local priorities, and CR for the Industry Group 1 are as shown in Table 20. The CRs of the aggregated local priorities for each survey Part 1, Part 2, and Part 3 were less than or equal to 10%.

Table 20

Aggregated Local Priorities for Industry Group 1

Local Priorities of Individual Judgments for Industry Group 1

Factor	IG1-1	IG1-2	IG1-3	IG1-4	IG1-5	IG1-6	IG1-7	IG1-8	IG1-9	IG1-10		Aggregation Using RGMM
Part 1	Normalized Principal Eigenvectors or Local Priorities (LP)										LP	Matrix
Health Insurance Cost	83%	88%	75%	90%	86%	75%	13%	50%	83%	50%	72%	1.00 2.56
Health Insurance Coverage	17%	13%	25%	10%	14%	25%	88%	50%	17%	50%	28%	0.39 1.00
Consistency Ratio (CR)	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	
Part 2												
Administrative Cost	7%	6%	7%	36%	9%	11%	14%	4%	9%	11%	11%	1.00 0.20 1.05 0.42
Insurance Premium	55%	65%	49%	28%	64%	62%	57%	57%	58%	62%	59%	4.99 1.00 4.11 4.26
Penalty	25%	19%	33%	17%	15%	5%	5%	25%	4%	5%	13%	0.95 0.24 1.00 0.83
Tax Burden	13%	10%	10%	19%	12%	22%	24%	13%	29%	22%	17%	2.36 0.23 1.21 1.00
Consistency Ratio (CR)	7%	8%	5%	9%	6%	9%	5%	7%	9%	9%	3%	
Part 3												
Complexity of ACA	30%	17%	27%	5%	10%	15%	7%	5%	6%	12%	14%	1.00 0.47 0.30 1.24 2.16
Plan Choice	9%	7%	22%	42%	47%	26%	29%	29%	25%	23%	28%	2.13 1.00 0.57 2.18 5.13
Quality of Care	12%	40%	8%	28%	33%	49%	52%	50%	54%	56%	40%	3.36 1.75 1.00 2.61 5.53
Religious Objection	45%	33%	39%	17%	6%	7%	3%	9%	3%	3%	12%	0.81 0.46 0.38 1.00 1.58
Reporting Burden	4%	3%	4%	9%	4%	3%	8%	7%	13%	6%	7%	0.46 0.19 0.18 0.63 1.00
Consistency Ratio (CR)	8%	8%	7%	5%	8%	8%	10%	5%	8%	9%	1%	

The aggregation of Industry Group 2 through 5 matrices data, resulted in aggregated matrices, local priorities, and CRs as provided in Appendix F. Next, synthesis of local priorities in Industry Group 1 resulted in the global priorities or overall weights of group judgments by multiplying local priorities at Level 1 and Level 2 of the AHP structure. Table 21 shows the synthesis of global priorities for IG1.

Table 21

Global Priority of IG1 Group Judgments

AHP Factor	Local Priority at Level 1	SBE Resistance Factor	Local Priority at Level 2	Global Priority.
Health Insurance Cost	0.719202	Administrative Cost	0.105585	0.075937
		Insurance Premium	0.591494	0.425404
		Penalty	0.128072	0.092110
		Tax Burden	0.174849	0.125752
Health Insurance Coverage	0.280798	Complexity of ACA	0.135166	0.037954
		Plan Choice	0.277329	0.077873
		Quality of Care	0.399727	0.112243
		Religious Objection	0.121882	0.034224
		Reporting Burden	0.065896	0.018503

Similarly, Appendix G contains the global priorities of Industry Group 2 through 5 group judgments.

Aggregation and synthesis for all participants. For the aggregation of all participants' matrices data, I inserted the aggregated matrices in AHP Excel worksheets from each of the five industry groups. For example, an AHP Excel worksheet similar to Figure 17 contained the 2 × 2 aggregate matrix data of Industry Group 1 in the sheet labeled In1. The worksheet contained the 2 × 2 aggregate matrix data of Industry Group 2 in the sheet labeled In2. The remaining sheets labeled In3 through In5 contained the 2 × 2 aggregate matrix data of participants Industry Groups 3 through 5 respectively. The sheet

labeled Summary of AHP Excel worksheet provided overall aggregate results upon inserting the 2 × 2 aggregate matrices data of all five industry groups. The Summary sheet provided the overall aggregated 2 × 2 matrix data, normalized priority vectors or local priority weights, and consistency ratio (CR) of all participants. Again, for a 2 × 2 matrix the calculation of CR was not necessary since the CR is always zero.

For all participants' aggregated group judgments, I inserted the industry groups' 4 × 4 aggregated matrices data in the AHP Excel worksheet similar to Figure 18. In addition, the AHP Excel worksheet similar to Figure 19 contained the industry groups' 5 × 5 aggregated matrices data. The resulting aggregated matrices, local priorities, and CR for all participants are as shown in Table 22. The CRs of the aggregated local priorities for all participants' survey Part 1, Part 2, and Part 3 were less than 10%.

Table 22

Aggregated Local Priorities for All Participants

Local Priorities of Group Judgments for Industry Groups

Factor	IG 1	IG 2	IG 3	IG 4	IG 5	LP	Aggregation Using RGMM Matrix				
Part 1	Normalized Principal Eigenvectors or Local Priorities (LP)					LP					
Health Insurance Cost	0.72	0.65	0.76	0.65	0.57	0.67	1.00	2.03			
Health Insurance Coverage	0.28	0.35	0.24	0.35	0.43	0.33	0.49	1.00			
Consistency Ratio (CR)	0.00	0.00	0.00	0.00	0.00	0.00					
Part 2											
Administrative Cost	0.11	0.08	0.10	0.09	0.07	0.09	1.00	0.16	0.82	0.47	
Insurance Premium	0.59	0.66	0.65	0.63	0.66	0.64	6.14	1.00	5.29	4.99	
Penalty	0.13	0.14	0.11	0.11	0.11	0.12	1.22	0.19	1.00	0.83	
Tax Burden	0.17	0.12	0.14	0.17	0.16	0.15	2.13	0.20	1.20	1.00	
Consistency Ratio (CR)	0.03	0.01	0.00	0.01	0.03	0.01					
Part 3											
Complexity of ACA	0.14	0.08	0.16	0.09	0.09	0.11	1.00	0.34	0.22	1.30	1.80
Plan Choice	0.28	0.38	0.28	0.27	0.22	0.29	2.94	1.00	0.53	3.01	4.85
Quality of Care	0.40	0.38	0.40	0.52	0.52	0.45	4.59	1.87	1.00	4.17	5.87
Religious Objection	0.12	0.10	0.08	0.06	0.11	0.09	0.77	0.33	0.24	1.00	1.27
Reporting Burden	0.07	0.06	0.08	0.07	0.05	0.07	0.55	0.21	0.17	0.79	1.00
Consistency Ratio (CR)	0.01	0.01	0.01	0.02	0.01	0.01					

Next, synthesis of aggregated local priorities of all participants resulted in the global priorities or overall weights of group judgments by multiplying local priorities at Level 1 and Level 2 of the AHP structure. Table 23 shows the synthesis of global priorities for all participants.

Table 23

Global Priority of All Participants Group Judgments

AHP Factor	Local Priority at Level 1	SBE Resistance Factor	Local Priority at Level 2	Global Priority
Health Insurance Cost	0.670218	Administrative Cost	0.089940	0.060280
		Insurance Premium	0.639574	0.428654
		Penalty	0.118023	0.079101
		Tax Burden	0.152463	0.102183
Health Insurance Coverage	0.329351	Complexity of ACA	0.107826	0.035512
		Plan Choice	0.286489	0.094355
		Quality of Care	0.447566	0.147406
		Religious Objection	0.091796	0.030233
		Reporting Burden	0.066324	0.021844

Based on the results of data analysis, the findings reveal the SBE owners perceptions, first related to the industry groups and then the sampled population. The findings address the research questions and working hypotheses in the following subsection. From the findings, I support or dispute the opinions of experts pertaining to the impact of the ACA on small businesses. Furthermore, the findings corroborate with the literature reviewed and the recent literature.

Discussion of the Findings

The findings at Level 1 of the AHP structure revealed the SBE owners' primary concerns were health insurance cost in each industry group and for all participants when

compared with health insurance coverage concerns. Table 24 shows a comparison of local priority weights of SBE owners concerns at Level 1.

