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What Community and Organizational Factors Affect Care and Financial Performance of U.S. Hospitals?

Esther Chance
Georgia State University

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The author of this dissertation is:
Esther Chance
J. Mack Robinson College of Business
Georgia State University
Atlanta, GA 30302-4015

The director of this dissertation is:

Subhashish Samaddar
J. Mack Robinson College of Business
Georgia State University
Atlanta, GA 30302-4015

What Community and Organizational Factors Affect Care and Financial Performance of U.S. Hospitals?

by

Esther Chance

A Dissertation Submitted in Partial Fulfillment of the Requirements for the Degree

Of

Executive Doctorate in Business

In the Robinson College of Business

Of

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2020

ACCEPTANCE

This dissertation was prepared under the direction of the *ESTHER CHANCE* Dissertation Committee. It has been approved and accepted by all members of that committee, and it has been accepted in partial fulfillment of the requirements for the degree of Doctor of Philosophy in Business Administration in the J. Mack Robinson College of Business of Georgia State University.

Richard Phillips, Dean

DISSERTATION COMMITTEE

Dr. Subhashish Samaddar (Chair)

Dr. Satish Nargundkar

Dr. Aaron Baird

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TABLE OF CONTENTS

LIST OF TABLES

LIST OF FIGURES

ABSTRACT

What Community and Organizational Factors Affect Care and Financial Performance of U.S. Hospitals?

by

Esther Chance

December 2020

Chair: Subhashish Samaddar

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Hospitals are connected to the social and economic conditions of people's lives because they play a vital role in society's view of wellness and well-being. Hospitals are considered anchor institutions within their communities and are representative of the kind of care and concern that the government and citizens want for their communities. Hospitals are challenged with maintaining sustainable care and financial performance. My research suggests that community and organizational factors influence care and financial performance. In reviewing community components, I look to observe the state's household income, number of residents, ethnicity-majority white, unemployment rate, and political affiliation. The organizational factors I will analyze include the hospitals' ownership, organizational type, taxonomy - centralization, and case mix index. I will restrict the influence of the hospital's size controlling for hospital's total assets and total admissions. Previous literature addresses community and organizational factors independently while my research contribution is to determine both individually and collectively the impact of these factors on U.S. hospital performance. My research will focus on understanding the interplay of these relationships by using secondary data and applying a mixed-exploration research methodology supported by literature. I will incorporate structural

contingency theory and follow an exploratory data analysis, literature-supported, quantitative approach. I hope this paper will produce an appreciation for the community and organizational factors' effect on the performance of a broad and complex hospital system. My research is multifaceted and applicable to multiple types of hospitals providing evidence that organizational and community factors influence performance.

INDEX WORDS: U.S. hospitals, hospital financial performance, hospital care performance, community factors, organizational factors, structural contingency theory

I INTRODUCTION

I.1 Purpose of Study.

Hospitals play a vital part in society and impact the individuals and communities' social and economic conditions: the hospital's financial contribution, community benefits, and organizational structure influence society. Hospitals create healthy economic activity in the U.S. As such, the "healthcare industry will grow faster and add more jobs than any other sector" (Samuelson, 2017). As of 2016, U.S. hospitals supported 16 million jobs (1 in 9 positions), employed more than 5.9 million people, and was one of the top sources of private-sector employment (AHA, 2018). Figure 1 shows the steady growth of hospital employment over the last 20 years.

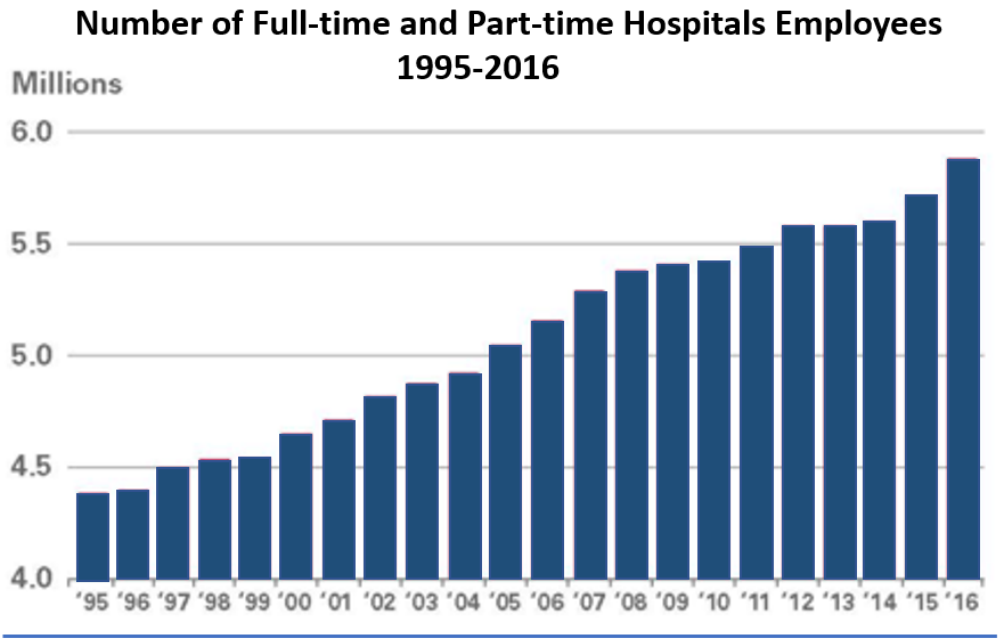

Figure 1: Number of Full-time and Part-time Hospitals Employees

Moreover, the hospital's "ripple effects" create additional economic value for the community. Hospital jobs support two extra jobs, and every dollar spent by a hospital promotes roughly $2.30 of other business activity (AHA, 2018). Figure 2 demonstrates how the ripple effects of 5.9 million direct jobs equate to 16.5 million total jobs.

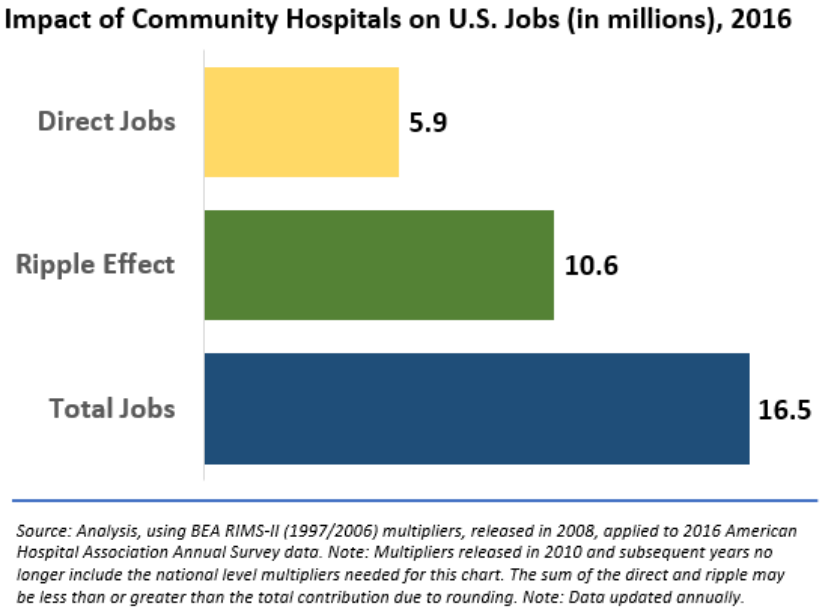

Figure 2: Impact of Community Hospitals on U.S. Jobs

Against this economic backdrop and in scope with this research, it is essential to review the influence of hospitals within their community, understand the characteristics of the organizational structure of hospitals, and evaluate hospital performance from a care and financial lens.

Hospitals are considered anchor institutions for their communities. Hospitals are representative of the kind of care and concern that the government and citizens want for their communities. As such, hospitals provide a wide range of "community benefits," which are defined as the hospital's unreimbursed goods and services that address their communities' health needs (Walker, 2005). While not all hospitals are alike, hospital "community services" are provided regardless of the

hospital's ownership status. Research confirms that all hospitals felt a moral responsibility appropriately limited by its purpose. Profitability, size, and services played little role in the services hospitals offered and provided to their communities. Hospitals are particularly crucial in high-poverty areas. "In each of the largest twenty U.S. cities, a health system is among the top ten private employers; in high-poverty communities, a health system is almost always among the top five. About one in fifteen of the largest hospitals in the U.S. are in inner cities" (Samuelson, 2017). Because of their influence, hospitals can play a significant role in the strength and revitalization of communities. Evidence suggests that hospitals' efforts to improve a community's social and economic health have a substantial impact on an individual's physical and mental health (Samuelson, 2017). For example, 67% of premature deaths related to environmental conditions, social circumstances, and behavioral patterns; just 10% result from inadequate healthcare access (Beyond Health, 2017). Hospitals have a tremendous impact on health improvement, social development, and community strategies. Conversely, community factors could influence a hospital's performance. This research seeks to identify and assess the potential effect community factors have on hospital performance.

Equally important is the hospital's organizational structure. For example, hospitals' for-profit ownership has recently increased in the U.S., with uncertain implications for health care costs. There are debates and conflicting views on the effect of a hospital's ownership status on organizational behavior. Many argue that for-profit hospitals may struggle to determine the viability of unprofitable services and charity care. Others advocate that for-profit ownership will eliminate unnecessary services, providing consumers with higher quality and lower costs (Silverman, 1999). Surprisingly, less than half of the hospitals are profitable. In 2016, seven of

the top ten most profitable hospitals were not-for-profit hospitals (Bai, 2016). In addition to a shift to for-profit hospitals, hospital trends show a move towards a more centralized model that expects to offer lower costs and improved quality (Bannow, 2018). Centralized systems benefit from broader shared values and approaches to treatment. Conversely, centralized systems may limit services' flexibility and are dependent on a more unified approach to treatment. Economic pressures and efficiencies are driving the move towards centralized systems. My study will further analyze the organizational structures of hospitals to determine the impact on hospital performance.

Given the economic impact, influence in the community, and shift in organizational structures, there is support for additional research that explores the relationships of community and organizational factors on hospital performance.

I.2 Background on U.S. Hospitals.

The U.S. healthcare and hospital systems have transformed over the last century. In the early 1900s, hospitals served primarily as centers of medical education and research, focusing on serving the underprivileged. Hospitals transformed and became essential, which led to a growth in the number of hospitals (Essential, 2018). Despite forty years of consistent growth, hospitals failed to offer hospital access to urban areas and the rural poor. The primary reason was access to health and hospital insurance. In 1883, Germany established patient-insurance that was paid for by the German government. (German Health, 2019). Soon after, other wealthy countries instituted national public insurance. The U.S. was an exception, opting for insurance to be taken over by private companies. After tremendous pressure for public insurance, "the U.S. Congress, in 1965, enacted Medicaid (the federal based needs-based program that helps with medical costs)

and Medicare (the federal health insurance program for the elderly) to help with affordability and access to quality healthcare" (CMS, 2018). While these programs proved fruitful for the needy and elderly, the U.S. continued to struggle to bridge the gap for insurance access to the general public and healthcare expenses. Government legislation and health insurance plans began offering more coverage for less costly treatments that did not require overnight hospital stays. As a result, hospitals experienced a dramatic decline from 1975-2000. The fall in hospitals results from the 150% increase in outpatient visits at U.S. hospitals (Statistica, 2019). Figure 3 shows the initial decrease in hospitals from 1975-2007, followed by a stagnant movement in their growth thereafter.

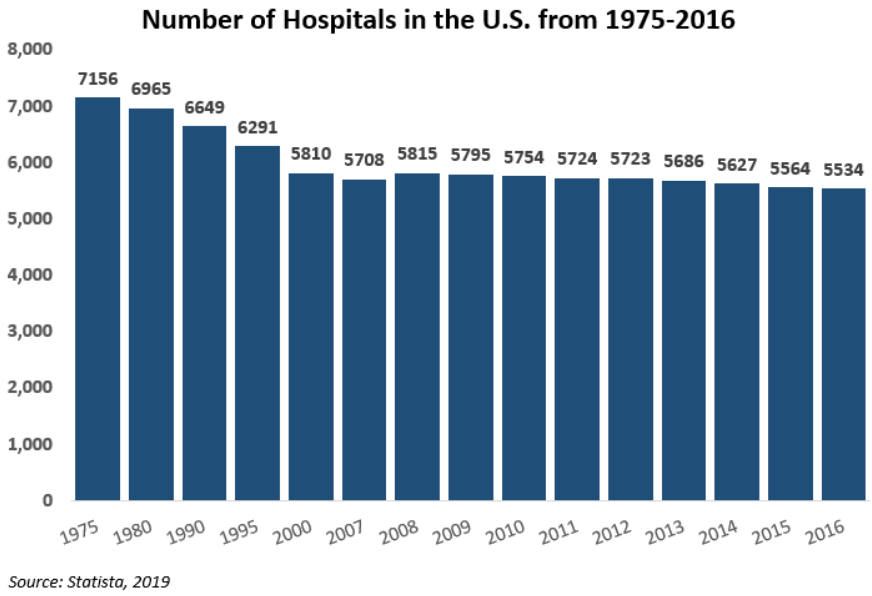

Figure 3: Number of Hospitals in the U.S.

Additionally, during this same period, hospital ownership shifted from individual establishments to hospital chains. This shift enabled hospitals to share technology and management resources across their chains of establishments and cut costs due to economies of scale. Hospitals changed ownership and distinguished themselves by offering specialized services and shifting from

nonprofit into for-profit enterprises (AHA, 2018). Hospitals also rooted themselves in their communities and offered patient education programs and worksite health programs (AHA, 2018). The most far-reaching impact on the hospital industry came in 2010. After years of political debate, Congress enacted the Affordable Care Act (Obamacare, 2018). The ACA aimed "to provide more Americans with access to affordable health insurance, to improve the quality of healthcare and health insurance, to regulate the health insurance industry and to reduce health care spending" (Obamacare, 2018). Despite the passage of the bill, the number of hospitals remained at lower levels. The hospital industry continues to adjust to political influences, health insurance challenges, structural changes, an aging population, new technology, and acceptance of web-based or telemedicine services (AHA, 2018). Given the overarching changes, understanding hospitals' organizational factors will determine hospital performance's potential influence.

I.3 Research Motivation.

The analysis of the U.S. spending on healthcare and the corresponding quality of hospitals' care performance motivated this research. "Despite a huge dedication of resources to healthcare in the United States, the medical system does not deliver safe, effective, efficient, patient-centered, timely, and equitable care as recommended by the Institute of Medicine" (Bush, 2007). The health sector has warranted much attention and debate given the high percentage of U.S. gross domestic product (GDP) attributed to healthcare expenditures, as shown in Figure 4.

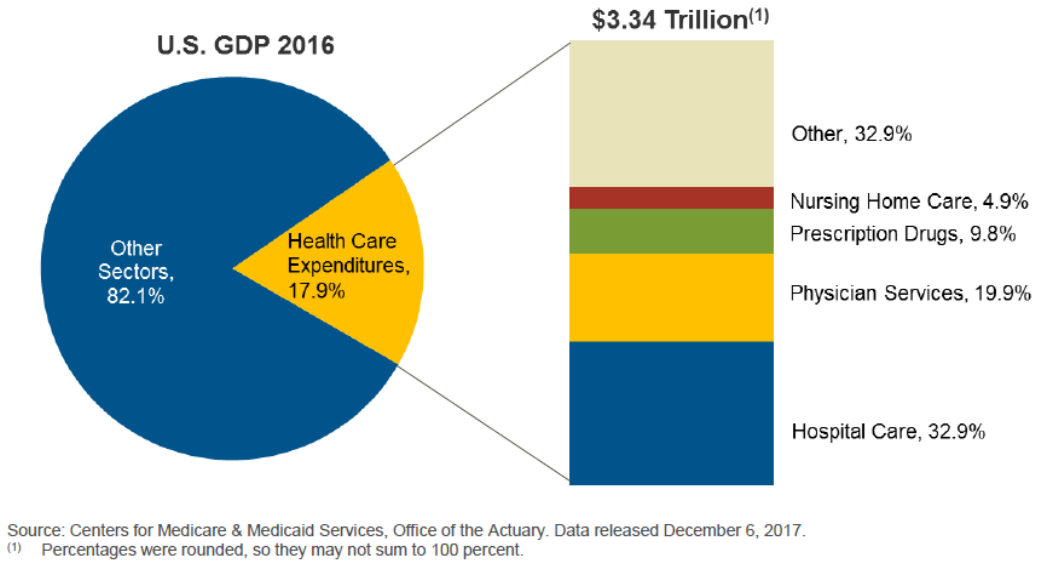

Figure 4: Health Care Expenditures

Hospital care represented nearly one-third of the health expenditures of the U.S. In 2016, healthcare exceeded other costs (CMS, 2016):

- 2% higher than spending on income security (such as Social Security, unemployment, and cash welfare).
- 59% higher than spending on education.
- 93% higher than spending on national defense.
- 3.9 times higher than spending for public order and safety (including law enforcement, courts, prisons, fire protection, and immigration).

Figures 5-9 were the fundamental basis and motivation for this investigative research study. The charts compare health expenditures in the U.S. relative to comparable countries (those with both a total GDP above the median for Organization for Economic Co-operation and Development (OECD) nations and a per capita GDP higher than the OECD median).

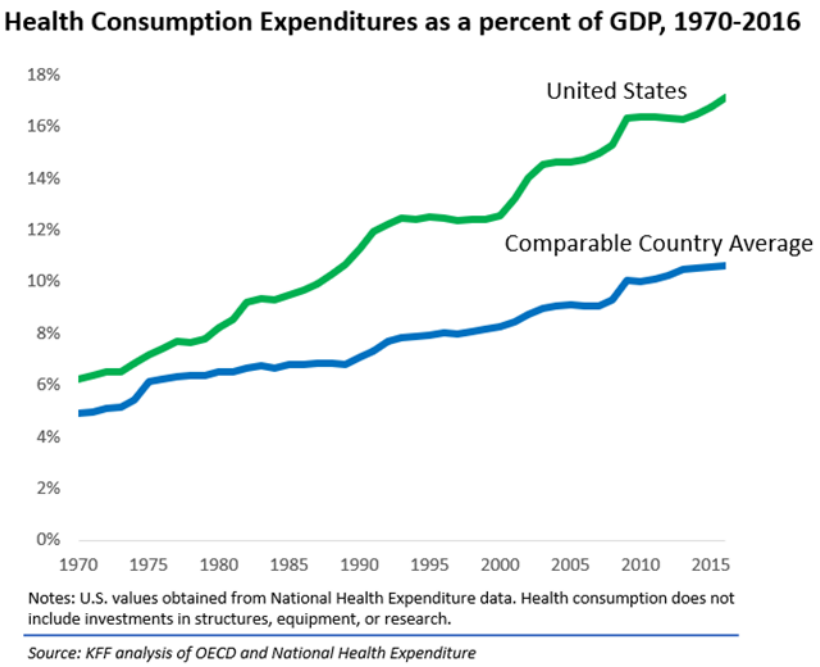

Figure 5: Health Consumption Expenditures as a % of GDP

Wealthy countries, including the U.S., spend a significant portion of their economy on healthcare. However, as shown in Figure 5, the percentage spread of U.S. health expenditures as a percent of GDP has widened from the comparable country average.

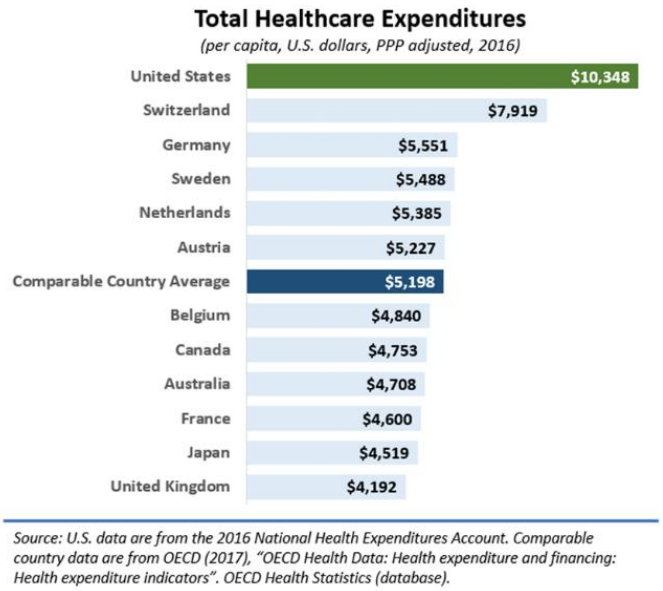

Figure 6: Health Care Expenditures by Country

Figure 6 details how the U.S. total national health care expenditures far exceed other wealthy nations. "Total national health expenditures include administration of insurance, health research, and public health spending from both public and private funds" (Kamal, 2020). The U.S. outspends Switzerland, the next highest country, by 6%. Comparable countries spend half as much; $5,198 versus $10,348.

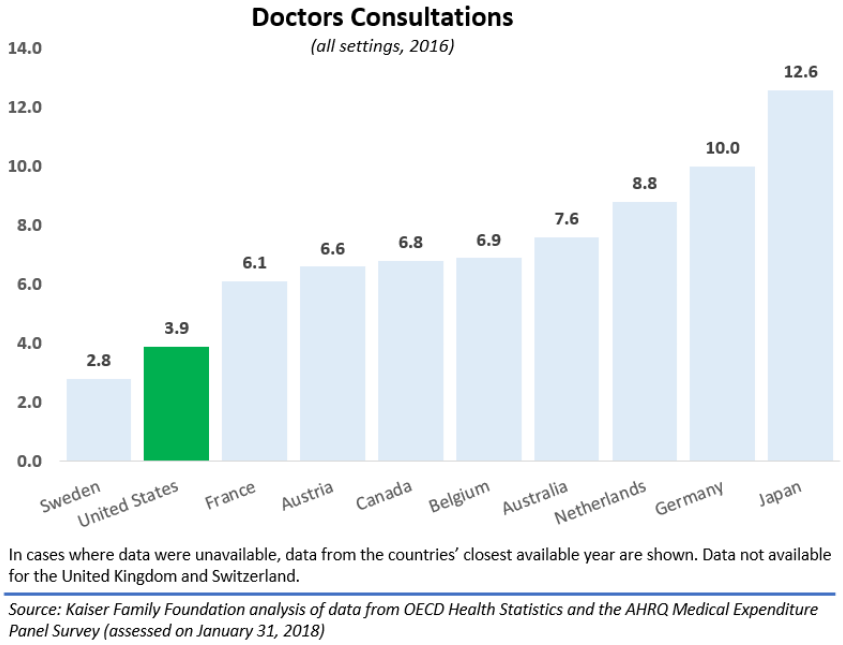

Figure 7: Doctors Consultation by Country

Figure 7 shows the comparison of the U.S. doctor consultations per country and nine other countries for 2016. The U.S. ranked 2nd on fewest physician consultations per capita. Consultations include visits per person at physician offices, hospital outpatient departments, and emergency rooms. In 2016, comparable countries saw an average of 7.6 total consultations per person versus 3.9 for the U.S. U.S. overall spends twice as much per person on healthcare than do comparable countries, despite having fewer doctor consultations.

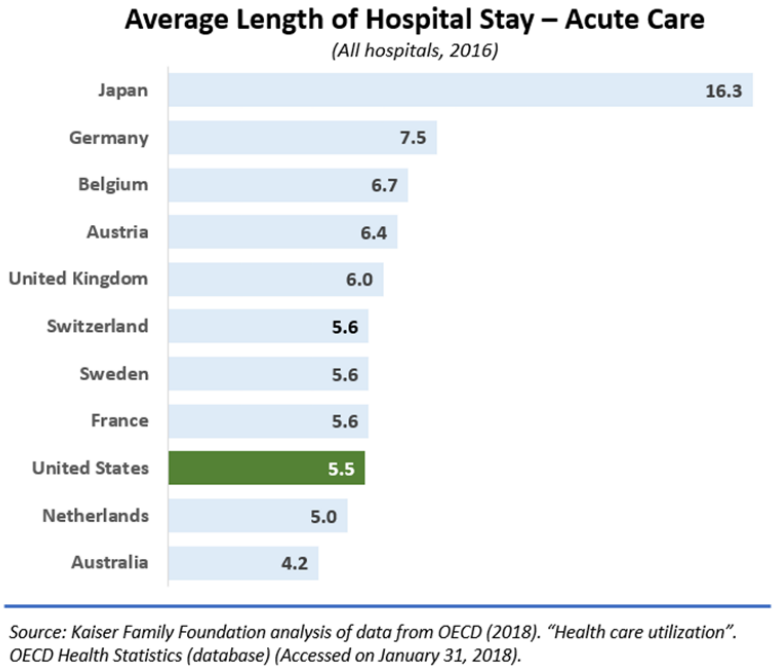

Figure 8: Average Length of Hospital Stay:

Figure 8 details the average length of stay at hospitals for the U.S. and comparable countries. The U.S. has the third shortest stay amongst comparable countries. Changes in medical guidelines and practices, technology, hospital reimbursements, and financial constraints have decreased hospital stays (Kamal, 2017). Further analysis is needed to assess whether shorter hospital stays reflect more efficient and cost-effective services.

Unfortunately, while hospitals have continued to absorb a large portion of the U.S. GDP, quality remains a significant problem. "Among other wealthy countries, the U.S. ranks dead last in clinical outcomes yet costs more than $3 trillion a year. By comparison, Europe spends $1.8 trillion annually on healthcare for a population nearly twice the size" (Pearl, 2017). The disparity in the results of these indicators served as the impetus for additional research.

1.4. Significance of the Study.

The healthcare sector, inclusive of access, costs, and insurance continue to be a significant concern and problematic issue in the U.S. Much of the problem relates to the increased costs for healthcare. When comparing the U.S. to other comparable countries, the U.S. spent twice as much (17.1% of GDP versus 8.8% of GDP) on healthcare in 2017. The comparable countries all have universal health care." (Kurani, N., McDermott, D., Shanosky, N., 2020). The debate over the best way to address the issue remains extraordinarily controversial, complex, multi-faceted, and political. Data suggests that the U.S. will continue to face pressure. The figures below show the comparison of the U.S. and 11 other countries based on the results from the OECD health quality statistics. Responses can vary considerably and influence population health outcomes. (Kurani, N., McDermott, D., Shanosky, N., 2020). Figure 9 shows the U.S. underperformance against other peer countries in healthcare access and quality. The Healthcare Quality and Access (HAQ) Index Rating is calculated on a scale from 0 (worst) to 100 (best) based on death rates from 32 causes of death that could be avoided by timely and adequate medical care. All other countries show a higher and more positive HAQ index rating than the U.S.

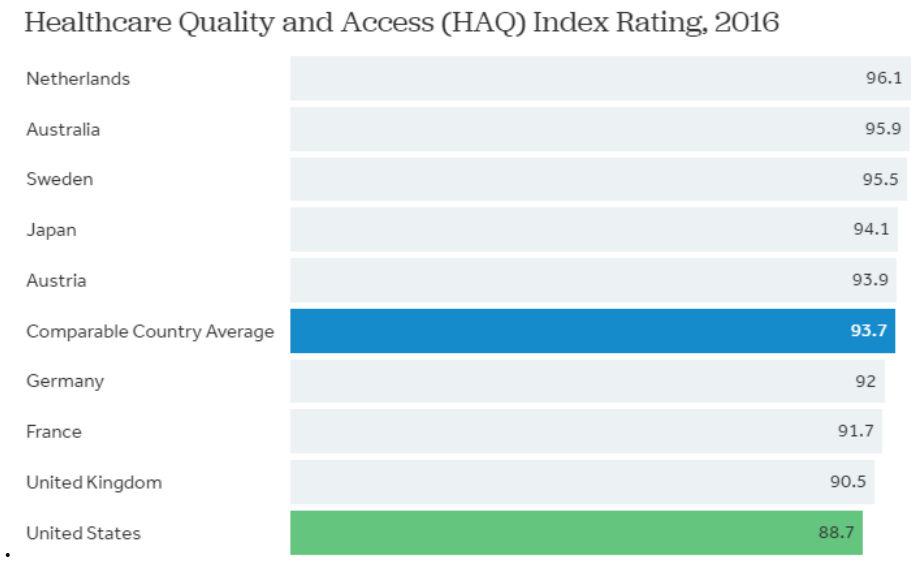

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Figure 9: Healthcare Quality and Access (HAQ) Index Rating

Source: KFF analysis of data from: "Measuring performance on the Healthcare Access and Quality Index for 195 countries and territories and selected subnational locations: a systematic analysis from the Global Burden of Disease Study 2016. The Lancet, May 23, 2018.

Similarly, Figure 10 shows the Hospital Related Care for hospital admissions for chronic conditions. "While hospital admissions for certain chronic diseases can arise from a variety of reasons, preventative services – or lack thereof- play a large role" (Kurani, N., McDermott, D. Shanosky, N., 2020). Although rates for hospitalization for chronic conditions may change over time, the U.S. admission rates are higher than in comparable countries.

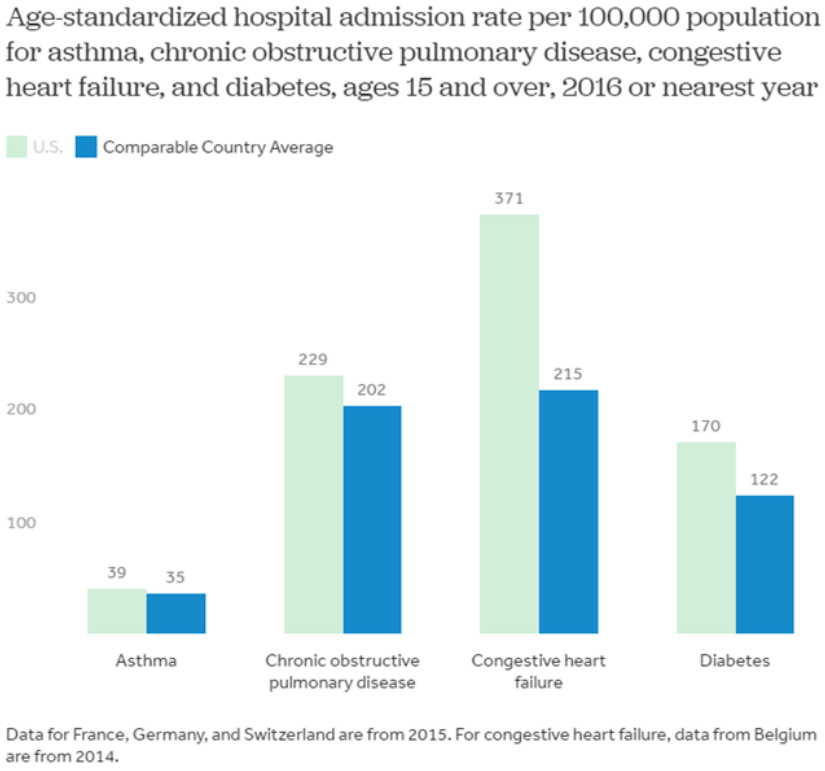


Figure 10: Hospital Admission Rate for Asthma, Pulmonary Disease, Heart Failure

Source: KFF analysis of OECD Health Statistics. Study 2017.

These statistics will put pressure on the healthcare system, hospitals, and federal budgets. Hospital care accounts for 32.9% of the estimated $3.34 trillion healthcare budget (CMS, 2017). Unfortunately, "the monies used by the federal government to supplement healthcare often

exceeds the revenue generated from hospital organizations" (CBO, 2018). As mentioned earlier, the ability to address healthcare issues is complicated. Therefore, my research includes a comprehensive analysis of numerous independent variables and dependent variables to understand all potential influences. The contribution of this research is to gain knowledge of the community and organizational factors that influence U.S. hospital performance through an exploratory method to identify individual and simultaneous influences on U.S. hospital performance.

I.4 Framework for the Research.

This paper investigates the factors that affect hospital performance. Previous literature served as the basis for the selection of variables used for this research. The variables included in this study are community factors, organizational factors, and performance (care and financial). The targeted research sources for care performance were studies that addressed the patient outcome measurements (Porter, 2016) and studies related to Centers for Medicare and Medicaid Services (CMS) hospital star rating criteria (Castellucci, 2019). The sources for financial performance were the relationship between healthcare quality and financial performance (Barnes, 2017) and hospital profitability (Bai, 2016). Studies related to community factors centered on the role of hospitals in the community (Samuelson, 2017), U.S. physical and economic health (Beyond Health, 2018), and the influence of community factors on healthcare (Ver Ploeg, 2004). Studies on organizational factors focused on the conversion rate to for-profit hospital ownership and increased government spending (Silverman, 1999) and reviewing the influence of hospital strategies on hospitals' outcomes (Ghiasi, 2017).

Previous studies were invaluable in understanding the scope of research. However, many of the studies unilaterally or bilaterally analyzed community, organizational factors, or hospital performance. The focus of this exploratory study will identify the relationship and significance of community factors and organizational factors on financial performance. My research will focus on understanding the interplay of these relationships by using secondary data and applying a mixed-exploration research methodology supported by the literature.

1.5. Conduct to Research

I carried out this research by collecting secondary data first. I conducted an exploration of the data to understand the data itself and the categorization of variables. In my preliminary analysis, I used SPSS to run descriptive statistics and employed the univariate model to understand the variables' variance and tendencies. This initial phase provided me with a solid understanding of the distribution and characteristics of each of the variables. Next, I ran a bivariate analysis for each of the independent variables and dependent variables to understand the relationships and strength of these relationships. Based on these results, I did not eliminate any variables from the study. Instead, I gained better insights into the data and expectations of relationships. To complete the research, I performed and incorporated a multivariate analysis and evaluated the results.

