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Effects of Medicaid Expansion on The Financial Performance of Rural Hospitals

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EFFECTS OF MEDICAID EXPANSION ON THE FINANCIAL PERFORMANCE OF RURAL HOSPITALS

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DOCTOR OF SCIENCE IN HEALTH SERVICES ADMINISTRATION

ABSTRACT

The purpose of this research was to examine the effects of Medicaid expansion on the financial performance of rural hospitals. The analysis compares Medicaid revenue, uncompensated care cost and operating margins between rural hospitals in states that expanded Medicaid and rural hospitals in states that did not expand Medicaid. Strategic Management Theory was used to develop a theoretical framework to address three primary hypotheses. Secondary data from the Medicare Cost Report (MCR), the Agency for Healthcare Research and Quality (AHRQ), and American Hospital Association Annual Survey (AHA) was used to test hypothesized relationships using fixed effects regression models.

The analysis found significant statistical differences between rural hospitals in expansion states and rural hospitals in non-expansion states. Specifically, hospitals in expansion states experienced, on average, higher Medicaid revenue in 2012, pre-expansion, than hospitals in non-expansion states. However, expansion states experienced, on average lower operating margins compared to hospitals in non-expansion states.

We found support for hypothesis 1. Rural hospitals in expansion states had an increase in Medicaid revenue following the implementation of Medicaid expansion (644,682, $p<0.01$), indicating that rural hospitals in expansion states experienced a larger

increase in Medicaid revenue, as a percent of total patient revenue, relative to rural hospitals in non-expansion states. Similarly, we found support for hypothesis 2. Rural hospitals in expansion states had a decrease in uncompensated care costs following the implementation of Medicaid expansion (-393,053.8, $p < 0.05$), indicating that rural hospitals in expansion states experienced fewer or a decrease in uncompensated care costs of operating expenses, relative to rural hospitals in non-expansion states. Lastly, we found no support for hypothesis 3, that rural hospitals in expansion states would experience greater increases in operating margins than rural hospitals in non-expansion states.

Keywords: Medicaid expansion, Medicaid revenue, uncompensated care costs, operating margins, fixed effects panel regression models

DEDICATION

This dissertation is dedicated to my Lord Jesus Christ, who is the head of my life and by whose grace I am here to complete the academic requirements for a doctoral program.

To my family, including my wife Shelita, who has supported this endeavor from day one, and without her unwavering support, this day would not be a reality. To my daughters, Kirby and Kelly Brady, who have inspired me to continue my pursuit of my doctoral studies, and who have been the beacon of my life. To my mother Shirley Brady who is terminally ill and battling cancer, I appreciate you. To my big brother Ronald Brady who is no longer with us, I thank you for protecting me growing up. To my dear friends of many years, Everett Henderson, Ronald V. Burns, and Thomas Northrop, who have encouraged and supported my efforts as a father, senior healthcare executive, and community leader. Finally, to Bishop George Dallas McKinney, I would like to thank you for the spiritual guidance you have provided me over the years and your support and encouragement in my pursuit of professional growth.

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I express my thanks to Dr. S. Robert Hernandez for giving me the opportunity to participate in a wonderful program that is being recognized nationally for its curriculum and senior healthcare executives who have entered the program and contributed significantly to its success. Finally, I would like to thank Leandra Celaya, Director of Operations, Executive Doctoral Program for her coordination of all aspects of the program. My academic life and others have been made a little easier because of her tireless efforts to see that travel, computer issues, and any nonacademic issues were resolved in a timely manner.

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LIST OF ABBREVIATIONS

ACHE American College of Healthcare Executives
ACS American Community Survey
AHA American Hospital Association
AHQR Agency for Healthcare Research and Quality
BEA Bureau of Economic Analysis
BHR Becker's Hospital Review
BOD Board of Directors
CEO Chief Executive Officer
CMO Chief Medical Officer
CNO Chief Nursing Officer
CMS Centers for Medicare and Medicaid
CWF Common Wealth Fund
DHS Department of Health and Human Services
HCAHPS Hospital Consumer Assestment of Healthcare Providers and Systems
HFMA Hospital Financial Management
IOM Institute of Medicine
JCAHO Joint Commission on The Accreditation of Healthcare Organizations
KFF Kaiser Family Foundation
MEPS Medical Expenditure Panel Survey
MH Modern Healthcare
NCQA National Committee for Quality Assurance
NMA National Medical Association
NRHA National Rural Health Association
PCT Pew Charitable Trust
RUPRI Rural Policy Research Institute
RWJ Robert Wood Johnson Foundation
SWOT Strengths Weaknesses Opportunities Threats
WHO World Health Organization

CHAPTER 1

INTRODUCTION

Multiple major pieces of federal legislation have been enacted in the past 35 years, all aimed at better controlling and administering government healthcare expenditures. Significant among these have been the Prospective Payment System (PPS), introduced in 1983, and the Balanced Budget Act (BBA) of 1997. A third major piece of federal healthcare legislation, the Patient Protection and Affordable Care Act (ACA), became law in March 2010.

Whereas the 1983 and 1997 bills primarily sought to control cost and payment mechanisms, the 2010 ACA legislation sought to expand and redefine insurance coverage for millions of Americans not covered by insurance, as well as installing certain mechanisms for regulating costs. As of February 2015, implementation of the ACA had added 16.9 million people to the number of Americans who had health insurance. Of these, at least 9.6 million were newly enrolled in Medicaid (Carman, Eibner, & Paddock, 2015; Health & Services, 2015; Sommers, Gunja, Finegold, & Musco, 2015).

Throughout these decades of legislative change, rural hospitals have struggled financially. Many have closed, and others face ongoing major challenges (NHRA, 2014, 2015). This issue is of importance nationally because one in five persons in the United States lives in areas where health services are sparse to non-existent (NHRA, 2016; RUPRI, 2015, 2016). When a rural hospital closes, communities and a significant proportion of America’s citizens are impacted. For many rural communities, the local

hospital is much more than just a location to receive acute medical care. The rural hospital is usually one of the largest employers in the community, and the impact of that business closing can often negatively influence other businesses in the area and the community's economy (NHRA, 2016).

Opinions and data differ regarding the degree to which these specific pieces of legislation harmed rural hospitals, and whether they have suffered more greatly than urban hospitals. Regardless, rural hospitals provide care for a significant number of Medicaid patients, and they are a significant part of the overall fabric of America's healthcare services (Angelelli, Fennell, Hyatt, & McKenney, 2003; Rosenblatt, 1993).

With the passage of the 2010 ACA, each state was given the option to expand Medicaid coverage, and some states exercised that option. As of July 2016, 31 states and the District of Columbia had expanded Medicaid coverage, and 19 had not pursued Medicaid expansion to the extent allowed by the ACA (Henry J. Kaiser Family Foundation, 2016).

With the arrival of 2017 and a new administration, the country is again considering significant healthcare legislative changes (Becker's, 2017). The stated goal of the new administration is to change or replace the Affordable Care Act (ACA) and to introduce different types of competitive market reforms. Whatever legislative changes are enacted, they will almost certainly impact hospitals of all sizes, including rural hospitals. The actions each state made, or did not make, in expanding Medicaid may have significant and differential impacts with regards to how the proposed new legislation will affect individual states going forward. This study examined the impact on states of adopting different approaches to Medicaid expansion and the resulting impact on the

financial performance of rural hospitals in those states that adopted compared to those that did not.

Background

1983 Prospective Payment System

The prospective payment system (PPS) of 1983 promised to change the way hospitals were reimbursed by paying in a different way, and by providing hospitals with incentives for controlling costs. Payments were determined by diagnosis, with various diagnoses being organized into DRG-Diagnostic Related Groups (Sear, 1992; Walker, 1993; Younis, Younis, & Okojie, 2006). The provisions also included an experimental payment program that exempted certain rural hospitals from the PPS mechanism, and other provisions for extra payments for providing services to certain uninsured and Medicaid patients (Reif & Ricketts, 1999). The change to PPS transformed compensation for elderly patients from the previous cost-based reimbursement system and dramatically reduced hospital reimbursement rates for these patients (Guterman & Dobson, 1986; Guterman, Eggers, Riley, Greene, & Terrell, 1988).

Some have suggested that PPS reimbursement has been particularly harmful to small rural hospitals because of their lower-case mix index (Farley & Hogan, 1990) and their lower average daily census, two integral components used in the computation of PPS payments (Guterman & Dobson, 1986; Lillie-Blanton et al., 1992; Smith & Piland, 1990).

Although PPS did reduce reimbursement rates for hospitals, it is not widely agreed that this was the primary cause of many rural hospital closures. Some researchers point to other factors, such as declining rural populations and a reduction in admissions

(Mohr, 1998). Despite varying and conflicting evidence concerning the impact of Medicare/Medicaid reimbursement changes on hospitals, the 1983 PPS payment changes certainly contributed to increased financial complexity and uncertainty for all hospitals.

1997 Balanced Budget Act

With the 1997 Balanced Budget Act, multiple significant new Medicare and Medicaid changes took place that further impacted U.S. hospitals (Bazzoli, Lindrooth, Hasnain-Wynia, & Needleman, 2004). Medicare spending was cut by $116.4 billion and Medicaid spending by $8.4 billion over five years, and federal Medicaid DSH spending was reduced by $10 billion over five years. Approximately $44 billion of the five-year Medicare savings came from direct reductions in hospital inpatient and outpatient fee-for-service payments (AHA, January 2006).

In assessing the long-term impact of these legislative changes and payment reductions on rural hospitals, multiple studies have indicated the impact is significant. Sloane (2002) noted that rural hospitals received more than 40% of their revenue from Medicare, and under Medicare's PPS prospective payment system, rural hospitals were being reimbursed at a lower rate than urban hospitals. Between 1990 and 2008, 208 rural hospitals closed in the United States, representing 7.8% of all rural hospitals in the country (Rehnquist, 2003). In 2003, the Office of Inspector General attributed these rural hospital closures to rising costs and insufficient revenues to sustain operations.

2008 Recession and 2010 Patient Protection and Affordable Care Act

"In 2008, the United States experienced the greatest recession since the early 2000s, which lasted 1 year, and six months and unemployment was at a peak of 10%; and, GDP of –5.1%" (Bureau of Economic Analysis, 2011, para. 1). This economic

struggle has had significant impact on healthcare, including rural hospitals. During the 2008 recession, many individuals lost their homes, life savings, and jobs. As Americans lost their jobs, many lost the health insurance they received as part of their employment. Many Americans living at or below the poverty level did not have health insurance and did not qualify for Medicaid. Both groups were less able to pay healthcare costs. Increasing numbers of uninsured, sick individuals flooded Emergency Departments (EDs) throughout the United States to receive needed care with dwindling means to pay for that care. As a result, significantly higher amounts of uncompensated emergency room and hospital care were borne by hospitals and health systems (Janke et al., 2015; Wilding, Smith, & Graetz, 2006).