Table 24

AHP Structure Level 1 Local Priorities

AHP Factors/Criteria	IG1	IG2	IG3	IG4	IG5	All Participants
Health Insurance Cost	72%	65%	76%	65%	57%	67%
Health Insurance Coverage	28%	35%	24%	35%	43%	33%

SBE owners in IG3 exhibited most health insurance cost concerns, that is, three times more than the health insurance coverage concerns. The health insurance cost concerns of SBE owners in IG5, even though, higher than the health insurance coverage concerns, were the lowest among the industry groups. For all participants, the SBE owners revealed the health insurance cost concerns were twice as important as the health insurance coverage concerns. These composite or overall concerns of SBE owners pertaining to health insurance cost supported the findings of several researchers such as Cordell and Langdon (2012), Geyman (2012), Hellander and Bhargavan (2012), Miller (2011), and Tacchino (2013a).

Findings from industry groups. Among health insurance cost concerns in Figure 20, the SBE owners in all industry groups were overwhelmingly concerned about insurance premium than any other costs.

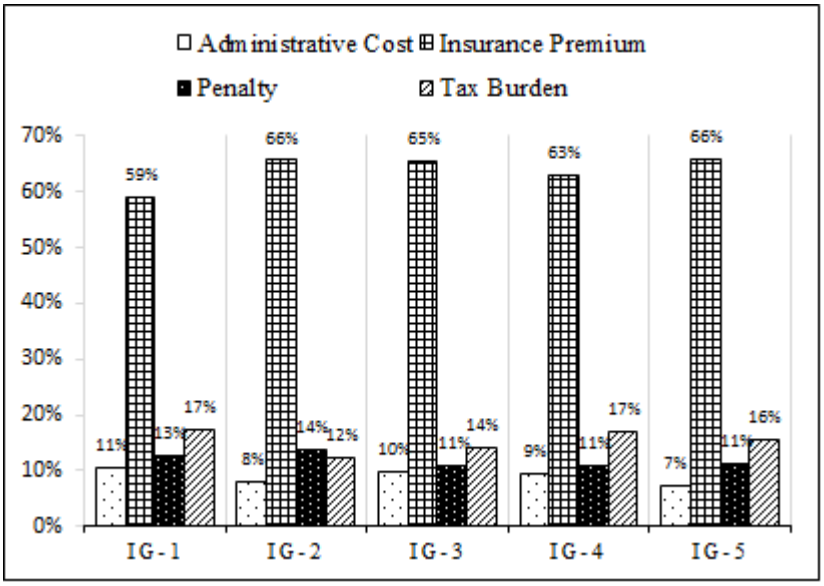

Figure 20. Health insurance cost concerns for industry groups.

SBE owners in all industry groups were least concerned about the administrative cost. Although SBE owners in all industry groups disagreed about the penalty and tax burden, however, the tax burden was a higher concern than the penalty in four out of five industry groups.

Among health insurance coverage concerns shown in Figure 21, quality of care was the topmost concern of SBE owners in each industry group followed by plan choice.

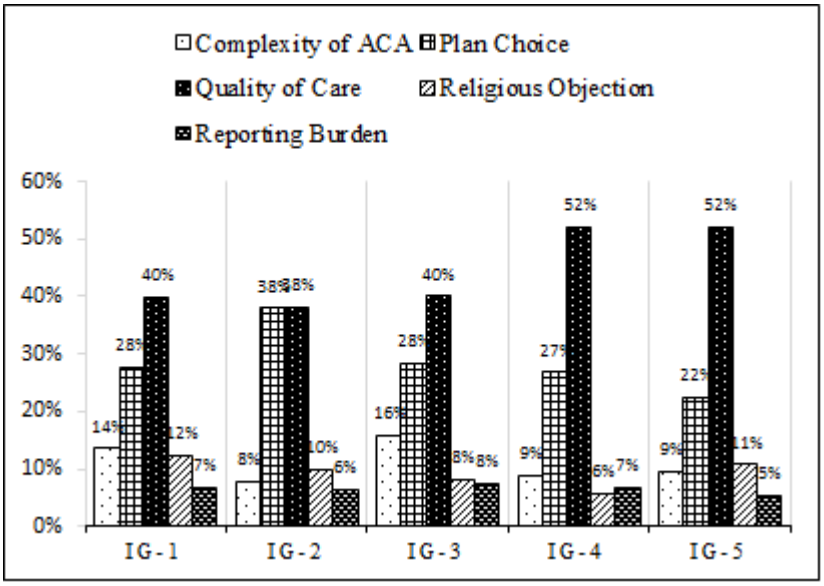

Figure 21. Health insurance coverage concerns for industry groups.

SBE owners' opinions varied in each industry group for the remaining three concerns: (a) complexity of ACA, (b) religious objection, and (c) reporting burden. Reporting burden, however, was the least concern for SBE owners in four out of five industry groups.

Synthesizing the rankings for the AHP hierarchy by industry groups in Figure 22, the insurance premium was uniformly the highest concern of SBE owners ranging between 38% and 50% in each industry group.

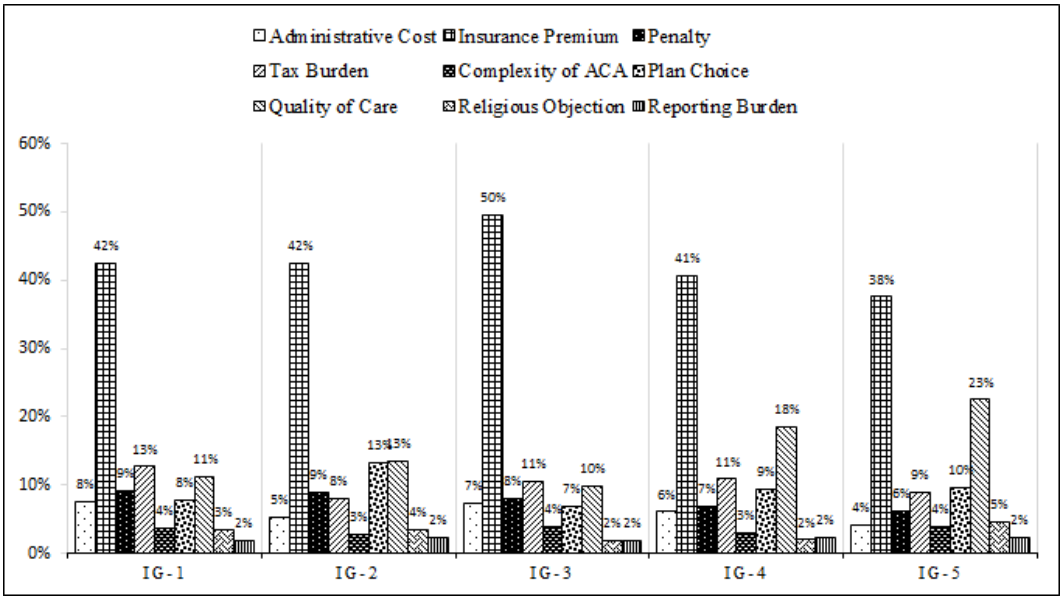

Figure 22. Global priorities of group judgments for industry groups.

Reporting burden was the lowest concern of SBE owners consistently at 2% in each industry group. The ranking order of the remaining resistance factors varied in each industry group exhibiting the diversity of SBE owners' opinions. Ishizaka et al. (2011) remarked the reliability of the AHP technique is very high because of consistent highest and lowest priority determination. The results of SBE owners' opinions confirmed the remarks of Ishizaka et al. (2011) by identifying insurance premium and reporting burden as the highest and the lowest priority respectively in each industry group.

Findings from all participants. Similar to SBE owners' opinion in each industry group, Figure 23 shows insurance premium was the highest concern of all participants among health insurance cost concerns, and the administrative cost was the lowest concern.