II Theoretical Background

II.1 Structural Contingency Theory

Structural contingency theory holds that there is "no one best way" or structural type optimal for all organizations (Donaldson, 2016). Instead, the structure is appropriate if it meets the organization's objectives. Structural contingency theory states that the organizational structure must fit situational factors or "contingencies." Further, an organization's structure and process must align with the company's goals if it is to survive or be effective (Dubin, 1976). An organization in "fit" enjoys higher performance (Hamilton and Shergill, 1992). Conversely, the misfit performance will eventually lead to intervention to bring equilibrium and achieve a fit structure (Chandler, 1962). Every hospital invests in a cost to quality approach (Rappleye, 2016). Since a hospital's "fit" is based on the care a patient receives and financial stability, utilizing structural contingency theory is consistent with my research focus. However, organizational managers may not know the fit state, and changing an organization towards fit may be challenging to identify and execute. Against the structural contingency theory principles, I will review a comparison of the contingencies -environment (community factors), structure (organizational factors), and hospital performance to determine these relationships' association. Figure 11 depicts the relational review of the variables in my study.

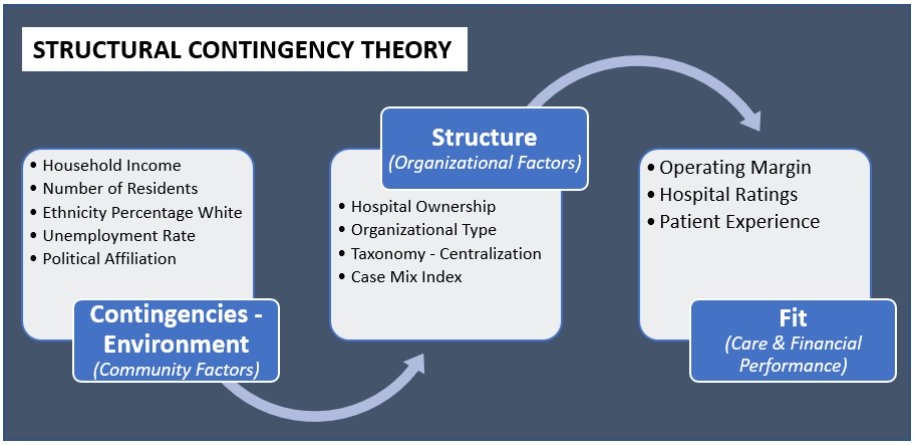


Figure 11: Structural Contingency Theory

II.2 Challenges with Structural Contingency Theory

Many believe the theory is old and has challenges due to its flexibility. Structural contingency theory asserts that the approach's appropriateness depends on identifying the contingencies confronting the organization and the root cause of the process of structural change (Pfeffer, 1978). The process is sometimes not interpretable and allows for freedom, which is often not consistent with traditional theories. For these reasons, the methodology's challenge stems from the "strategic freedom of choice" (Child, 1972). This freedom "defies empirical testing and is inconsistent with the deterministic flavor of causal analysis" (Pennings, 1987).

Additionally, organizational managers may not know the fit states. As such, changing an organization towards fit may be challenging to identify and execute. Further, many see organizations as adapting to their environments (Parsons, 1961), and therefore, the fit of organizations changes over time.

II.3 History of Structural Contingency Theory.

Structural contingency theory emerged in the 1960s and has had many contributions from Burns & Stalker (1961), Woodward (1965), Lawrence & Lorsch (1967), and Pugh, Hickson, Hinings,

& Turner (1969), and is now a long-established standard of organizational theory research. Table 1 below captures the major contingencies, structural variables, and publications that influence the structural contingency theory.

Table 1:Summary of Structural Contingency Theory Paradigm

Summary of Structural Contingency Theory Paradigm		
The fit between contingency and structure positively affects performance		
Major contingencies	**Major structural variables**	Classic publications
Environmental uncertainty	Organic and mechanistic structures	Burns and Stalker (1961)
Environmental uncertainty	Organizational differentiation and integration	Lawrence and Lorsch (1967)
Task Routineness	Formalization, centralization, and complexity	Hage (1965); Perrow (1967); Hage and Aiken (1969)
Task Interdependence	Coordination mechanisms	Thompson (1967)
Technology	Hierarchical levels, scans of control, the percentage of managers, and supervisors in total personnel, etc.	Woodward (1965)
Diversification strategy	Dinvisionalization	Chandler (1962), Donaldson (987)
Size	Formalization, specialization, centralization, and standardization	Child (1975); Pugh and Hickson (1976)

Source: Qiu et al., 2012

Structural contingency gained strong support after several highly acclaimed and published research from Galbraith (1977), Nadler, Hackman and Lawler (1979), Astley and Van de Ven (1983), and Hrebiniak and Joyce (1985). Pennings, 1987, is a strong supporter of the theory and related arguments. The structural contingency theory is used as a managerial tool by practitioners, business school academics, and its guidelines appear in managerial textbooks (Ellis, S. et al., 2002).

III LIMITATIONS OF STUDY

In a perfect world and all else equal, there should be no difference in a hospital's care performance. Factors such as income, ethnicity, and political affiliation, should not impact care performance. These factors are often called extraneous, norming factors, or biases, and should have no relationship to hospital performance. My exploratory study aims to determine the impact of community factors on hospital performance. My results may reflect small results. However, these small results have vital significance and relevance for my study and existing research. Additionally, my research will identify relationships but will not attempt to address or explain why these factors have an impact. The goal of the study is to present comprehensive results that provide opportunities for continued rigorous research.

IV RESEARCH DESIGN AND MODEL

IV.1 Research Design.

My research design is an exploration of data using multiple phases of analysis. The exploratory approach allows for the correlation analysis to explain and quantify the degree of relationship between two or more variables (Cozby & Bates, 2012; Patton, 2015). As shown in Figure 8, I employed a systemic process to describe and test relationships and examine the variables' interactions. Using secondary data, I incorporated univariate and bivariate analysis to aid my model development and incorporate theory. With this gained knowledge, I progressed with the multivariate analysis and concluded with results.

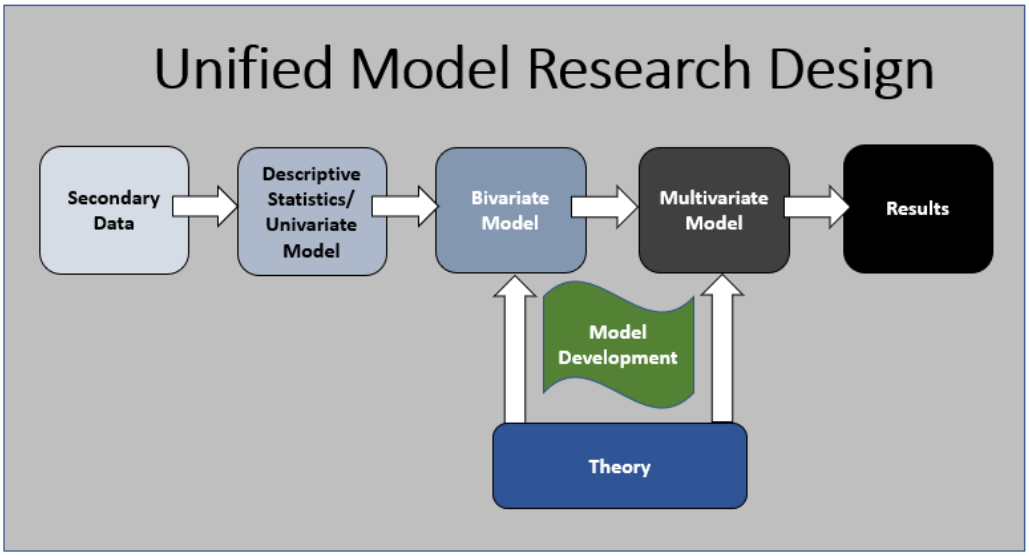


Figure 12: Unified Model Research Design

IV.2 Unit of Analysis

The unit of analysis for this research is all U.S. hospitals. I used the American Hospital Association as my primary source for hospital data. AHA collates secondary data and includes a total of 6,240 hospitals. I incorporated data preparation, cleansing, and aggregation to determine

eligible hospitals from this total of hospitals. My dataset, analysis, and results include a total of 3,059 hospitals.

IV.3 Research Questions

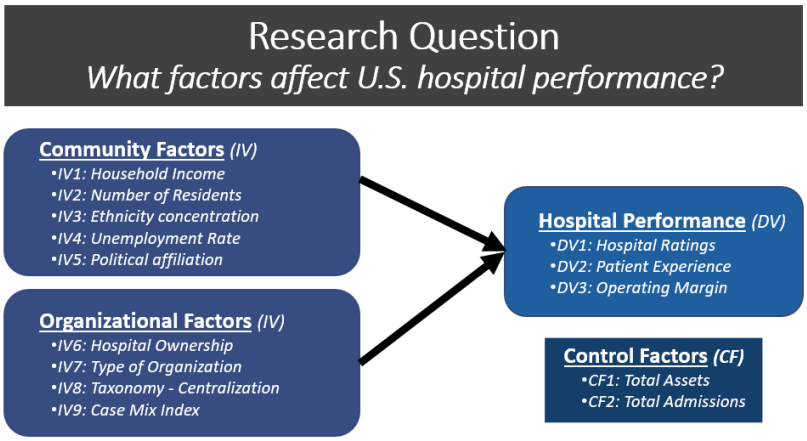


Figure 13: Research Model

For my research, I wanted a holistic view of the factors that were impacting hospital performance. As such, I used my understanding of the hospital sector and reviewed existing literature to identify and determine potential variables for this study. I then researched the available sources to understand the availability of data to provide context on this research's extent and scope. I will review the following research questions for this study.

RQ: What factors affect U.S. hospital performance?

***SRQ1**: Does a significant relationship exist between **Community Factors**, either collectively or individually, and **Hospital Ratings** while controlling for Total Assets and Total Admissions?*

***H_{1a}**: Does a significant relationship exist between **Household Income** and **Hospital Ratings** while controlling for Total Assets and Total Admissions?*

***H_{1b}:** Does a significant relationship exist between **Number of Residents** and **Hospital Ratings** while controlling for Total Assets and Total Admissions?*

***H_{1c}**: Does a significant relationship exist between **Ethnicity Percentage White** and **Hospital Ratings** while controlling for Total Assets and Total Admissions?*

***H_{1d}**: Does a significant relationship exist between **Unemployment Rate** and **Hospital Ratings** while controlling for Total Assets and Total Admissions?*

***H_{1e}**: Does a significant relationship exist between **Political Affiliation** and **Hospital Ratings** while controlling for Total Assets and Total Admissions?*

***SRQ2**: Does a significant relationship exist between **Organizational Factors**, either collectively or individually, and **Hospital Ratings** while controlling for Total Assets and Total Admissions?*

***H_{2a}**: Does a significant relationship exist between **Hospital Ownership** and **Hospital Ratings** while controlling for Total Assets and Total Admissions?*

***H_{2b}**: Does a significant relationship exist between **Organizational Type** and **Hospital Ratings** while controlling for Total Assets and Total Admissions?*

***H_{2c}**: Does a significant relationship exist between **Taxonomy - Centralization** and **Hospital Ratings** while controlling for Total Assets and Total Admissions?*

***H_{2d}**: Does a significant relationship exist between **Case Mix Index** and **Hospital Ratings** while controlling for Total Assets and Total Admissions?*

***SRQ3**: Does a significant relationship exist between **Community Factors**, collectively or individually, and **Patient Experience**, while controlling for Total Assets and Total Admissions?*

***H_{3a}**: Does a significant relationship exist between **Household Income** and **Patient Experience** while controlling for Total Assets and Total Admissions?*

***H_{3b}**: Does a significant relationship exist between **Number of Residents** and **Patient Experience** while controlling for Total Assets and Total Admissions?*

***H_{3c}**: Does a significant relationship exist between **Ethnicity Percentage White** and **Patient Experience** while controlling for Total Assets and Total Admissions?*

***H_{3d}**: Does a significant relationship exist between **Unemployment Rate** and **Patient Experience** while controlling for Total Assets and Total Admissions?*

***H_{3e}**: Does a significant relationship exist between **Political Affiliation** and **Patient Experience** while controlling for Total Assets and Total Admissions?*

***SRQ4**: Does a significant relationship exist between **Organizational Factors**, either collectively or individually, and **Patient Experience** while controlling for Total Assets and Total Admissions?*

***H_{4a}**: Does a significant relationship exist between **Hospital Ownership** and **Patient Experience** while controlling for Total Assets and Total Admissions?*

***H_{4b}**: Does a significant relationship exist between **Organizational Type** and **Patient Experience** while controlling for Total Assets and Total Admissions?*

***H_{4c}**: Does a significant relationship exist between **Taxonomy - Centralization** and **Patient Experience** while controlling for Total Assets and Total Admissions?*

***H_{4d}**: Does a significant relationship exist between **Case Mix Index** and **Patient Experience** while controlling for Total Assets and Total Admissions?*

***SRQ5**: Does a significant relationship exist between **Community Factors**, collectively or individually, and **Operating Margin**, while controlling for Total Assets and Total Admissions?*

***H_{5a}**: Does a significant relationship exist between **Household Income** and **Operating Margin** while controlling for Total Assets and Total Admissions?*

***H_{5a}**: Does a significant relationship exist between **Number of Residents** and **Operating Margin** while controlling for Total Assets and Total Admissions?*

***H_{5b}**: Does a significant relationship exist between **Ethnicity Percentage White** and **Operating Margin** while controlling for Total Assets and Total Admissions?*

***H_{5c}**: Does a significant relationship exist between **Unemployment Rate** and **Operating Margin** while controlling for Total Assets and Total Admissions?*

***H_{5d}**: Does a significant relationship exist between **Political Affiliation** and **Operating Margin** while controlling for Total Assets and Total Admissions?*

***SRQ6**: Does a significant relationship exist between **Organizational Factors**, either collectively or individually, and **Operating Margin**, while controlling for Total Assets and Total Admissions?*

***H_{6a}**: Does a significant relationship exist between **Hospital Ownership** and **Operating Margin** while controlling for Total Assets and Total Admissions?*

***H_{5b}**: Does a significant relationship exist between **Organizational Type** and **Operating Margin** while controlling for Total Assets and Total Admissions?*

***H_{5c}**: Does a significant relationship exist between **Taxonomy - Centralization** and **Operating Margin** while controlling for Total Assets and Total Admissions?*

***H_{5d}**: Does a significant relationship exist between **Case Mix Index** and **Operating Margin** while controlling for Total Assets and Total Admissions?*

In this study, we attempt to answer the research question by incorporating numerous community factors and organizational factors. A thorough review of the relationships and statistical analysis will offer support for addressing and answering what factors affect U.S. hospital performance.

IV.4 Secondary Data.

My research uses secondary data. “Secondary data play an increasingly important role in public health research and practice” (Boslaugh, 2007). My research intends to find relationships between the community and organizational factors on hospital performance. This exploratory approach requires comprehensive data collection to ensure the validity of any potential links.

Secondary data is appropriate, given the massive dataset that is inherent to the hospital sector. Given the scope of the study, I carefully chose the following reputable sources for my research.

- **Henry J Kaiser Family Foundation (KFF) State Health Facts:** KFF serves as a non-partisan source of facts and health policy analysis and provides products and information free of charge. I used KFF as the source for my community factors. I exported the data for my 2016 community factors from the KFF website.
- **American Hospital Association (AHA):** The AHA is a national, not-for-profit association that advocates for nearly 5,000 hospitals, health care systems, networks, other providers of care, and 43,000 individual members. The AHA aggregates hospital data and creates trend analysis on utilization, personnel, revenue, expenses, and community health indicators. I needed AHA data to access the organizational factors of the hospital. I requested and purchased a 3-year license to access the complete survey results conducted for 2014-2017. I entered a contractual agreement which required permission allowance from Georgia State University. The contractual agreement was effective on October 26, 2018.
- **Healthcare Cost Report Information System (HCRIS):** The Centers for Medicare and Medicaid Services (CMS) provide a cost report that contains provider information such as facility characteristics, utilization data, cost, and charges by cost center. I needed HCRIS data for the financial performance data for 2017. I requested this data from AHA for an additional cost. The separate license and contractual agreement were effective on October 20, 2018.
- **Hospital Consumer Assessment of Healthcare Providers and Systems (HCAHPS):** HCAHPS is a standardized survey of hospital patients' perspectives on hospital care to provide the public with comparable information on hospital quality. The Hospital Quality Star Ratings

("Star Ratings") launched in July 2016. The ratings were derived from the survey results and sorted into seven group measures: (1) mortality, (2) safety of care, (3) readmissions, (4) patient experience, (5) effectiveness of care, (6) timeliness of care, and (7) efficient use of imaging. The results of the *Hospital Compare* of the survey data are publicly available. I exported the data for 2017, and I used these measures to produce an unweighted overall hospital rating. I used this independently calculated rating and the patient experience rating for the care performance factors in my research model.

IV.5 Variable Selection

I selected variables based on my experience and the availability of data sources. For community factors, I used my expertise to settle on highly recognizable and economically important elements. I chose organizational factors based on access to data sources and literature review. For performance, the selected variables for financial performance had universal reach in the accounting and financial markets, while the care performance variables were chosen based on access to data sources and literature. In my analysis, I will incorporate control factors related to hospital size so that their effects are "controlled for" in the relationship and significance results. Below is a breakdown of the specific independent variables (IV), dependent variables (DV), and control factors (CF) contained in this research.

IV.5.1 *Community Factors (IV1, IV2, IV3, IV4, IV5)*

Hospitals are critical to communities as they provide benefits that are critical to the well-being of the neighborhood. Hospitals are essential allies in addressing community issues such as health behaviors, environmental and socioeconomic factors. The list of services provided by hospitals includes (a) clinical services and health screenings (i.e., high cholesterol, cancer, and diabetes);

(b) community health education (parenting training, smoking cessation, fitness and nutrition, and diabetes management); and (c) coordination of community events and in-kind donations (such as food, clothing) (CMS, 2019).

Just as hospitals are critical to the communities, community factors are essential to hospitals. “Changes in population size, age, race, and ethnicity affect the healthcare resources needed, the cost of care provided, and even the conditions associated with each population group” (Ensocare, 2017). My research intends to determine the impact of the state's community factors on hospital performance. For the community factors in my research, I used the state's household income, number of residents, ethnicity percentage white, unemployment rate, and political affiliation. Below is a broader description of each of the community factors used in the study.

Community Factors:

- **(IV1) Household Income:** Studies show that Americans at all income levels are less healthy than Americans with incomes higher than their own (Braveman, 2010). Income plays a role in the health disparities that many minorities experience. Although blacks and Hispanics have higher disease rates than non-Hispanic whites, these differences are "dwarfed by the disparities identified between high- and low-income populations within each racial/ethnic group" (Dubay, 2012). That is, higher-income blacks and Hispanics have better health than members of their groups with less income, and this income gradient strongly ties to health more than their race or ethnicity (Dubay, 2012). Additionally, studies estimate that for every household income dollar earned by whites, Hispanics earn 70 cents and blacks just 59 cents (Feldscher, 2015).

These economic inequalities affect people's lives and can, in turn, impact health and access to health.

- **(IV2) Number of Residents:** Instinctive to variables used for Community Factors would be the number of residents. Hospitals are service-oriented and established to benefit the people in their community. Population helps with the equitable distribution of public funds. Federal and state funding for educational programs, health care, law enforcement, and highways is allocated based on the number of residents. There are direct and indirect effects of population on hospital rates and linking population to how hospital services are delivered (Harris, 1975). The number of residents is essential to the analysis of community factors on hospital performance. A recent report stated, "the country's population growth, age, and diversity, will have a profound effect on the U.S. healthcare system and the people in its care" (Ensocare, 2017). It will be interesting to observe the potential influence of the number of residents on hospital performance.
- **(IV3) Ethnicity Percentage White:** Ethnicity is a substantial factor in our community, and it is essential to evaluate the role ethnicity plays in hospital performance. Severe disparities in health, and access and utilization of health care, and medical treatment exists across racial and ethnic groups and economic and social strata in the United States (Ver Ploeg, 2004). The growth and changes in the minority populations are surprising. "In the minority populations, multiracial populations are expected to have the greatest growth (Frey, 2018). The minority population is increasing, and the impact on the economy and society is enormous. "Minorities will be the source of growth in the nation's youth and working-age population, most of the growth in its voters, consumers, and tax base as far into the future as we can see" (Frey, 2018). For these reasons, I included ethnicity in my community factors. Ethnicity can be challenging to pinpoint,

given the number of ethnic groups available. For my research, I based ethnicity on the state's percentage of people classified as white.

- **(IV4) Unemployment Rate:** The impact of the unemployment rate has direct implications on hospitals and the population. The balance sheets of hospitals reflect high levels of debt. Economic changes in interest rates will affect hospitals' balance sheets and may require cost-cutting and limitations with expansion strategies (Patrick, 2014). Further, women and people who are already economically disadvantaged are susceptible to economic fluctuations (Kageleiry, 2013). "The unemployment rate affects people's health care choices" were findings based on an analysis from CDC surveys between 1987 and 2010" (CDC, 2016). Job loss leads to adverse shocks to family income and eliminating employer-sponsored healthcare benefits and increases families' risk of unmet health care needs (Doty, 2011). With the potential influence of unemployment on hospitals, I included the unemployment rate of the state in this research.
- **(IV5) Political Affiliation:** When considering community factors to include in my research, I chose to include political affiliation. Political polarization is "the defining feature of early 21st century American politics" (Doherty, 2014). In 2014, Pew Research Center found that Republicans and Democrats are "further apart ideologically than at any point in recent history. The division goes beyond politics and is evident in individual choices and lifestyles (Doherty, 2014). The "magnitude of these differences dwarfs other divisions in society, along with such lines as gender, ethnicity, religious observance or education" (Pew Report, 2017). I independently assigned a political affiliation for each state. I used the political affiliation of the governor of the state, state senate majority, and state house majority to determine the majority political affiliation for the state.

4.5.2 Organizational Factors (IV6, IV7, IV8, IV9)

We must explore the hospital's organizational factors that influence hospital performance. Just as in any other organization, ownership and structure are crucial components of a company's brand and success. "The structure of an organization sets the hierarchical ladder for responsibility, accountability and communication levels within an organization and can have a direct effect on company productivity" (Root, 2018). I will review the relationship of the hospital's ownership, organization type, centralization, and Case Mix Index to determine the potential effect on hospital performance.

Organizational Factors:

- **(IV6) Hospital Ownership (Government Owned):** Many corporate structures derive from owners, which can evolve (Vitez, 2018). Hospital ownership is no different. Ownership will provide direction as to how the hospital will operate. For this research, I utilized the AHA hospital type codes for the categorization of hospital ownership. Government hospitals generally devote substantially larger shares of their patient operating expenses to uncompensated care than nonprofit and for-profit hospitals (GAO, 2005). This allocation of funds presents unique challenges and distinguishes them from the other hospitals. Government hospitals generally accounted for the most significant percentage of uncompensated care costs in states (GAO, 2005). While government hospitals represent less than 20% of all community hospitals, this research's exploratory nature warrants the inclusion of government-owned hospitals in my research.
- **(IV7) Organization Type (Not-For-Profit):** Organizations have well defined operational strategies and policies. The AHA organization code is based on the party responsible

for establishing policy for the operation of the hospital (AHA, 2019). I used these organizational codes to categorize hospitals as either not-for-profit or for profit. The primary difference between not-for-profit and for-profit organizations is the traditional balance sheet. For example, not-for-profits have a financial position statement and have an account of activities as opposed to the income statement required of for profits. Another example is for-profit entities show the difference in revenue less expenses as net income while not-for-profit is changing in net assets. The not-for-profit goal is not to generate net income but to reflect how it uses its net assets to accomplish its mission (Fritz, 201).

- **(IV8) Taxonomy - Centralization:** The American Hospital Association has numerous classifications for ownership/control. I chose to narrow the categorization into either Centralized (Centralized Health System, Moderately Centralized Health System, and Centralized Physician/Insurance Health System) or Decentralized (Decentralized Health System or Independent Hospital System). I categorized the hospitals into Centralized or Decentralized.
- **Centralized System:** This model relies on a single system board that serves as the ultimate authority. For example, the system may contain hospitals, insurance companies, and nursing homes that report to the system board. The hospital's system board has oversight over services and products, which results in moderate to low differentiation and often high efficiency in the standardization of making decisions (Bazzoli et al., 1999).

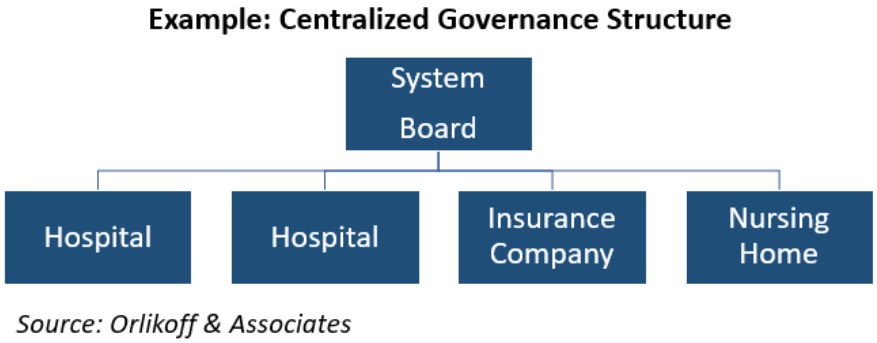


Figure 14: Centralized Governance Structure

- **Decentralized Health System:** This model relies on a hierarchical structure with committees that report to subordinate boards. The governance structure includes auxiliary boards that report to the system board. While the system board serves as the ultimate authority, the power of the subordinate board creates high differentiation and less standardization in making decisions.

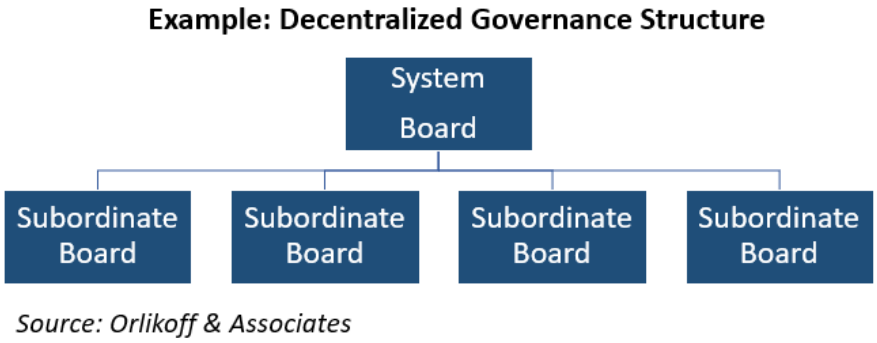


Figure 15: Decentralized Governance Structure

- **(IV9) Case Mix Index (CMI):** "The CMI of a hospital reflects the diversity, clinical complexity, and resource needs and is used to determine funding allocation for Medicare and Medicaid beneficiaries in hospitals (CMS, 2018). I included the hospitals' CMI in the research to determine the CMI relationship to hospital care and financial performance.

IV.5.2 *Performance Factors (DV1, DV2, DV3)*

Hospitals are challenged with balancing hospital budgets, proper spending, reducing costs, and patient care (Grimaldi & Vernant, 2017). Despite efforts to improve transparency, public and professional attitudes towards public care performance are mixed. Health consumers and employers demand hospital quality information and benchmarking to inform their provider choice, but there is continued provider skepticism' (Marshall et al., 2000; Goff, Pekow 2015; Sinaiko, 2012). A recent survey of U.S. hospital leaders stated significant concerns about the validity and utility of quality measures and problems associated with public reporting (Goff, Pekow, 2015). Previously, the primary source for care performance was the *U.S. News Best Hospitals* rankings, which were almost entirely based on reputation and not, as stated, on a mix of indicators, including outcomes (Sehgal, 2010). The subjectivity of these results presented a need to identify a standardized method of collecting data related to patient satisfaction rather than hospital reviews. In 2002, the Centers for Medicare and Medicaid (CMS), along with the Agency for Healthcare Research and Quality (AHRQ), developed a standardized, publicly reported survey of patients' experiences with their hospital care. "The Affordable Care Act substantially accelerated quality accountability and expansion of CMS' QRP (Quality Reporting Training) systems" (CMS, 2017). In 2015, CMS published Hospital Quality Star Ratings based on patient experience as measured by the HCAHPS survey. The newness of Hospital Quality Ratings presented an additional opportunity for analysis for care performance. The combination of care performance and financial performance provides an opportunity to evaluate methods and industrywide measures.

Performance Factors:

- **(DV1) Hospital Ratings:** Quality measures of care performance were introduced to help transparency in the health industry. The Overall Hospital Quality Star Ratings ("Star Ratings") officially launched in July 2016. The service goal was to improve the usability and interpretability of information posted on *Hospital Compare* for patients. CMS methodology engages with patients, doctors, and statisticians to summarize all measures' results to develop an overall star rating for each hospital. Hospital Star Ratings provide patients with a concise summary rating that combines multiple quality dimensions into a single score. Many opposed the initial release of the Overall Hospital Ratings because the methods for the CMS star ratings were vastly different from the methods used by *U.S. News*. For example, renowned Harvard teaching hospital, Brigham and Women's has been ranked as the sixth-best hospital by *U.S. News.* However, they received just three stars under the new ratings (Mangan, 2016). After reviewing the rating criteria, a revised release was made available in December 2017 (CMS, 2018). The enhancements addressed the sequencing of the methodology. "Since k-mean clustering is a comparative analysis, the enhancement applies the reporting thresholds before clustering. The main improvements occur in step 5. The diagram below details the process for Hospital Star Ratings.

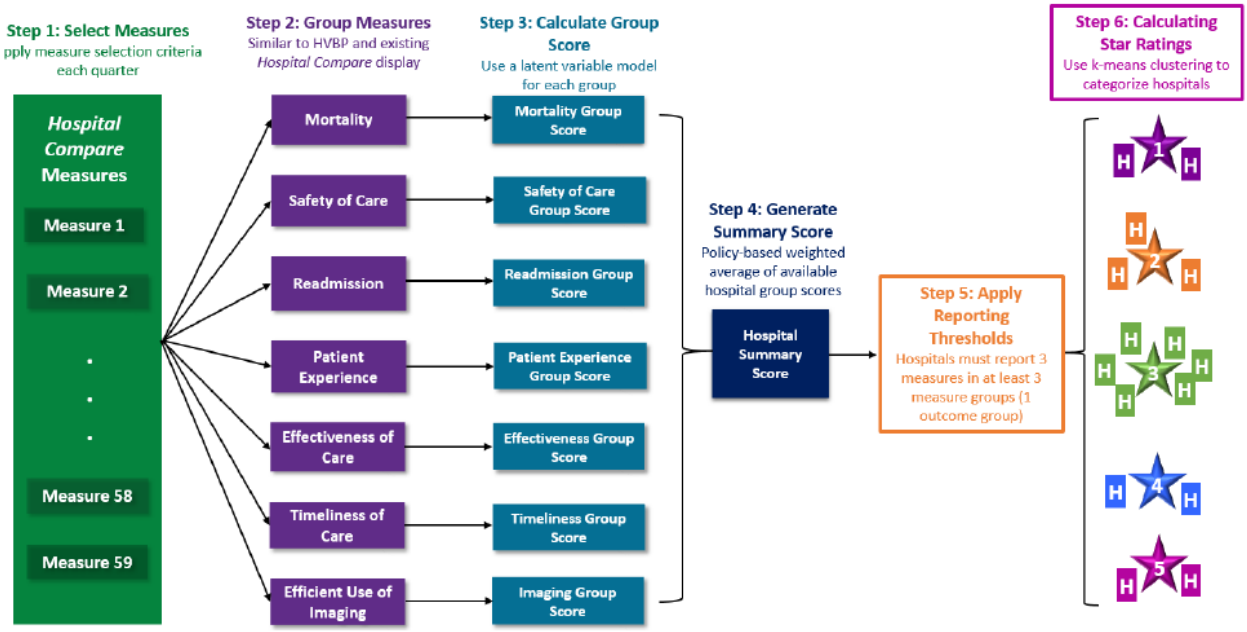


Figure 16: Hospital Star Rating Process

The results below show the impact of the comparison of the two methodologies.

Table 2: <u>Overall Star Ratings Methodology Comparison</u>

Overall Star Ratings distribution of the previous methodology in December 2017 compared to the enhanced methodology in December 2017.

Star Rating	Previous Methodology (December 2017)	Methodology Enhancements (December 2017)
1	125 (3.39%)	260 (7.04%)
2	710 (19.23%)	753 (20.40%)
3	1,959 (53.06%)	1,187 (32.15%)
4	820 (22.21%)	1,155 (31.28%)
5	78 (2.11%)	337 (9.13%)

As detailed in Table 2, the methodology enhancements impacted all five Star Ratings and resulted in an even star rating distribution. Again, the new methodology received tremendous opposition and criticism. Under pressure, the CMS is reconsidering the methods of the weighting formulas and contemplating an additional enhancement. Due to this scrutiny and frequent

changes to the methodology, I independently computed an unweighted hospital rating result using all the rating measures. The results were based on a 1- 3 scale, with three representing above the national average, two being the same as the national average, and one being below the national average.

(DV2) Patient Experience: Unlike the overall hospital rating, patient experience is a computed measure in the Hospital Star Rating. I included the results from the patient experience and made no modifications.

(DV3) Operating Margin: There are several challenges facing hospitals that can dramatically impact business performance. First, despite declining inpatient demand and modest outpatient growth, the workforce has grown and accounts for roughly half of all hospital expenses (Goldsmith, 2017). This growth in employees can have a dramatic impact on hospitals. The second challenge comes from the shift in payment from a pay per admission or procedure to a population-based payment system (AHA, 2018**).** The impact of this switch, coupled with Medicare's fixed, per admission pay structure, will prove challenging. Incorporating a financial performance measure is imperative to this exploratory research. Literature supports that the operating margin, also known as EBIT (Earnings Before Interest and Tax) Margin, was the primary factor used to measure the hospital's financial performance. Operating margins calculate the percentage of profit a company produces from its operations before subtracting taxes and interest charges. Operating Profit Margin is a metric for benchmarking one company against similar companies within the same industry (Verma, 2019). "A company's operating profit margin is indicative of management and is seen as an excellent indicator of the strength of a

company's management team, as compared to gross or net profit margin" (CFI, 2018). The operating margin serves useful in establishing the relationships of community and organizational factors to financial performance.