With the backdrop of the 2008 recession still lingering, the 2010 ACA made significant changes, with the intent of increasing coverage while seeking to control costs. ACA allowed states to expand eligibility for Medicaid by raising the income limit to 138% of the federal poverty level. The increased access to health insurance coverage provided by the ACA was expected to reduce the amount of uncompensated care (care for which no payment is received) that would need to be provided by hospitals. In turn, this reduction was expected to decrease the need for supplemental payments to be made to hospitals through the Medicaid Disproportionate-Share Hospital (DSH) program.

By February 2015, ACA implementation added 16.9 million Americans to the total of those insured, with at least 9.6 million being newly enrolled in Medicaid (Carman et al., 2015; Health & Services, 2015; Sommers et al., 2015). Actual implementation of the ACA resulted in less total new insureds nationally than originally expected, in part because 19 states chose not to pursue Medicaid expansion.

35 Years of Change as Prelude to 2018 and Beyond

With the past 35 years as backdrop and whatever new federal legislation is adopted, three significant forces may be expected to continue impacting rural hospitals adversely from 2018 to 2025: (1) Prospective Payment System (PPS) changes, (2) Medicaid eligibility and coverage changes, and (3) Disproportionate Share Hospital (DSH) withhold changes. For example, even if the ACA remains unchanged, Medicaid DSH payments are scheduled to be further reduced in 2018 through 2025 (Coughlin, Holahan, Caswell, & McGrath, 2014; Cunningham, Rudowitz, Young, Garfield, & Foutz, 2016; Mitchell, 2013). DSH withholds will total $43 billion from 2018 through 2025 (Mitchell, 2013).

Statement of the Problem

A central issue for the country, and particularly for rural areas where one in five Americans reside, is the impact of rural hospital closures, and subsequent loss of significant medical coverage resources for higher risk Americans; the vulnerable elderly, low-income adults, the disabled and the near elderly (NRHA, 2015, 2016). When rural hospitals close, physicians, physician's assistants, nurses and other health care providers often leave the community. The lack of proper attention to the rural healthcare crisis is resulting in "medical deserts" throughout the country: regions of rural America where healthcare is limited or non-existent (Advisory Board, 2013, para. 3).

This study focused on Medicaid expansion and its effects on the financial performance of rural hospitals in expansion states and non-expansion states. Under current ACA policy, rural hospitals in states that decided not to pursue Medicaid expansion have experienced increasing financial strain. Kaufman et al. (2016) suggested

that hospitals in states that did not expand Medicaid may experience smaller reductions in the rate of uninsured patients when compared to hospitals in states that did expand Medicaid. Decisions by states to not expand Medicaid can have detrimental consequences in those states such as increased uncompensated care to hospitals, state budget shortfalls due to forgone federal matching funds, and further declines in population health for those uninsured in non-expansion states who are poor, unemployed, and suffer from multiple chronic health conditions (KFF, 2016).

A recent study conducted by iVantage (2016) Health Analytics suggested that 263 rural hospitals are experiencing financial distress and are at risk for closure (iVantage, 2016). Indeed, closures of this magnitude could possibly result in catastrophic consequences for patients left without basic medical services in very rural and urban areas throughout the United States. As one result, rural hospital Emergency Departments (EDs) already struggling to maintain providing care for current uninsured/high-co-pay patients, will likely experience even higher levels of uncompensated care (iVantage, 2016). Emergency department overcrowding, and lengthy wait times are nothing new. However, with the arrival of the ACA and resultant rise in ED volume, wait times are getting increasingly worse. The phenomenon is not only costly for hospitals, "but also compromises quality of care, the patient experience, outcomes, and physician productivity and satisfaction" (Becker's, 2017, para.1).

Purpose of the Study

The aim of this study was to investigate the impact of Medicaid expansion on the financial performance of rural hospitals in states that adopted compared to those that did not. Financial performance, the dependent variable, was measured by: (1) Medicaid

revenue (as measured in dollars), (2) uncompensated care (measured in dollars), and (3) operating margin. Bivariate statistics were used to describe the study sample. Multivariate regression models were used to analyze the association of Medicaid expansion and our main outcome variables of interest: Medicaid revenue, uncompensated care and operating margins for fiscal years 2011-2012 and 2014-2015.

Secondary data for our study was obtained from Centers for Medicare and Medicaid Services CMS) for years 2011-2012 and 2014-2015, and American Hospital Association (AHA) Annual Survey for years 2011-2012 and 2014-2015, and the Agency for Healthcare Research and Quality (AHRQ). The following research questions guided the study:

1. *Among rural hospitals, are there differences in financial performance between those operating in Medicaid expansion states compared to non-expansion states?*
2. *If there are differences among rural financial performance between Medicaid expansion and non-expansion states, what is the magnitude and direction of these differences?*

CHAPTER 2

LITERATURE REVIEW

This chapter reviews the existing literature on what is known about Medicaid expansion and financial performance. We also focus on summarizing the literature on key variables in this analysis. This section concludes with a discussion on the theoretical and conceptual frameworks supporting the hypothesis.

Several studies suggest that Medicaid expansion affected uncompensated care cost and operating margins differently in states that expanded compared to those that did not (Blavin, 2016; Dranove, Garthwaite, & Ody, 2016). Dranove et al. (2016) argued that uncompensated care cost as a percent of operating cost were lower in expansion states compared to non-expansion states. Additionally, "[t]hat reductions in Medicaid expansion states were larger at hospitals that had higher pre-ACA uncompensated care burdens and in markets where they predicted gains in coverage through expanded eligibility for Medicaid" (Dranove et al., 2016).

Blavin (2016) like Dranove acknowledged that uncompensated care cost as a percent of excess margins was greater in states that expanded compared to those that did not**.** However, unlike Dranove, Blavin reported that there was "no statistical difference in operating margins in states that adopted as compared to those that did not" (Blavin, 2016). While ACA decreased the variation in uncompensated care across hospitals within Medicaid expansion states, the difference between expansion and non-expansion states increased substantially.

Two studies examined the Medicaid expansion and the effects on payer mix and profitability on rural versus urban hospitals (Kaufman, Reiter, Pink, & Holmes, 2016; Nikpay, Buchmueller, & Levy, 2016). According to Kaufman et al., both urban and rural hospitals experienced increased Medicaid-covered discharges. However, the increases in Medicaid revenue were greater among rural hospitals than urban hospitals, and the decrease in the proportion of costs for uncompensated care was greater among urban hospitals than rural hospitals. Like Kaufman, Nikpay et al. (2016) posited that Medicaid discharges increased in expansion states compared to non-expansion states. However, Nikpay acknowledged that the "proportion of Medicaid and uninsured inpatients were gradually increasing during the years leading up to 2014, while the proportion of inpatients with private coverage was gradually decreasing" (Nikpay et al., 2016, p. 107). Moreover, the reductions in inpatient private discharges were significant in expansion states at $p < 0.01$(pre-expansion 0.538 [discharges] and post [0.509]) compared to non-expansion discharges (pre-expansion 0.533 and post 0.059), $p < 0.05$.

Coughlin, Holahan, Caswell, and McGrath (2014) estimated that uncompensated care cost to providers in 2013 was between $74.9 billion and $84.9 billion (Coughlin et al., 2014). Medicaid and Medicare were the largest sources of such government payments, providing $13.5 billion and $8.0 billion, respectively. Anticipating fewer uninsured people and lower levels of uncompensated care, the ACA reduced certain Medicare and Medicaid payments. "Such cuts in government funding of uncompensated care pose challenges to some providers, particularly in states that have not adopted Medicaid expansion or where implementation of health care reform proceeded slowly" (Coughlin et al., 2014, p. 107).

The American Hospital Association (AHA) cited payment shortfalls to hospitals and health systems for years 2009 through 2014 (first full year of Medicaid expansion). Medicare shortfalls for this period were approximately $181 billion and Medicaid shortfalls were approximately $241 billion (AHA Chart book, 2016). The effect of Medicare shortfalls of rural hospitals' financial performance compared to nonfederal and Critical Access (CAHs) have not been examined since 2014. This study will fill this gap by presenting one additional year of empirical data analysis.

Table 1

Summary of Literature Review – Medicaid Expansion

Study	Study Design	Sample	Setting	Main IV	Main DV	Results
Holohan et al. (2013)	Estimation of uncompensated care cost in two ways: 1) data used from MEPS, 2) used published secondary data from health care providers and government sources	Medical Expenditure Panel Survey (MEPS) data provided on 86,047 respondents (approximately-annually for years 2008, 2009, and 2011; ages 64 and under	Annual survey of costs associated with uncompensated cost provided to the nonelderly uninsured in 2013	Population Growth & changes in per capita income between 2008 & 2013	Total Uncompensated care costs	Estimates of between $74.9 billion and $84.9 billion uncompensated care was provide to uninsured person in the U.S. Aggregate figures suggest that 65% of providers' uncompensated care costs were offset by government payments – Medicare: $13.5 billion and Medicaid: $8.0 billion
Nikpay et al. (2014)	States divided into those that adopted and those that did not expand Medicaid and compared changes before and after coverage expansion. Multivariate linear regression in a dif-in-dif analysis controlling for state-level demographics and economic characteristics	Healthcare Cost Utilization Project (HCUP) compiled state-level discharge data aggregated by patient age and primary expected source of income	15 states that adopted expansion between 2009 through the second quarter of 2014. AZ, CA, CO, HI, IA, KY, MN, NJ, & NY excluded due to early expansion	Medicaid expansion	Payer-mix all sources	In states that adopted Medicaid inpatient days increased sharply for the first two quarters of 2014. There was no change in payer mix in states that did not expand Medicaid.
Kaufman et al. (2016)	Difference-in-difference quantitative analysis controlled for hospital and market characteristics	N=14,451 yr. Observations & 1,353 hospitals rural and urban	Nonfederal short-term general acute care hospitals. National Sample 2011-2014 Medicare Cost Report	Exposure to Medicaid expansion-hospitals location in Medicaid expansion state and the proportion of	Medicaid revenue, Medicaid discharges, Uncompensated care and operating margin	Differential effects of Medicaid expansion in rural versus urban hospitals. Study suggested that Medicaid expansion was associated with increases in Medicaid covered discharges. However, the increase is significant among rural hospitals than urban hospitals, and the decrease in the proportion of cost for

Study	Study Design	Sample	Setting	Main IV	Main DV	Results
				days in the hospital's 2014 cost report that occurred after the expansion		uncompensated care was greater among urban hospitals than rural hospitals.
Dranove et al. (2016)	Hospital Survey Area (HSA) using zip code crosswalk from Dartmouth Atlas of Health Care.	N=1,249 general acute care hospitals or critical access hospitals	Medicare Cost report for 2011-2014, 50 states and the District of Columbia	Uncompensated Care Cost as a percentage of operating exp.	Nonelderly population of childless adults	Study suggested that states that expanded Medicaid under the ACA, uncompensated care costs decreased from 4.1 percentage points to 3.1 percentage points of operating costs-that the reduction s in Medicaid expansion states were larger in hospitals that had higher pre-ACA uncompensated care burdens and in markets where they predicted larger gains in coverage through expanded eligibility for Medicaid.
Blavin (2016)	Observational study with analysis of data for non-federal general medical or surgical hospitals in fiscal years 2011 through 2014. Multivariate difference-in-difference regression analyses to compared Medicaid expansion to non-expansion.	AHA Annual survey and the Health Care Costs Report of Information Systems between 1,200 and 1,400 hospitals per fiscal year in 19 states with Medicaid expansion and between 2,200 and 2,400 hospitals per fiscal year in 25 states without expansion	Nonfederal general medical or surgical hospitals in fiscal year 2011-2014. Five states excluded: MA, CA, CT, MN, NJ, WA, & the District of Columbia	Medicaid Expansion adopted versus non-adopters	Uncompensated care, uncompensated care as a percentage of total hospital expenses, Medicaid revenue as a percent of total revenue, operating margin, and excess margin	Hospitals located in 19 states that implemented the Medicaid expansion had significantly increased Medicaid revenue, decreased uncompensated care costs, and improvements in profit margins compared with hospitals located in 25 states that did not expand Medicaid.