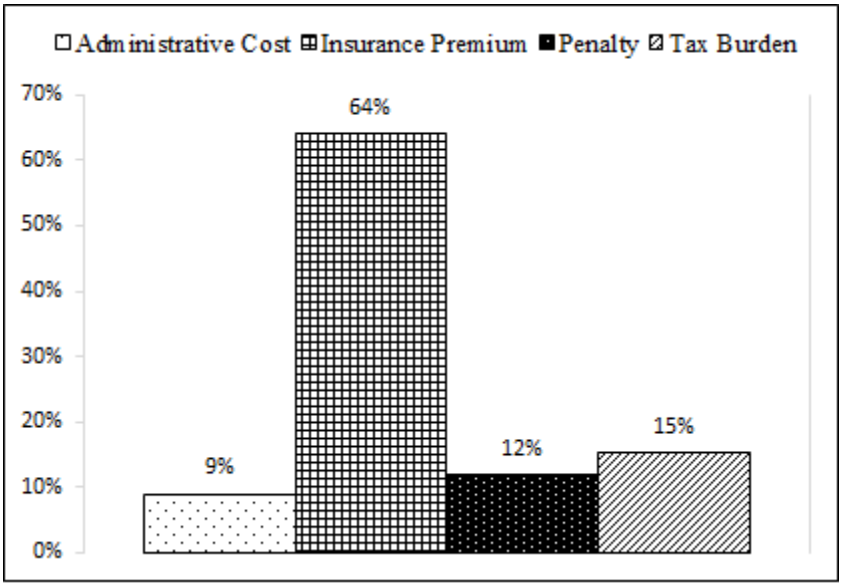

Figure 23. Health insurance cost concerns of all participants

The remaining cost concerns were tax burden and penalty. The insurance premium was more than four times a bigger concern of all SBE owners than the *tax burden* and more than seven times a bigger concern than the administrative cost. The SBE owners indicated they wanted to focus on reducing the adverse impact of insurance premium cost concern.

The aggregation of health insurance coverage concerns of all SBE owners participating in the survey as shown in Figure 24 indicated the quality of care was the highest concern followed by plan choice.

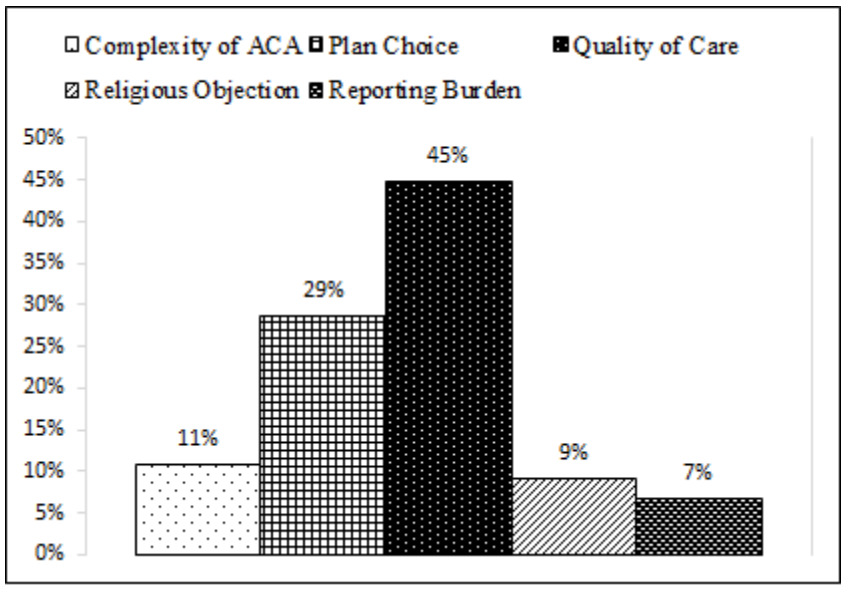

Figure 24. Health insurance coverage concerns of all participants

These findings were consistent with the SBE owners' opinions in each industry group. The findings from remaining resistance factors indicated that all SBE owners ranked complexity of ACA, religious objection, and reporting burden at the lower end of the spectrum. The gap between the quality of care and reporting burden was more than six times for the sampled population of SBE owners.

Synthesizing the local priority weights into a composite or global priority weights, Figure 25 provided the overall picture of all SBE owners concerns in Richmond, Virginia.

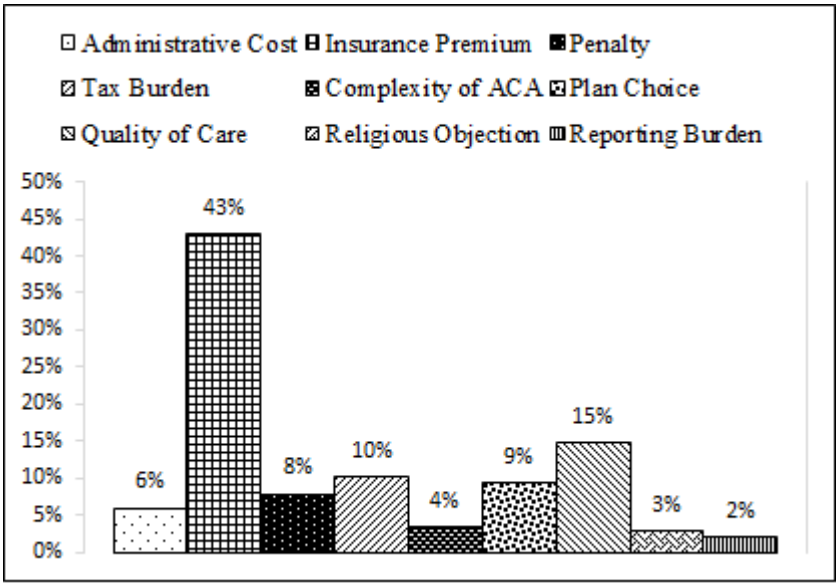

Figure 25. Global priorities of group judgments by all participants

The insurance premium was the highest concern of all participants at 43% while reporting burden was the lowest concern at 2%. The gap between the insurance premium and reporting burden was over 21 times considering all resistance factors.

As shown in Figure 26, the SBE owners had insurance premium as the topmost concern followed by quality of care, tax burden, and plan choice.

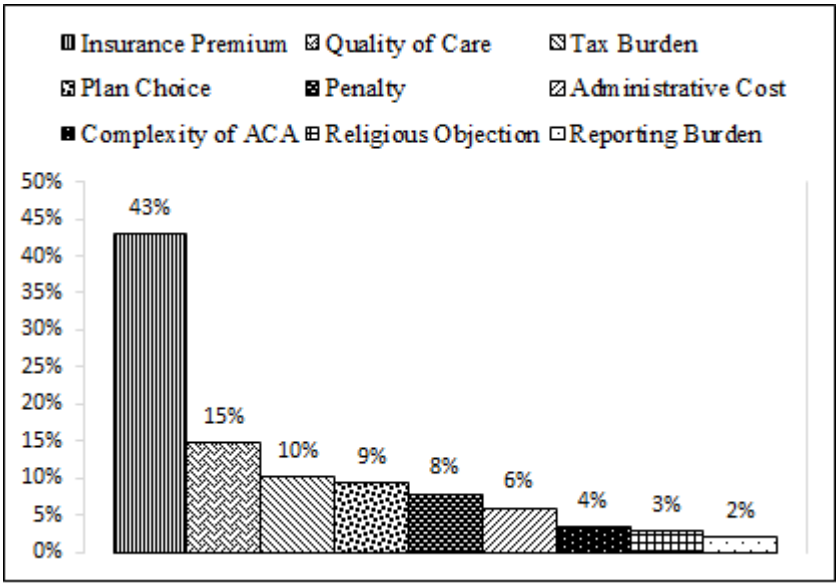

Figure 26. Ranking of SBE resistance factors to the ACA

In fact, the insurance premium was almost three times a bigger concern than the next concern, quality of care. Moreover, the bottom three concerns: (a) complexity of ACA, (b) religious objection, and (c) reporting burden accounted for less than 10% of overall SBE owners' concerns. Insurance premium (43%) and quality of care (15%) were the only two concerns bigger than the average concern (11%) of all SBE owners.

In this conclusive, descriptive, and cross-sectional study, I identified, structured, and ranked the SBE concerns as resistance factors to the ACA. The research question was what is the ranking of resistance factors to the ACA exhibited by SBE owners? The research question culminated into three lower-level research questions, which corresponded to three working hypotheses. The findings for each of the research question and working hypothesis are as follows.

RQ1: What are the main resistance factors to the ACA characterizing SBE owners' perceptions? WH1: Main resistance factors, as criteria for complex decision-making problem, exist for SBE owners resisting the ACA. As mentioned in Step 1 of the Research Design subsection of Section 2, I identified the main resistance factors of SBE owners concerns to the ACA from the reviewed literature. The nine resistance factors identified are:

- Administrative cost,
- Complexity of ACA,
- Insurance premium,
- Penalty,
- Plan choice,
- Quality of care,
- Religious objection,
- Reporting burden, and
- Tax burden.