4.5.4. Control Factors (CF1, CF2)

Control factors can control relationships for alternative explanations. The data set is quite large, with 3,059 hospitals included in the research. Control factors related to size need to be held constant to avoid influencing the outcome of the relationship and significance of the results of the independent variables and dependent variables.

Community Factors:

- **(CF1) Total Assets:** An organization's assets are inclusive of both tangible and intangible. The amalgamation of assets helps to develop capabilities that lead to customer satisfaction by deriving strength from each resource (Hitt et.al. 2016). The fixed asset has a significant role in the profit ratio determination and the evaluation of risk involved (Smith, 1980). Given the large and diverse hospitals included in the data set, total assets were included as a controlling factor.
- **(CF2) Total Admissions:** Hospital admissions rates can vary and fluctuate depending on a community's population size, growth, and options for treatment. Hospitalization admissions are tracked to determine health system efficiency and can be used for comparisons for hospitalizations for communities and populations (Barrett, M., et al. 2013). Given the variability and numerous factors related to admissions, total admissions will be included in this study as a controlling factor.

V METHODOLOGICAL APPROACH

In conjunction with the unified model research design, I incorporated concepts of John Tukey's (1977) Exploratory Data Analysis (EDA) to "analyze data, summarize main characteristics, and formulate hypotheses. This process could lead to new data collection and experiments." Much of the previous research incorporated Initial Data Analysis (IDA), focusing specifically on validating assumptions. Tukey believed that too much attention was placed on statistical hypotheses testing and confirmatory data analysis, rather than on using data to suggest hypotheses to test (Tukey, 1977).

Tukey's four objectives of EDA are to
(1) suggest hypotheses about the causes of observed phenomena,
(2) assess assumptions on which statistical inference will be based,
(3) support the selection with appropriate analytical tools and techniques, and
(4) provide a basis for further data collection through surveys or experiments.

I used these four objectives for my methodological approach. First, my professional background and expertise provided a robust framework and base of knowledge. I was aware of the importance of hospitals to our society and their impact on the U.S. economy. The ongoing healthcare debate continued to fuel my interest in the industry. Further, I was aware of the perceived lack of hospital performance and ever-increasing costs. Collectively, this knowledge helped me to develop my research focus. Second, I looked at the existing literature on hospitals' performance, organizational structure, economic impact, and societal contribution. I determined that I would use state and organization as independent variables, as their influence on hospital performance were valuable and distinct. The hospital "star ratings" were introduced in July 2016, which presented an opportunity to review performance and contribute to research. The

supplemental findings helped to support and contribute to the variables and develop my research model. Third, I sought to use secondary data. Secondary data is less likely than primary data to be biased toward the research hypotheses since it was not collected for examining those hypotheses or proposals (Samaddar et, 2006). The exploration and literature review resulted in many variables, which led to an understanding of the relevance of the data available — understanding the responsibility in maintaining a disciplined approach in reviewing this data, I developed a unified model research approach. The process includes multiple phases of models, such as descriptive statistics and univariate analysis, bivariate model, and multivariate model to help me dissect and interpret the data. IBM SPSS Statistics was the software source for the computations used for my research. Fourth, the results found statistically significant relationships amongst the variables and provided the potential for additional research. The use of EDA was crucial in providing context, structure, and validation for my research.

VI METHODS

VI.1 Description of Study

Table 3: Research Design Elements and Descriptions

Design Element	Description	
Research Method	Apply exploratory data analysis and literature supported research methodology; analyze secondary data by using a unified research model analysis; employ a systemic process to describe and test relationships, and examine interactions among variables to reach a conclusion	
Data Coverage	2016 for Community Factors and Organizational Factors 2017 for Performance Factors	
Unit of Analysis	U.S. Hospital	
Population	3,059 U.S. Hospitals	
Data Source	Henry J Kaiser Family Foundation State Health Facts	**Community Factors:** *Household Income, Number of Residents, Ethnicity Percentage White, Unemployment Rate, Political Affiliation*
	American Hospital Association (AHA)	**Organizational Factors:** *Hospital Ownership (Government Owned versus Not Government-Owned), Organizational Type*

		(Not-For-Profit versus For-Profit), Taxonomy-Centralization (Centralized versus Decentralized)
	Healthcare Cost Report Information System (HCRIS)	**Performance Factors:** *Operating Margin* **Control Factors:** *Total Admissions*
	Hospital Consumer Assessment of Healthcare Providers and Systems (HCAHPS)	**Performance Factors:** *Hospital Ratings, Patient Experience* **Organizational Factors:** *Case Mix Index (CMI)* **Control Factors:** *Total Assets*

VI.2 Data Preparation and Cleansing

Preparation of the data included reviewing and inspecting the data, aggregation of the data, confirmation of the model structure, and coding the data for analysis. Table 4 details the process for aggregating and condensing the data in preparation for coding.

VI.3 Aggregation of Secondary Data

Inspection of the data: I independently reviewed the data from the sources to ensure I understood the data components. I sorted the data using the hospital's unique hospital identification code. The unique provider identification code was the source for merging the data.

Aggregation of data: A crucial step to any research is developing the dataset. Table 4 details the assembly of the data. First, I started with the AHA dataset since it had the most significant hospitals, 6240 hospitals. During the inspection of the data, I identified the hospital code identifier as crucial. Without a hospital code, it would be difficult to identify and aggregate data from multiple sources. I removed hospitals that did not have a hospital code identifier. Since my research focus included data based on U.S. states, I eliminated 318 hospitals in Puerto Rico, Guam, Virgin Islands, and the District of Columbia (D.C.). Second, I incorporated the HCRIS dataset. I removed an additional 666 hospitals because the AHA and HCRIS codes did not match. Another 931 hospitals from the dataset did not have the financial performance factor (operating margin). The condensed ACA and HCRIS dataset represented 4,325 hospitals. Third, I incorporated the HCAHPS star rating data into a concise dataset. While the HCAHPS dataset included 4,793 hospitals, I included only the hospitals whose hospital identifier code matched the condensed hospital dataset and further removed hospitals that did not have the "Hospital Overall Rating" star rating. While HCAHPS computes a score for several hospital care categories, I used "hospital overall rating" as the care performance factor in my research. While all the 4,793 hospitals had at least one category with a star rating, I wanted hospitals with the "hospital overall rating" and eliminated a total of 1,266 hospitals from the dataset. The final condensed dataset included 3,059 hospitals. Table 4 captures the elimination process and justification.

Table 4: Data Elimination Process and Justification

Source	# of Hospitals	# of Hospitals Excluded	Total Hospitals in Data Set	Rationale for Exclusion of Hospitals
AHA	6,240	-318	5,922	Included only U.S. hospitals with hospital code identifiers
HCRIS	6,181	-666	5,256	Aggregated and included only those identifiers that matched to those from the AHA data
	5,256	-931	4,325	Removed hospitals that did not have an operating margin
HCAHPS	4,793	-1,266	3,059	Aggregated and included only those identifiers that matched the condensed hospital list and further removed hospitals that did not have the "Hospital Overall Rating" STAR rating

Confirmation of the model structure: With the final dataset, I reviewed each of the variables to verify the data suitability to my research model. My sources contained a large data set that allowed me to take a holistic approach to the research and capture data for my model factors.

Coding of the data: The coding of the data is crucial to the outcome of the research. Coding the data requires defining and labeling the variables, applying coding instructions, and assigning the appropriate measurement scale. The following table displays the codebook for my research. I used numbers to identify categories. The numbers serve as identifiers and are not indicative of sequential order.

Table 5: Research Codebook

Factors	Variable	Coding Instructions	Level of Measurement
HOSPITAL DESCRIPTION	Code	*Hospital Code (#)*	Scale
	Hospital Name	*Hospital Name*	Scale
COMMUNITY FACTORS	Household Income	*Median Household Income ($)*	Ordinal
	Number of Residents	*Number Residents (%ile)*	Ordinal
	Ethnicity Percentage White	*% of Majority White (%)*	Ordinal
	Unemployment Rate	*Unemployment Rate (#)*	Ordinal
	Political Affiliation	*1=Republican 2=Democrat*	Nominal
ORGANIZATIONAL FACTORS	Hospital Ownership	*1=Govt Owned 2 = Not Govt Owned*	Nominal
	Organizational Type	*1 = Not-For-Profit 2 = For Profit*	Nominal
	Taxonomy - Centralization	*1= Centralized 2 = Decentralized*	Nominal
	Case Mix Index	*Case Mix Index (#)*	Ordinal
CARE PERFORMANCE	Hospital Ratings	*2=Same or Above Average 1=Below National Average*	Nominal
	Patient Experience	*2=Same or Above Average 1=Below National Average*	Nominal
FINANCIAL PERFORMANCE	Operating Margin	*Operating Margin (#)*	Ordinal
CONTROL FACTORS	Total Assets	*Total Assets (#)*	Ordinal
	Total Admissions	*Total Admissions (#)*	Ordinal

Screening and cleaning data are essential before you start to analyze the data (Pallant, 2016). Table 5 details the factors, variables, coding instructions, and measurement scale for this study. It is crucial to determine what variables are in the range and check for errors. Armed with clean and coded data, I conducted further analysis to understand descriptive statistics and graphical tools to interpret the data.

Data Analysis and Statistics Platform: The platform I utilized for performing my statistical analysis was the Statistical Package for the Social Sciences (SPSS, 2016). SPSS Statistics is a powerful software platform that is robust and allows for complex data sets and advanced

statistical procedures to be computed and analyzed, which aids in decision making and interpretations. The interface is widely used and recognized as reliable software used by researchers in the educational, social, and behavioral sciences (Hinton, McMurray, & Brownlow, 2014).

VII DATA ANALYSIS AND RESULTS

VII.1 Descriptive Statistics/Univariate:

The output from descriptive statistics/univariate is invaluable in understanding the characteristics and distribution of the dataset. The goal is to describe your dataset's features, check for any violations of the assumptions, and determine research questions related to the variables. Using SPSS, I ran Descriptive Statistics for each community factor, organizational factor, and performance factor. Where applicable, the descriptive statistics included frequency, percentage, mean, standard deviation, histogram, Normal Q-Q Plots, boxplots, or bar charts.

VII.2 Community Factors

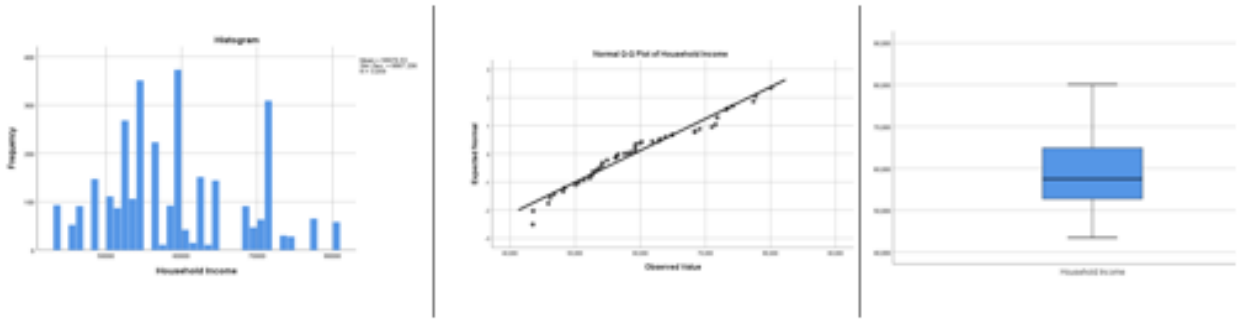


Figure 17: Descriptive Statistics - (IV1) Household Income

The household income is the average for the state. The household income data are limited to the household population and excludes the people living in institutions, college dormitories, and other group quarters. The analysis includes state income for all 3,059 hospitals. The data reflects no violation of the assumptions. The range for household incomes is $44 to $81 thousand. The mean is $59,792, while the 5% trimmed mean is similar at $59,554, further confirming a normal distribution.

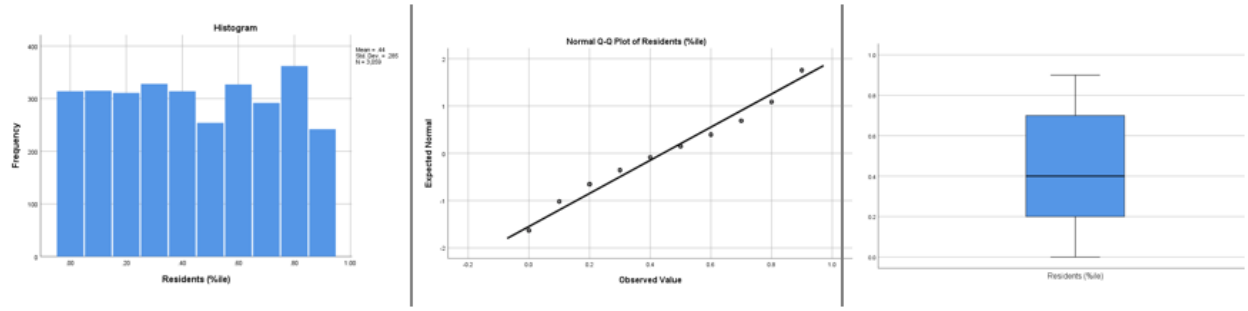


Figure 18: Descriptive Statistics - (IV2) Number of Residents

My initial dataset included the number of residents for each state. The number of residents in my analysis did not support a normal distribution due to the full range of residents for small and large states. For example, a comparison of Wyoming at 569,400 residents to California or Texas, with over 38 million or 27 million residents, skewed the data. Rather than removing the outlier states (California and Texas), I chose to compute and use the percentile rank for each state's residents for all 3,059 hospitals. The histogram indicates the frequencies for the percentile rank. The normal probability plots (Normal Q-Q Plot) chart shows the observed value against the expected value, suggesting a normal distribution. The boxplot of the distribution of scores shows no outliers and is reasonably 'normal.'

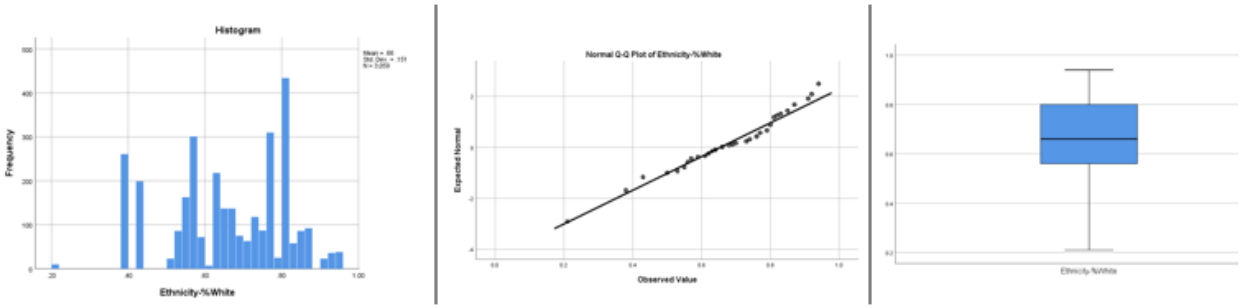


Figure 19: Descriptive Statistics - (IV3) Ethnicity Percentage White

The dataset reflects the ethnic percentage of white residents in the state. All 3,059 values were included in the analysis. The states with the lowest and highest percentage of white residents were 21% (Hawaii) and 94% (Vermont). The histogram and normal probability plot (Normal Q-Q Plot) reflect values skewed to higher percentages of white. The mean and 5% trimmed mean

are very similar and there are no outliers as shown in the boxplot. The results of the distribution of ethnicity did not violate normality.

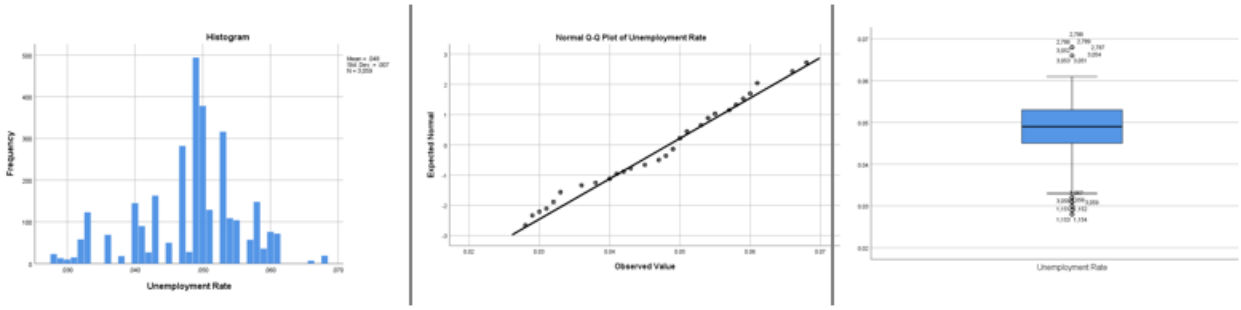


Figure 20: Descriptive Statistics - (IV4) Unemployment Rate

The state unemployment rate measures unemployment within the civilian non-institutionalized population aged 16 years and older. The histogram and normal probability plot show no violations of the assumptions. The unemployment rate for each state ranged from .03 to .07. The mean and the 5% trimmed mean were the same at .046. While the boxplot shows outliers, these extreme scores do not have a strong influence on the mean.

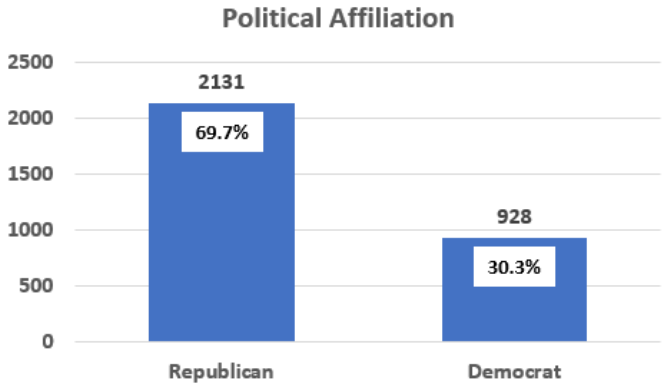


Figure 21: Descriptive Statistics - (IV5) Political Affiliation

Included in the research is the political affiliation for each state for the 3,059 hospitals. The political affiliation was computed using the state's political affiliation of the governor, house, and senate and assigning the association based on the majority of the three offices. Of the 50 states

for 2016, 35 (70%) were deemed Republican. Of the 35 states deemed Republican, 24 states had all three offices (governor, house, and senate) as Republican. Alternatively, there were 15 states with the majority Democrat. Of the 15 Democrat states, seven states had all three offices as Democrat. Nebraska has a unicameral system with no political affiliation for the house and senate, so the governor's political affiliation was used for this research. Alaska reported an independent (governor) but had the same association for the state's senate and house, which allowed a majority to be assigned.

7.3 Organizational Factors

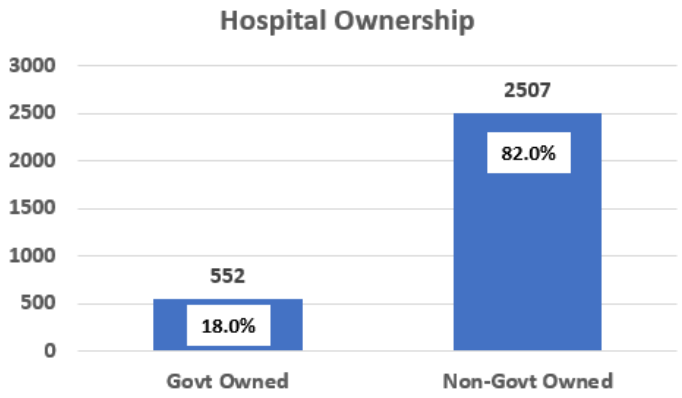


Figure 22: Descriptive Statistics – (IV 6) Hospital Ownership

Using the AHA categorization, hospital ownership was categorized as either government owned or non-government owned. The largest category for hospital ownership was in non-government owned 2,507 hospitals (82%). Government-owned hospitals represented the remaining 552 hospitals (18%) of the distribution. All 3,059 hospitals were included in the study.

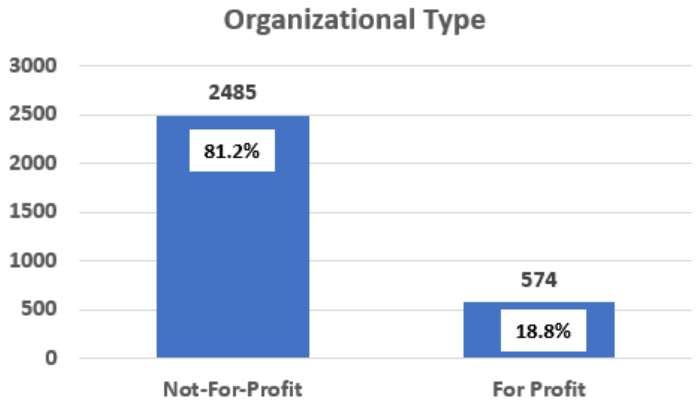


Figure 23: Descriptive Statistics – (IV7) Organizational Type

Using the AHA categorization, the organizational type was categorized as either not-for-profit or for profit. The chart reflects 2,485 (81%) hospitals categorized as not-for-profit, with 574 (19%) hospitals categorized as For Profit. All 3,059 hospitals were included in the study.

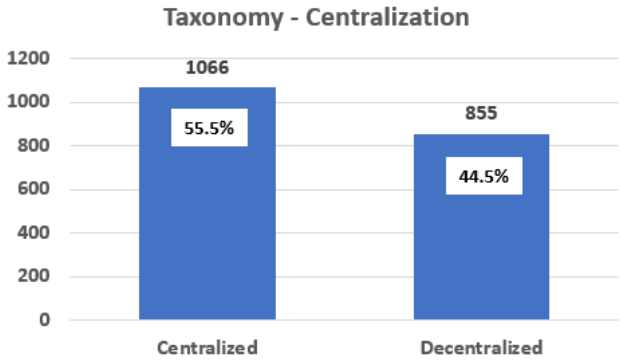


Figure 24: Descriptive Statistics - (IV8) Taxonomy - Centralization

Secondary data did not capture Taxonomy – Centralization for 1,138 (37%) of hospitals in my dataset. Consequently, a total of 1,921 (63%) hospitals in my dataset are reflected in this variable. Within this subset of data, the centralized and decentralized distribution reflects 55% and 45%, respectively.

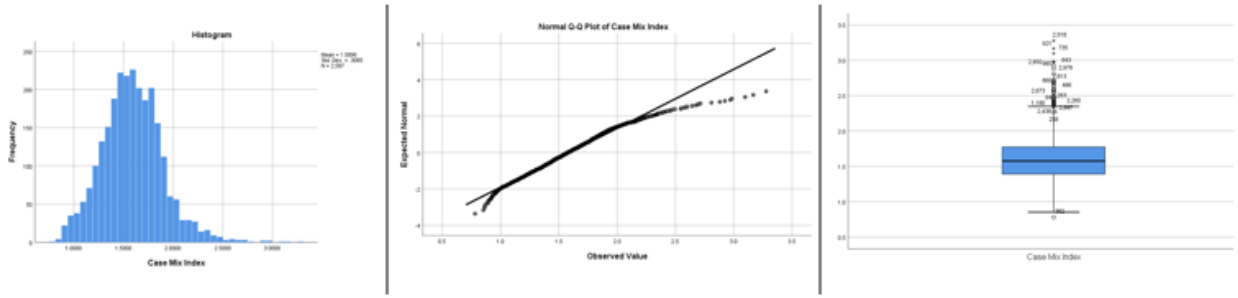


Figure 25: Descriptive Statistics - (IV9) Case Mix Index (CMI)

The Case Mix Index was not available for all 3,059 hospitals. Therefore, 2,587 (84.6%) hospital values were included in the analysis. The histogram shows that the Case Mix Index has a normal distribution despite several outliers and extreme values. The skewness and kurtosis are both positive, which indicates some clustering to the lower levels and some peaked distribution. The mean and 5% trimmed mean are very similar at 1.59 and 1.58. The similarity in the means indicates that the outliers and extreme values do not impact the mean.

VII.3 Performance Factors

Descriptive Statistics are essential to the interpretation of the variables. As discussed earlier, exploratory data analysis emphasizes using the graphic and statistical tools to determine the validity and completeness of the dataset and research model.

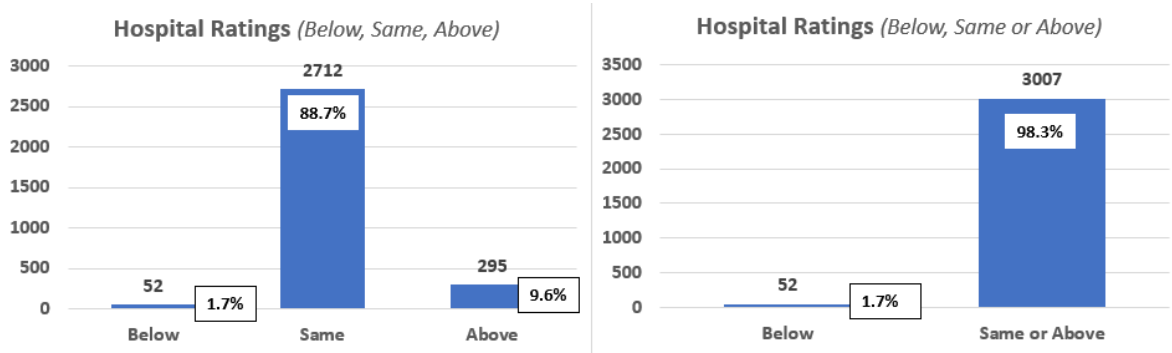


Figure 26: Descriptive Statistics - (DV1) Hospital Ratings

As detailed earlier, the recent and proposed changes to the Hospital Overall Rating prompted the need to evaluate the options for care performance. Using the group measures that are used in the Hospital Overall Rating, I computed an unweighted hospital rating compared to the national average. The hospital ratings for the 3,059 hospitals were available. The chart shows the distribution of hospital ratings as below, same, or above. Approximately 88% of the frequency distribution for the group ranked the same as the national average. Roughly 2% of the hospitals were ranked below the national average, while almost 10% were above the national average. After reviewing the allocation for the hospital ratings, the sample size below is very small. The regression analysis may not yield valid results. For further simplification and understanding of results, I combined the categories to have two categories, (1) below and (2) same or above. As such, the hospital ratings (below, same or above) will be used in the computations and analysis.

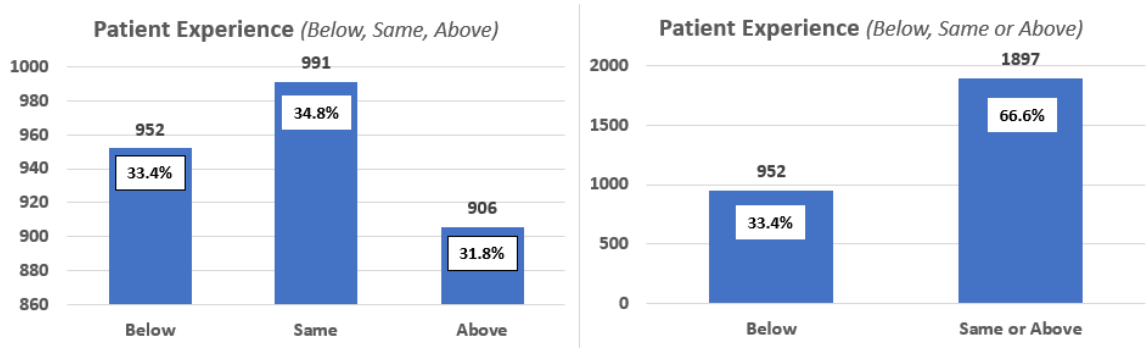
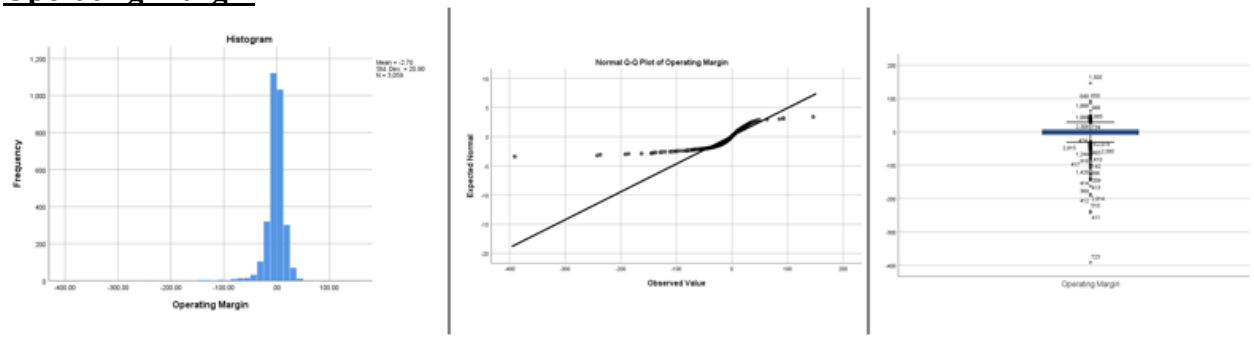


Figure 27: Descriptive Statistics - (DV2) Patient Experience

Patient experience was a single group measure of the hospital's overall performance. In reviewing the available data, I chose to include a separate dependent variable. Patient experience reflects a more evenly dispersed distribution when compared to the hospital ratings variable. A total of 2,849 hospitals (93%) of the 3,059 hospitals were used. The patient experience indicates that approximately 33% of the hospitals were ranked below the national average, 35% of the hospitals were ranked the same as the national average, and 33% of the hospitals ranked above

the national average. For consistency, I combined the same and above categories to create dichotomous dependable variables. As such, the patient experience (below, same or above) will be used in the computations and analysis.

Operating Margin



Operating Margin (adj)

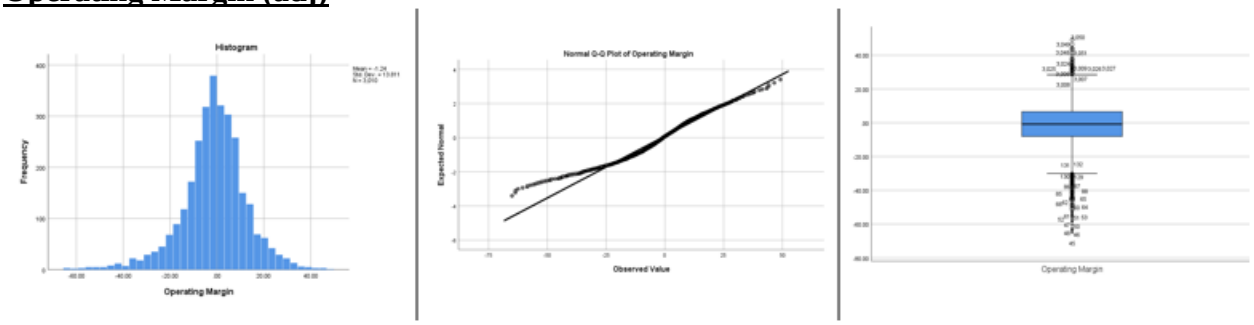


Figure 28: Descriptive Statistics - (DV3) Operating Margin

My research model uses Operating Margin as a single source and variable for financial performance. Figure 28 shows the results of Operating Margin and Operating Margin (adj). The operating margin includes all 3,059 hospitals. The charts show that the operating margin's initial distribution is negatively skewed, which suggests clustering at the high end. The kurtosis is positive, which purports a peaked distribution. Also, the mean is -2.708, while the 5% trimmed mean at -1.287. The lack of similarity in the mean and 5% trimmed mean indicates the influence of the outliers and extremes in the distribution. Additional measures were taken to address the impact of extreme values. The extreme values that represented values greater than three standard deviations were removed. This resulted in 49 hospitals (1.6%) excluded from the analysis. The Operating Margin (Adj) reflects a normal distribution with a total of 3,010 hospitals. The outliers

are not having a significant influence on the distribution. The Operating Margin (adj) was used for my data set and all analysis and computations.

VII.4 Control Factors (CF1, CF2)

Control factors are related to the dependent variable. They are needed to keep constant to avoid any influence on the outcome of the relationship and significance of the IVs and DVs. My data set is quite large, with 3,059 hospitals that represent a wide range of sizes. As such, control factors related to size were included in the analysis to separate their potential effects on the results.

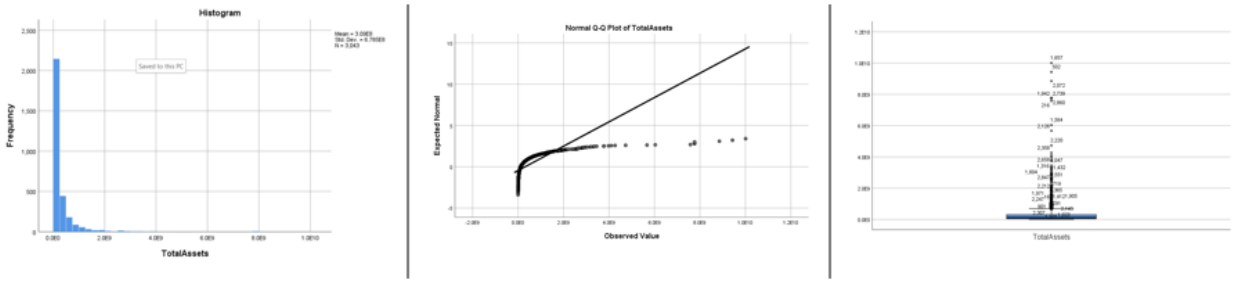


Figure 29: Descriptive Statistics - (CF1) Total Assets

Total assets are included as control variables in the research. For the analysis, 3,043 (99.5%) of hospital total asset values were included. The range of the hospitals varied dramatically from small to large. The histogram shows that total assets were positively skewed, which suggests that the scores are clustered to the left at the low values. With large samples (+200) as with my dataset, SPSS clarifies skewedness and kurtosis should “not make a substantive difference in the analysis” (SSPS, 2014). As confirmation, I will validate the impact of the control factors in each bivariate and multivariate analysis.