Main Outcome Variables

Medicaid revenue. Several studies have examined the association between Medicaid revenue increase or decrease in states that adopted and those that did not. In a national study of (14,451 hospital observations), Kaufmann, Reiter, Pink, and Holmes (2016) concluded that states that have not expanded Medicaid may be at most risk for continued high levels of uncompensated care. The authors specifically noted: on average, Medicaid revenues and Medicaid-covered hospital discharges have increased more, and charity care (care for which no payment is expected) and bad debt (unrecoverable debt) have decreased more, in states that have expanded Medicaid than those that have not.

Nikpay, Buchmueller, and Levy (2016) investigated the association between states that expanded Medicaid and those that did not. In a difference-in-difference analysis, results suggested that coverage expansions shifted the "mix of payers for inpatient care toward Medicaid and away from self-pay, reducing uncompensated care. Moreover, the shift towards higher levels of Medicaid revenue was more noticeable in states that expanded compared to those that did not". In an earlier study of Connecticut hospitals using hospital-level panel data from the Medicare cost report, Nikpay et al. (2010) asserted "that an increase of 7-9 percentage points in Medicaid discharges relative to a baseline of 11 percent, and an increase of 7-8 percentage points in Medicaid revenue as a share of total revenue, relative to a baseline of 10 percent" (p. 1170).

Uncompensated care cost. Dranove, Garthwaite, and Ody (2016) noted "An often-stated reason for the ACA's passage was the rising burden on both patients and hospitals because of uncompensated care for uninsured people" (p. 1471). According to Dranove et al. (2016), states that expanded Medicaid realized a decrease in

uncompensated care cost (as a percentage of operating expenses) from 5.7 percentage points to 4.0 percentage points of operating expenses. In an observational study Blavin (2016) concluded that Medicaid expansion was associated with significant declines in uncompensated care costs and increases in Medicaid revenue in 2014 among hospitals in 19 states that expanded Medicaid compared to the 25 states that did not expand Medicaid. According to Teresa Coughlin et al. (2014) $84.9 billion in uncompensated care was provided in 2013. The premise for hospitals and health systems was that uncompensated care cost would be reduced because more uninsured people would be covered by Medicaid. Additionally, it was expected that bad debt would be reduced because more individuals would be covered and therefore pay their bills.

Uncompensated care provision is often used to measure hospital charitable care provided to uninsured individuals. It is normally defined as "…the sum of charity care (for patients who are qualified for charity care and are deemed unable to pay after meeting certain criteria) and bad debts (for patients who presumably can afford to pay, but do not)" (Weissman, 1996, p. 824). Although one may argue that charity care is a precise measure, many researchers found that variations do exist across hospitals in hospital accounting for charity care and bad debt (Bazzoli, Lindrooth, Kang, & Hasnain-Wynia, 2006; Davidoff, LoSasso, Bazzoli, & Zuckerman, 2000).

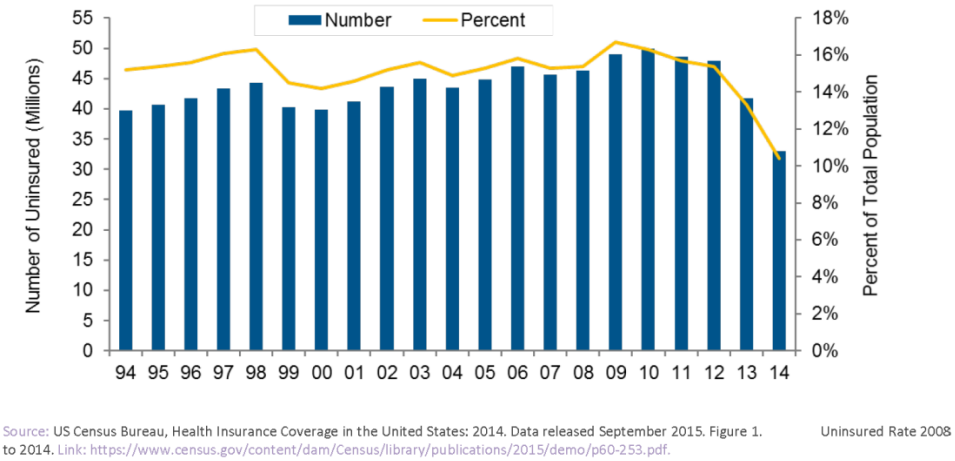


Figure 1. Number and percent uninsured, 1994 – 2014.

Rundall et al. (1998) commented that hospitals may report their indigent care service as charity care or bad debt, depending on their ownership status. Kane and Wubbenhorst (2000), on the other hand, indicated that if hospitals can identify the relevant information about the patient's financial information, some of what is classified as bad debt might be re-classified as charity care (Kane & Magnus, 2001; Kane & Wubbenhorst, 2000). Many empirical studies have combined charity care and bad debt into the measure of uncompensated care generally. Following the empirical research, this study will use charity care and bad debt as the measure of uncompensated care cost as a percentage of operating expenses.

Operating margin. Meit et al. (2014**)** argued that compared to urban health care, rural health care is provided in the context of lower density populations that are older and sicker, on average. As a result, rural hospitals typically have lower patient volumes and operating margins, and they are more reliant on public payers and more likely to be not for profit compared to urban hospitals (Kaufman et al., 2016). An operating margin is the net patient revenue minus operating expenses divided by net patient revenue and is a

common measure of profitability (W. Cleverley, 1991; W. O. Cleverley & Cleverley, 2017). For example, if a hospital has an operating margin of 10%, it retains 10 cents out of each dollar of operating revenue with the remaining 90 cents spent on various costs.

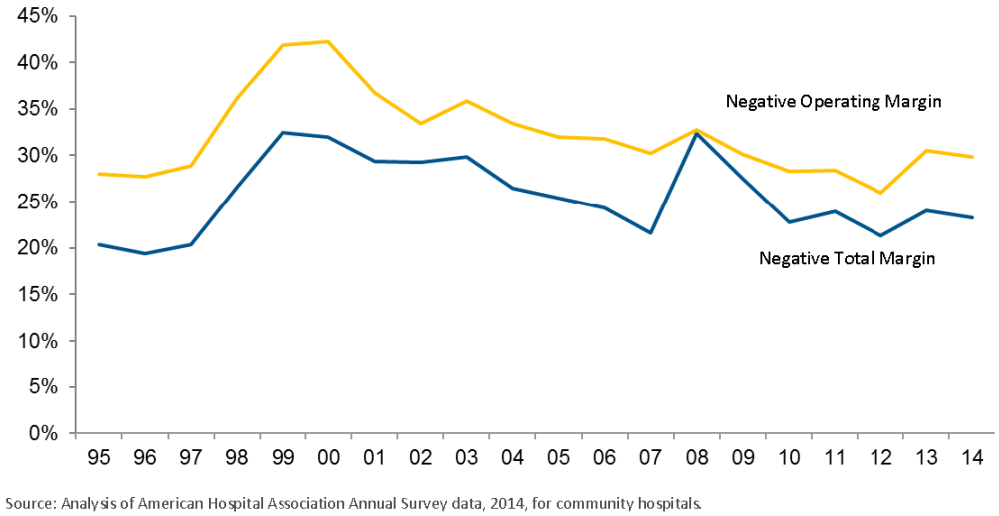
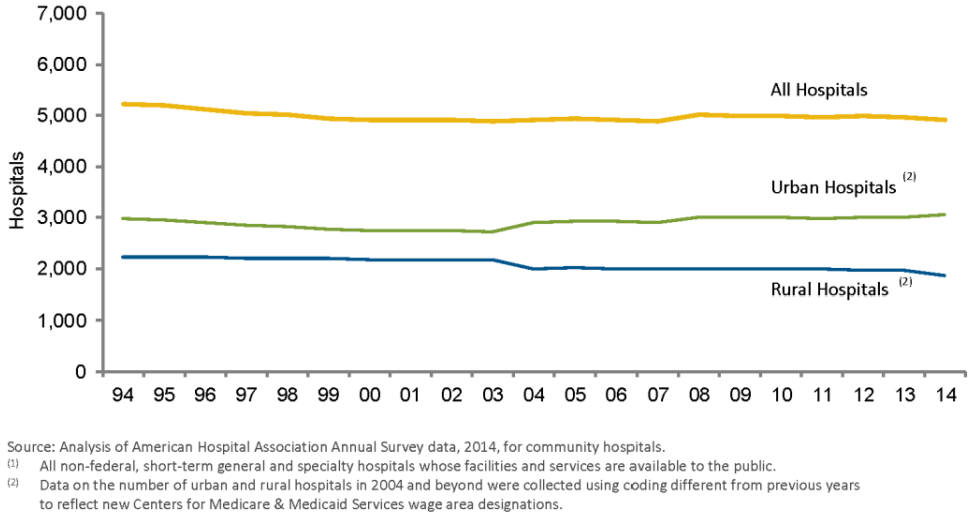


Figure 2. Percentage of hospitals with negative total and operating margins, 1995 – 2014.

Operating margins have shown a steady decline since 2000 of approximately 40% of all hospitals to approximately 32% of hospitals in the United States. Approximately 2,000 hospitals had negative operating margins in 2000 and approximately 1,500 hospitals had negative operating margins in 2014. Schuhmann (2010) noted this downward trend in income from non-patient care activities (total margin) in a study that examined Medicare cost report data of U.S. hospital financial performance leading into the economic downturn.



Source: Analysis of American Hospital Association Annual Survey data, 2014, for community hospitals.
(1) All non-federal, short-term general and specialty hospitals whose facilities and services are available to the public.
(2) Data on the number of urban and rural hospitals in 2004 and beyond were collected using coding different from previous years to reflect new Centers for Medicare & Medicaid Services wage area designations.

Figure 3. Number of community hospitals, 1994 – 2014.