These resistance factors provided the foundation for the AHP structure within the theoretical framework of the social choice theory. A pairwise comparison questionnaire supporting the AHP structure of SBE owners' resistance factors became the survey instrument using Goepel's (2013) AHP–OS software, which facilitated data collection to address the remaining research questions.

RQ2: What is the relative ranking of SBE owners' resistance factors to the ACA? WH2: Prioritization of factors of SBE owners' resistance to the ACA, based

on relative ranking, could be useful to decision makers (e.g., U.S. government officials and SBE owners). From the results of data analysis and discussion of findings, it became evident the primary concern of SBE owners was the health insurance cost. The finding confirmed that the health insurance cost increased by 123% for small to medium-sized businesses during a 10-year period ending in 2009 (Miller, 2011). SBE owners facing a dilemma of passing health insurance costs to employees could find a higher value in offering health insurance to hire and retain employees (Hausman, 2011). Tacchino (2013a) provided strategies to address the health insurance cost concerns to small business owners. These strategies included:

- Reduce employer contribution to health insurance,
- Switch to a cheaper plan,
- Drop coverage and pay a penalty,
- Offer coverage through health insurance exchange, and
- Switch to a defined contribution plan.

The topmost concern of SBE owners was insurance premium followed by quality of care, tax burden, and plan choice. The lowest ranked SBE resistance factors were the complexity of ACA, religious objection, and reporting burden. Insurance premium (43%) being the topmost concern of SBE owners was not surprising as according to a recent study by Bailey (2014) the average mandate increased insurance premiums by 0.44%–1.11% annually. Boubacar and Foster (2014) pointed out 52% of SBE owners were less likely to offer health insurance to their employees. Li, Liu, Kuo, and Yang (2013) also remarked small businesses were less likely to provide health insurance. Li et al.

suggested a solution to this problem could be allowing small businesses to pool together to lower insurance premium. Miller (2011) recommended the use centralized marketplace or SHOP exchanges to lower insurance premium concerns.

The second SBE owners concern—quality of care (15%) concurred with the findings of Oberlander (2012b) and Geyman (2012). Oberlander pointed out the quality of care was inconsistent, inadequate, and varied by geographic location. Oberlander suggested the United States could moderate health insurance cost by improving the quality of care. Geyman lamented the quality of care was mediocre because of overutilization of services by physicians and hospitals, and underutilization by patients for delaying or avoiding much-needed care. Aaron and Lucia (2013) noted, however, that the recently available data revealed the quality of care was on an improving trend.

Although, several researchers including Neiburger (2011), Lepard (2013), Loewentheil (2014), Buchmueller et al. (2013), and Loewenstein et al. (2013) identified complexity of ACA, religious objection, and reporting burden as SBE resistance factors to the ACA, the findings from data analysis of SBE owners opinions did not support these as important concerns. SBE owners identified the reporting burden to be the least important, and the religious objection second to last as concerns to the ACA. The complexity of ACA was a concern of some SBE owners, which resulted from the conflicting opinions provided by various experts.

RQ3: How uniform is the assessment of rankings of resistance factors among various industry groups of participating SBE owners? WH3: The rankings of key SBE owners' resistance factors to the ACA are the same, indicating uniformity

among participating SBE industry groups. The SBE owners were consistent with the highest concern being insurance premium and the lowest concern being reporting burden in each industry group. However, SBE owners' opinions were not uniform for the remaining concerns. In industry groups IG1 and IG3, SBE owners' concerns—tax burden and quality of care—trailed the highest concern and varied from the aggregated findings of all participants. Similarly, SBE owners in industry groups IG2 and IG5 identified the quality of care and plan choice as the concerns trailing insurance premium. The SBE owners in the industry group, IG4 identified the concerns quality of care and tax burden trailing insurance premium, which was the same as the findings of all participants. These findings highlighted the most important resistance factors to the ACA regardless of SBE owners providing consensus or differences across various industry groups.

Summary

The overarching research question addressed in this study was what is the ranking of resistance factors to the ACA exhibited by SBE owners? From the literature, SBE owners exhibited nine concerns, which upon further examination provided conclusive answers using a quantitative technique known as AHP. Analysis of the survey results revealed the following findings:

1. Health insurance cost was the highest concern of all SBE owners when compared with health insurance coverage.
2. Among health insurance cost concerns, the insurance premium was the top-ranked concern followed by the tax burden.

3. Among health insurance coverage concerns, quality of care was the top-ranked concern followed by plan choice.
4. Among all participants, the top ranked concern was insurance premium followed by quality of care, tax burden, and plan choice. In addition, the bottom ranked concerns were the complexity of ACA, religious objection, and reporting burden.
5. Among industry groups, the overall rankings of resistance factors were not uniform. However, the insurance premium was the top-ranked and reporting burden, the bottom ranked concern of SBE owners in each industry group.

Applications to Professional Practice

The findings from this quantitative study indicated insurance premium, quality of care, tax burden, and plan choice were the highest SBE owners concerns as resistance factors to the ACA in Richmond, Virginia. SBE owners could use these findings to seek better ways of reducing the adverse financial impact on their business through available alternatives. Moreover, SBE owners could use these findings to voice their concern so the business organizations, U.S. government officials, and professionals could seek potential improvements. SBE owners could implement such improvements to reduce the potential adverse financial impact of the ACA.

Implications for Social Change

The implications for positive social change include the potential for business organizations, researchers, and policymakers to channel SBE owners' voice for addressing their concerns seeking improvements from the ACA. Furthermore, the

potential exists to attain significant socioeconomic changes such as slowing the growth of health care costs and improving the access and use of health care services. The knowledge acquired from this study could be useful to SBE owners to focus on critical issues emanating from the ACA. In addition, U.S. government officials at the state and federal levels could benefit from the findings for prioritizing any remedial actions or improvements to reduce or remove the stigma resulting from SBE concerns.

Recommendations for Action

The recommendations to SBE owners, business organizations, U.S. government officials, and researchers are to consider the efficacy of the findings for seeking better ways to reducing SBE owners concerns. The prioritization of SBE resistance factors to the ACA provided an opportunity for U.S. health care industry to consider the key concerns for reducing their impact on businesses in the future. U.S. government officials could use these findings to disseminate useful informational materials to the business community for improving the perceptions of SBE owners. Because of the changes to health insurance coverage from the ACA, SBE owners could also utilize a representative voice to highlight those issues that are crucial to businesses' financial success. SBE owners could leverage this voice to influence the provisions of the ACA benefiting the entrepreneurs, employees, and the society. SBE owners could seek to redress their concerns from appropriate authorities and find ways to mitigate any financial risks attributable to the resistance factors.

The application of the AHP technique to a complex decision-making problem of prioritizing the SBE resistance factors to the ACA was a unique experience to highlight

SBE owners' concerns. I would like to present the findings at professional conferences such as the International Symposium on the Analytic Hierarchy Process (ISAHP). Moreover, an article, published in a peer-reviewed journal such as the Journal of Applied Business Research (JABR), would provide highlights of the research findings.

Recommendations for Further Research

To further the research, one could conduct studies with a sample population from various locations and other industry groups such as oil, manufacturing, and transportation that were not prevalent in Richmond, Virginia. Researchers also could conduct studies to examine what the correlation is between key resistance factors and a profit margin of SBEs. The findings from such research could reveal the impact on profit margins of SBEs from key resistance factors to devise better approaches for mitigating risks. In addition, one could apply some simpler rank-generation techniques such as competition, ordinal, or fractional ranking techniques to similar research problems. If the techniques yield similar results, then one need not apply a complex MCDM technique such as AHP to similar problems. Finally, given that the insurance premium was the top ranked SBE concern toward the ACA, researchers could further consider its sub-factors to understand the impact of the dominant sub-factor on profit margins.