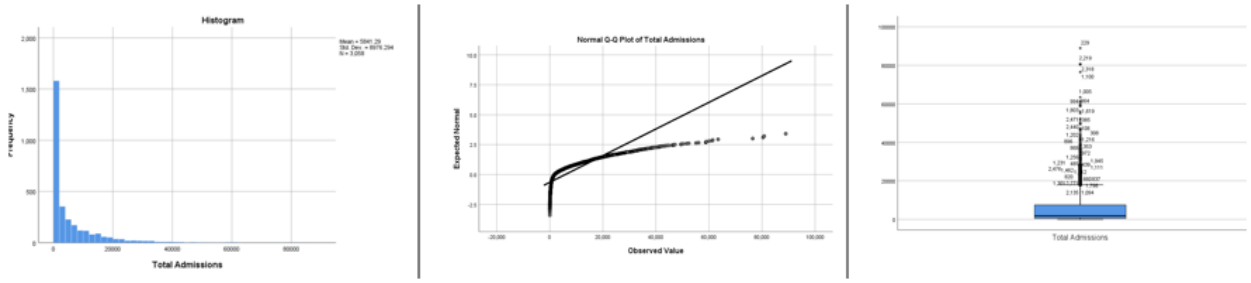


Figure 30: Descriptive Statistics - (CF2) Total Admissions

Total admissions are included as control variables. Almost all hospitals reported total admissions; therefore, 3,058 of the 3,059 hospitals' total admissions are included in the study. The histogram shows that total assets were positively skewed, which suggests that the scores are clustered to the left at the low values. With large samples (+200) as with my dataset, SPSS clarifies skewedness and kurtosis should not "make a substantive difference in the analysis" (SSPS, 2014). As confirmation, I will validate the impact of the control factors in each bivariate and multivariate analysis.

VIII BIVARIATE ANALYSIS

Bivariate tests and analyses were conducted to provide insight into the relationships of the dependent and independent values. The bivariate analysis and types of statistical techniques used for the analysis were correlation and regression. Correlation is used to determine the relationship and potential strength, and direction of a linear relationship between variables. Simple regression explores the relationship and predictive ability of an independent variable on a dependent variable (SPSS, 2016). Evaluating and interpreting the results is necessary for this exploratory research.

VIII.1 Correlation

Spearman Rho was used to understand the strength of the relationship between two variables. The results for each of the Community and Organizational Factors and the relationship to Financial and Care Performance are shown below. My research has a large sample size (N=100+), and it is more likely to find significance. Significance will be determined at the .05 level. Along with significance, it is also important to see the strength of the relationship and the amount of shared variance. Using the Cohen guidelines for interpretation of values, the correlation coefficients are color-coded green for small strength (r=.10 to .29), blue for medium strength (r=.30 to .49), and yellow for large strength (r=.50 to 1.0). Relationships with no significance are in red font.

Table 6: Correlations

Correlation Spearman's rho			Community Factors					Organizational Factors				Performance Factors			Control Factors	
			Household Income	Number of Resident	Ethnicity-%White	Unemployment Rate	Political Affiliation	Hospital Ownership	Organization Type	Taxonomy-Centralization	Case Mix Index	Hospital Ratigs	Patient Experience	Operating Margin	Total Assets	Total Admissions
Community Factors	Household Income	Correlation Coefficient														
		Sig. (2-tailed)														
		N														
	Number of Resident	Correlation Coefficient	.366**													
		Sig. (2-tailed)	0.000													
		N	3059													
	Ethnicity-%White	Correlation Coefficient	-.268**	-.666**												
		Sig. (2-tailed)	0.000	0.000												
		N	3059	3059												
	Unemployment Rate	Correlation Coefficient	-.195**	.296**	-.365**											
		Sig. (2-tailed)	0.000	0.000	0.000											
		N	3059	3059	3059											
	Political Affiliation	Correlation Coefficient	-.737**	-.331**	.304**	-.094**										
		Sig. (2-tailed)	0.000	0.000	0.000	0.000										
		N	3059	3059	3059	3059										
Organizational Factors	Hospital Ownership	Correlation Coefficient	-.117**	-.042*	-.041*	.077**	.067**									
		Sig. (2-tailed)	0.000	0.021	0.022	0.000	0.000									
		N	3059	3059	3059	3059	3059									
	Organizational Type	Correlation Coefficient	.126**	-.070**	.180**	-.051**	-.130**	.184**								
		Sig. (2-tailed)	0.000	0.000	0.000	0.005	0.000	0.000								
		N	3059	3059	3059	3059	3059	3059								
	Taxonomy-Centralization	Correlation Coefficient	.055*	.046*	0.001	.120**	-.100**	.100**	.332**							
		Sig. (2-tailed)	0.016	0.044	0.969	0.000	0.000	0.000	0.000							
		N	1921	1921	1921	1921	1921	1921	1921							
	Case Mix Index	Correlation Coefficient	.147**	.064**	-.065**	-.056**	-.088**	-.126**	0.037	0.012						
		Sig. (2-tailed)	0.000	0.001	0.001	0.004	0.000	0.000	0.058	0.626						
		N	2587	2587	2587	2587	2587	2587	2587	1710						
Performance Factors	Hospital Ratigs	Correlation Coefficient	.056**	.047**	-0.002	-0.022	0.001	-.065**	0.020	.060**	.152**					
		Sig. (2-tailed)	0.002	0.009	0.933	0.219	0.940	0.000	0.272	0.009	0.000					
		N	3059	3059	3059	3059	3059	3059	3059	1921	2587					
	Patient Experience	Correlation Coefficient	-.092**	-.257**	.306**	-.180**	.133**	0.025	.262**	.139**	0.009	.137**				
		Sig. (2-tailed)	0.000	0.000	0.000	0.000	0.000	0.175	0.000	0.000	0.639	0.000				
		N	2849	2849	2849	2849	2849	2849	2849	1847	2517	2849				
	Operating Margin	Correlation Coefficient	-0.023	.051**	-0.009	-.038*	.083**	-.202**	-.206**	-.061**	.213**	.137**	.070**			
		Sig. (2-tailed)	0.213	0.005	0.622	0.039	0.000	0.000	0.000	0.007	0.000	0.000	0.000			
		N	3010	3010	3010	3010	3010	3010	3010	1908	2540	3010	2810			
Community Factors	Total Assets	Correlation Coefficient	.261**	.190**	-.111**	-0.017	-.224**	-.092**	.195**	.127**	.659**	.158**	-.079**	.218**		
		Sig. (2-tailed)	0.000	0.000	0.000	0.338	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000		
		N	3043	3043	3043	3043	3043	3043	3043	1910	2574	3043	2836	2995		
	Total Admissions	Correlation Coefficient	.064**	.110**	-.161**	.154**	-.166**	-0.020	-0.012	0.033	-0.028	-.061**	-.130**	-0.021	0.026	
		Sig. (2-tailed)	0.000	0.000	0.000	0.000	0.000	0.259	0.493	0.148	0.148	0.001	0.000	0.250	0.150	
		N	3058	3058	3058	3058	3058	3058	3058	1921	2586	3058	2848	3009	3042	

** Correlation is significant at the 0.01 level (2-tailed)
* Correlation is significant at the 0.05 level (2-tailed)

Cohen Guidelines	Small rho=.10-.29	Medium rho=.30-.49	Large rho=.50-1.0

Summary of Correlation Results:

(DV1) Hospital Ratings

Community Factors:

(IV1) Household Income: The results show a positive correlation, [rho = .056, n = 3,059, p<0.002]; the relationship strength is below Cohen guidelines.

(IV2) Number of Residents: The results show a positive correlation, [rho = .047, n = 3,059, p<0.009]; the relationship strength is below Cohen guidelines.

(IV3) Ethnicity Percentage White: The results show no statistically significant relationship, p<0.933.

(IV4) Unemployment Rate: The results show no statistically significant relationship, p<0.219.

(IV5) Political Affiliation: The results show no statistically significant relationship, p<0.940.

Organizational Factors

(IV6) Hospital Ownership: The results show a negative correlation, [rho =-.065, n= 3,059, p<0.001]; the relationship strength is below Cohen guidelines.

(IV7) Organizational Type: The results show no statistically significant relationship, p<0.272.

(IV8) Taxonomy - Centralization: The results show a positive correlation, [rho =.060, n= 1,921, p<0.009]; the relationship strength is below Cohen guidelines.

(IV9) Case Mix Index: The results show a positive correlation, [rho =.152, n= 2,587, p<0.001] with a small relationship strength.

Control Factors:

(CF1) Total Assets: The results show a positive correlation, [rho = .158, n = 3,043, p<0.001] with a small relationship strength.

(CF2) Total Admissions: The results show a negative correlation, [rho =.061, n = 3,058, p<0.001]; the relationship strength is below Cohen guidelines.

(DV2) Patient Experience

Community Factors:

(IV1) Household Income: The results show a negative correlation, [rho = -.092, n = 2,849, p<0.001]; the relationship strength is below Cohen guidelines.

(IV2) Number of Residents: The results show a negative correlation, [rho = -.257, n = 2,849, p<0.001] with a small relationship strength.

(IV3) Ethnicity Percentage White: The results show a positive correlation, [rho = 306, n= 2,849, p<0.001] with a medium relationship strength.

(IV4) Unemployment Rate: The results show a negative correlation, [rho = -.180, n= 2,849, p<0.001] with a small relationship strength.

(IV5) Political Affiliation: The results show a positive correlation, [rho =.133, n= 2,849, p<0.001] with a small relationship strength.

Organizational Factors:

(IV6) Hospital Ownership: The results show no statistically significant relationship, p<0.175.

(IV7) Organizational Type: The results show a positive correlation, [rho =.262, n= 2,849, p<0.001] with a small relationship strength.

(IV8) Taxonomy - Centralization: The results show a positive correlation, [rho =.139, n= 1,847, p<0.001] with a small relationship strength.

(IV9) Case Mix Index: The results show no statistically significant relationship, p<0.639.

Control Factors:

(CF1) Total Assets: The results show a negative correlation, [rho = -.079, n = 2,836, p<0.001] the relationship strength is below Cohen guidelines.

(CF2) Total Admissions: The results show a negative correlation, [rho = -.130, n = 2,848, p<0.001] with a small relationship strength.

(DV3) Operating Margin

Community Factors:

(IV1) Household Income: The results show no statistically significant relationship, p<0.213.

(IV2) Number of Residents: The results show a positive correlation, [rho =.051, n= 3,010, p<0.005]; the relationship strength is below Cohen guidelines.

(IV3) Ethnicity Percentage White: The results show no statistically significant relationship, p<0.622.

(IV4) Unemployment Rate: The results show a negative correlation, [rho =-.038, n= 3,010, p<0.039]; the relationship strength is below Cohen guidelines.

(IV5) Political Affiliation: The results show a negative correlation, [rho =.083, n= 3,010, p<0.001]; the relationship strength is below Cohen guidelines.

Organizational Factors:

(IV6) Hospital Ownership: The results show a negative correlation, [rho =-.202, n= 3,010, p<0.001] with a small relationship strength.

(IV7) Organizational Type: The results show a negative correlation, [rho =-.206, n= 3,010, p<0.001] with a small relationship strength.

(IV8) Taxonomy - Centralization: The results show a negative correlation, [rho =-.061, n= 1,908, p<0.007]; the relationship strength is below Cohen guidelines.

(IV9) Case Mix Index: The results show a positive correlation, [rho =.213, n= 2,540, p<0.001] with a small relationship strength.

Control Factors:

(CF1) Total Assets: The results show a positive correlation, [rho = .218, n = 2,995, p<0.001] with a small relationship strength.

(CF2) Total Admissions: The results show no statistically significant relationship, p<0.250.

VIII.2 Bivariate Logistic Regression and Linear Regression

Regression is another method used in the bivariate analysis. The benefit of bivariate regression is the ability to evaluate each independent variable's predictive power amongst other independent variables included in the regression model.

Logistic Regression: Logistic regression allows you to test models to predict categorical outcomes. Since logistic regression requires dichotomous dependent coding of responses, (DV1) hospital ratings and (DV2) patient experience were coded to 0= below national average, 1 = same or above national average. Additionally, logistic regression is subject to model performance tests. The Hosmer-Lemeshow Goodness of Fit test is a goodness of fit for logistic regression models. At the same time, several models are a poor fit (significance at p< .05), "the test can be sensitive to sample size, and a poor fit (significant test) does not necessarily mean that a predictive model is not useful or suspect" (Kramer, 2007). Therefore, I will accept the results of the predictive models that fall into poor fit and will make a note of Hosmer-Lemeshow Goodness of Fit test results for each relationship.

Linear regression: Linear regression was used for continuous variables (operating margin). Logistic regressions were used for categorical dependent variables (hospital ratings and patient experience).

A summary of the bivariate regression analysis is displayed in Table 7. Specific details of the results are described for each relationship follow.

Table 7: Bivariate Regressions Summary

Bivariate Regression Analysis *Statistical Significance? (Yes or No)*			Care Performance		Financial Performance
			(DV1) Hospital Ratings	(DV2) Patient Experience	DV3) Operating Margin
Control Factors	CF1	Total Assets	No	No	Yes
	CF2	Total Admissions	No	Yes	No
Community Factors	IV1	Household Income	Yes	Yes	No
	IV2	Number of Residents	No	Yes	No
	IV3	Ethnicity % White	No	Yes	No
	IV4	Unemployment Rate	No	Yes	Yes
	IV5	Political Affiliation	No	Yes	Yes
Organizational Factors	IV6	Hospital Ownership	No	Yes	Yes
	IV7	Organizational Type	No	Yes	Yes
	IV8	Taxonomy - Centralization	No	Yes	Yes
	IV9	Case Mix Index	No	Yes	Yes

(DV1) Hospital Ratings

Control Factors

(CF1) Total Assets: The results were not significant, $p<.297$. Therefore, total assets have no significant effect on hospital ratings.

(CF2) Total Admissions: The results were not significant, $p<.138$. Therefore, total admissions have no significant effect on hospital ratings.

Community Factors

(IV1) Household Income: Binary logistic regression was performed to assess the impact of household income on hospital ratings, controlling for total assets and total admissions. The results of the full model were statistically significant, $\chi^2(3, N=3059) = 10.481$, $p<.015$, indicating

the model was able to distinguish between the influence of household income on hospital ratings below and hospital ratings same or above the national average. The Hosmer-Lemeshow Goodness of Fit Test is 12.860 with a significance level of .117, which is larger than .05, therefore indicates support for the model. The model as a whole explained .3% (Cox ad Snell R square) and 2.2% Nagelkerke R Square) of the variance in hospital ratings and correctly classified 98.3% of cases. Household income made a unique, statistically significant contribution, p<.008, and recorded an odds ratio of .000.

(IV2) Number of Residents: Direct binary logistic regression was performed to assess the impact of number of residents on hospital ratings, controlling for total assets and total admissions. The results of the full model were not statistically significant, p=.310. The independent number of residents' variable was not significant, p=.409. Therefore, the number of residents has no significant effect on hospital ratings.

(IV3) Ethnicity Percentage White: Direct binary logistic regression was performed to assess the impact of ethnicity percentage white on hospital ratings, controlling for total assets and total admissions. The results of the full model and ethnicity percentage white were not statistically significant, p=.350 and p=.533, respectively. Therefore, the ethnicity percentage white has no significant effect on hospital ratings.

(IV4) Unemployment Rate: Direct binary logistic regression was performed to assess the impact of unemployment rate on hospital ratings, controlling for total assets and total admissions. The Hosmer-Lemeshow Goodness of Fit Test is 19.329 with a significance level of .013, which is not larger than .05, therefore indicates no support for the model. While the results of the full model were not statistically significant, p=.067, unemployment rate was significant,

p=.044. A comprehensive analysis is warranted to determine the inconsistencies and lack of significance in the full model. Thus, the unemployment rate will be designated as having no significant effect on hospital ratings.

(IV5) Political Affiliation: Direct binary logistic regression was performed to assess the impact of political affiliation on hospital ratings, controlling for total assets and total admissions. There was no statistical significance in the results of the full model, p=.408, nor political affiliation, *p*=.982. Therefore, political affiliation has no significant effect on hospital ratings.

Organizational Factors

(IV6) Hospital Ownership: Direct binary logistic regression was performed to assess the impact of hospital ownership on hospital ratings, controlling for total assets and total admissions. The results of the full model and hospital ownership independent variable not statistically significant, *p*=.199 and *p*=.168. Therefore, hospital ownership has no significant effect on hospital ratings.

(IV7) Organizational Type: Direct binary logistic regression was performed to assess the impact of organizational type on hospital ratings, controlling for total assets and total admissions. The results of the full model and independent variable organizational type were not significant, p=.405 and p=.890, respectively. Therefore, the organizational type has no significant effect on hospital ratings.

(IV8) Taxonomy - Centralization: Direct binary logistic regression was performed to assess the impact of taxonomy - centralization on hospital ratings, controlling for total assets and total admissions. The results of the full model and independent variable organizational type were not significant, p=.243 and *p*=.234. Therefore, the taxonomy - centralization has no significant effect on hospital ratings.

(IV9) Case Mix Index: Direct binary logistic regression was performed to assess the impact of case mix index on hospital ratings, controlling for total assets and total admissions. The results of the full model and independent case mix index variable were not statistically significant, p=.281and p=.167, respectively. Therefore, case mix index has no significant effect on hospital ratings.

(DV2) Patient Experience

Control Factors

(CF1) Total Assets: The results were not significant, $p<.535$. Therefore, total assets have no significant effect on patient experience.

(CF2) Total Admissions: Binary logistic regression was performed to assess the impact of total admissions on patient experience. The results of the total admissions were statistically significant, $\chi^2(1, N=2848)=26.078$, p<.001, indicating the model was able to distinguish between the influence of total admissions on patient experience below and patient experience same or above. The model as a whole explained .9% (Cox ad Snell R square) and 1.3% Nagelkerke R Square) of the variance in patient experience and correctly classified 66.6% of cases.

Community Factors

(IV1) Household Income: Direct binary logistic regression was performed to assess the impact of household income on patient experience. The results of the household income were statistically significant, $\chi^2(3, N=2835)=62.262$, p<.001, indicating the model was able to distinguish between the influence of household income on patient experience below and patient experience same or above national average. The Hosmer-Lemeshow Goodness of Fit Test is not significant at .00, which is smaller than .05, therefore indicates no support for the model. The

model as a whole explained 2.2% (Cox ad Snell R square) and 3.0% Nagelkerke R Square) of the variance in hospital ratings and correctly classified 66.6% of cases. Household income made a unique, statistically significant contribution to the model reporting .001. The odds ratio of .000, below 1, indicate that household income reduces the odds of reporting patient experience the same or above the national average.

(IV2) Number of Residents: Direct binary logistic regression was performed to assess the impact of number of residents on patient experience. The Hosmer-Lemeshow Goodness of Fit Test is not significant at .00, which is smaller than .05, therefore indicates no support for the model. The results of the full model were statistically significant, $\chi^2(1, N=2835)=234.014$, $p<.001$, indicating the model was able to distinguish between the influence of number of residents on patient experience below and patient experience same or above. The model as a whole explained 7.9% (Cox ad Snell R square) and 11.0% Nagelkerke R Square) of the variance in patient experience and correctly classified 66.6% of cases. Number of residents made a unique, statistically significant contribution to the model reporting .001. The odds ratio of -2.136 indicates that a higher number of residents were -2.1 times less likely to report patient experience the same or above the national average.

(IV3) Ethnicity Percentage White: Direct binary logistic regression was performed to assess the impact of ethnicity percentage white on patient experience. The Hosmer-Lemeshow Goodness of Fit Test is not significant at .001, which is smaller than .05, therefore indicates no support for the model. The results of the full model were statistically significant, $\chi^2(1, N=2,835)=254.430$, $p<.001$, indicating the model was able to distinguish between the influence of ethnicity percentage white on patient experience below and patient experience same or above.

The model as a whole explained 8.6% (Cox ad Snell R square) and 11.9% Nagelkerke R Square) of the variance in patient experience and correctly classified 66.6% of cases. Ethnicity percentage white made a unique, statistically significant contribution to the model reporting .001. The odds ratio of 4.152 indicates that higher ethnicity percentage white was 4.2 times more likely to report patient experience the same or above the national average.

(IV4) Unemployment Rate: Direct binary logistic regression was performed to assess the impact of unemployment rate on patient experience. The Hosmer-Lemeshow Goodness of Fit Test is not significant at .001, which is smaller than .05, therefore indicates no support for the model. The results of the unemployment rate were statistically significant, $\chi^2(1,N=2835)=111.102$, $p<.001$, indicating the model was able to distinguish between the influence of unemployment rate on patient experience below and patient experience same or above. The model as a whole explained 3.8% (Cox ad Snell R square) and 5.3% Nagelkerke R Square) of the variance in patient experience and correctly classified 66.6% of cases. Unemployment rate made a unique, statistically significant contribution to the model reporting .001. The odds ratio of -52.773 indicates that higher unemployment rate was 52.8 times less likely to report patient experience the same or above the national average.

(IV5) Political Affiliation: Direct binary logistic regression was performed to assess the impact of political affiliation on patient experience. The Hosmer-Lemeshow Goodness of Fit Test is not significant at .001, which is smaller than .05, therefore indicates no support for the model. The results of the full model were statistically significant, $\chi^2(1, N=2,835)=72.259$, $p<.001$, indicating the model was able to distinguish between the influence of political affiliation on patient experience below and patient experience same or above. The model as a whole explained 2.5%

(Cox ad Snell R square) and 3.5% Nagelkerke R Square) of the variance in patient experience and correctly classified 66.6% of cases. Political affiliation made a unique, statistically significant contribution to the model reporting .001. The odds ratio of .587 indicates that higher political affiliation - Republican were .5 times more likely to report patient experience the same or above the national average.

Organizational Factors

(IV6) Hospital Ownership: Direct binary logistic regression was performed to assess the impact of hospital ownership on patient experience. The Hosmer-Lemeshow Goodness of Fit Test is not significant at .038, which is smaller than .05, therefore indicates no support for the model. The results of the full model were statistically significant, $\chi^2(1, N=2835)=28.50$, $p<.001$, indicating the model was able to distinguish between the influence of hospital ownership on patient experience below and patient experience same or above. The model as a whole explained 1% (Cox ad Snell R square) and 1.4% Nagelkerke R Square) of the variance in patient experience and correctly classified 70.0% of cases. Hospital ownership did not make a unique, statistically significant contribution to the model reporting .134.

(IV7) Organizational type: Direct binary logistic regression was performed to assess the impact of organizational type on patient experience. The Hosmer-Lemeshow Goodness of Fit Test is not significant at .001, which is smaller than .05, therefore indicates no support for the model. The results of the full model were statistically significant, $\chi^2(1,N=2835)=222.360$, $p<.001$, indicating the model was able to distinguish between the influence of organizational type on patient experience below and patient experience same or above. The model explained 7.5% (Cox ad Snell R square) and 10.5% Nagelkerke R Square) of the variance in patient experience and

correctly classified 70.0% of cases. Organizational type made a unique, statistically significant contribution to the model reporting .001. The odds ratio of 1.394 indicates that higher organizational type was 1. 4 times more likely to report patient experience the same or above the national average.

(IV8) Taxonomy - Centralization: Direct binary logistic regression was performed to assess the impact of taxonomy - centralization on patient experience. The Hosmer-Lemeshow Goodness of Fit Test is significant at .052, which is larger than .05, therefore indicates support for the model. The results of the full model were statistically significant, $\chi^2(1, N=1839)=51.771$, $p<.001$, indicating the model was able to distinguish between the influence of taxonomy - centralization on patient experience below and patient experience same or above. The model as a whole explained 2.8% (Cox ad Snell R square) and 3.8% Nagelkerke R Square) of the variance in patient experience and correctly classified 63.8% of cases. Taxonomy – centralization made a unique, statistically significant contribution to the model reporting .001. The odds ratio of .565 indicates that higher taxonomy – centralization centralized) was .57 times more likely to report patient experience the same or above the national average.

(IV9) Case Mix Index: Direct binary logistic regression was performed to assess the impact of case mix index on patient experience. The Hosmer-Lemeshow Goodness of Fit Test is not significant at .001, which is smaller than .05, therefore indicates no support for the model. The results of the full model were statistically significant, $\chi^2(1, N=2504)=30.477$, $p<.001$, indicating the model was able to distinguish between the influence of case mix index on patient experience below and patient experience same or above. The model explained 1.2% (Cox ad Snell R square) and 1.7% Nagelkerke R Square) of the variance in patient experience and correctly classified

62.4% of cases. Case mix index made a unique, statistically significant contribution to the model reporting .048. The odds ratio of -.299 indicates that higher case mix index was .30 times more likely to report patient experience the same or above the national average.

(DV3) Operating Margin

Control Factors

(CF1) Total Assets: Preliminary analyses were conducted to ensure no violation of the assumptions of normality, linearity, multicollinearity, and homoscedasticity; note: while Casewise Diagnostics (residual values above 3.0 or below -3) were identified, Cook's Distance maximum value at .095 was not larger than one which suggests no undue influence on the results. The results $R^2 = .002$ indicate that .2% of the variance in operating margin is explained by case mix index, $F(1, 2995)=6.889$, $p<0.001$. The results were statistically significant, $\beta=.048$. The results confirm that case mix index has a significant and positive effect on operating margin.

(CF2) Total Admissions: The results were not significant, $p<.157$. Therefore, total admissions have no significant effect on operating margin.

Community Factors

(IV1) Household Income: Standard linear regression was used to assess the ability of household income to predict operating margin. The results were not significant, (p=.353). Therefore, household income has no significant effect on operating margin.

(IV2) Number of Residents: Standard linear regression was used to assess the ability of number of residents to predict operating margin. The results were not significant, (p=.598). Therefore, number of residents has no significant effect on operating margin.

(IV3) Ethnicity Percentage White: Standard linear regression was used to assess the ability of ethnicity percentage white to predict operating margin. The results were not significant, (*p*=.085). Therefore, ethnicity percentage white has no significant effect on operating margin.

(IV4) Unemployment Rate: Preliminary analyses were conducted to ensure no violation of the assumptions of normality, linearity, multicollinearity, and homoscedasticity; note: while Casewise Diagnostics (residual values above 3.0 or below -3) were identified, Cook's Distance maximum value at .017 was not larger than 1 which suggests no undue influence on the results. The results R^2 = .003 indicate that .3% of the variance in operating margin is explained by unemployment rate, F(1, 3010)=4.763, p<0.023. The results were statistically significant, β=-.042. The results confirm that unemployment rate has a significant and positive effect on operating margin.

(IV5) Political Affiliation: Preliminary analyses were conducted to ensure no violation of the assumptions of normality, linearity, multicollinearity, and homoscedasticity; note: while Casewise Diagnostics (residual values above 3.0 or below -3) were identified, Cook's Distance maximum value at .008 was not larger than 1 which suggests no undue influence on the results. The results R^2 = .009 indicate that .9% of the variance in operating margin is explained by political affiliation, F(1, 3010)=17.871, p<0.001. The results were statistically significant, β=.079. The results confirm that political affiliation has a significant and positive effect on operating margin.

Organizational Factors

(IV6) Hospital Ownership: Preliminary analyses were conducted to ensure no violation of the assumptions of normality, linearity, multicollinearity, and homoscedasticity; note: while

Casewise Diagnostics (residual values above 3.0 or below -3) were identified, Cook's Distance maximum value at .018 was not larger than 1 which suggests no undue influence on the results. The results R^2 = .043 indicate that 4.3% of the variance in operating margin is explained by hospital ownership, $F(1, 3010)=44.624$, $p<0.001$. The results were statistically significant, β=-.200. The results confirm that hospital ownership has a significant and negative effect on operating margin.

(IV7) Organizational Type: Preliminary analyses were conducted to ensure no violation of the assumptions of normality, linearity, multicollinearity, and homoscedasticity; note: while Casewise Diagnostics (residual values above 3.0 or below -3) were identified, Cook's Distance maximum value at .022 was not larger than 1 which suggests no undue influence on the results. The results R^2 = .046 indicate that 4.6% of the variance in operating margin is explained by organizational type, $F(1, 3010)=47.652$, $p<0.001$. The results were statistically significant, β=-.208. The results confirm that organizational type has a significant and negative effect on operating margin.

(IV9) Taxonomy - Centralization: Preliminary analyses were conducted to ensure no violation of the assumptions of normality, linearity, multicollinearity, and homoscedasticity; note: while Casewise Diagnostics (residual values above 3.0 or below -3) were identified, Cook's Distance maximum value at .012 was not larger than 1 which suggests no undue influence on the results. The results R^2 = .008 indicate that .8% of the variance in operating margin is explained by taxonomy - centralization, $F(1, 1921)=5.422$, $p<0.001$. The results were statistically significant, β=-.075. The results confirm that taxonomy - centralization has a significant and negative effect on operating margin.

(IV8) Case Mix Index: Preliminary analyses were conducted to ensure no violation of the assumptions of normality, linearity, multicollinearity, and homoscedasticity; note: while Casewise Diagnostics (residual values above 3.0 or below -3) were identified, Cook's Distance maximum value at .038 was not larger than 1 which suggests no undue influence on the results. The results $R^2 = .042$ indicate that 4.2% of the variance in operating margin is explained by case mix index, $F(1, 2587)=37.444$, $p<0.001$. The results were statistically significant, $\beta=.215$. The results confirm that case mix index has a significant and positive effect on operating margin.

VIII.3 Summary of Correlations and Bivariate Regressions

The chart below shows a comparison of the bivariate results, correlations and regressions. Each independent variable shows a relationship to at least one of the dependent variables. Table 8 shows that most of the bivariate relationships (correlation and regressions) remained consistent. The deviations are highlighted in yellow in Table 8. Five variables show a correlation to their respective dependent variable but fail to show a statistical significance in the regression analysis. One variable shows no correlation relationship but shows a statistically significant regression relationship.

Table 8: Bivariate Results (Correlation and Regressions)

BIVARIATE RESULTS *(Correlation and Regressions)* Statistical Significance? (Yes or No)			Care Performance				Financial Performance	
			(DV1) Hospital Ratings		(DV2) Patient Experience		DV3) Operating Margin	
			CORRELATION	REGRESSION	CORRELATION	REGRESSION	CORRELATION	REGRESSION
			IV/DV Relationship	Statistically Significant	IV/DV Relationship	Statistically Significant	IV/DV Relationship	Statistically Significant
Control Factors	CF1	Total Assets	Yes	No	Yes	No	Yes	Yes
	CF2	Total Admissions	Yes	No	Yes	Yes	No	No
Community Factors	IV1	Household Income	Yes	Yes	Yes	Yes	No	No
	IV2	Number of Residents	Yes	No	Yes	Yes	Yes	No
	IV3	Ethnicity % White	No	No	Yes	Yes	No	No
	IV4	Unemployment Rate	No	No	Yes	Yes	Yes	Yes
	IV5	Political Affiliation	No	No	Yes	Yes	Yes	Yes
Organizational Factors	IV6	Hospital Ownership	Yes	No	No	Yes	Yes	Yes
	IV7	Organizational Type	No	No	Yes	Yes	Yes	Yes
	IV8	Taxonomy-Centralization	Yes	No	Yes	Yes	Yes	Yes
	IV9	Case Mix Index	Yes	No	No	Yes	Yes	Yes

IX MULTIVARIATE ANALYSIS

Using the unified model research design, I was equipped with the results from the univariate and bivariate models. I gained better insights into the data and expectations of relationships. This study is exploratory research and the importance of investigating all relationships is critical. In SPSS, I ran multivariate and hierarchical regressions to determine the simultaneous and hierarchical effect and predictability of community factors and organizational factors on financial performance. The following multivariate analysis was performed:

(DV1) Hospital Ratings

- Multivariate analysis: Community Factors (IV1, IV2, IV3, IV4, IV5) with DV1
- Multivariate analysis: Organizational factors (IV6, IV7, IV8, IV9) and DV1
- Multivariate hierarchical analysis: All IVs and DV1

(DV2) Patient Experience

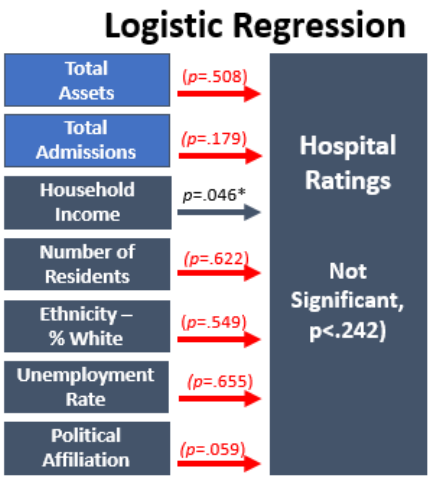
- Multivariate analysis: Community Factors (IV1, IV2, IV3, IV4, IV5) with DV2
- Multivariate analysis: Organizational factors (IV6, IV7, IV8, IV9) and DV2
- Multivariate hierarchical analysis: All IVs and DV2

(DV3) Operating Margin

- Multivariate analysis: Community Factors (IV1, IV2, IV3, IV4, IV5) with DV3
- Multivariate analysis: Organizational factors (IV6, IV7, IV8, IV9) and DV3
- Multivariate hierarchical analysis: All IVs and DV3

IX.1 Hospital Ratings

IX.1.1 *(DV1) Hospital Ratings (Multivariate analysis: Community Factors)*



Hierarchical Logistic Regression

Hospital Ratings	Model 1	Model 2
Constant		
Total Assets	(p=.521)	(p=.508)
Total Admissions	(p=.126)	(p=.179)
Community Factors		
Household Income		p =.046*
Number of Residents		(p=.622)
Ethnicity-%White		(p=.549)
Unemployment Rate		(p=.655)
Political Affiliation		(p=.059)
Chi-square	2.277	9.144
df	2	7
Sig.	.320	.242

	Model 1	Model 2
Hosmer-Lemeshow Goodness of Fit Test	.126	.175

Hosmer- Lemeshow Goodness of Fit Test (>.05)

Figure 31: (DV1) Hospital Ratings (Community Factors)

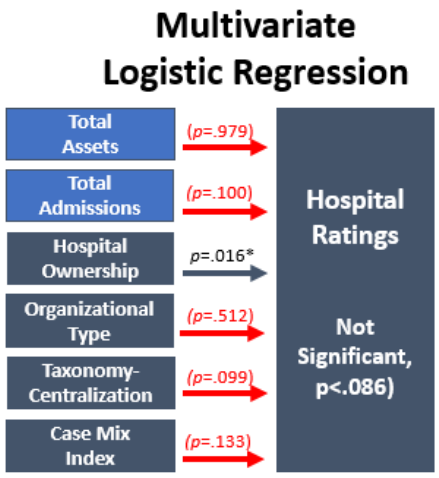
Multivariate logistic regression was performed to assess the impact of community factors on hospital ratings, while controlling for total assets and total admissions.