Looking at 2,838 U.S. hospitals, the study analyzed the contribution to net income from patient care versus non-patient care activities during federal fiscal years (FFYs) 2005 through 2009. Their study concluded that hospitals have historically relied on non-patient care revenue to buttress their losses from patient care service operations such as investment income, public appropriations, and charitable donations.

Despite being in business primarily to care for patients, hospitals have been losing billions of dollars every year. According to Schuhmann (2010) “hospitals lost $4.817 billion, $3.728 billion, and $4.773 billion in three consecutive years prior to the economic downturn” (2005-07, p. 75). In 2008, hospital losses from patient care reached a high of $7.406 billion. Then as the economy began to struggle, so did hospitals. During this same period, hospitals-maintained activities in addition to patient care to effectively offset patient care losses. Net-income from these non-patient-care activities rose steadily in the years leading up to the economic downturn. However, net income from such activities began to decline in 2008 and dropped sharply in 2009.

In fiscal year 2014, hospitals in states with Medicaid expansion were more likely to be nonprofit, larger, and located in urban areas than hospitals in states without Medicaid expansion (Blavin, 2016). Blavin concluded that after Medicaid expansion, both operating and excess (total) margins increased among hospitals in states with Medicaid expansion and decreased among states without Medicaid expansion. Blavin observed the following: operating margins in states with Medicaid expansion improved by 0.8 percentage points (95% CI, -0.4 to 2.0 percentage points) from -5.0% (95% CI, -5.9% to -4.1%) in fiscal years 2013 to -4.2% (95% CI, -5.1 to -3.4%) in fiscal years 2014, whereas operating margins declined by 0.4 percentage points (95% CI, -1.8 to 0.9 percentage points) in states without Medicaid expansion from -5.8% (95% CI, -6.8 to 4.8%) in fiscal year 2013 to 6.2% (95% CI, -7.2% to -5.2%) in fiscal year 2014.

Hospital Characteristics (Control Variables)

Consistent with previous studies and MedPac analyses, we included the following variables to control for hospital characteristics and market characteristics: hospital bed size, hospital ownership (for profit, non-profit or public or public), Medicare shares, Critical Access and percent in poverty.

Hospital size. Hospital size (i.e., number of staffed beds) has been used as both an independent predictor variable and control variable of interest in multiple studies that investigated hospital distress (Gifford & Mullner, 1988; Succi, Lee, & Alexander, 1997; Hanh Q. Trinh & Begun, 1999). These studies concluded that smaller hospitals were more susceptible to financial distress than larger ones due to economies of scale. For example, Succi et al. (1996) argued that larger hospitals were less susceptible to hardships of short term business fluctuations because the increased resources associated

with their size often act as a buffer. Similarly, in a longitudinal study from 1980-1987 of Community hospital closure characteristics, Whites et al. (1992) posited that smaller rural hospitals are less likely to withstand fluctuations in revenue compared to their urban counterparts.

Hospital ownership. There have been multiple hospital studies that focused on the significance of ownership since the enactment of PPS in 1983 (Gifford & Mullner, 1988; Pfeffer & Leblebici, 1973; Succi et al., 1997). Works that examined the effects of a hospital's ownership on its financial performance include Gifford and Mullner (1988) and Succi et al. (1997). The researchers found that rural not-for-profits were less subject to the effects of financial hardship because of their ties to the community and the additional financial support that is often associated with their mission. Moreover, rural not-for-profit (NFP) hospitals are expected to meet a broader set of needs by providing charity care, community benefits, or teaching as part of their organizational mission (Marsteller, Bovbjerg, & Nichols, 1998; Sutton & Stensland, 2004). NFP hospitals are not legally allowed to distribute surplus to those who control the organization, but they can retain earning for internal reinvestments (Sloan, 2000).

Medicare share (percentage of patient days reimbursed by Medicare). This variable is related to the percentage of a hospital's days reimbursed by Medicare. It represents the portion of a hospital's operation funded by the federal government. This measure is especially important to smaller and rural hospitals because it often provides a major portion of total compensation. This factor is also important because even though Medicare hospital services are reimbursed at less than 100%, they still pay more than Medicaid or even most insurance plans (Gardiner, Oswald, & Jahera, 1996; Lillie-

Blanton et al., 1992; Rosenbach & Dayhoff, 1995). According to Lillie-Blanton (1992), hospitals with Medicare share percentages below 35% were associated with a higher risk of closure.

Rurality. One obstacle to the thorough assessment of service needs among rural residents is lack of a clear definition. Salmon, Nelson, and Rous (1993) considered most definitions inadequate. The authors stated that the rural/urban distinction derived from census categorization overlooked the rural nature of towns fewer than 2,500, while the metropolitan/nonmetropolitan distinction overlooked the urban nature of towns just over 50,000. According to the authors, "Ultimately, all are conceptually unsatisfying because rurality is a sociocultural configuration as well as a description of population size and density" (Salmon et al., 1993, p. 660). Citing other sources, Salmon et al. concluded that rurality is best conceptualized as a continuum rather than a dichotomy. The definition of rural based on the census concept of urban (incorporated and unincorporated places of 2,500 or more) is most conductive to the continuum concept because it classifies individual residents within a county as living in rural or urban areas rather than defining whole counties as rural or urban.

Poverty. Poverty rates are highest in the most urban and rural areas of the United States and higher in nonmetropolitan than metropolitan areas. Weber et al. (2005) analyzed data concerning poverty rates in the United States by geographical location. The study confirmed that high-poverty counties were geographically concentrated: counties with poverty rates of 20% or more were concentrated in the Black Belt and Mississippi Delta in the South, in Appalachia, in the lower Rio Grande Valley, and in counties containing Indian reservations in the Southwest and Great plains. Second, county-level

poverty rates varied across the rural-urban continuum. Third, high poverty and persistent poverty were disproportionately found in rural areas (Weber, Jensen, Miller, Mosley, & Fisher, 2005). According to Weber et al. (2005), about one in six U.S. counties (15.7%) had high poverty (poverty rates of 20% or higher) in 1999. However, only one in 20 (4.4%) metro counties did so. Weber et al. (2005) noted that almost one in eight counties had persistent poverty (poverty rates of 20% or more in each decennial census between 1960 and 2000). That those persistent-poverty counties are predominantly rural, 95% being nonmetro (Weber et al., 2005).

Like the findings of Weber et al. (2005), USDA (2011-2015) argued that the overall rate of poverty was higher in nonmetro counties than in metro, the difference between nonmetro/metro poverty rates varied significantly across regions. The nonmetro/metro poverty rate gap for the South has historically been the largest. In 2011-2015, the South had a nonmetro poverty rate of 21.7%, nearly six percentage points higher than the region's metro areas. The difference in poverty rates in the South was particularly important for the overall nonmetro poverty rate because an estimated 43.9% of the nonmetro population and 51.2% of the nonmetro poor lived in this region during this time. Regional poverty rates for nonmetro and metro areas were most alike in the Midwest and the Northeast in 2011-2015. See Figure 4.

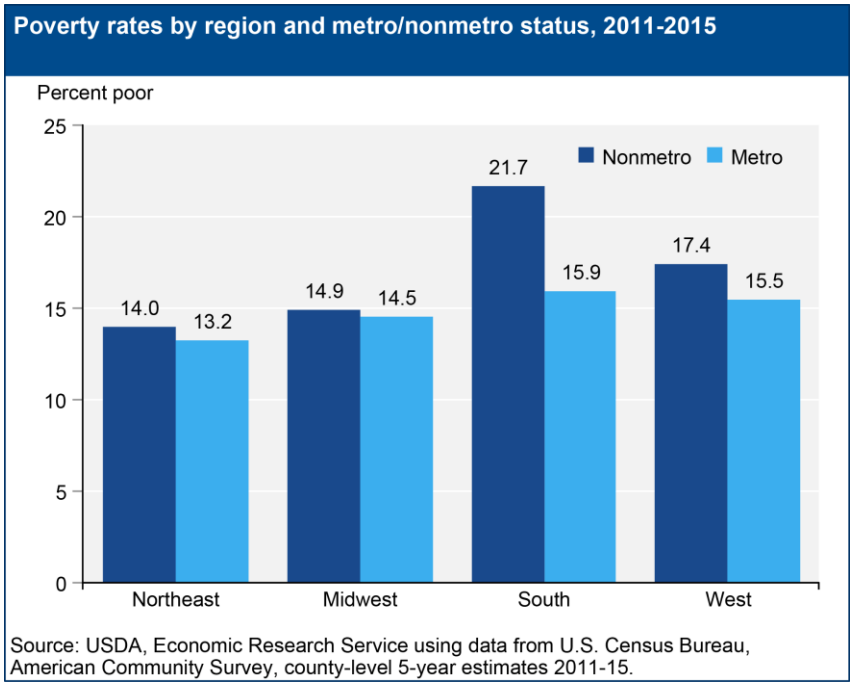


Figure 4. American Community Survey, county-level 5-year estimates 2011-2015.

In the United States, people living in poverty tend to be clustered in certain regions, counties, and neighborhoods rather than being spread evenly across the nation. Research has shown that the poor living in areas where poverty is prevalent face impediments beyond those of their individual circumstances. As stated in a report by USDA, concentrated poverty contributes to poor housing and health conditions, higher crime and school dropout rates, as well as employment dislocations. As a result, economic conditions in very poor areas can create limited opportunities for poor residents that become self-perpetuating (USDA, Economic Research Service, 2011-2015).

Physician shortage is also an important issue related to poverty. Several studies cite debt associated with medical school as an influencing factor for residents deciding where to practice and what specialty to choose. Additionally, lifestyle issues are important, and a desire to practice in a large urban environment as opposed to a rural location has been shown to be a strong deterrent to practicing medicine in rural America.

National data also demonstrate that there are five times as many physicians (per 100,000) persons in metropolitan core areas as compared to rural locations (Dansky et al., 1998). In large metropolitan areas, there are 304 physicians per every 100,000 individuals. In rural areas with a population density of less than 2,500 there are only 53 physicians per every 100,000 individuals (Rosenblatt & Hart, 1999). In addition to physician shortage, there has been a decrease in the proportion of physicians accepting Medicare patients (down from 74% to 71% between 1997 and 2001) (HRSA, 2002; NRHA, 2003, 2004).

Theoretical Framework

A primary concern of this study was the effects of Medicaid expansion on the financial performance of rural hospitals. Financial performance was measured as uncompensated care (measured in dollars), Medicaid revenue (measured in dollars), and operating margin. The underlying theoretical framework in this study derives from Chakravarthy's (1982) strategic management theory and from theoretical extensions by Trinh and Begun (1989), Greiner (1972), Scott (1971), and other researchers. The theoretical framework developed by Chakravarthy (1982) and other researchers has been applied to study rural hospital's response to governmental payment policy changes that may impact the financial performance of their institutions (Sloan, 2000). This section includes the following: (1) an overview of strategic management theory; (2) discussion related to the main outcome variables of this study, uncompensated care, operating margin, and Medicaid revenue; (3) discussion related to other control variables that might affect a rural hospital's financial performance; and (4) graphical depiction of the conceptual framework and application of the theoretical model. The main outcome of

interest is the effect of Medicaid Expansion on the Financial Performance of Rural Hospitals.