Reflections

It was an enriching and humbling experience to learn about SBE owners' concerns as resistance factors to the ACA and application of the technique AHP to the research problem. The robustness of the AHP technique and anonymity of survey participants eliminated any potential bias in data collection. Because of lack of similar

previous studies, no prior expectations of the results or reservations to the findings existed. From data collection experience, upon learning about the research study the participants were interested in setting up appointments for the survey but resisted the walk-in participation. When on an appointment with the survey participants, the participants were quite eager to learn about the survey process, participate in the survey, and contribute to the study. They were also very helpful whenever some technological issues existed while administering the survey. Meeting with the survey participants enhanced my experience and knowledge of the SBE owners and their businesses. The SBE owners appreciated the opportunity to contribute to the research study through their opinions.

Summary and Study Conclusions

I conducted the study to address the problem of prioritizing SBE owners' concerns, so SBE owners could seek opportunities for reducing the adverse financial impact of the law. Examining the resistance factors to the ACA with the analytic hierarchy process (AHP) filled a gap in the literature by highlighting the paramount concerns. A search of existing literature not only helped identify various resistance factors but frame those factors within the social choice theoretical framework. The quantitative research study was conclusive, descriptive, and cross-sectional. In this study, the structured and robust approach to the mathematical AHP technique, and AHP–OS online software and AHP Excel template provided by Goepel (2013) were crucial to address the complex decision-making problem. The findings revealed the top ranked SBE owners concern was insurance premium followed by quality of care and tax burden. The

findings from this study offer SBE owners benefit to focus on critical concerns for reducing business costs of health care. Moreover, business organizations, researchers, and policymakers could channel SBE owners' voice for positive social change to address business concerns seeking improvements from the ACA.

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Appendix A: An SBE Owners' Resistance Survey

Goepel (2013) provided an online web template for:

- Generating a set of pairwise comparisons,
- Making judgments for selecting and rating the choices,
- Adjusting the judgments to reduce and eliminate inconsistencies, and
- Downloading the judgments of completed pairwise comparison questionnaire.

This template allows one to: (a) create the survey, (b) conduct the survey, and (c) download the data for further analysis. The survey participants would be able to ascertain whether their responses are consistent and make necessary adjustments to inconsistent judgments for consistency purposes. The online template is available at the web address (http://bpmsg.com/academic/ahp_calc.php).

An example of an MCDM problem is a person looking to buy a car among four models with the goal: What car model do I purchase? Suppose the person identifies three criteria: (a) cost, (b) features, and (c) safety to select the best car. The individual would use a pairwise comparison questionnaire that has these criteria, to prioritize the criteria using AHP–OS software as shown in Figure A1 (Goepel, 2013).

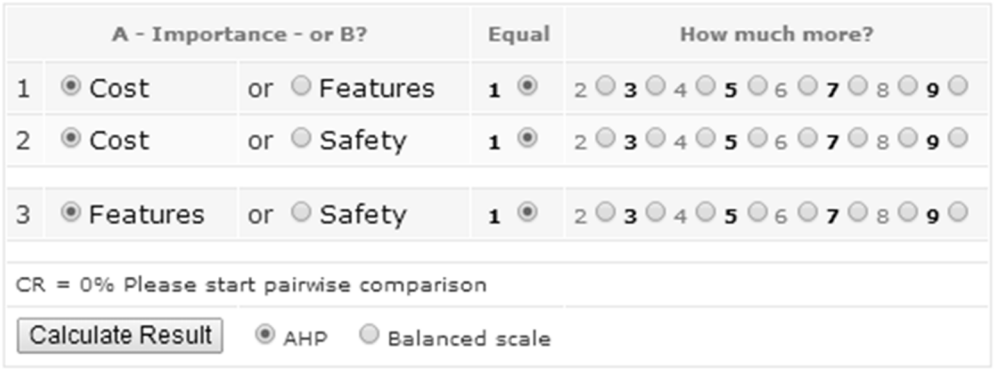

Figure A1. An excerpt of an AHP survey template. Adapted from "Implementing the analytic hierarchy process as a standard method for multi-criteria decision making in corporate enterprises: A new AHP Excel template with multiple inputs," by K. D. Goepel, 2013, *Proceedings of the International Symposium on the Analytic Hierarchy Process 2013*. Copyright 2013 by Creative Decision Foundation. Reprinted with permission (Appendix C).

The survey participants will conduct the pairwise comparison of factors using a 9-point fundamental scale as shown in Table A1.

Table A1
Fundamental Scale of Pairwise Comparison

Intensity of importance	Definition	Explanation
1	**Equal importance**	Two activities contribute equally to the objective
2	Weak	
3	**Moderate importance**	Experience and judgment slightly favor one activity over another
4	Moderate plus	
5	**Strong importance**	Experience and judgment strongly favor one activity over another
6	Strong plus	
7	**Very strong or demonstrated importance**	An activity Is favored very strongly over another, Its dominance demonstrated In practice
8	Very, very strong	
9	**Extreme importance**	The evidence favoring one activity over another is of the highest possible order of affirmation
1.1–1.9	When activities are very close	
Reciprocals of above	If activity *i* has one of the above nonzero of above numbers assigned to it when compared with activity *j*.then *j* has the reciprocal value when compared with *i*	A reasonable assumption
Rationals	Ratios arising from the scale	If consistency were to be forced by obtaining *n* numerical values to span the matrix

Note. From "The possibility of group choice: Pairwise comparisons and merging functions," by T. L. Saaty and L. G. Vargas, 2012, *Social Choice and Welfare*, *38*, p. 493. Copyright 2011 by the Springer-Verlag. Reprinted with permission (Appendix B).

For example, when making a decision to buy a car, suppose one selects *Cost*, *Features*, and *Safety* as the relevant factors. The pairwise question for cost and features would appear as shown in Figure A2 using AHP–OS software (Goepel, 2013).

Figure A2. An example of a pairwise question. Adapted from "Implementing the analytic hierarchy process as a standard method for multi-criteria decision making in corporate enterprises: A new AHP Excel template with multiple inputs," by K. D. Goepel, 2013, *Proceedings of the International Symposium on the Analytic Hierarchy Process 2013*. Copyright 2013 by Creative Decision Foundation. Reprinted with permission (Appendix C).

One would choose a factor by selecting a *radio button* on the *left side* of the factor indicating which of the two factors is more important. Using the numerical fundamental scale, one would also select the radio button on the *right side* of a number indicating how much more important is the choice.

From the example, if the Cost factor is of *Strong Importance* compared to Features factor, the survey participant will select *Cost* and the number *5* as shown in Figure A3 (Goepel, 2013).

Figure A3. An example of a pairwise question response. Adapted from "Implementing the analytic hierarchy process as a standard method for multi-criteria decision making in corporate enterprises: A new AHP Excel template with multiple inputs," by K. D. Goepel, 2013, *Proceedings of the International Symposium on the Analytic Hierarchy Process 2013*. Copyright 2013 by Creative Decision Foundation. Reprinted with permission (Appendix C).

If, however, the survey participant determines the Features factor is of *Extreme Importance* compared to the Cost factor, the participant will select *Features* and the number *9* as shown in Figure A4.

Figure A4. Another example of a pairwise question response. Adapted from "Implementing the analytic hierarchy process as a standard method for multi-criteria decision making in corporate enterprises: A new AHP Excel template with multiple inputs," by K. D. Goepel, 2013, *Proceedings of the International Symposium on the Analytic Hierarchy Process 2013*. Copyright 2013 by Creative Decision Foundation. Reprinted with permission (Appendix C).

The SBE participant follows a workflow, as shown in Figure A5.