Model 1: Logistic regression was computed to determine whether the two control variables, total assets and total admissions, have a simultaneous effect on the dependent variable (DV1-hospital ratings). The results were not significant, p<.320. We can conclude that the control variables do not have a simultaneous or statistically significant effect on the dependent variable, hospital ratings.

Model 2: Logistic regression was computed to determine whether community factors, individually and collectively, have a simultaneous effect on the dependent variable (DV1-hospital ratings). The model contained five independent variables: (IV1) household income, (IV2) number of residents, (IV3) ethnicity percentage white, (IV4) unemployment rate, (IV5) political affiliation. The model satisfied Hosmer-Lemeshow Goodness of Fit Test with a value

above .05. The full model containing all predictors was not statistically significant, p<.242, indicating that the model was not able to distinguish between hospital ratings below the national average and hospital ratings the same or above the national average. One independent variable, household income (IV1), made a unique, statistically significant contribution to the model and reflected an odds ratio of zero. The results of the entire model were not significant. Therefore, we can affirm that the community factors have no simultaneous effect on the dependent variable, when controlled for with total assets and total admissions.

IX.1.2 *(DV1) Hospital Ratings (Multivariate analysis: Organizational Factors*



Multivariate Hierarchical Logistic Regression

Hospital Ratings	Model 1	Model 2
Constant		
Total Assets	(p=.521)	(p=.979)
Total Admissions	(p=.126)	(p=.100)
Organizational Factors		
Hospital Ownership		p=.016*
Organizational Type		(p=.512)
Taxonomy-Centralization		(p=.099)
Case Mix Index		(p=.133)
Chi-square	2.277	11.062
df	2	4
Sig.	**.320**	**.086**

Hosmer-Lemeshow Goodness of Fit Test	Model 1	Model 2
	.126	.850

Hosmer- Lemeshow Goodness of Fit Test (>.05)

Figure 32: (DV1) Hospital Ratings (Organizational Factors

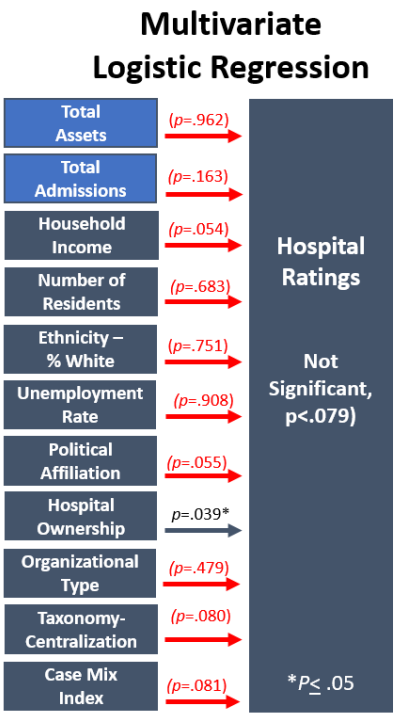
Multivariate logistic regression was performed to assess the impact of community factors on hospital ratings, while controlling for total assets and total admissions.

Model 1: The regression was computed to determine whether the two control variables, total assets and total admissions, have a simultaneous effect on the dependent variable (DV1-hospital ratings). The results were not significant, p<.320. We can conclude that the control variables do

not have a simultaneous or statistically significant effect on the dependent variable, hospital ratings.

Model 2: Logistic regression was computed to determine whether organizational factors have a simultaneous effect on the dependent variable (DV1-hospital ratings). The organizational factors include four independent variables: (IV6) hospital ownership, (IV7) organizational type, (IV8) organizational type, (IV9) case mix index. The model satisfied Hosmer-Lemeshow Goodness of Fit Test with a value above .05. The full model containing all predictors was not statistically significant, $p<.086$, indicating that the model was not able to distinguish between hospital ratings below the national average and hospital ratings the same or above the national average. One independent variable, hospital ownership (IV6), made a unique, statistically significant contribution to the model. The odds ratio of -1.16 indicates that hospital ownership (not government owned) were 1.16 times less likely to rate hospitals the same or above the national average.

IX.1.3 *(DV1) Hospital Ratings: (Multivariate analysis: All variables)*



Multivariate Hierarchical Regression

Hospital Ratings	Model 1	Model 2	Model 3	Model 4
Constant				
Total Assets	(p=.521)	(p=.508)	(p=.979)	(p=.962)
Total Admissions	(p=.126)	(p=.179)	(p=.100)	(p=.163)
Community Factors				
Household Income		p =.046*		(p=.054)
Number of Residents		(p=.622)		(p=.683)
Ethnicity-%White		(p=.549)		(p=.751)
Unemployment Rate		(p=.655)		(p=.908)
Political Affiliation		(p=.059)		(p=.055)
Organizational Factors				
Hospital Ownership			p=.016*	p=039*
Organizational Type			(p=.512)	(p=.479)
Taxonomy-Centralization			(p=.099)	(p=.080)
Case Mix Index			(p=.133)	(p=.081)
Chi-square	2.277	9.144	11.062	18.126
df	2	7	4	11
Sig.	.320	.242	.086	**.079**

Hosmer-Lemeshow Goodness of Fit Test	Model 1	Model 2	Model 3	Model 4
	.126	.175	.850	.030

Hosmer- Lemeshow Goodness of Fit Test (>.05)

Figure 33: (DV1) Hospital Ratings (All Variables)

Figure 33 shows the multivariate model that was analyzed using the dependent variable DV1-hospital ratings. The results of the multivariate regression analysis are as follows:

Model 1: The regression was computed to determine whether the two control variables, total assets and total admissions, have a simultaneous effect on the dependent variable (DV1-hospital ratings). The results were not significant, p<.320. We can conclude that the control variables do not have a simultaneous or statistically significant effect on the dependent variable, hospital ratings.

Model 2: The next step in this hierarchical regression analysis was to add all five of the community factors (IV1, IV2, IV3, IV4, IV5) to determine the simultaneous effect on the dependent variable (DV1), while controlling for total assets and total admissions. The results of the model satisfied Hosmer-Lemeshow Goodness of Fit Test with a value above .05. The results

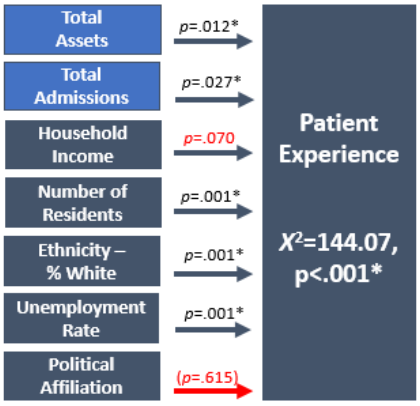
of the full model, containing all five community factors and control factors, was not statistically significant, p<.242, indicating that the model was not able to distinguish between hospital ratings below the national average and hospital ratings the same or above the national average. One independent variable, household income (IV1), made a unique, statistically significant contribution to the model, p=.046*. The results of the full model 2 were not significant.

Model 3: In this model, multivariate logistic regression was performed to assess and determine the impact of all four organizational factors on hospital ratings. Note, this model is not sequential to model 2 and does not include the community factors in model 2. Model 3 satisfied Hosmer-Lemeshow Goodness of Fit Test with a value above .05. The full model containing all four organizational factors and two control factors was not statistically significant, p<.086. One independent variable, hospital ownership (IV6), made a unique, statistically significant contribution to the model.

Model 4: This model includes a combination of all the community factors, organizational factors, and control factors. Multivariate logistic regression was performed to assess the impact and the likelihood that the combination of all the community and organizational factors will have an impact on hospital ratings. The results of the model no longer satisfy Hosmer-Lemeshow Goodness of Fit Test. Model 4 was not statistically significant, p<.079. In model 4, household income (IV1) is no longer statistically significant. Hospital ownership is the only variable that is statistically significant in model 4. Since the results of the entire model were not significant, we can affirm that collectively the community and organizational factors have no simultaneous effect on the dependent variable, (DV1) hospital ratings, when controlled for with total assets and total admissions.

IX.2 Patient Experience

IX.2.1 *(DV2) Patient Experience (Multivariate analysis: Community Factors)*



Multivariate Hierarchical Logistic Regression

Patient Experience	Model 1	Model 2
Constant		
Total Assets	(*p*=.111)	*p*=.012*
Total Admissions	*p*=.001*	*p*=.027*
Community Factors		
Household Income		(*p*=.070)
Number of Residents		*p*=.001*
Ethnicity-%White		*p*=.001*
Unemployment Rate		*p*=.001*
Political Affiliation		(*p*=.615)
Chi-square	19.807	144.073
df	2	7
Sig.	**.001**	**.001**

	Model 1	Model 2
Hosmer- Lemeshow Goodness of Fit Test	.013	.001

Hosmer- Lemeshow Goodness of Fit Test (>.05)

Figure 34: (DV2) Patient Experience (Community Factors)

Multivariate logistic regression was performed to assess the impact of community factors on patient experience, while controlling for total assets and total admissions.

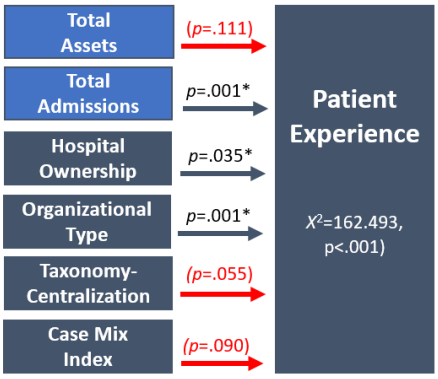
Model 1: Logistic regression was computed to determine whether the two control variables, total assets and total admissions, have a simultaneous effect on the dependent variable (DV2-patient experience). Model 1 results were statistically significant, $\chi^2(2, N=2,835)=19.807$, p<.001 Total admissions contributed to the significance, p=.001, while total assets were not statistically significant. We can conclude that the control variables have a statistically significant effect on the dependent variable, patient experience.

Model 2: Logistic regression was computed to determine whether community factors, individually and collectively, have a simultaneous effect on the dependent variable (DV2-patient experience). The model contained five independent variables: (IV1) household income, (IV2)

number of residents, (IV3) ethnicity percentage white, (IV4) unemployment rate, (IV5) political affiliation. The model did not satisfy the Hosmer-Lemeshow Goodness of Fit Test with a value below .05. The full model containing all predictors was statistically significant, $\chi^2(7,N=2835)=144.073$, $p<.001$, indicating that the model was able to distinguish between patient experience below the national average and patient experience the same or above the national average. The model explained between .8% (Cox and Snell R square) and 4.9% (Nagelkerke R squared) of the variance in patient experience and correctly classified 69.2% of cases. Three of the independent variables made a unique, statistically significant contribution to the model: (IV2) number of residents, (IV3) ethnicity percentage white, and (IV4) unemployment rate. The strongest predictor of the patient experience was (IV4) unemployment rate, recording an odds ratio of -44.497%. This indicates that with the increase in unemployment, respondents were over 45 times less likely to report patient experience the same or above the national average.

IX.2.2 *(DV2) Patient Experience (Multivariate analysis: Organizational Factors)*

Multivariate Logistic Regression



Multivariate Hierarchical Regression

Patient Experience	Model 1	Model 2
Constant		
Total Assets	(p=.111)	(p=.867)
Total Admissions	p=.001*	p=.001*
Organizational Factors		
Hospital Ownership		p=.035*
Organizational Type		P=.001*
Taxonomy-Centralization		(p=.055)
Case Mix Index		(p=.090)
Chi-square	19.807	162.493
df	2	4
Sig.	.001	.001

	Model 1	Model 2
Hosmer-Lemeshow Goodness of Fit Test	.013	.204

Hosmer-Lemeshow Goodness of Fit Test (>.05)

Figure 35: (DV2) Patient Experience (Organizational Factors)

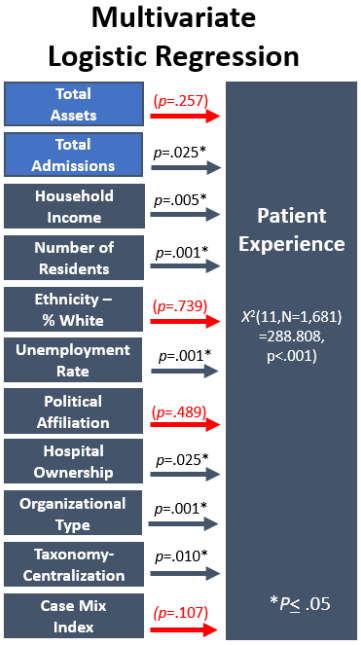
Multivariate logistic regression was performed to assess the impact of organizational factors on patient experience, while controlling for total assets and total admissions.

Model 1: Logistic regression was computed to determine whether the two control variables, total assets and total admissions, have a simultaneous effect on the dependent variable (DV2-patient experience). Model 1 results were statistically significant, $\chi^2(2,N=2835)=19.807$, p<.001 Total admissions contributed to the significance, p=.001 while total assets were not statistically significant. We can conclude that the control variables do not have a simultaneous or statistically significant effect on the dependent variable, hospital ratings.

Model 2: Logistic regression was computed to determine whether organizational factors, individually and collectively, have a simultaneous effect on the dependent variable (DV2-patient experience). The model contained five independent variables: (IV5) hospital ownership, (IV6) organizational type, (IV7) taxonomy - centralization, (IV4) case mix index. The model satisfied

the Hosmer-Lemeshow Goodness of Fit Test with a value above .05. The full model containing all predictors was statistically significant, $\chi^2(7, N=1,681)=162.493$, $p<.001$, indicating that the model was able to distinguish between patient experience below the national average and patient experience the same or above the national average. The model explained between 9.2% (Cox and Snell R square) and 12.5% (Nagelkerke R squared) of the variance in patient experience and correctly classified 67.2% of cases. Two of the independent organizational factors (IV6) hospital ownership, (IV7) organizational type, made a unique, statistically significant contribution to the model. The strongest predictor (IV7) organizational type (not for profit) recorded an odds ratio of 1.279%. This indicates that with the increase in organizational type (not for profit), respondents were over 1.3 times more likely to report patient experience the same or above the national average.

IX.2.3 *(DV2) Patient Experience (Multivariate analysis: All Factors)*



Multivariate Hierarchical Regression

Patient Experience	Model 1	Model 2	Model 3	Model 4
Constant				
Total Assets	(p=.111)	p=.012*	(p=.867)	(p=.257)
Total Admissions	p=.001*	p=.027*	p=.001*	p=.025*
Community Factors				
Household Income		(p=.070)		p=.005*
Number of Residents		p=.001*		p=.001*
Ethnicity-%White		p=.001*		(p=.739)
Unemployment Rate		p=.001*		p=.001*
Political Affiliation		(p=.615)		(p=.489)
Organizational Factors				
Hospital Ownership			p=.035*	p=025*
Organizational Type			P=.001*	p=001*
Taxonomy-Centralization			(p=.055)	p=.010*
Case Mix Index			(p=.090)	(p=.107)
Chi-square	19.807	144.073	162.493	288.808
df	2	7	4	11
Sig.	.001	.001	.001	**.001**

	Model 1	Model 2	Model 3	Model 4
Hosmer-Lemeshow Goodness of Fit Test	.013	.001	.204	.029

Hosmer-Lemeshow Goodness of Fit Test (>.05)

Figure 36: (DV2) Patient Experience (All Variables)

Figure 37 shows the multivariate model that was analyzed using the dependent variable, (DV2) patient experience. The results of the multivariate regression analysis are as follows:

Model 1: Logistic regression was computed to determine whether the two control variables, total assets and total admissions, have a simultaneous effect on the dependent variable (DV2-patient experience). Model 1 results were statistically significant, $\chi^2(2,N=2835)=19.807$, $p<.001$ Total admissions contributed to the significance, p=.001 while total assets were not statistically significant.

Model 2: Logistic regression was computed to determine whether community factors, individually and collectively, have a simultaneous effect on the dependent variable (DV2-patient experience). The model did not satisfy the Hosmer-Lemeshow Goodness of Fit Test with a value below .05. The full model containing all predictors was statistically significant, $\chi^2(7,N=2835)=144.073$, $p<.001$, indicating that the model was able to distinguish between patient experience below the national average and patient experience the same or above the national average. The model explained between .8% (Cox and Snell R square) and 4.9% (Nagelkerke R squared) of the variance in patient experience and correctly classified 69.2% of cases. Three of the independent variables made a unique, statistically significant contribution to the model: (IV2) number of residents, (IV3) ethnicity percentage white, and (IV4) unemployment rate. The strongest predictor of the patient experience was (IV4) unemployment rate, recording an odds ratio of -44.497%. This indicates that with the increase in unemployment, respondents were over 45 times less likely to report patient experience the same or above the national average.

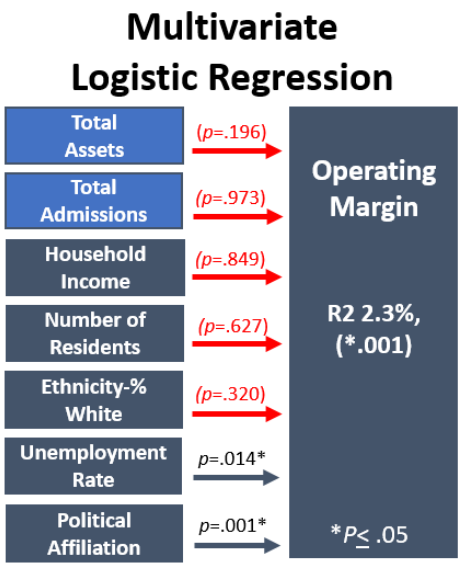
Model 3: Logistic regression was computed to determine whether organizational factors, individually and collectively, have a simultaneous effect on the dependent variable (DV2-patient experience). The model contained five independent variables: (IV5) hospital ownership, (IV6) organizational type, (IV7) taxonomy - centralization, (IV4) case mix index. The model satisfied the Hosmer-Lemeshow Goodness of Fit Test with a value above .05. The full model containing all predictors was statistically significant, $\chi^2(7,N=1681)=162.493$, $p<.001$, indicating that the model was able to distinguish between patient experience below the national average and patient experience the same or above the national average. The model explained between 9.2% (Cox and Snell R square) and 12.5% (Nagelkerke R squared) of the variance in patient experience and correctly classified 67.2% of cases. Two of the independent organizational factors (IV6) hospital ownership, (IV7) organizational type, made a unique, statistically significant contribution to the model. The strongest predictor (IV7) organizational type (not for profit) recorded an odds ratio of 1.279%. This indicates that with the increase in organizational type (not for profit), respondents were over 1.3 times more likely to report patient experience the same or above the national average.

Model 4: This model includes the combination of all the community factors, organizational factors, and control factors and assesses the impact and the likelihood of an impact on patient experience. The results of model 4 does not satisfy Hosmer-Lemeshow Goodness of Fit Test. Model 4 containing all predictors was statistically significant, $\chi^2(11,N=1681)=288.808$, $p<.001$, indicating that the model was able to distinguish between patient experience below the national average and patient experience the same or above the national average. The model explained between 15.8% (Cox and Snell R square) and 21.4% (Nagelkerke R squared) of the variance in

patient experience and correctly classified 69.2% of cases. In model 4, seven of the eleven variables were statistically significant: total admissions, household income, number of residents, unemployment rate, hospital ownership, organizational type, taxonomy – centralization. Interestingly, household income and taxonomy – centralization were not statistically significant, in model 2 and model 3 respectively, but were significant in model 4. Conversely, ethnicity % white was significant in model 2 but is not significant in model 4. The strongest predictor of patient experience (the same or above the national average) was the unemployment rate. The odds ratio for unemployment rate was -54.890. This indicates that responses with higher unemployment rate were 54.9 times less likely to report patient experience the same or above the national average, controlling for other factors in the model.

IX.3 Operating Margin

IX.3.1 *(DV3) Operating Margin (Multivariate analysis: Community Factors)*



Multivariate Hierarchical Regression

Operating Margin	Model 1	Model 2
Constant		
Total Assets	(p=.788	(p=.196)
Total Admissions	(p=.278)	(p=.973)
Community Factors		
Household Income		(p=.849)
Number of Residents		(p=.627)
Ethnicity-%White		(p=.320)
Unemployment Rate		p=.014*
Political Affiliation		p=.001*
Sig.	.537	.001
R2	.001	.023
ΔR^2	.001	.019
F	.621	5.590

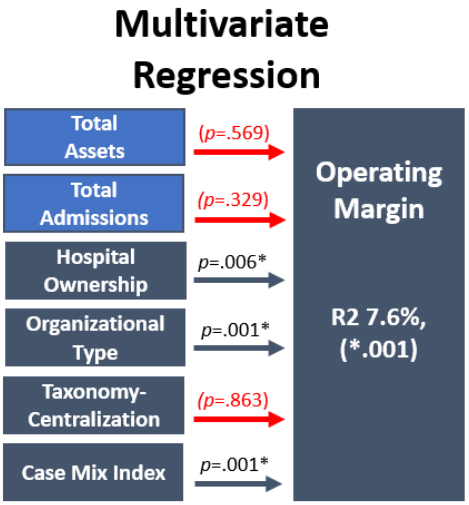
Figure 37: (DV3) Operating Margin (Community Factors

Multivariate linear regression was computed to determine the potential impact of the combined community factors on operating margin after controlling for total assets and total admissions. Preliminary analysis was conducted to ensure no violation of the assumptions of normality, linearity, multicollinearity, and homoscedasticity.

Model 1: The results of the model indicate that the control factors, total assets and total admissions, were not statistically significant.

Model 2: Linear regression was computed to determine whether community factors, individually and collectively, have a simultaneous effect on the dependent variable (DV3-operating margin). The simultaneous effect of the full model results in R^2= .023, indicate that 2.3% % of the variance in operating margin is explained by the combined community factors and control factors. The results of the full model were significant, F (7,1063) = 5.590, p < .001. The results confirm that community factors have a simultaneous effect on the dependent variable (operating margin) when total assets and total admissions are used as control variables. Two of the community factors, (IV4) unemployment rate and (IV5) political affiliation, were statistically significant. Political affiliation (IV5) recorded the highest beta value (beta=.151, p<.001), followed by (IV9) unemployment rate (beta=-.077, p<.014). The results of the entire model were significant. Therefore, we can affirm that the organizational factors have a simultaneous effect on the dependent variable, when controlled for with total assets and total admissions.

IX.3.2 *(DV3) Operating Margin (Multivariate analysis: Organizational Factors)*



Multivariate Hierarchical Regression

Operating Margin	Model 1	Model 2
Constant		
Total Assets	(p=.111	(p=.569)
Total Admissions	p=.001*	(p=.329)
Organizational Factors		
Hospital Ownership		p=.006*
Organizational Type		p=.001*
Taxonomy-Centralization		(p=.863)
Case Mix Index		p=.001*
Sig.	.537	.001
R2	.001	.076
ΔR^2	.001	.072
F	.621	22.969

Figure 38: (DV3) Operating Margin (Organizational Factors)

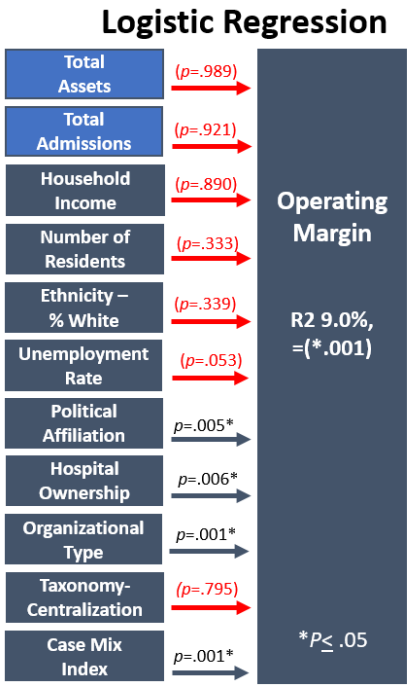
Multivariate linear regression was computed to determine the potential impact of the combined organizational factors on operating margin after controlling for total assets and total admissions. Preliminary analysis was conducted to ensure no violation of the assumptions of normality, linearity, multicollinearity, and homoscedasticity.

Model 1: The results of model 1 indicate no statistical significance of control factors on operating margin, p=.537, despite the significance in total admissions, p=.001.

Model 2: The simultaneous effect of the organizational factors results in R^2= .076., indicating that 7.6% of the variance in operating margin is explained by the combined organizational factors and control variables. The results were significant, F (6,1683) = 22.969, p < .001. The results confirm that the community factors have a simultaneous effect on the dependent variable (operating margin) when total assets and total admission are used as control variables. Three of the organizational factors, (IV6) hospital ownership, (IV7) organizational type, and (IV9) case mix index were statistically significant. (IV7) Organizational type recorded the highest beta

value (beta=-.211, p<.001), followed by (IV9) case mix index (beta=.174, p<.001) and then by (IV6) hospital ownership (beta=-.066, p<.006).

IX.3.3 *(DV3) Operating Margin (Multivariate analysis: All Factors)*



Hierarchical Logistic Regression

Operating Margin	Model 1	Model 2	Model 3	Model 4
Constant				
Total Assets	(p=.788)	(p=.196)	(p=.569)	(p=.989)
Total Admissions	(p=.278)	(p=.973)	(p=.329)	(p=.921)
Community Factors				
Household Income		(p=.849)		(p=.890)
Number of Residents		(p=.627)		(p=.333)
Ethnicity-%White		(p=.320)		(p=.339)
Unemployment Rate		p=.014*		(p=.053)
Political Affiliation		p=.001*		p=.005*
Organizational Factors				
Hospital Ownership			p=.006*	p=.006*
Organizational Type			P=.001*	p=.001*
Taxonomy-Centralization			(p=.863)	(p=.795)
Case Mix Index			p=.001*	p=.001*
Sig.	.537	.001	.001	.001
R2	.001	.023	.076	.090
ΔR^2	.001	.019	.072	.085
F	.621	5.590	22.969	15.177

Figure 39: (DV3) Operating Margin: All Variables

Standard regression and hierarchical multiple regression were used to assess the ability of community factors and organizational factors to predict hospital ratings, after controlling for total assets and total admissions. Preliminary analysis was conducted to ensure no violation of the assumptions of normality, linearity, multicollinearity, and homoscedasticity.

Model 1: Total The results of model 1 indicate no statistical significance of control factors on operating margin, p=.537, despite the significance in total admissions, p=.001.

Model 2: The simultaneous effect of the full model results in R^2= .023, indicate that 2.3% of the variance in operating margin is explained by the combined community factors and control

factors. The results of the full model were significant, F (7,1063) = 5.590, p < .001. The results confirm that community factors have a simultaneous effect on the dependent variable (operating margin) when total assets and total admissions are used as control variables. Two of the community factors, (IV4) unemployment rate and (IV5) political affiliation were statistically significant. Political affiliation (IV5) recorded the highest beta value (beta=.151, p<.001), followed by (IV9) unemployment rate (beta=-.077, p<.014). The results of the entire model were significant.

Model 3: The simultaneous effect of the organizational factors results in R^2= .076, indicate that 7.6% of the variance in operating margin is explained by the combined organizational factors and control variables. The results were significant, F(6,1683) = 22.969, p < .001. The results confirm that the community factors have a simultaneous effect on the dependent variable (operating margin) when total assets and total admission are used as control variables. Three of the organizational factors, (IV6) hospital ownership, (IV7) organizational type, and (IV9) case mix index were statistically significant. (IV7) Organizational type recorded the highest beta value (beta=-.211, p<.001) , followed by (IV9) case mix index (beta=.174, p<.001) and then by (IV6) hospital ownership (beta=-.066, p<.006).

Model 4: This model includes the combination of all the community factors, organizational factors, and control factors. The total variance explained by Model 4 was 9.0%, *F* (11, 1678) = 15.177, p < .001. Four variables made a unique, statistically significance to the overall model, in order of importance based on their beta values, they are organizational type (beta = -.206, p < .001), case mix index (beta = .175, p < .001), political affiliation (beta = .109, p < .005), and hospital ownership (beta = .066, p < .006).

IX.4 Results Summary (Bivariate-Multivariate)

Table 9 reflects the results of the bivariate and multivariate regressions. The associations of the independent variables to the dependent variables are deemed significant (Yes) or not significant (No) at .05 level. In table 9 the yellow highlights reflect the change of significance from the previous model. Not surprising, the results for hospital ratings struggled to show significance in the models due to the disproportionate small sample size. Patient experience had the most significance results within the four models. The variable provides for the opportunity explore more rigorous research. Operating margin was strongly influenced by the organizational factors. The operating margin's relationship and significance remained more consistent in the models.

Table 9: Bivariate and Multivariate Regressions Summary

BIVARIATE & MULTIVARIATE RESULTS Statistical Significance)? (Yes or No)			Care Performance								Financial Performance			
			(DV1) Hospital Ratings				(DV2) Patient Experience				DV3) Operating Margin			
			Correlation	Regression	Community/ Organizational	All Variables	Correlation	Bivariate	Community/ Organizational	All Variables	Correlation	Bivariate	Community/ Organizational	All Variables
Control Factors	CF1	Total Assets	Yes	No	No	No	Yes	No	Yes	No	Yes	Yes	No	No
	CF2	Total Admissions	Yes	No	No	No	Yes	Yes	Yes	Yes	No	No	No	No
Community Factors	IV1	Household Income	Yes	Yes	Yes	No	Yes	Yes	No	Yes	No	No	No	No
	IV2	Number of Residents	Yes	No	No	No	Yes	Yes	Yes	Yes	No	No	No	No
	IV3	Ethnicity % White	No	No	No	No	Yes	Yes	Yes	No	No	No	No	No
	IV4	Unemployment Rate	No	No	No	No	Yes	Yes	Yes	Yes	Yes	Yes	Yes	No
	IV5	Political Affiliation	No	No	No	No	Yes	Yes	No	No	Yes	Yes	Yes	Yes
Organizational Factors	IV6	Hospital Ownership	Yes	No	Yes	Yes	No	Yes	Yes	Yes	Yes	Yes	Yes	Yes
	IV7	Organizational Type	No	No	No	No	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
	IV8	Taxonomy - Centralization	Yes	No	No	No	Yes	Yes	No	Yes	Yes	Yes	No	No
	IV9	Case Mix Index	Yes	No	No	No	No	Yes	No	No	Yes	Yes	Yes	Yes

Correlation *(one IV and one DV, both CF1 & CF2)*
Bivariate *(one IV and one DV, both CF1 & CF2)*
Community *(IV1, IV2, IV3, IV4, IV5 and one DV, both CF1 & CF2)*
Organizational (*IV6, IV7, IV8, IV9) and one DV, both CF1 & CF2)*
All Variables *(IV1, IV2, IV3, IV4, IV5, IV6, IV7, IV8 IV9 and one DV, both CF1 & CF2)*

X DISCUSSION

Hospitals play a critical role in society for both the economic and personal influence it has on individuals and communities. I was aware of the ongoing challenges with the lack of hospital performance and ever-increasing costs. The U.S. healthcare and ongoing healthcare debates continue to fuel interest in the industry. I believed my research would be relevant. The exploratory nature of this research was essential in identifying commonalities, confirming assumptions, finding support of literature, and widening the scope of work to identify significance between variables that will contribute to research. The healthcare and hospital industry are well-vetted, and there is an abundance of secondary data with large data banks to access information. For the exploratory nature of my research, this is positive. However, the challenge is in assessing and assembling a wide but concise set of variables that can be useful in the study. I relied on Tukey's EDA (exploratory data analysis) and my unified model research design to keep with a strong framework and disciplined method to tackle this research. Broadly, Tukey's EDA objectives are to (1) suggest hypotheses about the causes, (2) assess assumptions and statistical inference, (3) determine analytical tools and techniques, and (4) provide a basis for further analyses. My unified model approach allowed for a tactical way of approaching and navigating the study. I began with understanding the scope and availability of the secondary data. After a deep review of the potential variables and existing literature, I selected variables and measures that would be used for my study. I performed descriptive statistics on each of the variables to understand the data distribution for the variables. I progressed with bivariate and multivariate analysis. Upon completing this analysis, I began to develop my model and incorporate theory into the study. My study would review the effect of community factors and

organizational factors on financial and care performance. The details for each factor are listed below.

X.1 Performance Factors

(DV1) Hospital Ratings

Hospital ratings is a crucial component to the overall structure of my research model. While most hospitals support the concept of hospital star ratings, they struggle with the current methodology. For my research, I computed an unweighted average of the seven measures that comprise the hospital ratings, bypassing the weighting and clustering that has caused much of the challenges of the current hospital star rating process. However, the results of the survey were likely not intended to be equally weighted. Further, the frequency distribution is 98% same or above the national average. The sample size for hospital ratings below the national average is very small, which affects the reliability of the results. In the absence of alternative or competing options for hospital ratings, I included hospital ratings in this study. The CMS has approved changes to controversial ratings, which presents opportunities for future research.

(DV2) Patient Experience

As mentioned in the Hospital Star ratings, the ratings and methodology continue to be questioned. In order to capture patient experience, I selected the single group measure, patient experience, identified in hospital ratings. The frequency distribution for patient experience is more evenly distributed across the categories for below, same, and above the national average. The use of a single group measure is unique and adds value to this study.