The review of the literature highlights the difficulty faced by rural hospitals in improving financial performance. However, the hospital industry has historically adapted to payment challenges such as the introduction of Medicare and Medicaid in 1965, diagnosis related groups (DRGs) prospective payment system in 1983, managed care proliferation of the 1980s, and the Balanced Budget Act of 1997 (Whetsell,1999). The most recent significant legislation signed into law was the Affordable Care Act (ACA) of 2010 that included Medicaid Expansion as of January 1, 2014. A key response by hospitals to these payment disruptions was to reorganize their focus and implement strategies measured against new benchmarks.

Overview of Strategic Management Theory

The essence of management is coping with change. A manager copes with change in the firm's external environment through the choice of an appropriate strategy and the design of a matching structure (Andrews, 1971). However, as Ansoff (1979) observed, "such strategy-structure cannot be an enduring one" (p. 35). Strategy is not a solution to a single problem. Even as the firm transforms itself to meet the needs of the original problem, the underlying problem may have undergone enormous changes. The solution may be inappropriate to the new problem. The process of continuously adapting to the changes in the firm's new environment is called strategic management (Schendel & Hofer, 1979).

Adaptation. Adaptation, in a biological sense, describes a state of survival for an organism. Analogously, a state of adaptation for a business organization is one in which it can survive the conditions of its environment. There may be several niches available to a firm for surviving the conditions of its environment. These niches can be further arranged in a hierarchy based on the extent of environmental complexity that the firm is attempting to manage. The higher the environmental complexity, the greater the firm's chances of long-term survival (i.e., level of adaptation). Three such levels are proposed here. The proposition derives from Simon's (1969) parallel definition of the three modes that are open to a system for coping with its environment: (a) passive insulation, (b) reactive negative feedback, and (c) predictive adaptation. Each level of adaptation represents a cluster of niches that have a common characteristic and that correspond to a state of adaptation. Three states are defined as unstable, stable, and neutral. The terminology, borrowed from mechanics, aptly describes the distinguishing characteristics of the three states.

Unstable. The unstable state is the most vulnerable to changes in the firm's environment, a neutral state is the least vulnerable, and a stable state is vulnerable only to certain environmental changes. In an unstable state, a firm attempts to buffer itself from its environment, as it is extremely susceptible to environmental changes. The manager of such a firm, concerned with the fragility of the firm's adaptation, is continuously searching for new buffering arrangements. It is possible for a firm in this state of adaptation to show good financial results in the short run. However, as reported by Chakravarthy (1982) "its long-term viability is severely constrained and vulnerable" (Chakravarthy, 1982, p. 36). Called "defenders," such firms have narrow product-market

domains and seldom seek to make major adjustments in technology, structure, or methods of operation. Such firms deliberately create stability through a series of decisions and actions that lessen the organization's interaction with its environment. As stated by Miles and Snow (1978), "While perfectly capable of responding to today's world, a defender is ideally suited for its environment only to the extent that the world of tomorrow is like that of today" (p. 47). As further articulated by Miles and Cameron (1977), such an organization adapts by simply ignoring environmental events or demands.

Stable. A stable state describes the state of adaptation in which instead of buffering itself from the environment, the firm is open to it and, in fact, offers a reactive move to stay in synch with the environment. The firm reacts to environmental changes and complies with environmental mandates (Miles & Cameron, 1977). Although the firm lags environmental change, its response time is extremely short. Called an "analyzer," such a firm has a buffered core like the defender, but unlike the defender it also has extensive market surveillance mechanisms that enable it to mirror the best of products and markets developed by others (Miles & Snow, 1978).

Neutral. In a neutral state, a firm can withstand most environmental changes because changes have been anticipated before their occurrence and the firm has invested in the requisite adaptive ability. The environment may have even been modified to suit the organization's needs. Called "prospectors," these organizations continuously search for market opportunities. They often create changes in their environment, to which their competitors must respond. According to Miles and Snow (1978), "A true prospector is almost immune from the pressures of a changing environment since this type of

organization is continually keeping pace with change, and frequently creating change itself" (p. 57).

Miles and Cameron (1977) described three different strategic choices that seem open to a firm in a neutral state: (1) Forecasting or anticipating environmental events so as either to restructure for them in advance or to prevent their occurrence, (2) Absorbing noxious or threatening environmental elements, and (3) Adapting the environment to the firm's preferred goals and modes of operation. Miles and Snow (1978) noted "If management chooses to pursue one of these strategies, and designs the organization accordingly, then the organization may be an effective competitor in the industry over a considerable period" (p. 14). All states of adaptation, however, do not have the same immunity from environmental changes. The neutral state has the highest immunity, followed by the stable and unstable states. A firm seeking to ensure its future should prefer a neutral state of adaptation.

Strategy formulation. There are as many ways of studying strategy as there are definitions. Shortell et al. (1985) described it as "the plans and activities developed by an organization in pursuit of the goals and objectives, particularly regarding positioning itself to meet external environmental demands relative to its competition" (p. 220). The need for health care organizations to adopt an overall strategic approach to management was originally addressed by author Domanico et al. (1981). At the time of analysis, Domanico and colleagues stated, "only a small percentage of health care organizations had adopted a strategic management approach" (Flexner, Berkowitz, & Brown 1981; Fournet 1982; Files 1983; Longest 1981; Luke & Kurwowski 1983).

Strategy formulation is the process of assessing or reassessing an organization's vision, mission, core values, policies goal(s), and strategies. The emphasis is on the process by which strategic plans are developed. According to Shortell et al. (1985), relevant questions include:

> (1) "How does the organization review its goals, mission and philosophy? (2) How does it conduct environmental assessment and competitive analysis? (3) How does it assess its internal strengths and weaknesses? and (4) How does it assess its specific programs' strengths and weaknesses?" (p. 223).

(See Figure 5. Conceptual framework depiction). The key players are the organization's strategists, those stakeholder leaders who perceive changes in the environment and set in motion a process for matching the organization's distinctive competence with the demands of the environment.

Strategy content. Boyne and Walker (2004) contended that strategy content in the public sector consists of two levels, (1) strategic stance is the broad way in which an organization seeks to maintain or improve its performance; and (2) the second level of strategy comprises the specific steps that an organization takes to operationalize its stance. This level of strategy is relatively "enduring and unlikely to change substantially in the short term" (Zajac & Shortell 1989). For example, "the literature on population ecology argues that structure and overall approach are set when an organization is established" (Hannan & Freeman 1977).

These strategic actions are more likely to "change in the short term" (Fox-Wolfgramm, Boal, & Hunt 1998). The concept of strategy content refers to how an organization behaves, in contrast to strategies that are merely distorted or intended but

unrealized. Strategy content forms the basis for strategic implementation which builds the pillars of actions steps required to accomplish an organizations missions and goals.

Strategic implementation. Top executives influence the organizational process that determines a rural hospital's financial performance and long-term survival (Boal & Hooijberg, 2000; Finkelstein & Hambrick, 1996). Leadership is a process whereby the executive team (CEO, CNO, CFO, & CMO) of a rural hospital influences and guides staff to accomplish the financial goals of the organization. The effectiveness of an organization is defined as the extent to which it can survive; perform its mission; and maintain favorable earnings, financial resources, and value. "Effectiveness depends on three primary performance determinants: (1) efficiency and process reliability, (2) human capital, and (3) adaptation to the external environment" (Barnard, 1968, Katz, & Kahn, 1978; Lawrence & Lorsch, 1969; Melcher, 1976; Mitzinberg, 1979; Thompson, 1967). The relative performance determinants are triggered and influenced by the decisions and actions of the hospitals' executive leadership team.

The comparable importance of the performance determinants, and how difficult it is to influence them, are affected by aspects of the situation such as the type of rural hospital and its location; turbulence in its external environment (resource availability, intensity of competition, economic, political, or technological change); and constraints on executive action (involving oversight by owners or government agencies, or stemming from legislative restrictions).

Efficiency. Efficiency is the extent to which the organization minimizes the cost of people and resources needed to execute essential operations. Rural hospitals have many different types of cost, including employee compensation, expenses for materials,

supplies, facilities, energy, inventories, shipping, marketing, and services provided by vendors, subcontractors, and consultants. Yukl (2008) contended that efficiency also depends on process reliability, which is the extent to which work processes are conducted without unnecessary delays, errors, or accidents. "Key indicators of efficiency include the costs as a percentage of revenues, costs corresponding to those of competing companies, and employee productivity relative to labor costs. Case studies and survey research provide evidence that reducing unnecessary costs can improve a company's performance" (e.g., Ebben & Johnson, 2005; Ghosn & Ries, 2005; Hammer & Champy, 1993; Key, Reed & Sclar, 2005; Liberman & Demester, 1999).

There are many ways to improve efficiency, including redesigning work processes, using new technology, reducing the cost of materials, reducing excess inventory, and reducing the cost of labor or outsourcing jobs to low wage countries. Yukl (2008) asserted that efficiency is facilitated by relevant cultural values, including the desirability of reliability; meeting deadlines; error-free performance; adherence to rules and procedures; controlling cost; and responsible use of resources. Tushman and Romanelli (1984) stated it is easier to improve efficiency when the organization's operation is relatively stable for a considerable period rather than constantly changing.

Human capital. Human capital is defined as the extent to which the members of an organization have the skills and motivation needed to perform the work effectively (Hitt & Ireland, 2000). Research studies in strategic human resource management indicates that human capital is another determinant of organizational performance (Becker & Gerhart, 1996; Becker & Huselid, 1998; Bowen & Ostroff, 2004; Gelade &

Ivery, 2003; Hitt et al., 2001; Jackson & Schuler, 1995; Pennings, Lee & Witteloostuijn, 1998; Pfeffer, 1994,1998).

Defined broadly, human capital includes both human resources and human relations. Human resources (or "employee talent") for an organization includes the task-relevant skills and experience of the executive team members, leadership skills refer to the learned competencies that leaders can demonstrate in performance (Katz, 1955). Leadership skills give executive team members the capacity to influence subordinates. Northouse (2018) asserted that leadership traits rather than leadership skills have been the focus of research for more than 100 years. However, in the past 10 years a shift has occurred, and leadership skills are now receiving far more attention by researchers and practitioners alike (Mumford, Zaccaro, Connely, & Marks, 2000; Yammarino, 2000).

Human relations include organizational commitment, identification with the organization, mutual trust and cooperation, and optimism about the future. "Many studies have discovered that leaders can influence employee optimism, organizational commitment, collective identification, and cooperation" (e.g., Bass, 1990, Chen & Bliese, 2002; Mumford, Scott, Gladis, & Strange, 2002; Rittman, & Marks, 2001). Management, recruitment, and retention of employees are essential components to accomplish organizational goals and objectives.