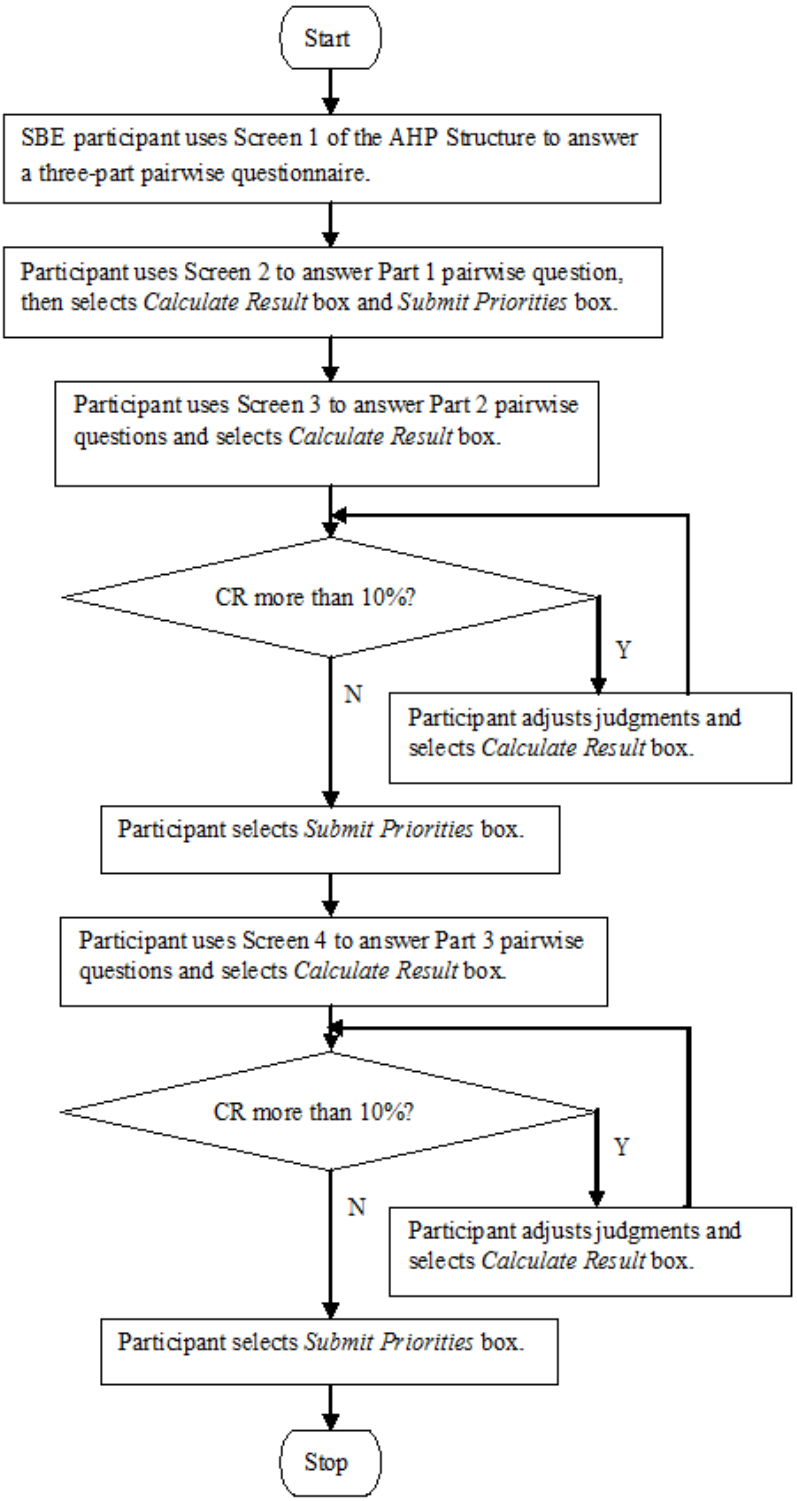

Figure A5. SBE participant questionnaire workflow

The AHP online survey template for this research study consists of the hierarchical structure of the factors of small business enterprise (SBE) owners' resistance to the Affordable Care Act (ACA). In addition, the template contains a set of pairwise comparison questions that allow judgments on each pair of the resistance factors. The factors of SBE owners' resistance to the ACA, identified for this research study, are in the alphabetical list as shown in Table A2.

Table A2
Factors of Resistance to the ACA

Resistance Factor	Definition
Administrative Cost	Administrative, management, and overhead costs associated with implementing the provisions of the ACA
Complexity of ACA	Understanding the rules and regulations applicable to SBEs
Insurance Premium	Employer contribution for health insurance coverage of employees
Penalty	Amount per employee, an employer must pay for noncompliance
Plan Choice	Number of available health insurance plan choices
Quality of Care	Quality of medical care and coverage available through health insurance programs
Religious Objection	Objection by employers on religious grounds about specific health insurance coverage
Reporting Burden	Document collection and filing requirements for employers in support of the ACA
Tax Burden	Additional tax burden including excise tax on employers

The hierarchical structure of the factors of SBE owners' resistance to the ACA follows the AHP technique as shown in Figure A6 using AHP–OS software (Goepel, 2013).

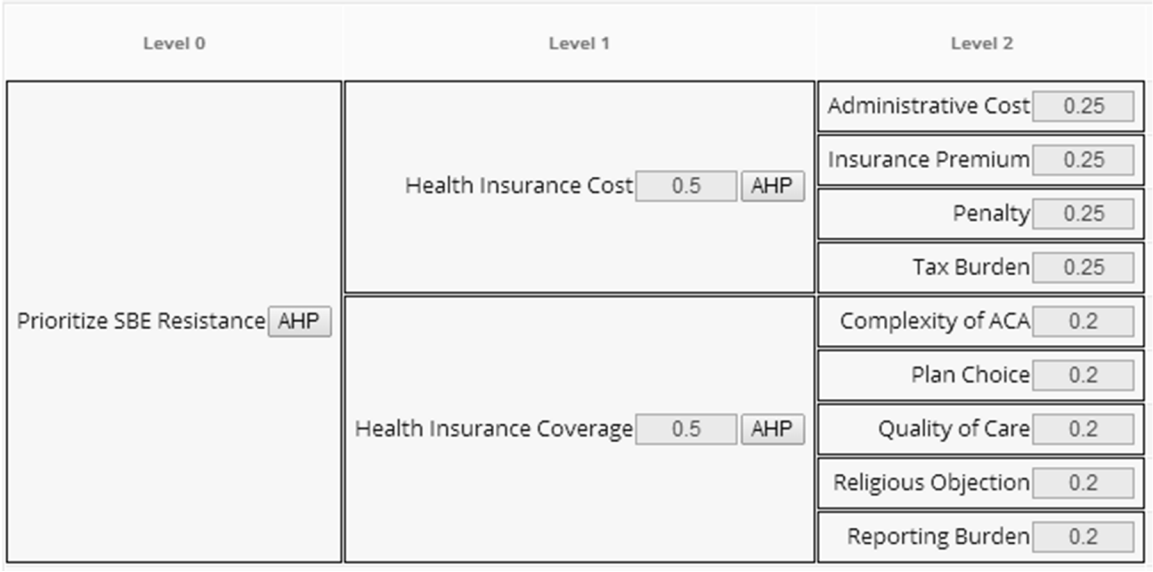

Figure A6. AHP structure of SBE owners' resistance factors. Adapted from "Implementing the analytic hierarchy process as a standard method for multi-criteria decision making in corporate enterprises: A new AHP Excel template with multiple inputs," by K. D. Goepel, 2013, *Proceedings of the International Symposium on the*

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If there are any questions about the survey or the process, please refer those to Rakesh Gupta. He would be glad to address the questions immediately. If there are no questions, please proceed with the survey. There is no right or wrong answer to the survey questions. Survey participants' views and opinions are crucial to the success of this research study.

Please answer the following pairwise comparison questions provided as Parts 1, 2, and 3 in Figure A7 using AHP–OS software, comparing one resistance factor to another factor (Goepel, 2013).

Part 1. Prioritize SBE Resistance

	A - Importance - or B?			Equal	How much more?
1	Health Insurance Cost	or	Health Insurance Coverage	1	2 3 4 5 6 7 8 9

Part 2. Health Insurance Cost

	A - Importance - or B?			Equal	How much more?
1	Administrative Cost	or	Insurance Premium	1	2 3 4 5 6 7 8 9
2	Administrative Cost	or	Penalty	1	2 3 4 5 6 7 8 9
3	Administrative Cost	or	Tax Burden	1	2 3 4 5 6 7 8 9
4	Insurance Premium	or	Penalty	1	2 3 4 5 6 7 8 9
5	Insurance Premium	or	Tax Burden	1	2 3 4 5 6 7 8 9
6	Penalty	or	Tax Burden	1	2 3 4 5 6 7 8 9

Part 3. Health Insurance Coverage

	A - Importance - or B?			Equal	How much more?
1	Complexity of ACA	or	Plan Choice	1	2 3 4 5 6 7 8 9
2	Complexity of ACA	or	Quality of Care	1	2 3 4 5 6 7 8 9
3	Complexity of ACA	or	Religious Objection	1	2 3 4 5 6 7 8 9
4	Complexity of ACA	or	Reporting Burden	1	2 3 4 5 6 7 8 9
5	Plan Choice	or	Quality of Care	1	2 3 4 5 6 7 8 9
6	Plan Choice	or	Religious Objection	1	2 3 4 5 6 7 8 9
7	Plan Choice	or	Reporting Burden	1	2 3 4 5 6 7 8 9
8	Quality of Care	or	Religious Objection	1	2 3 4 5 6 7 8 9
9	Quality of Care	or	Reporting Burden	1	2 3 4 5 6 7 8 9
10	Religious Objection	or	Reporting Burden	1	2 3 4 5 6 7 8 9

Figure A7. SBE owners' resistance survey template using AHP. Adapted from "Implementing the analytic hierarchy process as a standard method for multi-criteria decision making in corporate enterprises: A new AHP Excel template with multiple

inputs," by K. D. Goepel, 2013, *Proceedings of the International Symposium on the Analytic Hierarchy Process 2013*. Copyright 2013 by Creative Decision Foundation. Reprinted with permission (Appendix C).