(DV3) Operating Margin

The operating margin is a great source for indicating a company's profitability. The operating margin often serves as the primary benchmark for comparing companies. Generally, the higher the operating margin, the better it is for the company. In the event of a low operating margin, other factors such as cash flow can aid in a company's financial position. The operating margin serves as a nice counterbalance to the performance dependent variables. Literature supports the use of operating margin as a financial benchmark to compare hospitals.

X.2 Community Factors

Hospitals are considered anchors institutions for their communities. Hospitals provide a wide range of "community benefits", which are defined as the hospital's unreimbursed goods and services. With this backdrop, I included five community factors in the study. Selecting the factors to be used in the study was difficult. I looked at the availability of secondary data available and narrowed the options. From there, I looked at existing literature to identify my opportunity to distinguish my study and add value to research. The combination of factors and the exploratory nature used in this study is my contribution to research.

(IV1) Household Income

Household income was an important variable to include in my analysis. The inclusion of household income was intended to analyze the relationship and better understand its impact on hospital performance. Studies show that "Americans at all income levels are less healthy than Americans with higher incomes than their own" (Braveman, 2010). This is magnified in minority groups. "Higher-income blacks and Hispanics have better health than members of their groups with less income and the income gradient strongly ties to health more than their race or

ethnicity" (Dubay, 2012). This propelled the interest in including the variable in the study. Literature confirms the importance and relationship of household income on care and financial performance. The results of the univariate analysis and descriptive statistics provided me with a better understanding of household income. The chart below shows the results of the relationships between the four models:

Bivariate and Multivariate Statistical Significance		Care Performance								Financial Performance			
		(DV1) Hospital Ratings				(DV2) Patient Experience				DV3) Operating Margin			
		Correlation	Bivariate	Community	All Variables	Correlation	Bivariate	Community	All Variables	Correlation	Bivariate	Community	All Variables
IV1	Household Income	Yes	Yes	Yes	No	Yes	Yes	No	Yes	No	No	No	No

Model Results: (IV1) Household Income - (DV1) Hospital Ratings:

Household Income had statistical significance in correlation, bivariate, and community models. Interestingly, the community model using multivariate logistic regression analysis was not statistically significant. Household income was the only variable to make a unique, statistically significant contribution to the model, p=.046*. These findings make a significant contribution to research and complement previous literature that highlights the association of income inequality and access to adequate healthcare. The unique contribution of these results centers on the significance of income, in relation to the other community factors, to hospital ratings.

Model Results: (IV1) Household Income- (DV2) Patient Experience:

Household income had statistical significance in correlation, bivariate, and multivariate models. Household income was not significant in the community model but showed statistical significance in the broader multivariate model once the four organizational factors were included. The lack of influence in the community factors but significance in the other models

warrants additional research. A deeper dive into the model structure and competing community factors could prove useful for understanding the influence of this variable on patient experience.

Model Results: (IV1) Household Income - (DV3) Operating Margin:

Household Income had no statistical significance to operating margin for any of the models. Most of the relevant literature on income and hospital financial performance was targeted to specific segments such as underperforming hospitals, low-income, and rural areas. Due to the specificity of previous research, my results do not confirm or challenge previous literature.

(IV2) Number of Residents

Instinctive to variables that should be included in community factors is the number of residents. Previous literature states that the number of residents has direct and indirect effects on hospital rates and services (Harris, 1975). In the process of my univariate analysis, I quickly realized that the number of residents among the 50 states were not normally distributed. The choice to remove the extreme values would have hindered the integrity of my study as both California and Texas were extreme values. As an alternative, I converted the number of residents to percentile rank of residents to ensure that these large states were represented in my research.

Bivariate and Multivariate Statistical Significance		Care Performance								Financial Performance			
		(DV1) Hospital Ratings				(DV2) Patient Experience				DV3) Operating Margin			
		Correlation	Bivariate	Community	All Variables	Correlation	Bivariate	Community	All Variables	Correlation	Bivariate	Community	All Variables
IV2	Number of Residents	Yes	No	No	No	Yes	Yes	Yes	Yes	Yes	No	No	No

Model Results: (IV2) Number of Residents - (DV1) Hospital Ratings:

Number of residents had statistical significance in correlation and community models. Interestingly, the community model using multivariate logistic regression analysis was not

statistically significant. Household income was the only variable to make a unique, statistically significant contribution to the model, p=.046*. As a result, the unique contribution of these results centers on the significance of income, in relation to other community factors, to hospital ratings.

Model Results: (IV2) Number of Residents - (DV2) Patient Experience:

Household Income had statistical significance in all four models. The results reflected an inverse relationship between number of residents and patient experience. Not surprising, as the number of residents increased, respondents were less likely to show hospital ratings the same or above average. The results of my study support existing literature that confirms the relationship of residents to patient experience. The confirmation of these results also provides a strong case for the assumption of this relationship to be present in future studies.

Model Results: (IV2) Number of Residents – (DV3) Operating Margin:

There was a small correlation between number of residents and operating margin. Despite statistical significance in the whole models, no significant relationship was found for number of residents within them. My results do not support existing literature that suggests the relationship of residents to financial performance.

(IV3) Ethnicity Percentage White

The greatest growth in population expected over the next 50 years will be seen in the multiracial populations (Frey, 2018). This impact will change our communities, economy, and society. Minorities are expected to be the source of all growth in the working-age population, growth in voters, much of the growth in consumers, and growth in the U.S. tax base. Just as with the political polarization, the U.S. continues to struggle with racial issues that are deep-rooted in many areas of the country. It is suggested that the impact of these racial tensions has resulted in inequality in healthcare and health services. For these reasons, ethnicity was included in community factors in this research. There is an abundance of research on ethnicity and healthcare performance. For my study, the unique contribution would be the significance of ethnicity percentage white in relation to other community factors. Each state recorded ethnicity differently. Due to inconsistencies with available data, ethnicity was computed based on the percentage of white versus non-white.

Bivariate and Multivariate Statistical Significance		Care Performance								Financial Performance			
		(DV1) Hospital Ratings				(DV2) Patient Experience				DV3) Operating Margin			
		Correlation	Bivariate	Community	All Variables	Correlation	Bivariate	Community	All Variables	Correlation	Bivariate	Community	All Variables
IV3	Ethnicity % White	No	No	No	No	Yes	Yes	Yes	No	No	No	No	No

Model Results: (IV3) Ethnicity Percentage White - (DV1) Hospital Ratings:

There was no significant relationship found for ethnicity percentage white and hospital ratings. My results do not support existing literature.

Model Results: (IV3) Ethnicity Percentage White - (DV2) Patient Experience:

There was a statistically significant relationship between ethnicity percentage white and patient experience. The strength of ethnicity percentage white and patient experience had a medium

correlation. The results support literature that validates the influence of ethnicity on patient experience. The results from the community factors model show that the higher ethnicity percentage white would produce 4.2 times more likely that patient experience would be the same or above average. The results create opportunities to review not only the significance of the positive influence of ethnicity percentage white on patient experience but to delve deeper into the reasons associated with the results, contributing factors in the variables, or motivation prompting these results.

Model Results: (IV3) Ethnicity Percentage White - (DV3) Operating Margin:

Ethnicity percentage white had no statistical significance to operating margin in any of the models. There was very little literature addressing this specific relationship. There is an opportunity to investigate and broaden the scope of research for this relationship.

(IV4) Unemployment Rate

The unemployment rate impacts economic changes that have a direct impact on individuals, communities, and businesses. For individuals and the community, women and people who are already economically disadvantaged were especially sensitive to economic fluctuations" (Kageleiry, 2013). Since loss of jobs leads to a reduction in health coverage, "every percentage increase in the unemployment rate leads to an increase of 0.5% in the non-elderly population without health insurance" (Kaiser, 2017). This increase, in turn, impacts hospitals. "The unemployment rate affects the hospitals and will impact future growth and expansion strategies"

(Patrick, 2014). Changes in the unemployment rate impact individuals, the communities, and hospitals. Therefore, unemployment rate was included in community factors.

Bivariate and Multivariate Statistical Significance		Care Performance								Financial Performance			
		(DV1) Hospital Ratings				(DV2) Patient Experience				DV3) Operating Margin			
		Correlation	Bivariate	Community	All Variables	Correlation	Bivariate	Community	All Variables	Correlation	Bivariate	Community	All Variables
IV4	Unemployment Rate	No	No	No	No	Yes	Yes	Yes	Yes	Yes	Yes	Yes	No

Model Results: (IV4) Unemployment Rate - (DV1) Hospital Ratings:

The results for the impact of unemployment rate on hospital ratings, controlling for total assets and total admissions were inconclusive. The model failed to show significance. However, the unemployment rate showed an individual unique significance. Additional analysis is needed for clarification of these results.

Model Results: (IV4) Unemployment Rate - (DV2) Patient Experience:

Unemployment rate made a unique, statistically significant contribution. The bivariate regression results computed an odds ratio of -52.733, which indicates that a higher unemployment rate would make respondents 52 times less likely to report patient experience the same or higher than the national average. While the results support existing literature, the magnitude of the impact is a distinct difference. There is an opportunity for additional research to determine the influence and broader impact on all hospitals.

Model Results: (IV4) Unemployment Rate - (DV3) Operating Margin:

The results confirm that unemployment rate has a significant and positive effect on the operating margin. That is to say that when unemployment rates rise, operating margin rises. The explanation states that a decrease in unemployment leads to fewer Medicaid and uninsured

admissions, and instead, more admissions with profitable commercial health insurance (Patrick, 2013). These results contribute to research and provide additional opportunities to explore this causation further.

(IV5) Political Affiliation

Our political environment is unlike anything in recent history. The magnitude of political differences in our society dwarfs the lines of gender, race, ethnicity, religion, or education (Pew, 2017). The political divide stems from key policy initiatives, one of which is healthcare. The polarization goes beyond politics and is reflected in the personal lives and activities of both Republican and Democrat (Doherty, 2014). Given the political influence of potential changes to the healthcare industry, I included political affiliation in the community factors. Republican or Democrat designations for the hospital was based on the political affiliation of the state's government (governor, senate majority, house majority). I included political affiliation within community factors.

Bivariate and Multivariate Statistical Significance		Care Performance								Financial Performance			
		(DV1) Hospital Ratings				(DV2) Patient Experience				DV3) Operating Margin			
		Correlation	Bivariate	Community	All Variables	Correlation	Bivariate	Community	All Variables	Correlation	Bivariate	Community	All Variables
IV5	Political Affiliation	No	No	No	No	Yes	Yes	No	No	Yes	Yes	Yes	Yes

Model Results: (IV5) Political Affiliation - (DV1) Hospital Ratings:

The results of the logistic regression to assess the impact of political affiliation on hospital ratings were not deemed statistically significant. There was very limited literature on the

relationship of these two variables; therefore, the results do not confirm or conflict with outstanding research.

Model Results: (IV5) Political Affiliation - (DV2) Patient Experience:

The results show a statistically significant relationship between political affiliation and patient experience in the bivariate associations. The influence of political affiliation on patient experience became nonexistent in the multivariate stages. Given the significance of bivariate stages, there is an opportunity to investigate relationships and the potential for future research.

Model Results: (IV5) Political Affiliation- (DV3) Operating Margin:

The results of political affiliation and operating margin were significant in all models. These results would benefit from a broader span of time and political cycles to best determine the influence of political affiliation on operating margin.

X.3 Organizational Factors

Organizational factors were a strong complement to community factors for this study. “The way an organizational structure is set up and administered can have a direct effect on company productivity” (Root, 2018). Four variables were included in organizational factors.

(IV6) Hospital Ownership

The ownership of any organization is critical to its success and survival. Hospitals are no different. For hospital ownership, hospitals were divided into government owned, and not government-owned categories. Government-owned hospitals represented only18% of the hospitals: however, it was important to include hospital ownership in the study as the results will be useful in supporting literature that claims challenges unique to government-owned hospital influences on financial performance. Government-owned hospitals have unique financial commitments. It is estimated that government hospitals commit substantially larger shares of their patient operating expenses to uncompensated care than not-for-profit hospitals and for-profit hospitals.

Bivariate and Multivariate Statistical Significance		Care Performance								Financial Performance			
		(DV1) Hospital Ratings				(DV2) Patient Experience				DV3) Operating Margin			
		Correlation	Bivariate	Organizational Factors	All Variables	Correlation	Bivariate	Organizational Factors	All Variables	Correlation	Bivariate	Organizational Factors	All Variables
IV6	Hospital Ownership	Yes	No	Yes	Yes	No	Yes	Yes	Yes	Yes	Yes	Yes	Yes

Model Results: (IV6) Hospital Ownership - (DV1) Hospital Ratings:

The results for the significance of hospital ownership and hospital ratings were mixed. In the binary models, the correlation was significant, while the bivariate regression did not show significance. The results of the multivariate models varied. Organizational Factors model showed that hospital ownership was the only significant relationship within the four factors. A deeper evaluation is needed to help assess and interpret the results.

Model Results: (IV6) Hospital Ownership - (DV2) Patient Experience:

Hospital ownership is categorized as either government owned or non-government owned. Of the 3059 U.S. hospitals, 2507 (82%) are non-government owned, while 552 (18%) are

government owned. Literature states that government hospitals account for the highest uncompensated care costs in the states. Hospital ownership (government owned) had a statistically significant positive relationship to Patient experience. Of the four factors in the organizational factors model, hospital ownership and organizational type, were the only two variables to show statistical significance. In the all variables model, the model was statistically significant. The significance of my results contributes to the literature and creates opportunities to identify the qualities that enhance patient experience in government owned hospitals.

Model Results: (IV6) Hospital Ownership - (3) Operating Margin:

There was a statistically significant negative relationship between hospital ownership and operating margin. "Government hospitals generally accounted for the most significant percentage of uncompensated care costs in the states" (GAO, 2005). The negative results are reflective of this allocation of funds that distinguishes them from other hospitals. The results support literature that acknowledges the hospitals' challenges and the ability to manage operating expenses.

(IV7) Organizational Type

Organizational type references for profit and not-for-profit hospitals. Many hospitals are shifting to for profit hospitals. For-profit hospitals represent 19% of the hospitals, while not-for-profit hospitals represent 81%. The decision to shift to for-profit hospitals is not void of scrutiny. The biggest concern is that the hospital may compromise health care services to generate profits.

Others believe that patients will benefit from a more efficient, business-oriented approach. On this backdrop, organizational type is included in organization factors.

Bivariate and Multivariate Statistical Significance		Care Performance								Financial Performance			
		(DV1) Hospital Ratings				(DV2) Patient Experience				DV3) Operating Margin			
		Correlation	Bivariate	Organizational Factors	All Variables	Correlation	Bivariate	Organizational Factors	All Variables	Correlation	Bivariate	Organizational Factors	All Variables
IV7	Organizational Type	No	No	No	No	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes

Correlation *(one IV and one DV)*
Bivariate *(one IV and one DV, both CF1 & CF2)*
Community *(IV1, IV2, IV3, IV4, IV5 and one DV, both CF1 & CF2)*
Organizational (*IV6, IV7, IV8, IV9) and one DV, both CF1 & CF2)*
All Variables *(IV1, IV2, IV3, IV4, IV5, IV6, IV7, IV8 IV9 and one DV, both CF1 & CF2)*

Model Results: (IV7) Organizational Type - (DV1) Hospital Ratings:

The results of the correlation and logistic regression to assess the impact of organizational type on hospital ratings were not deemed statistically significant. The relationship was void in the organizational factors and all variables. Despite literature that supports the relationship between these two variables, the results do not confirm the outstanding research.

Model Results: (IV7) Organizational Type - (DV2) Patient Experience:

The results show a statistically significant relationship between organizational type and patient experience in the bivariate associations. The influence of organizational type on patient experience again showed significance in the multivariate stages. The results show a negative association of not-for-profit to hospital ratings the same or above the national average. The shift and growth of for-profit hospitals could be reflective of the positive association to hospital ratings the same or above the national average. Significance in the results affirms the influence or organizational type on patient experience. The significance in the results and transition occurring in hospitals presents the opportunity to investigate these relationships and the potential for future research.

Model Results: (IV7) Organizational Type - (DV3) Operating Margin:

The results of organizational type and operating margin were significant in all models. The analysis shows a negative association between organizational type (not-for-profit) and operating margin. Conversely, recent literature shows rating agencies are encouraged by not-for-profit hospitals strong financial performance and have moved their outlooks from neutral to positive for 2019 (Daly, 2019). Views on the outlook for financial performance may differ in various markets. The results demonstrate an influence between the two variables and present a strong base for additional research which envelopes longer-term analysis on trends.

(IV8) Centralization

Literature states that hospitals are moving toward a more hybrid and centralized structure to cut costs and improve quality. This shift would replace multiple boards with a single board and many sub-boards. This shift in structure has real implications for hospitals and patients. I included this variable in my research to understand the current relationships. I grouped the hospitals into centralized and decentralized with an allocation of approximately 55% Centralized Hospitals and 45% Decentralized Hospitals.

Bivariate and Multivariate Statistical Significance		Care Performance								Financial Performance			
		(DV1) Hospital Ratings				(DV2) Patient Experience				DV3) Operating Margin			
		Correlation	Bivariate	Organizational Factors	All Variables	Correlation	Bivariate	Organizational Factors	All Variables	Correlation	Bivariate	Organizational Factors	All Variables
IV8	Taxonomy - Centralization	Yes	No	No	No	Yes	Yes	No	Yes	Yes	Yes	No	No

Correlation *(one IV and one DV)*
Bivariate *(one IV and one DV, both CF1 & CF2)*
Community *(IV1, IV2, IV3, IV4, IV5 and one DV, both CF1 & CF2)*
Organizational (*IV6, IV7, IV8, IV9) and one DV, both CF1 & CF2)*
All Variables *(IV1, IV2, IV3, IV4, IV5, IV6, IV7, IV8 IV9 and one DV, both CF1 & CF2)*

Model Results: (IV8) Taxonomy - Centralization (DV1) Hospital Ratings:

The influence of taxonomy - centralization on hospital ratings was discovered in the correlation results. The results of the three regressions were not deemed statistically significant. The literature available reflected a general association and broad interpretation of the influence of taxonomy – centralization to hospital ratings. My results, therefore, do not support the general relationship.

Model Results: (IV8) Taxonomy - Centralization - (DV2) Patient Experience:

The results show mixed results for the relationship between taxonomy - centralization and patient experience. Positive results were identified in the bivariate and multivariate analysis but not in the association with organizational factors. Literature supports the positive influence of the taxonomy – centralization and patient experience. The mixed results warrant more analysis and expanded research to understand and determine the influence or lack-thereof from these relationships.

Model Results: (IV8) Taxonomy - Centralization - (DV3) Operating Margin:

The results of taxonomy - centralization and operating margin were significant in the bivariate associations but not in the multivariate models. Despite literature that supports the relationship of these two variables, albeit limited, the results do not confirm the outstanding research.

(IV9) Case Mix Index

The Case Mix Index is critically important to hospitals. The CMI reflects the clinical complexity, diversity, and resourcing needs of patients in hospitals. A higher CMI indicated a more complex and resource-intensive case load. Medicare and Medicaid use CMI values determine funding allocation. A correct CMI assignment for a hospital is crucial.

Bivariate and Multivariate Statistical Significance		Care Performance								Financial Performance			
		(DV1) Hospital Ratings				(DV2) Patient Experience				DV3) Operating Margin			
		Correlation	Bivariate	Organizational Factors	All Variables	Correlation	Bivariate	Organizational Factors	All Variables	Correlation	Bivariate	Organizational Factors	All Variables
IV9	Case Mix Index	Yes	No	No	No	No	Yes	No	No	Yes	Yes	Yes	Yes

Model Results: (IV9) Case Mix Index - (DV1) Hospital Ratings:

The influence of case mix index on hospital ratings was discovered only in the correlation results. The results of the three regressions were not deemed statistically significant. I found very limited literature available to reflect the association. My results do not support the general relationship.

Model Results: (IV9) Case Mix Index - (DV2) Patient Experience:

Like the results of the case mix index and hospital ratings, the influence of case mix index on hospital ratings was discovered only in the correlation results. The results of the three regressions were not deemed statistically significant. My results, therefore, do not support the relationship.

Model Results: (IV9) Case Mix Index - (DV3) Operating Margin:

The results of case mix index and operating margin were significant in all four of the models. Literature supports the relationship of these two variables. My results show a positive relationship with a strong beta, which is consistent with expected results. Given the positive

results and supporting literature, opportunities for further research could provide additional context to the relationship.

X.4 Control Factors

Control factors are important for this study. I reviewed the study to determine the potential control factors that would need to be held constant as to not impact the results of the relationship between the dependent and independent variables. I wanted to include control factors related to size based on physical assets (total assets) and patients (total admissions)

(CF1) Total Assets

The amalgamation of assets helps develop capabilities that lead to customer satisfaction by deriving each resource's strength (Hitt et al., 2016). The fixed asset has a major role in the profit ratio determination and the evaluation of risk involved (Smith, 1980). Given the large and diverse hospitals included in the data set, total assets were included as a control factor. *Total Assets = Total assets are the sum of current, fixed, and other assets.*

Bivariate and Multivariate Statistical Significance		Care Performance								Financial Performance			
		(DV1) Hospital Ratings				(DV2) Patient Experience				DV3) Operating Margin			
		Correlation	Bivariate	Community	All Variables	Correlation	Bivariate	Community	All Variables	Correlation	Bivariate	Community	All Variables
CF1	Total Assets	Yes	No	No	No	Yes	No	Yes	No	Yes	Yes	No	No

Correlation *(one IV and one DV)*
Bivariate *(one IV and one DV, both CF1 & CF2)*
Community *(IV1, IV2, IV3, IV4, IV5 and one DV, both CF1 & CF2)*
Organizational (*IV6, IV7, IV8, IV9) and one DV, both CF1 & CF2)*
All Variables *(IV1, IV2, IV3, IV4, IV5, IV6, IV7, IV8 IV9 and one DV, both CF1 & CF2*

Model Results: (CF1) Total Assets - (DV1) Hospital Ratings:

The influence of total assets on hospital ratings was discovered only in the correlation results. The results of the three regressions were not deemed statistically significant. Further research on the total assets and hospital ratings is necessary to identify possible future support for literature.

Model Results: (CF1) Total Assets - (DV2) Patient Experience:

The results for total assets and hospital ratings were mixed. Significance was found in correlation and organizational results. The results fail to conclusively support literature that suggests total assets influences patient experience. Given the mixed results, I cannot confirm or challenge the existing literature. Additional analysis and research are needed to gain insight into the relationship.

Model Results: (CF1) Total Assets - (DV3) Operating Margin:

As the results of total assets and care performance (hospital ratings and patient experience), the results of the analysis were mixed. Significance in the relationship for total assets and operating margin was present only in the bivariate models. Given the positive results and supporting literature, there are opportunities for further research that could provide additional context to the relationship.

(CF2) Total Admissions

Admissions rates in populations and communities can vary depending on access to primary care, care-seeking behaviors, and the quality of care available (Bindman, A.B., Grumbach, K., Osmond, D., et al.). Hospitalizations are an indicator of health system efficiency and can identify potential cost savings associated with hospitalizations overall and for specific populations. Given the variability and numerous factors related to admissions, total admissions will be included in

this study as a control factor. *Total Admissions = the number of patients, excluding newborns, accepted for inpatient service during the reporting period.*

Bivariate and Multivariate Statistical Significance		Care Performance								Financial Performance			
		(DV1) Hospital Ratings				(DV2) Patient Experience				DV3) Operating Margin			
		Correlation	Bivariate	Community	All Variables	Correlation	Bivariate	Community	All Variables	Correlation	Bivariate	Community	All Variables
CF2	Total Admissions	Yes	No	No	No	Yes	Yes	Yes	Yes	Yes	No	No	No

Correlation *(one IV and one DV)*
Bivariate *(one IV and one DV, both CF1 & CF2)*
Community *(IV1, IV2, IV3, IV4, IV5 and one DV, both CF1 & CF2)*
Organizational (*IV6, IV7, IV8, IV9) and one DV, both CF1 & CF2)****All Variables*** *(IV1, IV2, IV3, IV4, IV5, IV6, IV7, IV8 IV9 and one DV, both CF1 & CF2*

Model Results: (CF2) Total Admissions - (DV1) Hospital Ratings:

The influence of total admissions on hospital ratings was discovered only in the correlation results. The results of the three regressions were not deemed statistically significant. Further research on the total assets and hospital ratings is necessary to identify possible future support for literature.

Model Results: (CF2) Total Admissions - (DV2) Patient Experience:

Unlike the results for total admissions and hospital ratings, significance was found in all four models related to total admissions and patient experience. The results confirm the existing literature that finds the influence of total admissions and patient experience. The positive results create additional opportunities for analysis and research to gain further insight into the relationship.

Model Results: (CF2) Total Admissions - (DV3) Operating Margin:

Significance in the relationship for total admissions and operating margin was present only in the correlation results. Literature provided guidance on the relationship between total admission and operating margin. The literature was mixed and found support for direct and inverted influence

of total admissions and operating margin. Given the varied observations of the literature, my results cannot confirm or deny existing literature. Additional context to the relationship is needed to confidently identify and contribute to literature.

XI Structural Contingency Theory

I chose to incorporate Structural Contingency Theory into my research analysis. This theory holds that the optimal structure is one that fits and meets the organization's objectives (Donaldson, 2016). In addition, the theory asserts that the appropriateness of the structure depends on the ability of an organization to identify and confront contingencies. This complemented my research very well as I looked to determine the influence of community and organizational factors on performance. I used the same methodical approach to conduct my analysis, which included univariate, bivariate, and multivariate results. This provided a deeper understanding of the variables and relationships within the subset of the factors. This research did not affirm the influence of community factors or “contingencies” on performance for specific organizational factors. A comparison of the community factors results in the multivariate analysis, which included the community factors, did not show any variation in the significance. A holistic approach to structural contingency theory was applied to determine the results. A deconstructed approach to the influence of the variables could provide differing results.

XII Contribution to Research

The purpose of this study was to determine the significance and relevance of community and organizational factors on the performance of U.S. hospitals. First, I contributed to research by building a unified model research design that required a systematic, disciplined approach in computing results. More importantly, the model allowed me to review the results and compare the results after each statistical technique. This produced much richer and comprehensive results. Second, my contribution was in the discovery of univariate, bivariate, and multivariate relationships of the community and organizational factors and hospital performance. The results confirm the presence of extraneous factors and their impact on performance. Initial assumptions were either confirmed or dispelled. The results provide a strong foundational base and opportunity for future research. Third, my research incorporated Structural Contingency Theory, and despite significant results, I validated its application. My research identified unique relationships amongst community factors, organizational structures, and performance factors.

XIII LIMITATIONS

While the research is robust, the study had limitations.

Hospital Ratings. Recall that the Hospital Ratings were based on independently calculated unweighted averages from the responses from the CMS survey. CMS' Hospital Quality Star Ratings methodology continues to be challenged. These revisions compromise the confidence in the data and the ability to make year-over-year comparisons. Additionally, while I computed an unweighted average in an effort to bypass the weighting and clustering that has caused much of the challenges of the current hospital star rating, the intent for the results of the survey were likely not intended to be equally weighted. This may have influenced the results. Confidence and stability in the quality of the CMS Hospital Quality Star Results, create opportunities for future research.

Point of Time. This research involved a single point of time analysis. For research to be more robust, the research should be evaluated over a longer period. Changes in unemployment rate and political affiliation are cyclical and warrant research performed during different environments. My research incorporated a one-year lag. The limitations of the Hospital Quality Star Ratings restricted the ability to incorporate a longer lag period.

Broad Conclusions. My research identified statistically significant relationships among independent and dependent variables. I used the unified research model approach to capture all possible relationships.

Data. State-level data was used for individual hospitals. The research results allow for broad assumptions and generalization but limit the ability to identify causality, regional conclusions, or state relevance.

XIV CONCLUSIONS

Based on my research results, I can confidently state that community factors and organizational factors affect hospital performance. My research details the specific relationships. The exploratory nature of my study allowed for comprehensive analysis and results. The benefits of understanding create opportunities for future research and have application to practitioners.

APPENDIX: REGRESSIONS

REGRESSION #	DEPENDENT FACTOR	INDEPENDENT FACTOR	CONTROL FACTORS
Regression 1	(DV1) Hospital Ratings	(IV1) Household Income	(CF1) Total Assets; (CF2) Total Admissions
Regression 2	(DV1) Hospital Ratings	(IV2) Number of Residents	(CF1) Total Assets; (CF2) Total Admissions
Regression 3	(DV1) Hospital Ratings	(IV3) Ethnicity Percentage White	(CF1) Total Assets; (CF2) Total Admissions
Regression 4	(DV1) Hospital Ratings	(IV4) Unemployment Rate	(CF1) Total Assets; (CF2) Total Admissions
Regression 5	(DV1) Hospital Ratings	(IV5) Political Affiliation	(CF1) Total Assets; (CF2) Total Admissions
Regression 6	(DV1) Hospital Ratings	(IV6) Hospital Ownership	(CF1) Total Assets; (CF2) Total Admissions
Regression 7	(DV1) Hospital Ratings	(IV7) Organizational Type	(CF1) Total Assets; (CF2) Total Admissions
Regression 8	(DV1) Hospital Ratings	(IV8) Taxonomy - Centralization	(CF1) Total Assets; (CF2) Total Admissions
Regression 9	(DV1) Hospital Ratings	(IV9) Case Mix Index	(CF1) Total Assets; (CF2) Total Admissions
Regression 10	(DV2) Patient Experience	(IV1) Household Income	(CF1) Total Assets; (CF2) Total Admissions
Regression 11	(DV2) Patient Experience	(IV2) Number of Residents	(CF1) Total Assets; (CF2) Total Admissions
Regression 12	(DV2) Patient Experience	(IV3) Ethnicity Percentage White	(CF1) Total Assets; (CF2) Total Admissions
Regression 13	(DV2) Patient Experience	(IV4) Unemployment Rate	(CF1) Total Assets; (CF2) Total Admissions
Regression 14	(DV2) Patient Experience	(IV5) Political Affiliation	(CF1) Total Assets; (CF2) Total Admissions
Regression 15	(DV2) Patient Experience	(IV6) Hospital Ownership	(CF1) Total Assets; (CF2) Total Admissions
Regression 16	(DV2) Patient Experience	(IV7) Organizational Type	(CF1) Total Assets; (CF2) Total Admissions
Regression 17	(DV2) Patient Experience	(IV8) Taxonomy - Centralization	(CF1) Total Assets; (CF2) Total Admissions
Regression 18	(DV2) Patient Experience	(IV9) Case Mix Index	(CF1) Total Assets; (CF2) Total Admissions
Regression 19	(DV3) Operating Margin	(IV1) Household Income	(CF1) Total Assets; (CF2) Total Admissions
Regression 20	(DV3) Operating Margin	(IV2) Number of Residents	(CF1) Total Assets; (CF2) Total Admissions
Regression 21	(DV3) Operating Margin	(IV3) Ethnicity Percentage White	(CF1) Total Assets; (CF2) Total Admissions
Regression 22	(DV3) Operating Margin	(IV4) Unemployment Rate	(CF1) Total Assets; (CF2) Total Admissions
Regression 23	(DV3) Operating Margin	(IV5) Political Affiliation	(CF1) Total Assets; (CF2) Total Admissions
Regression 24	(DV3) Operating Margin	(IV6) Hospital Ownership	(CF1) Total Assets; (CF2) Total Admissions
Regression 25	(DV3) Operating Margin	(IV7) Organizational Type	(CF1) Total Assets; (CF2) Total Admissions
Regression 26	(DV3) Operating Margin	(IV8) Taxonomy - Centralization	(CF1) Total Assets; (CF2) Total Admissions
Regression 27	(DV3) Operating Margin	(IV9) Case Mix Index	(CF1) Total Assets; (CF2) Total Admissions
Regression 28	(DV1) Hospital Ratings	All Variables	(CF1) Total Assets; (CF2) Total Admissions
Regression 29	(DV1) Hospital Ratings	Organizational Factors	(CF1) Total Assets; (CF2) Total Admissions
Regression 30	(DV2) Patient Experience	All Variables	(CF1) Total Assets; (CF2) Total Admissions
Regression 31	(DV2) Patient Experience	Organizational Factors	(CF1) Total Assets; (CF2) Total Admissions
Regression 32	(DV3) Operating Margin	All Variables	(CF1) Total Assets; (CF2) Total Admissions
Regression 33	(DV3) Operating Margin	Organizational Factors	(CF1) Total Assets; (CF2) Total Admissions

REGRESSION 1: (DV1) HOSPITAL RATINGS - (IV1) HOUSEHOLD INCOME

```
LOGISTIC REGRESSION VARIABLES HosRatAboveBelow
  /METHOD=ENTER TotalAssets Admissions
  /METHOD=ENTER Income
```

Case Processing Summary

Unweighted Cases [a]		N	Percent
Selected Cases	Included in Analysis	3042	99.4
	Missing Cases	17	.6
	Total	3059	100.0
Unselected Cases		0	.0

Total	3059	100.0

Block 1: Method = Enter

Omnibus Tests of Model Coefficients

		Chi-square	Df	Sig.
Step 1	Step	2.896	2	.235
	Block	2.896	2	.235
	Model	2.896	2	.235

		B	S.E.	Wald	df	Sig.	Exp(B)
Step 1[a]	Total Assets	.000	.000	1.369	1	.242	1.000
	Total Admissions	.000	.000	2.131	1	.144	1.000
	Constant	4.227	.177	569.411	1	.000	68.506

Block 2: Method = Enter

Omnibus Tests of Model Coefficients

		Chi-square	Df	Sig.
Step 1	Step	7.585	1	.006
	Block	7.585	1	.006
	Model	10.481	3	.015