Although it may not be significant or obvious to others, "[a] leader is often required to spend a significant amount of time addressing resource issues. Resources, the essence of an organization, can include people, money, supplies, equipment, space or anything else needed to operate an organization" (Northouse, 2018, p. 120). Additionally, a rural hospital's executive management team led by the CEO is entrusted with obtaining

resources, allocating these resources for new staff or incentive programs, or replacing old equipment. While a leader may often engage staff members to assist in managing resources, the ultimate responsibility of resource management rests on the shoulders of the hospital's Chief Executive Officer.

Adaptation. Chakravarthy (1982) emphasized the importance of an organization's ability to adapt to an ever-changing environment. Key indicators of adaptation include long-term sales increases, increase in market share, and customer satisfaction and loyalty (e.g., company reputation, repeated purchases by customers, sales to new customers). "Successful adaptation requires accurate, timely information about external threats and opportunities. Adaptation is facilitated by organizational learning about effective ways to deal with threats and opportunities, and effective ways to leverage core competencies" (Yukl, 2008, p. 710). Adaptation is also facilitated by the availability of surplus resources that can be invested in new initiatives.

Successful adaptation is unlikely when top management fails to recognize an external threat or respond in a timely manner to a promising opportunity. "Executives are more likely to ignore or deny the relevance of an external threat when there is nothing to learn from competitors" (Finkelstein, 2003; Tushman & O'Riley, 1996). A cornerstone of effective strategic adaptation is leadership.

Many articles and books have been written about how leaders behave (e.g., Blake & McCanse, 1991; Kahn, 1956; Misumi, 1985; Stogdill, 1974). Northouse (2018) examined what successful leaders possess and concluded that successful leaders exhibit two behaviors, "(1) they attend to tasks, and (2) they attend to their relationships with subordinates" (Northouse, 2018, p. 99). Hambrick et al. (1984) argued that organizational

outcomes-both strategies and effectiveness-are viewed as reflections “of the values and cognitive bases of powerful actors in the organization” (Hambrick et al., 1984, p. 193). Important actors that manage rural hospitals are the CEOs, CNOs, CFOs, and CMOs.

Task leadership behaviors facilitate goal accomplishment. These behaviors help group members to achieve the overall goal of organizational objectives. Strategic adaptation requires structure. Task leadership is an integral component in initiating structure for the organization. Moreover, relationship leadership behaviors complement task leadership and “help followers feel comfortable with themselves, with each other, and with the situation in which they find themselves” (Northouse, 2018, p.104). Researchers have described relationship leadership in several ways that help to clarify its meaning.

Stogdill (1974) referred to relationship leadership as consideration behavior, which includes building camaraderie, respect, trust, and regard between leaders and followers. Other researchers described relationship leadership as having an employee orientation (Bowers & Seashore, 1966), which involves “taking and interest in workers as human beings, valuing their uniqueness, and giving special attention to their personal needs” (Northouse, 2018, p. 105). At its core, both task leadership and relationship leadership are concerned with developing human resources and relations.

Figure 5 presents a graphical depiction of the conceptual framework drawn from strategic management theory and the literature discussed above. The depiction represents the impact of the external pressures whether environmental or organizational.

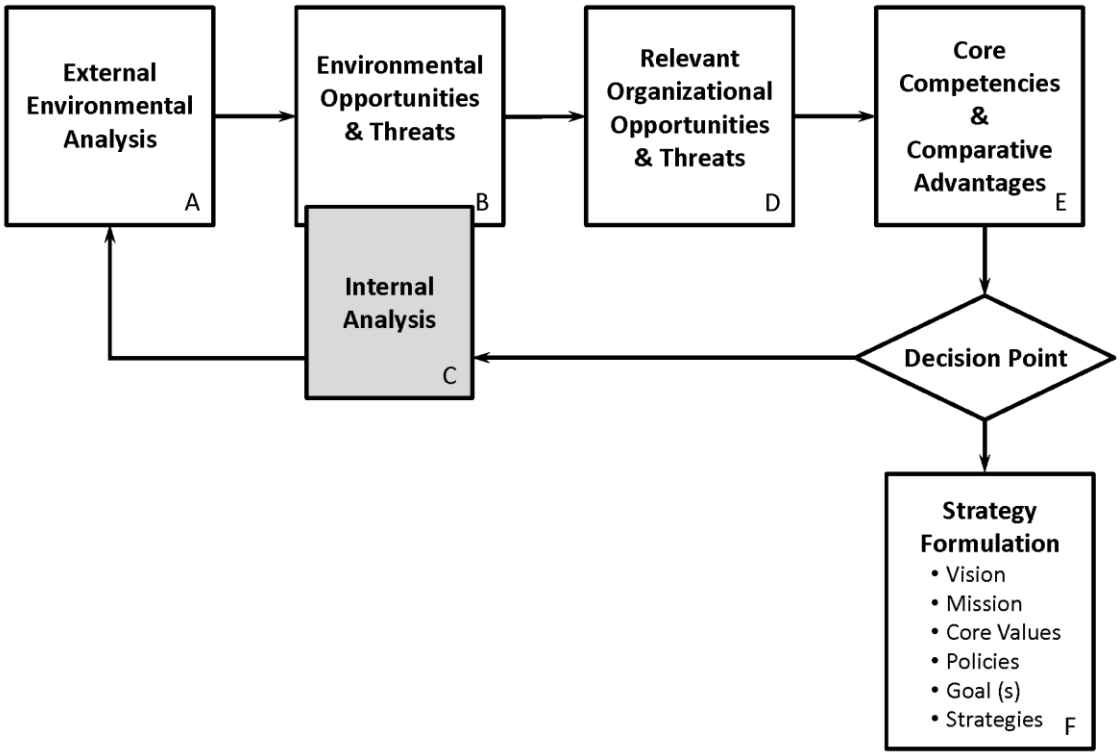


Figure 5 Conceptual Framework Depiction

Implementation of Model to Current Study (Conceptual Framework)

There are several management theories that could have been used as a framework to study hospitals response to regulatory constraints and/or legislative enactments, most recently the passage of the Patient Protection and Affordable Care Act (ACA) 2010 and Medicaid expansion January 2014. For example, Resource Dependency Theory (RDT) addresses how an organization's ability to procure external resources affects its internal environment (Barney, 2001; Miles, 2012). The theory of Population ecology (PE) helps us to better understand the impact of external forces regarding the life cycle of an industry and/or segments of an industry (Miles, 2012). Strategic Management Theory was used for this study because it provided a better framework that integrates strategic (adaptive) responses of a rural hospital to its environmental and organizational challenges (Chakravarthy, 1982; H. Q. Trinh & Begun, 1998, 1999).

The efforts of repeal and replace have showed current external pressures such as a) low reimbursement, b) provider shortages, c) disproportionate share withholds (DSH) and are causing tremendous stress on the health care delivery system, particularly rural hospitals. Between 2010 and 2016, 80 rural hospitals closed, 27 of which were Critical Access Hospitals (HRSA, 2017, para. 2). Kaufman et al. (2016) argue that a community hospital is a major force in the local economy by providing jobs, consuming a large amount of community provided goods and services, and making the community a more desirable place to live and conduct business. Rural hospitals constantly face financial challenges due to their isolation, outmigration of younger adults and aging in place of the elderly and disabled.

Financial challenges ranked number one on the list of hospital CEOs' top concerns in 2016, "according to the American College of Healthcare Executives' annual survey of issues confronting hospitals" (ACHE-Resources, 2016, para. 1-3). Government mandates ranked second, closely followed by patient safety and quality. See Table 2.

Table 2
Top Issues Confronting Hospitals in 2016

Issue	2016	2015	2014
Financial challenges	2.7	3.2	2.5
Governmental mandates	4.2	4.5	4.6
Patient safety and quality	4.6	4.2	4.7
Personnel shortages	4.8	5.1	7.4
Patient satisfaction	5.5	5.3	5.9
Access to care	5.8	6.2	---
Physician-hospital relations	5.9	5.7	5.9
Population health management	6.6	6.3	6.8
Technology	7.2	7.1	7.3
Reorganization (e.g., mergers, acquisitions, restructuring, partnerships)	7.8	7.4	---

The average rank give to each issue was used to place the issue in order of how pressing they are to hospital CEOs with the lowest numbers indicating the highest concerns.

The survey was confined to CEOs of community hospitals (nonfederal, short-term, nonspeciality hospitals.

Rural hospitals are comprised of a mixture of unstable (narrow product mix-only thinking about today-considered a defender) buffering itself from the larger environment. Stable, like the unstable hospital, but open to change and is considered an 'analyzer'; and the neutral state, that is, a large institution or health system which can withstand most environmental changes because they have anticipated before their occurrence and the firm has invested in the requisite adaptive ability. The reality is, depending on environmental pressures and internal discord, rural hospitals experience a mixture of states of adaptability, and as such, plan-prioritize, conceptualize strategies to ensure to viability of their institutions.

Hypotheses

Based on the literature review and theoretical framework guided by strategic management, it is expected that Medicaid expansion will have a significant influence on the financial performance of rural hospitals beyond the first few years of enactment of expansion, January 1, 2014. Major payment reform and industry restructuring brought on by the passage of the ACA and the potential repeal and replacement of the individual mandate will put significant pressures on hospitals of all types, especially rural hospitals that are isolated, have low patient census volumes and are frequently operating in the red. In accord with this expectation, the following hypotheses were developed and tested in this study:

Hypothesis 1: Rural hospitals in expansion states will experience a larger increase in Medicaid revenue measured in dollars than rural hospitals in expansion states.

Hypothesis 2: Rural hospitals in expansion states will experience a greater decrease in uncompensated cost measured in dollars than rural hospitals in non-expansion states.

Hypothesis 3: Rural hospitals in expansion states will experience greater increases in operating margins than rural hospitals in non-expansion states.

Summary

This chapter developed a conceptual framework and set of testable hypotheses by integrating strategic management theory to examine the impact of Medicaid expansion on the financial performance of rural hospitals. Chapter 3 will discuss research methods, including research design, data sources, sampling, variable measurements, and the overall analytical approach used to test these hypotheses.

CHAPTER 3

METHODOLOGY

The purpose of this chapter is to describe the research design, data sources, and variables used in the study. Additionally, statistical procedures for model estimation and methods used to test the research hypotheses are explained.

Research Design

This study examines the effects of Medicaid expansion on the financial performance of rural hospitals from FY 2011 through 2012 and FY 2014 through 2015 using Medicaid revenue (measured as dollars), uncompensated care costs (measured as dollars) and operating margins in states that expanded compared to those that did not.

Study Data and Methods

Data for this study were drawn from the following three sources: (1) American Hospital Association Annual Survey of Hospitals; (2) the Area Resource File (ARF); and (3) the Medicare Cost Report Minimum Data Set. The American Hospital Association (AHA) annual survey of hospitals provides extensive data regarding hospitals' organizational characteristics and payer mix. For the years 2011-2012 and 2014-2015, AHA data were merged with the annual Medicare cost reports that hospitals file with the Centers for Medicare and Medicaid (CMS) to construct hospital financial performance measures. AHA datasets are collected via an annual national survey of all U.S. hospitals with an average response rate of 90%. (AHA Trend Watch, 2016).