Upon completion of each part of the survey, the participant should click on the icon *Calculate Result*. The online survey will reveal a consistency ratio (CR) of the survey responses in real time. A CR of value not more than 10% indicates the survey responses are consistent and acceptable. When the CR is more than 10%, the responses are inconsistent. The survey participant should review the judgments that may require adjustments to render the survey responses consistent. The following Figure A8, using AHP–OS software shows an example of inconsistent survey responses resulting in a CR of 28.1% (Goepel, 2013).

Figure A8. An example of inconsistent survey responses. Adapted from "Implementing the analytic hierarchy process as a standard method for multi-criteria decision making in corporate enterprises: A new AHP Excel template with multiple inputs," by K. D. Goepel, 2013, *Proceedings of the International Symposium on the Analytic Hierarchy Process 2013*. Copyright 2013 by Creative Decision Foundation. Reprinted with permission (Appendix C).

The survey participant should review the highlighted inconsistent responses to pairwise questions. An adjustment to the factor or the number selected could reduce the CR upon recalculating the result thus rendering the survey consistent and acceptable. If still, the CR is not less than 10% the survey participant should repeat the adjustment process iteratively until the survey responses have a CR of less than 10%. Figure A9, using AHP–OS software shows an example of the iterative adjustments to survey responses of Figure A8 (Goepel, 2013). The recalculated CR is 9.7% that is less than 10%, which makes the survey responses consistent and acceptable.

	A - Importance - or B?			Equal	How much more?
1	Administrative Cost	or	Insurance Premium	1	2 3 4 5 6 7 8 9
2	Administrative Cost	or	Penalty	1	2 3 4 5 6 7 8 9
3	Administrative Cost	or	Tax Burden	1	2 3 4 5 6 7 8 9
4	Insurance Premium	or	Penalty	1	2 3 4 5 6 7 8 9
5	Insurance Premium	or	Tax Burden	1	2 3 4 5 6 7 8 9
6	Penalty	or	Tax Burden	1	2 3 4 5 6 7 8 9

CR = 9.7% OK

Calculate Result | AHP | Balanced scale | Download_(.csv) | dec. comma

Figure A9. An example of adjusted and consistent survey responses. Adapted from "Implementing the analytic hierarchy process as a standard method for multi-criteria decision making in corporate enterprises: A new AHP Excel template with multiple inputs," by K. D. Goepel, 2013, *Proceedings of the International Symposium on the Analytic Hierarchy Process 2013*. Copyright 2013 by Creative Decision Foundation. Reprinted with permission (Appendix C).

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Subject : Re: Request Permission to use the BPMSG AHP Online System and AHP Excel Template

Date : Sat, Mar 15, 2014 02:23 AM CDT

From : "Klaus D. Goepel" <drklaus@singnet.com.sg>

To : Rakesh Gupta <rakesh.gupta@waldenu.edu>

Dear Rakesh,

As you can see from the terms and conditions on my website, there is no problem to use the AHP template and software for your research and any educational or no commercial studies. So it is approved, feel free to use it.

Thanks for your feedback.
Regards from Singapore,

Klaus

Please feel free to visit my blog bpmsg.com

On 15 Mar, 2014, at 14:39, Rakesh Gupta <rakesh.gupta@waldenu.edu> wrote:

> Dr. Goepel,
>
> I am a doctoral student from Walden University writing my doctoral study tentatively titled "Ranking Small Business Resistance Criteria toward the Affordable Care Act" under the direction of my doctoral committee chaired by Dr. Christos Makrigeorgis. I would like your permission allowing me to use the BPMSG AHP Online System and AHP Excel Template for data collection and analysis for my research study. I will not sell or use these tools for any compensated or commercial purposes. I will include also an appropriate citation and reference in my doctoral study of the following as advised on your website, http://bpmsg.com/?attachment_id=1557:
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>
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Appendix F: Aggregated Local Priorities by Industry Groups

Table F1

Aggregated Local Priorities for Industry Group 2

Local Priorities of Individual Judgments for Industry Group 2

Factor	IG2-1	IG2-2	IG2-3	IG2-4	IG2-5	IG2-6	IG2-7	IG2-8	IG2-9	IG2-10	Aggregation Using RGMM
Part 1	Normalized Principal Eigenvectors or Local Priorities (LP)										LP / Matrix
Health Insurance Cost	67%	67%	75%	88%	25%	75%	50%	50%	83%	50%	65% | 1.00 1.83
Health Insurance Coverage	33%	33%	25%	13%	75%	25%	50%	50%	17%	50%	35% | 0.55 1.00
Consistency Ratio (CR)	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%
Part 2											
Administrative Cost	9%	8%	5%	24%	9%	6%	6%	4%	5%	9%	8% | 1.00 0.14 0.64 0.53
Insurance Premium	53%	56%	64%	64%	63%	72%	61%	58%	61%	65%	66% | 6.97 1.00 5.14 5.67
Penalty	33%	21%	9%	6%	4%	13%	21%	29%	24%	4%	14% | 1.57 0.19 1.00 1.31
Tax Burden	5%	15%	21%	6%	23%	10%	12%	8%	9%	22%	12% | 1.89 0.18 0.76 1.00
Consistency Ratio (CR)	5%	6%	8%	9%	6%	7%	8%	6%	9%	8%	1%
Part 3											
Complexity of ACA	5%	7%	13%	6%	5%	5%	12%	5%	6%	6%	8% | 1.00 0.20 0.16 0.90 1.32
Plan Choice	32%	20%	24%	34%	51%	52%	44%	49%	21%	26%	38% | 4.99 1.00 1.23 3.27 5.46
Quality of Care	24%	14%	52%	40%	30%	28%	33%	29%	57%	53%	38% | 6.32 0.81 1.00 3.66 5.93
Religious Objection	35%	56%	8%	6%	3%	12%	6%	13%	3%	3%	10% | 1.12 0.31 0.27 1.00 1.50
Reporting Burden	4%	3%	4%	14%	10%	3%	4%	3%	12%	13%	6% | 0.75 0.18 0.17 0.67 1.00
Consistency Ratio (CR)	8%	9%	8%	2%	9%	9%	9%	10%	8%	9%	1%

Table F2

Aggregated Local Priorities for Industry Group 3

Local Priorities of Individual Judgments for Industry Group 3

Factor	IG3-1	IG3-2	IG3-3	IG3-4	IG3-5	IG3-6	IG3-7	IG3-8	IG3-9	IG3-10		Aggregation Using RGMM				
Part 1	Normalized Principal Eigenvectors or Local Priorities (LP)										LP	Matrix				
Health Insurance Cost	83%	75%	89%	83%	75%	50%	83%	75%	50%	75%	76%	1.00	3.10			
Health Insurance Coverage	17%	25%	11%	17%	25%	50%	17%	25%	50%	25%	24%	0.32	1.00			
Consistency Ratio (CR)	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%					
Part 2																
Administrative Cost	7%	6%	9%	11%	9%	5%	31%	9%	10%	6%	10%	1.00	0.17	0.85	0.65	
Insurance Premium	56%	59%	73%	57%	62%	66%	54%	66%	60%	65%	65%	5.89	1.00	6.08	5.32	
Penalty	32%	27%	9%	17%	10%	8%	5%	5%	5%	10%	11%	1.18	0.16	1.00	0.72	
Tax Burden	4%	8%	9%	14%	19%	20%	10%	20%	25%	19%	14%	1.53	0.19	1.38	1.00	
Consistency Ratio (CR)	9%	10%	0%	6%	4%	7%	8%	6%	7%	8%	0%					
Part 3																
Complexity of ACA	34%	5%	52%	18%	9%	3%	21%	10%	9%	10%	16%	1.00	0.52	0.35	1.90	2.72
Plan Choice	9%	58%	7%	21%	48%	22%	15%	29%	29%	30%	28%	1.93	1.00	0.59	3.73	3.95
Quality of Care	6%	21%	10%	46%	34%	58%	55%	52%	53%	51%	40%	2.89	1.68	1.00	4.32	4.41
Religious Objection	47%	12%	3%	4%	6%	6%	5%	6%	4%	4%	8%	0.53	0.27	0.23	1.00	0.97
Reporting Burden	3%	3%	27%	11%	3%	11%	4%	3%	5%	6%	8%	0.37	0.25	0.23	1.03	1.00
Consistency Ratio (CR)	7%	9%	9%	9%	10%	9%	10%	9%	10%	9%	1%					