		B	S.E.	Wald	df	Sig.	Exp(B)
Step 1[a]	Total Assets	.000	.000	2.638	1	.104	1.000
	Total Admissions	.000	.000	2.786	1	.095	1.000
	Household Income	.000	.000	6.940	1	.008	1.000
	Constant	1.577	.997	2.505	1	.114	4.842

REGRESSION 2: (DV1) HOSPITAL RATINGS - (IV2) NUMBER OF RESIDENTS

```
LOGISTIC REGRESSION VARIABLES HosRatAboveBelow
  /METHOD=ENTER TotalAssets Admissions
  /METHOD=ENTER Residents
```

Logistic Regression

Case Processing Summary

Unweighted Cases[a]		N	Percent
Selected Cases	Included in Analysis	3042	99.4
	Missing Cases	17	.6

Total	3059	100.0
Unselected Cases	0	.0
Total	3059	100.0

Block 1: Method = Enter

Omnibus Tests of Model Coefficients

		Chi-square	df	Sig.
Step 1	Step	2.896	2	.235
	Block	2.896	2	.235
	Model	2.896	2	.235

		B	S.E.	Wald	Df	Sig.	Exp(B)
Step 1[a]	Total Assets	.000	.000	1.369	1	.242	1.000
	Total Admissions	.000	.000	2.131	1	.144	1.000
	Constant	4.227	.177	569.411	1	.000	68.506

Block 2: Method = Enter

Omnibus Tests of Model Coefficients

		Chi-square	df	Sig.
Step 1	Step	.685	1	.408
	Block	.685	1	.408
	Model	3.581	3	.310

		B	S.E.	Wald	df	Sig.	Exp(B)
Step 1[a]	Total Assets	.000	.000	1.678	1	.195	1.000
	Total Admissions	.000	.000	2.326	1	.127	1.000
	Number of Resident	.410	.496	.682	1	.409	1.507
	Constant	4.061	.262	240.265	1	.000	58.011

REGRESSION 3:(DV1) HOSPITAL RATINGS - (IV3) ETHNICITY % WHITE

```
LOGISTIC REGRESSION VARIABLES HosRatAboveBelow
  /METHOD=ENTER TotalAssets Admissions
  /METHOD=ENTER Ethnicity
```

Logistic Regression

Case Processing Summary

Unweighted Cases[a]		N	Percent
Selected Cases	Included in Analysis	3042	99.4
	Missing Cases	17	.6
	Total	3059	100.0
Unselected Cases		0	.0
Total		3059	100.0

Block 1: Method = Enter

Omnibus Tests of Model Coefficients

		Chi-square	df	Sig.
Step 1	Step	2.896	2	.235
	Block	2.896	2	.235
	Model	2.896	2	.235

		B	S.E.	Wald	df	Sig.	Exp(B)
Step 1[a]	Total Assets	.000	.000	1.369	1	.242	1.000
	Total Admissions	.000	.000	2.131	1	.144	1.000
	Constant	4.227	.177	569.411	1	.000	68.506

Block 2: Method = Enter

Omnibus Tests of Model Coefficients

		Chi-square	df	Sig.
Step 1	Step	.385	1	.535
	Block	.385	1	.535
	Model	3.281	3	.350

		B	S.E.	Wald	df	Sig.	Exp(B)
Step 1[a]	Total Assets	.000	.000	1.246	1	.264	1.000
	Total Admissions	.000	.000	1.857	1	.173	1.000
	Ethnicity-%White	.576	.925	.388	1	.533	1.779
	Constant	3.846	.631	37.148	1	.000	46.805

REGRESSION 4: (DV1) HOSPITAL RATINGS - (IV4) UNEMPLOYMENT RATE

```
LOGISTIC REGRESSION VARIABLES HosRatAboveBelow
  /METHOD=ENTER TotalAssets Admissions
  /METHOD=ENTER UnemployRate
```

Logistic Regression

Case Processing Summary

Unweighted Cases[a]		N	Percent
Selected Cases	Included in Analysis	3042	99.4
	Missing Cases	17	.6
	Total	3059	100.0
Unselected Cases		0	.0
Total		3059	100.0

Block 1: Method = Enter

Omnibus Tests of Model Coefficients

		Chi-square	df	Sig.
Step 1	Step	2.896	2	.235
	Block	2.896	2	.235
	Model	2.896	2	.235

		B	S.E.	Wald	df	Sig.	Exp(B)
Step 1[a]	Total Assets	.000	.000	1.369	1	.242	1.000
	Total Admissions	.000	.000	2.131	1	.144	1.000
	Constant	4.227	.177	569.411	1	.000	68.506

Block 2: Method = Enter

Omnibus Tests of Model Coefficients

		Chi-square	df	Sig.
Step 1	Step	4.273	1	.039
	Block	4.273	1	.039
	Model	7.169	3	.067

		B	S.E.	Wald	df	Sig.	Exp(B)
Step 1[a]	Total Assets	.000	.000	1.101	1	.294	1.000
	Total Admissions	.000	.000	1.648	1	.199	1.000
	Unemployment Rate	-41.095	20.417	4.051	1	.044	.000
	Constant	6.241	1.037	36.211	1	.000	513.592

REGRESSION 5: (DV1) HOSPITAL RATINGS - (IV5) POLITICAL AFFILIATION

```
LOGISTIC REGRESSION VARIABLES HosRatAboveBelow
  /METHOD=ENTER TotalAssets Admissions
  /METHOD=ENTER PoliticalAffil
```

```
/CONTRAST (PoliticalAffil)=Indicator(1)
```

Logistic Regression

Case Processing Summary

Unweighted Cases[a]		N	Percent
Selected Cases	Included in Analysis	3042	99.4
	Missing Cases	17	.6
	Total	3059	100.0
Unselected Cases		0	.0
Total		3059	100.0

Block 1: Method = Enter

Omnibus Tests of Model Coefficients

		Chi-square	df	Sig.
Step 1	Step	2.896	2	.235
	Block	2.896	2	.235
	Model	2.896	2	.235

		B	S.E.	Wald	df	Sig.	Exp(B)
Step 1[a]	TotalAssets	.000	.000	1.369	1	.242	1.000
	Total Admissions	.000	.000	2.131	1	.144	1.000
	Constant	4.227	.177	569.411	1	.000	68.506

Block 2: Method = Enter

Omnibus Tests of Model Coefficients

		Chi-square	df	Sig.
Step 1	Step	.000	1	.982
	Block	.000	1	.982
	Model	2.897	3	.408

		B	S.E.	Wald	df	Sig.	Exp(B)
Step 1[a]	TotalAssets	.000	.000	1.311	1	.252	1.000
	Total Admissions	.000	.000	2.076	1	.150	1.000
	Political Affiliation(1)	.007	.307	.000	1	.982	1.007
	Constant	4.222	.291	209.959	1	.000	68.155

REGRESSION 6: (DV1) HOSPITAL RATINGS - (IV6) HOSPITAL OWNERSHIP

```
LOGISTIC REGRESSION VARIABLES HosRatAboveBelow
```

```
  /METHOD=ENTER TotalAssets Admissions
  /METHOD=ENTER HospitalOwn
```

Logistic Regression

Case Processing Summary

Unweighted Cases[a]		N	Percent
Selected Cases	Included in Analysis	3042	99.4
	Missing Cases	17	.6
	Total	3059	100.0
Unselected Cases		0	.0
Total		3059	100.0

Block 1: Method = Enter

Omnibus Tests of Model Coefficients

		Chi-square	df	Sig.
Step 1	Step	2.896	2	.235
	Block	2.896	2	.235
	Model	2.896	2	.235

		B	S.E.	Wald	df	Sig.	Exp(B)
Step 1[a]	Total Assets	.000	.000	1.369	1	.242	1.000
	Total Admissions	.000	.000	2.131	1	.144	1.000
	Constant	4.227	.177	569.411	1	.000	68.506

Block 2: Method = Enter

Omnibus Tests of Model Coefficients

		Chi-square	df	Sig.
Step 1	Step	1.762	1	.184
	Block	1.762	1	.184
	Model	4.658	3	.199

		B	S.E.	Wald	df	Sig.	Exp(B)
Step 1[a]	Total Assets	.000	.000	1.451	1	.228	1.000
	Total Admissions	.000	.000	2.256	1	.133	1.000
	Ownership Govt-NGovt	-.447	.325	1.898	1	.168	.639
	Constant	4.329	.198	479.188	1	.000	75.861

REGRESSION 7: (DV1) HOSPITAL RATINGS - (IV7) ORGANIZATIONAL TYPE

```
LOGISTIC REGRESSION VARIABLES HosRatAboveBelow
  /METHOD=ENTER TotalAssets Admissions
```

```
/METHOD=ENTER OrgNFP_FP
```

Logistic Regression

Case Processing Summary

Unweighted Cases[a]		N	Percent
Selected Cases	Included in Analysis	3042	99.4
	Missing Cases	17	.6
	Total	3059	100.0
Unselected Cases		0	.0
Total		3059	100.0

Block 1: Method = Enter

Omnibus Tests of Model Coefficients

		Chi-square	df	Sig.
Step 1	Step	2.896	2	.235
	Block	2.896	2	.235
	Model	2.896	2	.235

		B	S.E.	Wald	df	Sig.	Exp(B)
Step 1[a]	Total Assets	.000	.000	1.369	1	.242	1.000
	Total Admissions	.000	.000	2.131	1	.144	1.000
	Constant	4.227	.177	569.411	1	.000	68.506

Block 2: Method = Enter

Omnibus Tests of Model Coefficients

		Chi-square	df	Sig.
Step 1	Step	.019	1	.889
	Block	.019	1	.889
	Model	2.916	3	.405

		B	S.E.	Wald	df	Sig.	Exp(B)
Step 1[a]	Total Assets	.000	.000	1.289	1	.256	1.000
	Total Admissions	.000	.000	2.132	1	.144	1.000
	Type of Organization	-.052	.373	.019	1	.890	.950
	Constant	4.268	.349	149.457	1	.000	71.412

REGRESSION 8: (DV1) HOSPITAL RATINGS - (IV8) TAXONOMY - CENTRALIZATION

```
LOGISTIC REGRESSION VARIABLES HosRatAboveBelow
  /METHOD=ENTER TotalAssets Admissions
  /METHOD=ENTER Central_Decen
```

Logistic Regression

Case Processing Summary

Unweighted Cases[a]		N	Percent
Selected Cases	Included in Analysis	1910	62.4
	Missing Cases	1149	37.6
	Total	3059	100.0
Unselected Cases		0	.0
Total		3059	100.0

Block 1: Method = Enter

Omnibus Tests of Model Coefficients

		Chi-square	df	Sig.
Step 1	Step	2.748	2	.253
	Block	2.748	2	.253
	Model	2.748	2	.253

		B	S.E.	Wald	df	Sig.	Exp(B)
Step 1[a]	Total Assets	.000	.000	.789	1	.374	1.000
	Total Admissions	.000	.000	2.608	1	.106	1.000
	Constant	4.219	.220	369.406	1	.000	67.992

Block 2: Method = Enter

Omnibus Tests of Model Coefficients

		Chi-square	df	Sig.
Step 1	Step	1.425	1	.233
	Block	1.425	1	.233
	Model	4.173	3	.243

		B	S.E.	Wald	df	Sig.	Exp(B)
Step 1[a]	Total Assets	.000	.000	1.268	1	.260	1.000
	Total Admissions	.000	.000	2.788	1	.095	1.000
	Taxonomy-Centralization	.423	.355	1.417	1	.234	1.527
	Constant	4.022	.264	231.970	1	.000	55.798

REGRESSION 9: (DV1) HOSPITAL RATINGS - (IV9) CASE MIX INDEX

```
LOGISTIC REGRESSION VARIABLES HosRatAboveBelow
  /METHOD=ENTER TotalAssets Admissions
  /METHOD=ENTER CMI
```

Logistic Regression

Case Processing Summary

Unweighted Cases[a]		N	Percent
Selected Cases	Included in Analysis	2573	84.1
	Missing Cases	486	15.9
	Total	3059	100.0
Unselected Cases		0	.0
Total		3059	100.0

Block 1: Method = Enter

Omnibus Tests of Model Coefficients

		Chi-square	df	Sig.
Step 1	Step	1.996	2	.369
	Block	1.996	2	.369
	Model	1.996	2	.369

		B	S.E.	Wald	df	Sig.	Exp(B)
Step 1[a]	Total Assets	.000	.000	.445	1	.505	1.000
	Total Admissions	.000	.000	1.856	1	.173	1.000
	Constant	4.031	.179	506.273	1	.000	56.308

Block 2: Method = Enter

Omnibus Tests of Model Coefficients

		Chi-square	df	Sig.
Step 1	Step	1.831	1	.176
	Block	1.831	1	.176
	Model	3.827	3	.281

		B	S.E.	Wald	df	Sig.	Exp(B)
Step 1[a]	Total Assets	.000	.000	.006	1	.939	1.000
	Total Admissions	.000	.000	1.975	1	.160	1.000
	Case Mix Index	-.637	.461	1.907	1	.167	.529

	Constant	5.033	.759	43.992	1	.000	153.379

REGRESSION 10: (DV2) PATIENT EXPERIENCE - (IV1) HOUSEHOLD INCOME

```
LOGISTIC REGRESSION VARIABLES PatExAboveBelow
  /METHOD=ENTER TotalAssets Admissions
  /METHOD=ENTER Income
```

Logistic Regression

Case Processing Summary

Unweighted Cases[a]		N	Percent
Selected Cases	Included in Analysis	2835	92.7
	Missing Cases	224	7.3
	Total	3059	100.0
Unselected Cases		0	.0
Total		3059	100.0

Block 1: Method = Enter

Omnibus Tests of Model Coefficients

		Chi-square	df	Sig.
Step 1	Step	26.227	2	.000
	Block	26.227	2	.000
	Model	26.227	2	.000

		B	S.E.	Wald	df	Sig.	Exp(B)
Step 1[a]	TotalAssets	.000	.000	.226	1	.635	1.000
	Total Admissions	.000	.000	25.615	1	.000	1.000
	Constant	.834	.052	261.383	1	.000	2.302

Block 2: Method = Enter

Omnibus Tests of Model Coefficients

		Chi-square	df	Sig.
Step 1	Step	36.036	1	.000
	Block	36.036	1	.000
	Model	62.262	3	.000

		B	S.E.	Wald	Df	Sig.	Exp(B)
Step 1[a]	TotalAssets	.000	.000	.095	1	.758	1.000
	Total Admissions	.000	.000	20.432	1	.000	1.000

	Household Income	.000	.000	35.864	1	.000	1.000
	Constant	2.424	.272	79.332	1	.000	11.293

REGRESSION 11: (DV2) PATIENT EXPERIENCE - (IV2) NUMBER OF RESIDENTS

```
LOGISTIC REGRESSION VARIABLES PatExAboveBelow
  /METHOD=ENTER TotalAssets Admissions
  /METHOD=ENTER Residents
```

Logistic Regression

Case Processing Summary

Unweighted Cases[a]		N	Percent
Selected Cases	Included in Analysis	2835	92.7
	Missing Cases	224	7.3
	Total	3059	100.0
Unselected Cases		0	.0
Total		3059	100.0

Block 1: Method = Enter

Omnibus Tests of Model Coefficients

		Chi-square	df	Sig.
Step 1	Step	26.227	2	.000
	Block	26.227	2	.000
	Model	26.227	2	.000

		B	S.E.	Wald	df	Sig.	Exp(B)
Step 1[a]	Total Assets	.000	.000	.226	1	.635	1.000
	Total Admissions	.000	.000	25.615	1	.000	1.000
	Constant	.834	.052	261.383	1	.000	2.302

Block 2: Method = Enter

Omnibus Tests of Model Coefficients

		Chi-square	df	Sig.
Step 1	Step	207.788	1	.000
	Block	207.788	1	.000
	Model	234.014	3	.000

		B	S.E.	Wald	Df	Sig.	Exp(B)
Step 1[a]	TotalAssets	.000	.000	1.219	1	.270	1.000

	Total Admissions	.000	.000	14.385	1	.000	1.000
	Number of Resident	-2.136	.154	191.798	1	.000	.118
	Constant	1.797	.091	385.781	1	.000	6.029

REGRESSION 12: (DV2) PATIENT EXPERIENCE - (IV3) ETHNICITY PERCENTAGE WHITE

```
LOGISTIC REGRESSION VARIABLES PatExAboveBelow
  /METHOD=ENTER TotalAssets Admissions
  /METHOD=ENTER Ethnicity
```

Logistic Regression

Case Processing Summary

Unweighted Cases[a]		N	Percent
Selected Cases	Included in Analysis	2835	92.7
	Missing Cases	224	7.3
	Total	3059	100.0
Unselected Cases		0	.0
Total		3059	100.0

Block 1: Method = Enter

Omnibus Tests of Model Coefficients

		Chi-square	df	Sig.
Step 1	Step	26.227	2	.000
	Block	26.227	2	.000
	Model	26.227	2	.000

		B	S.E.	Wald	df	Sig.	Exp(B)
Step 1[a]	Total Assets	.000	.000	.226	1	.635	1.000
	Total Admissions	.000	.000	25.615	1	.000	1.000
	Constant	.834	.052	261.383	1	.000	2.302

Block 2: Method = Enter

Omnibus Tests of Model Coefficients

		Chi-square	df	Sig.
Step 1	Step	228.203	1	.000
	Block	228.203	1	.000

	Model	254.430	3	.000

		B	S.E.	Wald	df	Sig.	Exp(B)
Step 1[a]	Total Assets	.000	.000	.259	1	.611	1.000
	Total Admissions	.000	.000	9.793	1	.002	1.000
	Ethnicity-%White	4.152	.286	210.881	1	.000	63.537
	Constant	-1.887	.191	97.490	1	.000	.151

REGRESSION 13: (DV2) PATIENT EXPERIENCE - (IV4) UNEMPLOYMENT RATE

```
LOGISTIC REGRESSION VARIABLES PatExAboveBelow
  /METHOD=ENTER TotalAssets Admissions
  /METHOD=ENTER UnemployRate
```

Logistic Regression

Case Processing Summary

Unweighted Cases[a]		N	Percent
Selected Cases	Included in Analysis	2835	92.7
	Missing Cases	224	7.3
	Total	3059	100.0
Unselected Cases		0	.0
Total		3059	100.0

Block 1: Method = Enter

Omnibus Tests of Model Coefficients

		Chi-square	df	Sig.
Step 1	Step	26.227	2	.000
	Block	26.227	2	.000
	Model	26.227	2	.000

		B	S.E.	Wald	df	Sig.	Exp(B)
Step 1[a]	Total Assets	.000	.000	.226	1	.635	1.000
	Total Admissions	.000	.000	25.615	1	.000	1.000
	Constant	.834	.052	261.383	1	.000	2.302

Block 2: Method = Enter

Omnibus Tests of Model Coefficients

		Chi-square	df	Sig.

Step 1	Step	84.874	1	.000
	Block	84.874	1	.000
	Model	111.101	3	.000

		B	S.E.	Wald	Df	Sig.	Exp(B)
Step 1[a]	Total Assets	.000	.000	.046	1	.830	1.000
	Total Admissions	.000	.000	19.169	1	.000	1.000
	Unemployment Rate	-52.773	5.945	78.789	1	.000	.000
	Constant	3.396	.297	130.994	1	.000	29.858

REGRESSION 14: (DV2) PATIENT EXPERIENCE - (IV5) POLITICAL AFFILIATION

```
LOGISTIC REGRESSION VARIABLES PatExAboveBelow
  /METHOD=ENTER TotalAssets Admissions
  /METHOD=ENTER PoliticalAffil
  /CONTRAST (PoliticalAffil)=Indicator(1)
```

Logistic Regression

Case Processing Summary

Unweighted Cases[a]		N	Percent
Selected Cases	Included in Analysis	2835	92.7
	Missing Cases	224	7.3
	Total	3059	100.0
Unselected Cases		0	.0
Total		3059	100.0

Block 1: Method = Enter

Omnibus Tests of Model Coefficients

		Chi-square	df	Sig.
Step 1	Step	26.227	2	.000
	Block	26.227	2	.000
	Model	26.227	2	.000

		B	S.E.	Wald	df	Sig.	Exp(B)
Step 1[a]	Total Assets	.000	.000	.226	1	.635	1.000
	Total Admissions	.000	.000	25.615	1	.000	1.000
	Constant	.834	.052	261.383	1	.000	2.302

Block 2: Method = Enter

Omnibus Tests of Model Coefficients

		Chi-square	df	Sig.
Step 1	Step	46.032	1	.000
	Block	46.032	1	.000
	Model	72.259	3	.000

		B	S.E.	Wald	df	Sig.	Exp(B)
Step 1[a]	Total Assets	.000	.000	.301	1	.583	1.000
	Total Admissions	.000	.000	16.812	1	.000	1.000
	Political Affiliation(1)	.587	.086	46.402	1	.000	1.799
	Constant	.399	.081	24.229	1	.000	1.491

REGRESSION 15: (DV2) PATIENT EXPERIENCE - (IV6) HOSPITAL OWNERSHIP

```
LOGISTIC REGRESSION VARIABLES PatExAboveBelow
  /METHOD=ENTER TotalAssets Admissions
  /METHOD=ENTER HospitalOwn
```

Logistic Regression

Case Processing Summary

Unweighted Cases[a]		N	Percent
Selected Cases	Included in Analysis	2835	92.7
	Missing Cases	224	7.3
	Total	3059	100.0
Unselected Cases		0	.0
Total		3059	100.0

Block 1: Method = Enter

Omnibus Tests of Model Coefficients

		Chi-square	df	Sig.
Step 1	Step	26.227	2	.000
	Block	26.227	2	.000
	Model	26.227	2	.000

		B	S.E.	Wald	df	Sig.	Exp(B)
Step 1[a]	Total Assets	.000	.000	.226	1	.635	1.000
	Total Admissions	.000	.000	25.615	1	.000	1.000
	Constant	.834	.052	261.383	1	.000	2.302

Block 2: Method = Enter

Omnibus Tests of Model Coefficients

		Chi-square	df	Sig.
Step 1	Step	2.274	1	.132
	Block	2.274	1	.132
	Model	28.500	3	.000

		B	S.E.	Wald	df	Sig.	Exp(B)
Step 1[a]	Total Assets	.000	.000	.240	1	.624	1.000
	Total Admissions	.000	.000	25.383	1	.000	1.000
	Ownership Govt-NGovt	.165	.111	2.242	1	.134	1.180
	Constant	.807	.054	220.242	1	.000	2.241

REGRESSION 16: (DV2) PATIENT EXPERIENCE - (IV7) ORGANIZATIONAL TYPE

```
LOGISTIC REGRESSION VARIABLES PatExAboveBelow
  /METHOD=ENTER TotalAssets Admissions
  /METHOD=ENTER OrgNFP_FP
```

Logistic Regression

Case Processing Summary

Unweighted Cases[a]		N	Percent
Selected Cases	Included in Analysis	2835	92.7
	Missing Cases	224	7.3
	Total	3059	100.0
Unselected Cases		0	.0
Total		3059	100.0

Block 1: Method = Enter

Omnibus Tests of Model Coefficients

		Chi-square	df	Sig.
Step 1	Step	26.227	2	.000
	Block	26.227	2	.000
	Model	26.227	2	.000

		B	S.E.	Wald	df	Sig.	Exp(B)
Step 1[a]	Total Assets	.000	.000	.226	1	.635	1.000
	Total Admissions	.000	.000	25.615	1	.000	1.000

	Constant	.834	.052	261.383	1	.000	2.302

Block 2: Method = Enter

Omnibus Tests of Model Coefficients

		Chi-square	df	Sig.
Step 1	Step	196.133	1	.000
	Block	196.133	1	.000
	Model	222.360	3	.000

		B	S.E.	Wald	df	Sig.	Exp(B)
Step 1[a]	Total Assets	.000	.000	7.493	1	.006	1.000
	Total Admissions	.000	.000	27.146	1	.000	1.000
	Type of Organization	1.394	.101	191.370	1	.000	4.029
	Constant	-.205	.091	5.134	1	.023	.814

REGRESSION 17: (DV2) PATIENT EXPERIENCE: (IV8) TAXONOMY - CENTRALIZATION

```
LOGISTIC REGRESSION VARIABLES PatExAboveBelow
  /METHOD=ENTER TotalAssets Admissions
  /METHOD=ENTER Central_Decen
```

Logistic Regression

Case Processing Summary

Unweighted Cases[a]		N	Percent
Selected Cases	Included in Analysis	1839	60.1
	Missing Cases	1220	39.9
	Total	3059	100.0
Unselected Cases		0	.0
Total		3059	100.0

Block 1: Method = Enter

Omnibus Tests of Model Coefficients

		Chi-square	df	Sig.
Step 1	Step	19.436	2	.000
	Block	19.436	2	.000
	Model	19.436	2	.000

		B	S.E.	Wald	Df	Sig.	Exp(B)
Step 1[a]	Total Assets	.000	.000	.384	1	.535	1.000
	Total Admissions	.000	.000	18.635	1	.000	1.000
	Constant	.667	.062	114.796	1	.000	1.949

Block 2: Method = Enter

Omnibus Tests of Model Coefficients

		Chi-square	df	Sig.
Step 1	Step	32.336	1	.000
	Block	32.336	1	.000
	Model	51.771	3	.000

		B	S.E.	Wald	df	Sig.	Exp(B)
Step 1[a]	Total Assets	.000	.000	.080	1	.778	1.000
	Total Admissions	.000	.000	20.693	1	.000	1.000
	Taxonomy-Centralization	.565	.100	32.079	1	.000	1.760
	Constant	.390	.078	24.868	1	.000	1.477

REGRESSION 18: (DV2) PATIENT EXPERIENCE - (IV9) CASE MIX INDEX

```
LOGISTIC REGRESSION VARIABLES PatExAboveBelow
  /METHOD=ENTER TotalAssets Admissions
  /METHOD=ENTER CMI
```

Logistic Regression

Case Processing Summary

Unweighted Cases[a]		N	Percent
Selected Cases	Included in Analysis	2504	81.9
	Missing Cases	555	18.1
	Total	3059	100.0
Unselected Cases		0	.0
Total		3059	100.0

Block 1: Method = Enter

Omnibus Tests of Model Coefficients

		Chi-square	df	Sig.
Step 1	Step	26.562	2	.000
	Block	26.562	2	.000
	Model	26.562	2	.000

		B	S.E.	Wald	df	Sig.	Exp(B)
Step 1[a]	Total Assets	.000	.000	1.533	1	.216	1.000
	Total Admissions	.000	.000	24.613	1	.000	1.000
	Constant	.634	.054	136.878	1	.000	1.886

Block 2: Method = Enter

Omnibus Tests of Model Coefficients

		Chi-square	df	Sig.
Step 1	Step	3.916	1	.048
	Block	3.916	1	.048
	Model	30.477	3	.000

		B	S.E.	Wald	df	Sig.	Exp(B)
Step 1[a]	Total Assets	.000	.000	3.432	1	.064	1.000
	Total Admissions	.000	.000	25.235	1	.000	1.000
	Case Mix Index	-.299	.151	3.909	1	.048	.741
	Constant	1.098	.241	20.742	1	.000	2.999

REGRESSION 19: (DV3) OPERATING MARGIN - (IV1) Household Income

```
REGRESSION
  /DESCRIPTIVES MEAN STDDEV CORR SIG N
  /MISSING PAIRWISE
  /STATISTICS COEFF OUTS R ANOVA COLLIN TOL CHANGE ZPP
  /CRITERIA=PIN(.05) POUT(.10)
  /NOORIGIN
  /DEPENDENT OpMargin
  /METHOD=ENTER TotalAssets Admissions
  /METHOD=ENTER Income
  /SCATTERPLOT=(*ZRESID ,*ZPRED)
  /RESIDUALS NORMPROB(ZRESID)
  /SAVE MAHAL COOK.
```

Regression

Descriptive Statistics

	Mean	Std. Deviation	N
Operating Margin	-1.24013	13.811320	3010
TotalAssets	308669336.87	678480956.240	3043
Total Admissions	5841.29	8976.294	3058
Household Income	58976.53	8867.206	3059

Model	R	R Square	Adjusted R Square	Std. Error of the Estimate	Change Statistics		
					R Square Change	F Change	df1
1	.055[a]	.003	.002	13.794980	.003	4.549	2
2	.058[b]	.003	.002	13.795297	.000	.863	1

ANOVA[a]

Model		Sum of Squares	df	Mean Square	F	Sig.
1	Regression	1731.189	2	865.594	4.549	.011[b]
	Residual	569382.014	2992	190.301		
	Total	571113.203	2994			
2	Regression	1895.365	3	631.788	3.320	.019[c]
	Residual	569217.838	2991	190.310		
	Total	571113.203	2994			

a. Dependent Variable: Operating Margin

b. Predictors: (Constant), Total Admissions, TotalAssets

c. Predictors: (Constant), Total Admissions, TotalAssets, Household Income

Model		Unstandardized Coefficients		Standardized Coefficients	T	Sig.
		B	Std. Error	Beta		
1	(Constant)	-1.302	.320		-4.065	.000
	TotalAssets	9.905E-10	.000	.049	2.665	.008
	Total Admissions	-4.172E-5	.000	-.027	-1.485	.138
2	(Constant)	.248	1.700		.146	.884
	TotalAssets	1.037E-9	.000	.051	2.765	.006
	Total Admissions	-3.942E-5	.000	-.026	-1.398	.162
	Household Income	-2.676E-5	.000	-.017	-.929	.353

REGRESSION 20: (DV3) OPERATING MARGIN: (IV2) Number of Residents

```
REGRESSION
  /DESCRIPTIVES MEAN STDDEV CORR SIG N
  /MISSING PAIRWISE
  /STATISTICS COEFF OUTS R ANOVA COLLIN TOL CHANGE ZPP
  /CRITERIA=PIN(.05) POUT(.10)
  /NOORIGIN
  /DEPENDENT OpMargin
  /METHOD=ENTER TotalAssets Admissions
  /METHOD=ENTER Residents
  /SCATTERPLOT=(*ZRESID ,*ZPRED)
  /RESIDUALS NORMPROB(ZRESID)
  /SAVE MAHAL COOK.
```

Regression

Descriptive Statistics

	Mean	Std. Deviation	N
Operating Margin	-1.24013	13.811320	3010
TotalAssets	308669336.87	678480956.240	3043
Total Admissions	5841.29	8976.294	3058
Number of Resident	.4422	.28546	3059

Model Summary[c]

					Change Statistics				
Model	R	R Square	Adjusted R Square	Std. Error of the Estimate	R Square Change	F Change	df1		
1	.055[a]	.003	.002	13.794980	.003	4.549	2		
2	.056[b]	.003	.002	13.796643	.000	.279	1		

ANOVA[a]

Model		Sum of Squares	df	Mean Square	F	Sig.
1	Regression	1731.189	2	865.594	4.549	.011[b]
	Residual	569382.014	2992	190.301		
	Total	571113.203	2994			
2	Regression	1784.241	3	594.747	3.125	.025[c]
	Residual	569328.962	2991	190.347		
	Total	571113.203	2994			

a. Dependent Variable: Operating Margin

b. Predictors: (Constant), Total Admissions, TotalAssets

c. Predictors: (Constant), Total Admissions, TotalAssets, Number of Resident

Model		Unstandardized Coefficients		Standardized Coefficients		
		B	Std. Error	Beta	t	Sig.
1	(Constant)	-1.302	.320		-4.065	.000
	TotalAssets	9.905E-10	.000	.049	2.665	.008
	Total Admissions	-4.172E-5	.000	-.027	-1.485	.138
2	(Constant)	-1.496	.487		-3.069	.002
	TotalAssets	9.661E-10	.000	.047	2.579	.010
	Total Admissions	-4.293E-5	.000	-.028	-1.523	.128
	Number of Resident	.472	.893	.010	.528	.598

REGRESSION 21: (DV3) OPERATING MARGIN: (IV3) Ethnicity Percentage White

```
REGRESSION
  /DESCRIPTIVES MEAN STDDEV CORR SIG N
  /MISSING PAIRWISE
  /STATISTICS COEFF OUTS R ANOVA COLLIN TOL CHANGE ZPP
  /CRITERIA=PIN(.05) POUT(.10)
  /NOORIGIN
  /DEPENDENT OpMargin
  /METHOD=ENTER TotalAssets Admissions
  /METHOD=ENTER Ethnicity
  /SCATTERPLOT=(*ZRESID ,*ZPRED)
  /RESIDUALS NORMPROB(ZRESID)
  /SAVE MAHAL COOK.
```

Regression

Descriptive Statistics

	Mean	Std. Deviation	N
Operating Margin	-1.24013	13.811320	3010

TotalAssets	308669336.87	678480956.240	3043
Total Admissions	5841.29	8976.294	3058
Ethnicity-%White	.6553	.15138	3059

Model Summary[c]

Model	R	R Square	Adjusted R Square	Std. Error of the Estimate	Change Statistics				
					R Square Change	F Change	df1		
1	.055[a]	.003	.002	13.794980	.003	4.549	2		
2	.063[b]	.004	.003	13.790446	.001	2.968	1		

ANOVA[a]

Model		Sum of Squares	df	Mean Square	F	Sig.
1	Regression	1731.189	2	865.594	4.549	.011[b]
	Residual	569382.014	2992	190.301		
	Total	571113.203	2994			
2	Regression	2295.613	3	765.204	4.024	.007[c]
	Residual	568817.590	2991	190.176		
	Total	571113.203	2994			

a. Dependent Variable: Operating Margin

b. Predictors: (Constant), Total Admissions, TotalAssets

c. Predictors: (Constant), Total Admissions, TotalAssets, Ethnicity-%White

Model		Unstandardized Coefficients		Standardized Coefficients	t	Sig.
		B	Std. Error	Beta		
1	(Constant)	-1.302	.320		-4.065	.000
	TotalAssets	9.905E-10	.000	.049	2.665	.008
	Total Admissions	-4.172E-5	.000	-.027	-1.485	.138
2	(Constant)	-3.249	1.175		-2.766	.006
	Total Assets	1.035E-9	.000	.051	2.779	.005

	Total Admissions	-3.575E-5	.000	-.023	-1.263	.207
	Ethnicity-%White	2.898	1.682	.032	1.723	.085

REGRESSION 22: (DV3) OPERATING MARGIN - (IV4) Unemployment Rate

```
REGRESSION
  /DESCRIPTIVES MEAN STDDEV CORR SIG N
  /MISSING PAIRWISE
  /STATISTICS COEFF OUTS R ANOVA COLLIN TOL CHANGE ZPP
  /CRITERIA=PIN(.05) POUT(.10)
  /NOORIGIN
  /DEPENDENT OpMargin
  /METHOD=ENTER TotalAssets Admissions
  /METHOD=ENTER UnemployRate
  /SCATTERPLOT=(*ZRESID ,*ZPRED)
  /RESIDUALS NORMPROB(ZRESID)
  /SAVE MAHAL COOK.
```

Regression

Descriptive Statistics

	Mean	Std. Deviation	N
Operating Margin	-1.24013	13.811320	3010
TotalAssets	308669336.87	678480956.240	3043
Total Admissions	5841.29	8976.294	3058
Unemployment Rate	.04840	.007490	3059

Model Summary[c]

					Change Statistics				
Model	R	R Square	Adjusted R Square	Std. Error of the Estimate	R Square Change	F Change	df1		
1	.055[a]	.003	.002	13.794980	.003	4.549	2		
2	.069[b]	.005	.004	13.785359	.002	5.178	1		

ANOVA[a]

Model		Sum of Squares	df	Mean Square	F	Sig.
1	Regression	1731.189	2	865.594	4.549	.011[b]
	Residual	569382.014	2992	190.301		
	Total	571113.203	2994			
2	Regression	2715.163	3	905.054	4.763	.003[c]
	Residual	568398.040	2991	190.036		
	Total	571113.203	2994			

a. Dependent Variable: Operating Margin

b. Predictors: (Constant), Total Admissions, TotalAssets

c. Predictors: (Constant), Total Admissions, TotalAssets, Unemployment Rate

Model		Unstandardized Coefficients		Standardized Coefficients		
		B	Std. Error	Beta	T	Sig.
1	(Constant)	-1.302	.320		-4.065	.000
	TotalAssets	9.905E-10	.000	.049	2.665	.008
	Total Admissions	-4.172E-5	.000	-.027	-1.485	.138
2	(Constant)	2.378	1.649		1.442	.149
	TotalAssets	1.019E-9	.000	.050	2.742	.006
	Total Admissions	-3.704E-5	.000	-.024	-1.316	.188
	Unemployment Rate	-76.796	33.749	-.042	-2.275	.023

REGRESSION 23: (DV3) OPERATING MARGIN - (IV5) Political Affiliation

```
REGRESSION
  /DESCRIPTIVES MEAN STDDEV CORR SIG N
  /MISSING PAIRWISE
  /STATISTICS COEFF OUTS R ANOVA COLLIN TOL CHANGE ZPP
  /CRITERIA=PIN(.05) POUT(.10)
  /NOORIGIN
  /DEPENDENT OpMargin
  /METHOD=ENTER TotalAssets Admissions
  /METHOD=ENTER PoliticalAffil
  /SCATTERPLOT=(*ZRESID ,*ZPRED)
  /RESIDUALS NORMPROB(ZRESID)
  /SAVE MAHAL COOK.
```

Regression

Descriptive Statistics

	Mean	Std. Deviation	N
Operating Margin	-1.24013	13.811320	3010
TotalAssets	308669336.87	678480956.240	3043
Total Admissions	5841.29	8976.294	3058
Political Affiliation	.70	.460	3059

Model Summary[c]

					Change Statistics				
Model	R	R Square	Adjusted R Square	Std. Error of the Estimate	R Square Change	F Change	df1		
1	.055[a]	.003	.002	13.794980	.003	4.549	2		
2	.095[b]	.009	.008	13.756251	.006	17.871	1		

ANOVA[a]

Model		Sum of Squares	df	Mean Square	F	Sig.
1	Regression	1731.189	2	865.594	4.549	.011[b]
	Residual	569382.014	2992	190.301		
	Total	571113.203	2994			
2	Regression	5112.968	3	1704.323	9.006	.000[c]
	Residual	566000.235	2991	189.234		
	Total	571113.203	2994			

a. Dependent Variable: Operating Margin

b. Predictors: (Constant), Total Admissions, TotalAssets

c. Predictors: (Constant), Total Admissions, TotalAssets, Political Affiliation

	Unstandardized Coefficients		Standardized Coefficients		
Model	B	Std. Error	Beta	t	Sig.