County-level sociodemographic and poverty data were obtained from the Bureau of Labor Statistics, Census Bureau, and Bureau of Economic Analysis. We merged county-level measures with hospital-level data using Federal Information Processing Standards (FIPS) codes reported in the AHA Annual Survey. The Area Resource File (ARF) provides extensive county-level information on market characteristics, demographics, economic activity, resource scarcity, and other measures of a hospital's environment.

The Medicare Hospital Cost Report Minimum Data Set provides information on hospital finances. All hospitals that receive Medicare reimbursement (Medicare-certified) are required to submit financial information annually to CMS. These minimum data sets are the most comprehensive datasets available for U.S. hospitals that serve Medicare patients. This study used the annual data sets for the years 2011-2012, and 2014-2015. Since these data files provide comprehensive information on hospital financial performance and are comparable across all hospitals in the industry, they have repeatedly been used in hospital studies (Schuhmann, 2010, p.76). The study, uses (a) Medicaid revenue, (b) uncompensated care, and (c) operating margin variables obtained from the CMS minimum cost datasets.

The Area Resource File (ARF) provides extensive county-level information on market characteristics, demographics, economic activity, resource scarcity, and other measures of a hospital's environment. The ARF is compiled by the Bureau of Health Professions from the U.S. Department of Health and Human Services. Data from these files have been extensively used in numerous other studies that examined market characteristics (Bazzoli, Fareed, & Waters, 2014; Dranove, Garthwaite, & Ody, 2013;

Dranove et al., 2016). Key independent variables were extracted from this dataset, including hospital location and the percent of people below the Federal Poverty Level in the county where each hospital is located. We merged county-level measures with hospital-level data using Federal Information Processing Standards (FIPS) codes reported in the AHA Annual Survey.

The analytic sample was limited to general short-term acute care hospitals located in rural areas, see table 3. In addition, the analytic sample excluded, hospitals that expanded Medicaid before 2014: California, Connecticut, Massachusetts, Montana, New Jersey, Washington and the District of Columbia. The final sample size includes 1,304 hospitals observation years representing 326 hospitals.

Table 3
Exclusion Criteria

Total Sample Size	Excluded		Resulting In
N=23,578 obs. years			
	Specialty Hospitals	5,495 observation years	18,083 observation years
	Federal Hospitals	136 observation years	17,947 observation years
	Hospitals in Urban Areas	16,534 observation years	1,403 observation years
	Hospitals in states that expanded Medicaid prior to 2014 (5 states and the District of Columbia)	109 observation years	1,304 final sample size
Total		22,274 observation years	1,304 observation years

Measures

Dependent variables. Financial Performance. The dependent variable in this study were based on extant literature and measure hospital Medicaid revenue**, (**measured in dollars), uncompensated care cost (measured in dollars), and operating margin (Burkhardt & Wheeler, 2013; L. Gapenski, 2003; L. C. Gapenski & Pink, 2007). Medicaid revenue includes both inpatient and outpatient payments that were received for services performed during the cost reporting period. Uncompensated care is the total amount of health care services, based on full established charges, provided to patients who are either unable or unwilling to pay; and is the sum of charity care and bad debt. Operating margin captures core business operations and removes the transitory influence of non-operating sources of revenue and cost, which is often temporary and not related to the core function of the hospital (Bai & Anderson, 2016).

Independent variables. This study's independent variable is Medicaid expansion. If a state expanded in 2014-2015, Medicaid expansion =1, if states did not expand Medicaid in 2014-2015, Medicaid expansion = 0.

Control variable(s). Control variables included (1) hospital ownership measured using a dummy variable for for-profit and public non-federal hospitals. Not-for-profit hospitals as the reference group; (2)) hospital bed size measured as the number of licensed and staffed bed in a hospital facility; (3) Medicare shares measured as the percent of Medicare inpatient days of the total inpatient days from all payers; (4) critical access hospital status (1=Yes, 0=No), and (5) poverty measured as the percent people in a hospital's county below the Federal Poverty Level (FPL). Prior research has pointed to the relevance of these organizational and market characteristics that vary over time and

have been shown to affect financial outcomes of hospitals related studies (Bazzoli, 2015; Succi, Lee, & Alexander, 1997; Williams, Hadley, & Pettengill, 1992).

Table 4
Analytic Variables

VARIABLES	TYPE	SOURCE	OPERATIONALIZE
Dependent			
Medicaid revenue	Continuous	Medicare Cost Report 2011-12 &2014-15	Measured as dollars received during the cost reporting period
Uncompensated Care	Continuous	Medicare Cost Report 2011-12 &2014-15	Sum of charity care and bad debt
Operating Margin	Continuous	Medicare Cost Report 2011-12 &2014-15	Measure of hospital's profitability related to patient care services only (net patient revenue-operating expenses) / (net patient revenue)
Independent			
Medicaid Expansion	Categorical		1= yes 2014-2015 0= no 2014-2015
Control Variable			
Hospital Characteristics			
Hospital Ownership	Categorical	AHA	1-For-Profit Corporation, 2=Public nonfederal, 0= Not-for-Profit
Hospital Bed Size	Continuous	AHA	Number of licensed and staffed acute care beds in facility
Medicare share	Continuous	MCR	Percent of Medicare patient days divided by total patient days from all Payers
Critical Access Hospital	Categorical	AHA	0= No, 1 = Yes
Market Characteristics			
Poverty	Continuous	ARF	Percent of people in the hospital's county below the Federal Poverty Level (FPL)

Analysis Plan

The effect of Medicaid expansion on hospital Medicaid revenue, uncompensated care and operating margin is estimated using the areg procedure found in STATA 13 version. The model examined the differential impact of Medicaid expansion on financial performance between rural hospitals in expansion and non-expansion states. Our approach allows us to exploit the natural experiment associated with Medicaid expansion in some states and not others. We used the 'areg' procedure which allowed for state fixed effects in the model estimation. However, state effects were not explicitly detailed in the results. The Medicaid expansion variable captures the differential changes in states that expanded versus non-expansion states in the dependent variable(s), Medicaid revenue, uncompensated care and operating margin. This main independent variable of interest was a binary indicator of whether a state had adopted expansion or not. Our equation to estimate our model is:

$$\textit{Net Medicaid Revenue}_{it} = \beta_0 + \beta_1 \textit{Medicaid Expansion}_{it} + \beta_2 \textit{Ownership}_{it} + \beta_3 \textit{Bedsize}_{it} + \beta_4 \textit{Medicare Share}_{it} + \beta_5 \textit{Percent in Poverty}_{it} + \beta_6 \textit{Critical Hospital}_{it} + \alpha_2 \textit{State}2 + \ldots \alpha_{50} \textit{State}50 + \delta_1 \textit{Yrs2012} + \delta_2 \textit{Yrs2014} + \delta_3 \textit{Yrs2015} + \upsilon_{it}$$

Where :

β_0 =gives us the average net Medicaid revenue given zero values for all of the explanatory variables in the model.

β_1 =the estimated effect of Medicaid Expansion on net Medicaid revenue, controlling for state-specific time-invariant characteristics and year-specific shocks

β_2 =the estimated effect of Ownership on net Medicaid revenue, controlling for state-specific time-invariant characteristics and year-specific shocks

β_3 =the estimated effect of bed size on net Medicaid revenue, controlling for state-specific time-invariant characteristics and year-specific shocks

β_4 =the estimated effect of Medicare share on net Medicaid revenue, controlling for state-specific time-invariant characteristics and year-specific shocks

β_5 =the estimated effect of Percent in Poverty on net Medicaid revenue, controlling for state-specific time-invariant characteristics and year-specific shocks

β_6 =the estimated effect of been a critical access hospital on net Medicaid revenue, controlling for state-specific time-invariant characteristics and year-specific shocks

$\alpha_2 State2 + \ldots \alpha_{50} State50$ = dummy of all but one state (state fixed effects)

$\delta_1 Yrs2012 + \delta_2 Yrs2014 + \delta_3 Yrs2015$ = dummy for all but one year (year fixed effects)

υ_{it} = error term

t = time, i = hospitals

The same model was used to estimate uncompensated care and operating margin.

All statistical analyses were conducted at the significant level of 0.05 and were run using STATA version 13

CHAPTER 4

RESULTS

Overall, there were 1,304 year observations available for the analysis, representing an unbalanced panel data for 2011, 2012, 2014, and 2015. The majority of hospitals were located in states that did not expand Medicaid and had critical access hospital designation. Specifically, 236 (72%) were located in states that did not expand Medicaid and 279 (86%) had a critical access hospital status. Additionally, 49% of hospitals were government non-federal hospitals, 46% were nonprofit hospitals, and 5% were for-profit hospitals.

Additional descriptive statistics for the 326 hospitals for fiscal years 2011 and 2012 and 2014 and 2015 are displayed in Tables 5 and 6. Rural hospital's characteristics in expansion and non-expansion states 2011-2012 (pre-expansion) are presented in Table 5. The average uncompensated care, operating margin, and Medicaid revenue for hospitals expansion states in the fiscal year 2011-2012 were $1,363,804 (SD=1379734), -0.08842 (SD= 0.120345), 1,362477 (SD=1706250). Average bed size for these hospitals was 28.07182 (18.91855) beds, Medicare share 84.8961 (SD= 13.82977), and percent in poverty 16.3409 **(**SD= 6.310249). For hospitals in non expansion states uncompensated care, operating margin, net Medicaid revenue, bed size, Medicare share and percent in poverty: 1,010,740 (SD=1341124), -0.19469 9SD=0.751391), 772292.6 (SD=1068374) 25.66737 (SD=20.25614), 83.6755 (SD=19.4432) and 17.21074 (SD=6.730395) respectively.

Table 5

Rural Hospital Characteristics in Expansion vs. Non-Expansion States, 2011-2012

Variable	Mean	Std. Dev.	Min	Max
Uncompensated care	1363804	1379734	23080	7183553
Operating margin	-0.08842	0.120345	-0.66151	0.125257
Net Medicaid revenue	1362477	1706250	1000	1.12E+07
Bed size	28.07182	18.91855	8	143
Medicare share	84.8961	13.82977	24.23858	100
Percent poverty	16.34309	6.310249	7.4	38.2

Variable	Mean	Std. Dev.	Min	Max
Uncompensated care	1010740	1341124	7867	1.15E+07
Operating margin	-0.19469	0.751391	-15.0649	0.589593
Net Medicaid revenue	772292.6	1068374	4338	7989669
Bed size	25.66737	20.25614	2	195
Medicare share	83.67755	19.4432	3.513638	100
Percent in poverty	17.21074	6.730395	8.3	48.1

Rural hospital's hospital characteristics in expansion states and non-expansion states for 2014-2015 (post expansion) are presented in Table 6. The average uncompensated care, operating margin, net Medicaid revenue, bed size, Medicare share, and percent in poverty for states that expanded during 2014-2015 (post-expansion): 987059 (SD= 1037563), -0.10096 (SD=0.15048), 1740393 (SD=1980018), 24.90393 (SD=13.96171), 81.61649 (SD=20.79771), 15.95459 (6.059395) respectively. Non expansion states for years 2014-2015 (post expansion) uncompensated carre, operating margin, net Medicaid revenue, bed size, Medicasre share, and percent in poverty were: 1219517 (SD=2058169), -0.18653 (SD=0.2682287), 766757.2(SD=1454610), 25.29833 (SD=19.81323), 85.58493 (SD=16.47472), and 16.65084 (SD=6.637812).