Table F3

Aggregated Local Priorities for Industry Group 4

Local Priorities of Individual Judgments for Industry Group 4

Factor	IG4-1	IG4-2	IG4-3	IG4-4	IG4-5	IG4-6	IG4-7	IG4-8	IG4-9	IG4-10		Aggregation Using RGMM				
Part 1	Normalized Principal Eigenvectors or Local Priorities (LP)										LP	Matrix				
Health Insurance Cost	50%	50%	50%	75%	50%	75%	50%	75%	83%	75%	65%	1.00	1.82			
Health Insurance Coverage	50%	50%	50%	25%	50%	25%	50%	25%	17%	25%	35%	0.55	1.00			
Consistency Ratio (CR)	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%					
Part 2																
Administrative Cost	5%	12%	8%	5%	17%	6%	8%	12%	8%	9%	9%	1.00	0.16	1.01	0.47	
Insurance Premium	30%	63%	58%	66%	58%	65%	58%	56%	65%	65%	63%	6.39	1.00	5.18	4.39	
Penalty	45%	21%	4%	19%	21%	10%	4%	4%	8%	4%	11%	0.99	0.19	1.00	0.65	
Tax Burden	20%	4%	29%	11%	4%	19%	30%	28%	18%	22%	17%	2.14	0.23	1.53	1.00	
Consistency Ratio (CR)	7%	5%	6%	10%	5%	8%	6%	7%	10%	8%	1%					
Part 3																
Complexity of ACA	9%	26%	7%	6%	5%	9%	4%	9%	8%	11%	9%	1.00	0.26	0.17	1.80	1.34
Plan Choice	27%	35%	26%	24%	18%	30%	26%	29%	22%	24%	27%	3.78	1.00	0.33	4.47	5.13
Quality of Care	44%	31%	50%	57%	58%	52%	51%	55%	58%	56%	52%	5.85	3.01	1.00	6.84	6.54
Religious Objection	7%	4%	13%	8%	10%	3%	4%	4%	5%	3%	6%	0.56	0.22	0.15	1.00	0.71
Reporting Burden	13%	5%	4%	5%	9%	6%	15%	4%	7%	6%	7%	0.75	0.20	0.15	1.41	1.00
Consistency Ratio (CR)	6%	5%	6%	8%	8%	8%	8%	8%	8%	9%	2%					

Table F4

Aggregated Local Priorities for Industry Group 5

Local Priorities of Individual Judgments for Industry Group 5

Factor	IG5-1	IG5-2	IG5-3	IG5-4	IG5-5	IG5-6	IG5-7	IG5-8	IG5-9	IG5-10		Aggregation Using RGMM				
Part 1	Normalized Principal Eigenvectors or Local Priorities (LP)										LP	Matrix				
Health Insurance Cost	80%	80%	75%	50%	50%	17%	25%	83%	25%	75%	57%	1.00	1.32			
Health Insurance Coverage	20%	20%	25%	50%	50%	83%	75%	17%	75%	25%	43%	0.76	1.00			
Consistency Ratio (CR)	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%					
Part 2																
Administrative Cost	4%	10%	12%	6%	9%	4%	5%	6%	9%	7%	7%	1.00	0.15	0.65	0.33	
Insurance Premium	65%	56%	55%	62%	61%	68%	64%	71%	69%	63%	66%	6.66	1.00	6.22	5.49	
Penalty	22%	27%	6%	10%	9%	9%	21%	16%	5%	4%	11%	1.53	0.16	1.00	0.78	
Tax Burden	9%	7%	27%	22%	21%	19%	10%	8%	16%	25%	16%	3.01	0.18	1.29	1.00	
Consistency Ratio (CR)	8%	4%	4%	8%	6%	7%	9%	7%	9%	9%	3%					
Part 3																
Complexity of ACA	8%	24%	7%	4%	10%	6%	14%	11%	6%	5%	9%	1.00	0.35	0.18	0.99	1.83
Plan Choice	7%	16%	42%	31%	23%	11%	28%	20%	23%	20%	22%	2.83	1.00	0.31	2.07	4.75
Quality of Care	51%	18%	40%	49%	51%	58%	49%	60%	56%	61%	52%	5.66	3.19	1.00	4.47	7.36
Religious Objection	31%	38%	6%	12%	10%	21%	6%	5%	3%	3%	11%	1.01	0.48	0.22	1.00	2.06
Reporting Burden	3%	5%	5%	4%	6%	3%	3%	4%	12%	10%	5%	0.55	0.21	0.14	0.49	1.00
Consistency Ratio (CR)	10%	5%	6%	8%	8%	9%	8%	9%	10%	10%	1%					

Appendix G. Synthesis of Aggregated Priorities by Industry Groups

Table G1

Global Priority of IG2 Group Judgments

AHP Factor	Local Priority at Level 1	SBE Resistance Factor	Local Priority at Level 2	Global Priority.
Health Insurance Cost	0.646577	Administrative Cost	0.081469	0.052676
		Insurance Premium	0.656658	0.424580
		Penalty	0.138345	0.089451
		Tax Burden	0.123527	0.079870
Health Insurance Coverage	0.353423	Complexity of ACA	0.076807	0.027146
		Plan Choice	0.378897	0.133911
		Quality of Care	0.379973	0.134291
		Religious Objection	0.099916	0.035313
		Reporting Burden	0.064406	0.022763

Table G2

Global Priority of IG3 Group Judgments

AHP Factor	Local Priority at Level 1	SBE Resistance Factor	Local Priority at Level 2	Global Priority.
Health Insurance Cost	0.755880	Administrative Cost	0.097479	0.073682
		Insurance Premium	0.654540	0.494754
		Penalty	0.107995	0.081631
		Tax Burden	0.139986	0.105812
Health Insurance Coverage	0.244120	Complexity of ACA	0.159254	0.038877
		Plan Choice	0.284469	0.069445
		Quality of Care	0.399977	0.097643
		Religious Objection	0.081127	0.019805
		Reporting Burden	0.075173	0.018351

Table G3

Global Priority of IG4 Group Judgments

AHP Factor	Local Priority at Level 1	SBE Resistance Factor	Local Priority at Level 2	Global Priority.
Health Insurance Cost	0.645745	Administrative Cost	0.094409	0.060964
		Insurance Premium	0.629278	0.406353
		Penalty	0.107846	0.069641
		Tax Burden	0.168468	0.108787
Health Insurance Coverage	0.354255	Complexity of ACA	0.087786	0.031099
		Plan Choice	0.267709	0.094837
		Quality of Care	0.518829	0.183798
		Religious Objection	0.057251	0.020282
		Reporting Burden	0.068425	0.024240

Table G4

Global Priority of IG5 Group Judgments

AHP Factor	Local Priority at Level 1	SBE Resistance Factor	Local Priority at Level 2	Global Priority.
Health Insurance Cost	0.568874	Administrative Cost	0.072226	0.041088
		Insurance Premium	0.659648	0.375257
		Penalty	0.112333	0.063903
		Tax Burden	0.155793	0.088627
Health Insurance Coverage	0.431126	Complexity of ACA	0.093800	0.040440
		Plan Choice	0.223619	0.096408
		Quality of Care	0.520412	0.224363
		Religious Objection	0.107506	0.046349
		Reporting Burden	0.054663	0.023567