1	(Constant)	-1.302	.320		-4.065	.000
	TotalAssets	9.905E-10	.000	.049	2.665	.008
	Total Admissions	-4.172E-5	.000	-.027	-1.485	.138
2	(Constant)	-3.121	.536		-5.824	.000
	TotalAssets	1.240E-9	.000	.061	3.303	.001
	Total Admissions	-2.540E-5	.000	-.017	-.898	.369
	Political Affiliation	2.363	.559	.079	4.227	.000

REGRESSION 24: (DV3) OPERATING MARGIN - (IV6) Hospital Ownership

```
REGRESSION
  /DESCRIPTIVES MEAN STDDEV CORR SIG N
  /MISSING PAIRWISE
  /STATISTICS COEFF OUTS R ANOVA COLLIN TOL CHANGE ZPP
  /CRITERIA=PIN(.05) POUT(.10)
  /NOORIGIN
  /DEPENDENT OpMargin
  /METHOD=ENTER TotalAssets Admissions
  /METHOD=ENTER HospitalOwn
  /SCATTERPLOT=(*ZRESID ,*ZPRED)
  /RESIDUALS NORMPROB(ZRESID)
  /SAVE MAHAL COOK.
```

Regression

Descriptive Statistics

	Mean	Std. Deviation	N
Operating Margin	-1.24013	13.811320	3010
TotalAssets	308669336.87	678480956.240	3043
Total Admissions	5841.29	8976.294	3058
Ownership Govt-NGovt	.18	.385	3059

Model Summary[c]

					Change Statistics				
Model	R	R Square	Adjusted R Square	Std. Error of the Estimate	R Square Change	F Change	df1		
1	.055[a]	.003	.002	13.794980	.003	4.549	2		
2	.207[b]	.043	.042	13.519013	.040	124.400	1		

ANOVA[a]

Model		Sum of Squares	df	Mean Square	F	Sig.
1	Regression	1731.189	2	865.594	4.549	.011[b]
	Residual	569382.014	2992	190.301		
	Total	571113.203	2994			
2	Regression	24466.919	3	8155.640	44.624	.000[c]
	Residual	546646.284	2991	182.764		
	Total	571113.203	2994			

a. Dependent Variable: Operating Margin

b. Predictors: (Constant), Total Admissions, TotalAssets

c. Predictors: (Constant), Total Admissions, TotalAssets, Ownership Govt-NGovt

		Unstandardized Coefficients		Standardized Coefficients		
Model		B	Std. Error	Beta	t	Sig.
1	(Constant)	-1.302	.320		-4.065	.000
	TotalAssets	9.905E-10	.000	.049	2.665	.008
	Total Admissions	-4.172E-5	.000	-.027	-1.485	.138
2	(Constant)	.040	.336		.119	.905
	TotalAssets	9.489E-10	.000	.047	2.605	.009
	Total Admissions	-4.790E-5	.000	-.031	-1.739	.082
	Ownership Govt-NGovt	-7.166	.643	-.200	-11.153	.000

REGRESSION 25: (DV3) OPERATING MARGIN - (IV7) Organizational Type

```
REGRESSION
  /DESCRIPTIVES MEAN STDDEV CORR SIG N
  /MISSING PAIRWISE
  /STATISTICS COEFF OUTS R ANOVA COLLIN TOL CHANGE ZPP
  /CRITERIA=PIN(.05) POUT(.10)
  /NOORIGIN
  /DEPENDENT OpMargin
  /METHOD=ENTER TotalAssets Admissions
  /METHOD=ENTER OrgNFP_FP
  /SCATTERPLOT=(*ZRESID ,*ZPRED)
  /RESIDUALS NORMPROB(ZRESID)
  /SAVE MAHAL COOK.
```

Regression

Descriptive Statistics

	Mean	Std. Deviation	N
Operating Margin	-1.24013	13.811320	3010
TotalAssets	308669336.87	678480956.240	3043
Total Admissions	5841.29	8976.294	3058
Type of Organization	.81	.390	3059

Model Summary[c]

Model	R	R Square	Adjusted R Square	Std. Error of the Estimate	Change Statistics				
					R Square Change	F Change	df1		
1	.055[a]	.003	.002	13.794980	.003	4.549	2		
2	.214[b]	.046	.045	13.499406	.043	133.456	1		

ANOVA[a]

Model		Sum of Squares	df	Mean Square	F	Sig.
1	Regression	1731.189	2	865.594	4.549	.011[b]
	Residual	569382.014	2992	190.301		
	Total	571113.203	2994			
2	Regression	26051.451	3	8683.817	47.652	.000[c]
	Residual	545061.752	2991	182.234		
	Total	571113.203	2994			

a. Dependent Variable: Operating Margin

b. Predictors: (Constant), Total Admissions, TotalAssets

c. Predictors: (Constant), Total Admissions, TotalAssets, Type of Organization

Model		Unstandardized Coefficients		Standardized Coefficients		
		B	Std. Error	Beta	T	Sig.
1	(Constant)	-1.302	.320		-4.065	.000
	TotalAssets	9.905E-10	.000	.049	2.665	.008
	Total Admissions	-4.172E-5	.000	-.027	-1.485	.138
2	(Constant)	4.513	.593		7.610	.000
	TotalAssets	1.592E-9	.000	.078	4.332	.000
	Total Admissions	-4.365E-5	.000	-.028	-1.588	.112
	Type of Organization	-7.373	.638	-.208	-11.552	.000

REGRESSION 26: (DV3) OPERATING MARGIN - (IV8) Taxonomy - Centralization

```
REGRESSION
  /DESCRIPTIVES MEAN STDDEV CORR SIG N
  /MISSING PAIRWISE
  /STATISTICS COEFF OUTS R ANOVA COLLIN TOL CHANGE ZPP
  /CRITERIA=PIN(.05) POUT(.10)
  /NOORIGIN
  /DEPENDENT OpMargin
  /METHOD=ENTER TotalAssets Admissions
  /METHOD=ENTER Central_Decen
  /SCATTERPLOT=(*ZRESID ,*ZPRED)
  /RESIDUALS NORMPROB(ZRESID)
  /SAVE MAHAL COOK.
```

Regression

Descriptive Statistics

	Mean	Std. Deviation	N
Operating Margin	-1.24013	13.811320	3010
TotalAssets	308669336.87	678480956.240	3043
Total Admissions	5841.29	8976.294	3058
Taxonomy-Centralization	.55	.497	1921

Model Summary[c]

Model	R	R Square	Adjusted R Square	Std. Error of the Estimate	Change Statistics				
					R Square Change	F Change	df1		
1	.055[a]	.003	.002	13.797609	.003	2.896	2		
2	.092[b]	.008	.007	13.763526	.005	10.447	1		

ANOVA[a]

Model		Sum of Squares	df	Mean Square	F	Sig.
1	Regression	1102.664	2	551.332	2.896	.055[b]
	Residual	362662.492	1905	190.374		
	Total	363765.156	1907			
2	Regression	3081.610	3	1027.203	5.422	.001[c]
	Residual	360683.547	1904	189.435		
	Total	363765.156	1907			

a. Dependent Variable: Operating Margin

b. Predictors: (Constant), Total Admissions, TotalAssets

c. Predictors: (Constant), Total Admissions, TotalAssets, Taxonomy-Centralization

Model		Unstandardized Coefficients		Standardized Coefficients	t	Sig.
		B	Std. Error	Beta		
1	(Constant)	-1.302	.401		-3.244	.001
	TotalAssets	9.905E-10	.000	.049	2.126	.034
	Total Admissions	-4.172E-5	.000	-.027	-1.185	.236
2	(Constant)	-.246	.517		-.476	.634
	TotalAssets	1.230E-9	.000	.060	2.614	.009
	Total Admissions	-3.792E-5	.000	-.025	-1.079	.281
	Taxonomy-Centralization	-2.077	.642	-.075	-3.232	.001

REGRESSION 27: (DV3) OPERATING MARGIN - (IV9) Case Mix Index

```
REGRESSION
  /DESCRIPTIVES MEAN STDDEV CORR SIG N
  /MISSING PAIRWISE
  /STATISTICS COEFF OUTS R ANOVA COLLIN TOL CHANGE ZPP
  /CRITERIA=PIN(.05) POUT(.10)
  /NOORIGIN
  /DEPENDENT OpMargin
  /METHOD=ENTER TotalAssets Admissions
  /METHOD=ENTER CMI
  /SCATTERPLOT=(*ZRESID ,*ZPRED)
  /RESIDUALS NORMPROB(ZRESID)
  /SAVE MAHAL COOK.
```

Regression

Descriptive Statistics

	Mean	Std. Deviation	N
Operating Margin	-1.24013	13.811320	3010
TotalAssets	308669336.87	678480956.240	3043
Total Admissions	5841.29	8976.294	3058
Case Mix Index	1.59002	.308475	2587

Model Summary[c]

					Change Statistics				
Model	R	R Square	Adjusted R Square	Std. Error of the Estimate	R Square Change	F Change	df1		
1	.055[a]	.003	.002	13.795806	.003	3.857	2		
2	.206[b]	.042	.041	13.523230	.039	104.303	1		

ANOVA[a]

Model		Sum of Squares	df	Mean Square	F	Sig.
1	Regression	1468.099	2	734.050	3.857	.021[b]
	Residual	482852.683	2537	190.324		

	Total	484320.783	2539			
2	Regression	20542.830	3	6847.610	37.444	.000[c]
	Residual	463777.953	2536	182.878		
	Total	484320.783	2539			

a. Dependent Variable: Operating Margin

b. Predictors: (Constant), Total Admissions, TotalAssets

c. Predictors: (Constant), Total Admissions, TotalAssets, Case Mix Index

Model		Unstandardized Coefficients		Standardized Coefficients		
		B	Std. Error	Beta	t	Sig.
1	(Constant)	-1.302	.348		-3.743	.000
	Total Assets	9.905E-10	.000	.049	2.454	.014
	Total Admissions	-4.172E-5	.000	-.027	-1.367	.172
2	(Constant)	-16.150	1.493		-10.815	.000
	Total Assets	-7.066E-10	.000	-.035	-1.646	.100
	Total Admissions	-3.363E-5	.000	-.022	-1.124	.261
	Case Mix Index	9.638	.944	.215	10.213	.000

REGRESSION 28: (DV1) HOSPITAL RATINGS - ALL VARIABLES

```
LOGISTIC REGRESSION VARIABLES HosRatAboveBelow
  /METHOD=ENTER TotalAssets Admissions
  /METHOD=ENTER Income Residents Ethnicity UnemployRate PoliticalAffil
  /METHOD=ENTER HospitalOwn OrgNFP_FP Central_Decen CMI
  /CONTRAST (PoliticalAffil)=Indicator(1)
```

Logistic Regression

Case Processing Summary

Unweighted Cases[a]		N	Percent
Selected Cases	Included in Analysis	1702	55.6
	Missing Cases	1357	44.4
	Total	3059	100.0
Unselected Cases		0	.0
Total		3059	100.0

Block 1: Method = Enter

Omnibus Tests of Model Coefficients

		Chi-square	df	Sig.
Step 1	Step	2.277	2	.320
	Block	2.277	2	.320
	Model	2.277	2	.320

		B	S.E.	Wald	Df	Sig.	Exp(B)
Step 1[a]	Total Assets	.000	.000	.412	1	.521	1.000
	Total Admissions	.000	.000	2.347	1	.126	1.000
	Constant	4.085	.221	341.460	1	.000	59.415

Block 2: Method = Enter

Omnibus Tests of Model Coefficients

		Chi-square	df	Sig.
Step 1	Step	6.867	5	.231
	Block	6.867	5	.231
	Model	9.144	7	.242

		B	S.E.	Wald	Df	Sig.	Exp(B)
Step 1[a]	Total Assets	.000	.000	.438	1	.508	1.000
	Total Admissions	.000	.000	1.802	1	.179	1.000
	Household Income	.000	.000	3.984	1	.046	1.000
	Number of Resident	.393	.799	.243	1	.622	1.482
	Ethnicity-%White	.962	1.606	.359	1	.549	2.617
	Unemployment Rate	14.239	31.887	.199	1	.655	1528038.004
	Political Affiliation (1)	1.340	.709	3.566	1	.059	3.818
	Constant	-3.449	4.393	.616	1	.432	.032

Block 3: Method = Enter

Omnibus Tests of Model Coefficients

		Chi-square	df	Sig.
Step 1	Step	8.982	4	.062
	Block	8.982	4	.062
	Model	18.126	11	.079

		B	S.E.	Wald	Df	Sig.	Exp(B)
Step 1[a]	Total Assets	.000	.000	.002	1	.962	1.000
	Total Admissions	.000	.000	1.942	1	.163	1.000
	Household Income	.000	.000	3.715	1	.054	1.000
	Number of Resident	.332	.814	.166	1	.683	1.394
	Ethnicity-%White	.531	1.672	.101	1	.751	1.700
	Unemployment Rate	3.736	32.415	.013	1	.908	41.944
	Political Affiliation(1)	1.398	.727	3.696	1	.055	4.046
	Ownership Govt-NGovt	-1.020	.494	4.259	1	.039	.360
	Type of Organization	-.328	.464	.501	1	.479	.720
	Taxonomy-Centralization	.685	.391	3.065	1	.080	1.985
	Case Mix Index	-1.091	.626	3.039	1	.081	.336
	Constant	-.914	4.648	.039	1	.844	.401

REGRESSION 29: (DV1) HOSPITAL RATINGS - ORGANIZATIONAL FACTORS

```
LOGISTIC REGRESSION VARIABLES HosRatAboveBelow
  /METHOD=ENTER TotalAssets Admissions
  /METHOD=ENTER HospitalOwn OrgNFP_FP Central_Decen CMI
```

Logistic Regression

Case Processing Summary

Unweighted Cases[a]		N	Percent
Selected Cases	Included in Analysis	1702	55.6
	Missing Cases	1357	44.4
	Total	3059	100.0
Unselected Cases		0	.0
Total		3059	100.0

Block 1: Method = Enter

Omnibus Tests of Model Coefficients

		Chi-square	df	Sig.
Step 1	Step	2.277	2	.320
	Block	2.277	2	.320
	Model	2.277	2	.320

	B	S.E.	Wald	df	Sig.	Exp(B)

Step 1[a]	Total Assets	.000	.000	.412	1	.521	1.000
	Total Admissions	.000	.000	2.347	1	.126	1.000
	Constant	4.085	.221	341.460	1	.000	59.415

Block 2: Method = Enter

Omnibus Tests of Model Coefficients

		Chi-square	df	Sig.
Step 1	Step	8.785	4	.067
	Block	8.785	4	.067
	Model	11.062	6	.086

		B	S.E.	Wald	Df	Sig.	Exp(B)
Step 1[a]	Total Assets	.000	.000	.001	1	.979	1.000
	Total Admissions	.000	.000	2.704	1	.100	1.000
	Ownership Govt-NGovt	-1.160	.482	5.785	1	.016	.314
	Type of Organization	-.289	.441	.430	1	.512	.749
	Taxonomy-Centralization	.635	.385	2.722	1	.099	1.887
	Case Mix Index	-.935	.621	2.263	1	.133	.393
	Constant	5.632	1.083	27.057	1	.000	279.277

REGRESSION 30: (DV2) PATIENT EXPERIENCE: - ALL VARIABLES

```
LOGISTIC REGRESSION VARIABLES PatExAboveBelow
  /METHOD=ENTER TotalAssets Admissions
  /METHOD=ENTER Income Residents Ethnicity UnemployRate PoliticalAffil
  /METHOD=ENTER HospitalOwn OrgNFP_FP Central_Decen CMI
  /CONTRAST (PoliticalAffil)=Indicator(1)
```

Logistic Regression

Case Processing Summary

Unweighted Cases[a]		N	Percent
Selected Cases	Included in Analysis	1681	55.0
	Missing Cases	1378	45.0
	Total	3059	100.0
Unselected Cases		0	.0
Total		3059	100.0

Block 1: Method = Enter

Omnibus Tests of Model Coefficients

		Chi-square	df	Sig.
Step 1	Step	19.807	2	.000
	Block	19.807	2	.000
	Model	19.807	2	.000

		B	S.E.	Wald	df	Sig.	Exp(B)
Step 1[a]	TotalAssets	.000	.000	2.536	1	.111	1.000
	Total Admissions	.000	.000	16.652	1	.000	1.000
	Constant	.512	.065	62.483	1	.000	1.668

Block 2: Method = Enter

Omnibus Tests of Model Coefficients

		Chi-square	df	Sig.
Step 1	Step	124.266	5	.000
	Block	124.266	5	.000
	Model	144.073	7	.000

		B	S.E.	Wald	df	Sig.	Exp(B)
Step 1[a]	Total Assets	.000	.000	6.323	1	.012	1.000
	Total Admissions	.000	.000	4.860	1	.027	1.000
	Household Income	.000	.000	3.285	1	.070	1.000
	Number of Resident	-.807	.245	10.880	1	.001	.446
	Ethnicity-%White	1.511	.472	10.272	1	.001	4.532
	Unemployment Rate	-44.497	9.847	20.418	1	.000	.000
	Political Affiliation(1)	-.094	.187	.253	1	.615	.910
	Constant	3.260	1.194	7.457	1	.006	26.059

Block 3: Method = Enter

Omnibus Tests of Model Coefficients

		Chi-square	df	Sig.
Step 1	Step	144.735	4	.000
	Block	144.735	4	.000
	Model	288.808	11	.000

		B	S.E.	Wald	df	Sig.	Exp(B)
Step 1[a]	TotalAssets	.000	.000	1.286	1	.257	1.000
	Total Admissions	.000	.000	5.040	1	.025	1.000

	Household Income	.000	.000	7.943	1	.005	1.000
	Number of Resident	-1.001	.262	14.598	1	.000	.367
	Ethnicity-%White	.174	.522	.111	1	.739	1.190
	Unemployment Rate	-54.890	10.457	27.553	1	.000	.000
	Political Affiliation(1)	.136	.197	.478	1	.489	1.146
	Ownership Govt-NGovt	-.465	.208	5.018	1	.025	.628
	Type of Organization	1.368	.137	99.128	1	.000	3.928
	Taxonomy-Centralization	.311	.120	6.663	1	.010	1.365
	Case Mix Index	-.352	.218	2.605	1	.107	.704
	Constant	4.831	1.337	13.061	1	.000	125.305

REGRESSION 31: (DV2) PATIENT EXPERIENCE - ORGANIZATIONAL FACTORS

```
LOGISTIC REGRESSION VARIABLES PatExAboveBelow
  /METHOD=ENTER TotalAssets Admissions
  /METHOD=ENTER HospitalOwn OrgNFP_FP Central_Decen CMI
```

Logistic Regression

Case Processing Summary

Unweighted Cases[a]		N	Percent
Selected Cases	Included in Analysis	1681	55.0
	Missing Cases	1378	45.0
	Total	3059	100.0
Unselected Cases		0	.0
Total		3059	100.0

Block 1: Method = Enter

Omnibus Tests of Model Coefficients

		Chi-square	Df	Sig.
Step 1	Step	19.807	2	.000
	Block	19.807	2	.000
	Model	19.807	2	.000

		B	S.E.	Wald	df	Sig.	Exp(B)
Step 1[a]	Total Assets	.000	.000	2.536	1	.111	1.000
	Total Admissions	.000	.000	16.652	1	.000	1.000
	Constant	.512	.065	62.483	1	.000	1.668

Block 2: Method = Enter

Omnibus Tests of Model Coefficients

		Chi-square	df	Sig.
Step 1	Step	142.686	4	.000
	Block	142.686	4	.000
	Model	162.493	6	.000

		B	S.E.	Wald	df	Sig.	Exp(B)
Step 1[a]	Total Assets	.000	.000	.028	1	.867	1.000
	Total Admissions	.000	.000	18.305	1	.000	1.000
	Ownership Govt-NGovt	-.416	.198	4.436	1	.035	.660
	Type of Organization	1.279	.125	104.581	1	.000	3.591
	Taxonomy-Centralization	.219	.114	3.677	1	.055	1.245
	Case Mix Index	-.351	.207	2.874	1	.090	.704
	Constant	.151	.341	.197	1	.657	1.164

REGRESSION 32: (DV3) OPERATING MARGIN - ALL VARIABLES

```
REGRESSION
  /DESCRIPTIVES MEAN STDDEV CORR SIG N
  /MISSING LISTWISE
  /STATISTICS COEFF OUTS CI(95) R ANOVA COLLIN TOL ZPP
  /CRITERIA=PIN(.05) POUT(.10)
  /NOORIGIN
  /DEPENDENT OpMargin
  /METHOD=ENTER TotalAssets Admissions
  /METHOD=ENTER Income Residents Ethnicity UnemployRate PoliticalAffil
  /METHOD=ENTER HospitalOwn OrgNFP_FP Central_Decen CMI
  /SCATTERPLOT=(*ZRESID ,*ZPRED)
  /RESIDUALS NORMPROB(ZRESID)
  /CASEWISE PLOT(ZRESID) OUTLIERS(3)
  /SAVE MAHAL COOK.
```

Regression

Descriptive Statistics

	Mean	Std. Deviation	N
Operating Margin	1.44505	13.921451	1690
Total Assets	374676228.26	810055986.112	1690
Total Admissions	5697.75	8870.957	1690

Household Income	59174.68	8910.080	1690
Number of Resident	.4711	.27491	1690
Ethnicity-%White	.6418	.14723	1690
Unemployment Rate	.04863	.007032	1690
Political Affiliation	.70	.456	1690
Ownership Govt-NGovt	.08	.265	1690
Type of Organization	.72	.448	1690
Taxonomy-Centralization	.56	.497	1690
Case Mix Index	1.62187	.279067	1690

Model Summary[d]

Model	R	R Square	Adjusted R Square	Std. Error of the Estimate
1	.027[a]	.001	.000	13.924575
2	.151[b]	.023	.019	13.790896
3	.301[c]	.090	.085	13.320111

a. Predictors: (Constant), Total Admissions, Total Assets

b. Predictors: (Constant), Total Admissions, Total Assets, Number of Resident, Unemployment Rate, Political Affiliation, Ethnicity-%White, Household Income

c. Predictors: (Constant), Total Admissions, Total Assets, Number of Resident, Unemployment Rate, Political Affiliation, Ethnicity-%White, Household Income, Ownership Govt-NGovt, Taxonomy-Centralization, Case Mix Index, Type of Organization

d. Dependent Variable: Operating Margin

ANOVA[a]

Model		Sum of Squares	df	Mean Square	F	Sig.
1	Regression	240.866	2	120.433	.621	.537[b]
	Residual	327098.832	1687	193.894		
	Total	327339.697	1689			
2	Regression	7442.109	7	1063.158	5.590	.000[c]
	Residual	319897.589	1682	190.189		
	Total	327339.697	1689			
3	Regression	29619.937	11	2692.722	15.177	.000[d]
	Residual	297719.761	1678	177.425		
	Total	327339.697	1689			

a. Dependent Variable: Operating Margin

b. Predictors: (Constant), Total Admissions, Total Assets

c. Predictors: (Constant), Total Admissions, Total Assets, Number of Resident, Unemployment Rate, Political Affiliation, Ethnicity-%White, Household Income

d. Predictors: (Constant), Total Admissions, Total Assets, Number of Resident, Unemployment Rate, Political Affiliation, Ethnicity-%White, Household Income, Ownership Govt-NGovt, Taxonomy-Centralization, Case Mix Index, Type of Organization

Model		Unstandardized Coefficients		Standardized Coefficients		
		B	Std. Error	Beta	t	Sig.
1	(Constant)	1.639	.431		3.803	.000
	Total Assets	1.127E-10	.000	.007	.269	.788
	Total Admissions	-4.145E-5	.000	-.026	-1.085	.278
2	(Constant)	6.187	7.657		.808	.419
	Total Assets	5.462E-10	.000	.032	1.293	.196
	Total Admissions	-1.320E-6	.000	-.001	-.034	.973
	Household Income	1.331E-5	.000	.009	.191	.849
	Number of Resident	.782	1.609	.015	.486	.627
	Ethnicity-%White	-3.073	3.092	-.032	-.994	.320
	Unemployment Rate	-151.601	61.792	-.077	-2.453	.014
	Political Affiliation	4.611	1.212	.151	3.806	.000
3	(Constant)	-7.777	7.775		-1.000	.317
	Total Assets	6.188E-12	.000	.000	.014	.989
	Total Admissions	3.732E-6	.000	.002	.100	.921
	Household Income	9.429E-6	.000	.006	.139	.890
	Number of Resident	1.507	1.556	.030	.968	.333
	Ethnicity-%White	2.947	3.081	.031	.957	.339
	Unemployment Rate	-116.773	60.248	-.059	-1.938	.053
	Political Affiliation	3.337	1.177	.109	2.835	.005
	Ownership Govt-NGovt	-3.456	1.263	-.066	-2.737	.006
	Type of Organization	-6.389	.820	-.206	-7.789	.000
	Taxonomy-Centralization	.186	.715	.007	.260	.795
	Case Mix Index	8.714	1.279	.175	6.816	.000

REGRESSION 33: (DV3) OPERATING MARGIN: ORGANIZATIONAL FACTORS

```
REGRESSION
  /DESCRIPTIVES MEAN STDDEV CORR SIG N
  /MISSING LISTWISE
  /STATISTICS COEFF OUTS CI(95) R ANOVA COLLIN TOL ZPP
  /CRITERIA=PIN(.05) POUT(.10)
  /NOORIGIN
  /DEPENDENT OpMargin
  /METHOD=ENTER TotalAssets Admissions
  /METHOD=ENTER HospitalOwn OrgNFP_FP Central_Decen CMI
  /SCATTERPLOT=(*ZRESID ,*ZPRED)
  /RESIDUALS NORMPROB(ZRESID)
  /CASEWISE PLOT(ZRESID) OUTLIERS(3)
  /SAVE MAHAL COOK.
```

Regression

Descriptive Statistics

	Mean	Std. Deviation	N
Operating Margin	1.44505	13.921451	1690
TotalAssets	374676228.26	810055986.112	1690
Total Admissions	5697.75	8870.957	1690
Ownership Govt-NGovt	.08	.265	1690
Type of Organization	.72	.448	1690
Taxonomy-Centralization	.56	.497	1690
Case Mix Index	1.62187	.279067	1690

Model Summary[c]

Model	R	R Square	Adjusted R Square	Std. Error of the Estimate
1	.027[a]	.001	.000	13.924575
2	.275[b]	.076	.072	13.408083

a. Predictors: (Constant), Total Admissions, Total Assets

b. Predictors: (Constant), Total Admissions, Total Assets, Ownership Govt-NGovt, Taxonomy-Centralization, Case Mix Index, Type of Organization

c. Dependent Variable: Operating Margin

ANOVA[a]

Model		Sum of Squares	Df	Mean Square	F	Sig.
1	Regression	240.866	2	120.433	.621	.537[b]
	Residual	327098.832	1687	193.894		

	Total	327339.697	1689			
2	Regression	24775.513	6	4129.252	22.969	.000[c]
	Residual	302564.185	1683	179.777		
	Total	327339.697	1689			

a. Dependent Variable: Operating Margin

b. Predictors: (Constant), Total Admissions, Total Assets

c. Predictors: (Constant), Total Admissions, Total Assets, Ownership Govt-NGovt, Taxonomy-centralization, Case Mix Index, Type of Organization

Model		Unstandardized Coefficients		Standardized Coefficients		
		B	Std. Error	Beta	T	Sig.
1	(Constant)	1.639	.431		3.803	.000
	Total Assets	1.127E-10	.000	.007	.269	.788
	Total Admissions	-4.145E-5	.000	-.026	-1.085	.278
2	(Constant)	-7.252	2.111		-3.436	.001
	Total Assets	-2.542E-10	.000	-.015	-.570	.569
	Total Admissions	-3.596E-5	.000	-.023	-.977	.329
	Ownership Govt-NGovt	-3.473	1.252	-.066	-2.775	.006
	Type of Organization	-6.563	.794	-.211	-8.266	.000
	Taxonomy-Centralization	-.123	.714	-.004	-.173	.863
	Case Mix Index	8.671	1.275	.174	6.799	.000

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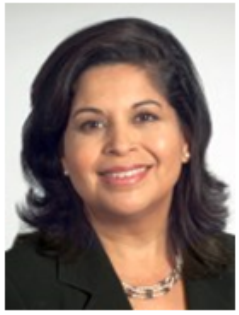

Esther Chance
Head of Front Office Operations

Esther Chance is Head of Front Office Operations. In this role, Ms. Chance is responsible for a global organization that leverages specialized skills and operates through common governance to provide investment teams with enhanced capabilities. She is responsible for partnering with key supporting functional groups and leading global efforts to strengthen engagement and processes across a variety of support activities.

Ms. Chance joined Invesco in 1987 as a portfolio assistant in the money market area. In 1989, she was promoted to Administrative Supervisor for Investments. She assumed portfolio management responsibilities in 1996. In 2002, she became a Senior Portfolio Manager in Fixed Income/Money Markets. In 2008, she was Head of Corporate and Canadian Portfolio Management. Her most recent role was Head of Credit Liquidity Portfolio Management. She was responsible for the management of global liquidity products, including institutional, retail and offshore money funds, as well as private accounts. She assumed her current role in 2016.

Ms. Chance earned a BBA from the University of Houston, an MBA from The Freeman School at Tulane University, and a DBA (Doctor of Business Administration) from Robinson College of Business at Georgia State University. Ms. Chance is a member of the Women's Bond Club of New York and a founding member of the Invesco Women's Network (IWN).