Table 6

Rural Hospital Characteristics in Expansion vs. Non-Expansion States, 2014-2015

Variable	Mean	Std. Dev.	Min	Max
Uncompensated care	987059	1037563	16334	5151402
Operating margin	-0.10096	0.15048	-0.78305	0.167118
Net Medicaid revenue	1740393	1980018	27969	1.30E+07
Bed size	24.90393	13.96171	6	88
Medicare share	81.61649	20.79771	5.036448	100
Percent poverty	15.95459	6.059395	7.4	33

Variable	Mean	Std. Dev.	Min	Max
Uncompensated care	1219517	2058169	28158	2.38E+07
Operating margin	-0.18653	0.268287	-2.24028	0.202215
Net Medicaid revenue	766757.2	1454610	222	2.36E+07
Bed size	25.29833	19.81323	1	195
Medicare share	85.58493	16.47472	4.940147	100
Percent in poverty	16.65084	6.637812	8	42.6

Regression results for all three dependent variables are presented in Table 7. Medicaid expansion variable captures the differential changes in hospitals states that expanded versus non-expansion states for the three dependent variable(s), Medicaid revenue, uncompensated care and operating margin. Column 1, 2, and 3, respectively present hypotheses 1, 2, and 3. Rural hospitals in expansion states experienced an average increase in Medicaid revenue of 497,966 dollars relative to hospitals in non-expansion states after Medicaid was expanded. Bed size and percent in poverty were found to also be positively associated with an increase in net Medicaid revenue. For each one unit increase in bed size, Medicaid revenues increased on average 14,350 dollars. As the percent of people living in poverty increased by one unit, Medicaid revenue increased by 52, 261 dollars, $p< 0.01$. Critical access hospitals on average had lower Medicaid revenues relative to hospitals not designated as critical access by -429,815 dollars.

Hospitals in states that expanded Medicaid saw a reduction in uncomppensated care dollars after expansion by -427,903.3 dollars. As the percent in poverty increased by one unit, average uncompensated care increased by 29,583 dollars in rural hospitals.

Medicaid expansion had no statistical effect on operating margin. However, government nonfederal hospitals had lower operating margins relative to for-profit institutions.

Table 7
Changes in Financial Performance Pre- and Post-Medicaid Expansion in Rural Hospitals in States that Expanded and Did Not Expand Medicaid

Variables	Net Medicaid Revenue	Uncompensated Care	Operating Margin
Medicaid Expansion	497,966.9 (129,830.8)***	-427,903.3 (138,512.8)***	-0.016 (0.01)
Bed size	14350.76 (2142.42)***	19,492.66 (2,293.37)***	0.001 (0.01)
Medicare Share (county)	0.701 (1942.34)	3,964.20 (2,127.00)	0.001.0.01)
% in Poverty (county)	52,261.54 (7,540.84)***	29,583.51 (7,966.49)***	0.004 (.003)
Hospital Ownership			
Nonprofit	88,511.68 (177,778.6)	686,758.6 (578,045.4)	-0.191 (0.07)
Gov't nonfederal	41,530.15 (172,967.2)	623,768.4 (627203.5)	-0.267 (0.07)***
For-profit	*Ref*	*Ref*	*Ref*
Critical Access Hospital			
Yes	-429815.9 (126,016.3)***	-957,486.9 (14,4047.5)***	0.037 (0.05)
No	*Ref*	*Ref*	*Ref*
Years			
2012	7,095.72 (87,262.53)	105,177.4 (93,993.61)	0.031 (0.04)
2014	8,326.00 (100,040.5)	352,358.6 (108,559.5)***	0.035 (0.04)
2015	162,603.6 (99,677.18)	331,273.9 (108,384.5)***	0.042 (0.04)
2011	*Ref*	*Ref*	*Ref*
R-squared	0.51	0.52	0.15
N	1237	1114	1271

Notes: Results generated using 2012 data from an unbalanced panel of rural hospitals in each period from 2011, 2012, 2014 and 2015
Standard errors reported in the parenthesis.
*A statistical significant difference at 0.05 level
***A statistical significant difference at 0.01 level

In addition to these findings, one organizational control variable was significantly associated with hospitals uncompensated care reductions and Medicaid revenue. Specifically, Critical Access Hospitals (CAHs) had a lower or decreased level of

uncompensated care (-957,486.9, $p< 0.01$) compared with non CAHs, and lower Medicaid revenue (-429,815, $p<0.01$) compared to non CAHs.

CHAPTER 5

DISCUSSION AND CONCLUSONS

The purpose of this chapter is to discuss the finding from the study and their implications for practice and policy.

Conclusion by Hypothesis

The purpose of this study was to examine the effects of Medicaid expansion on the financial performance of rural hospitals. The hypothesized relationship was based on a framework of Strategic Adaptation Theory and previous research related to hospital characteistics associated with hospitals' response to finacial challenges.

The first hypothesis, that rural hospitals in expansion states will experience a larger increase in Medicaid revenue (measured in dollars) than rural hospitals in non-expansion states was supported as hypothesized. The results suggested that there was a statistically significant difference in Medicaid revenue and uncompensated care between hospitals in expansion states and hospitals in non-expansion states. Specifically, hospitals in expansion states expereinced, on average, higher Medicaid revenue in 2011-2012 of 1,363,804 dollars relative to non-expansion states of 1,010,740**.** The results of the model's regression suggests that rural hospitals in expansion states experiened a larger increase in Medicaid revenue than those in non-expansion states (497,966.9, $p<0.01$).

The second hypothesis, that rural hospitals in expansion states will experience a greater decrease in uncompensated cost than rural hospitals in nonexpansion states was supported as hypothesized. Rural hospitals in expansion states on average, provided

1,336,804 dollars in uncompensated care compared to 1,010,740 dollars provided in non-expansion states; a 32.7% differential in 2011-2012. This multivariate analysis suggests that given that rural hospitals in expansion states experienced a decrease in uncompensated care (measured in dollars) relative to hospitals in non-expansion states, pre vs post expansion (427,903, $p<0.01$).

The third hypothesis, rural hospitals in expansion states will experience greater increases in operating margins than rural hospitals in non-expansion states was not supported as hypothesized. The average operating margin for 2011-2012: was -0.8842(SD=0.120345) for expansion states compared to -0.19469 (SD=0.751391) for non-expansion states. We found no statistically significant difference in the change in operating margin following Medicaid expansion in the expansion states and non-expansion states.

In summary, our findings for Aims 1 and 2 are consistent with that of other researchers (Blavin, 2016; Dranove et. al., 2016) as we expected. However, findings related to Aim 3 were contrary to our expectations as we thought that rural hospitals in expansion states would experience greater increases in operating margins relative to rural hospitals in non-expansion states.

An operating margin is the net patient revenue minus operating expenses divided net patient revenue and is a common measure of profitability (W. Cleverley, 1991; W. O. Cleverley & Cleverley, 2017). For example, if a hospital has an operating margin of 10%, it retains 10 cents out of each dollar of operating revenue with the remaining 90 cents spent on various costs. Blavin et al. (2016) concluded that there was no statistical

difference in operating margin between states that adopted Medicaid and those that did not (1.1 percentage points [95% Cl, -0.1 to 2.0 percentage points]; P=.06).

Implications for Policy

This empirical study of rural hospitals' strategic decisions has important implications for policy. Our finding suggest that rural hospitals are continually at risk for financial distress and potential closure. The Affordable Care Act (ACA) Medicaid expansion helped prevent some rural hospitals from closing by reducing their bad debt (Dranove, 2016). Federal payment changes have had a disproportionate impact on rural hospitals, with some survey participants estimating that 80% of rural hospitals' payments come from Medicare and Medicaid (RUPRI, 2016, para. 4). This means that cuts to programs, such as those recently implemented for Medicaid disproportionate share payments, particularly affects the country's most rural hospitals.

Subsidizes to insurance carriers, reduced support for patient navigators, shortened sign-up period for open enrollment for the Health Insurance Markets (HIMs), have adversely impacted many potential enrollees. Taken together, many communities across the U.S. will be affected by these changes. Rural communities which are more isolated than their urban counterparts are faced with physician and provider shortages. They experience even greater challenges in providing critical care to patients due to funding shortfalls to rural hospitals and community clinics; which are integral components of their health care delivery system. Of particular note is the fact that 70 percent of the hospitals in this study are in non-expansion states, many of which are in the south. State legislators in southern states are going to have to grapple with how to protect these institutions and ensure health care access within their communities.

Implications for Practice

The results of this study also have implications for rural hospitals' boards of directors and senior hospital management, especially as the healthcare industry continues to experience turbulence and uncertainty.

As noted in the discussion of strategic management theory, the essence of management is coping with change. "A manager copes with change in the firms' external environment through the choice of an appropriate strategy and the design of a matching structure" (Andrews, 1971, p. 3). However, as Ansoff (1979) observed, "such strategy-structure cannot be an enduring one" (p. 35). Strategy is not a solution to a single problem. Even as the firm transforms itself to meet the needs of the original problem, the underlying problem and environmental context may have undergone changes. A proposed solution may be inappropriate to the new problem. The process of continuously adapting to the changes in the firm's new environment is known as strategic management (Schindehutte & Morris, 2001).

Managers faced with budgetary constraints and low patient volumes coupled with disproportionate share cutbacks must seek to find different ways to respond to these disruptions than in the past. Strategic management provides the theoretical framework for senior executives of rural hospitals to ensure that their facilities at a minimum provide the basic services for their communities. The current environment surrounding rural hospitals is unstable. As shown in the research, Medicaid expansion is not a panacea, and will not solve all of rural hospitals' financial woes. Therefore, managers even in expansion states need to be strategically creative in the manner in which they address the turbulent external environment.

Going forward, rural hospital's Governing Board of Directors and executive teams led by the Chief Executive Officers must continually seek ways to adapt their institutions to the changing nature of the health care landscape. In some instances, their facilities may no longer be needed as full-service facilities due to low volume and sheer isolation. Given Medicaid expansion does not solve all problems, critical thought at the policy level should be focused on the best type of hospital that is needed in a rural environment.

From a practice perspective, the results of this study may inform law makers of the environmental and organizational factors affecting the delivery of care in the most rural areas where the provision of healthcare is most critical. "The goals of the Patient Protection and Affordable Care Act (ACA) were to: improve healthcare outcomes, improve patient's experience and reduce costs (triple aim)" (Institute for Healthcare Improvement, 2008). Medicaid expansion, a cornerstone of the ACA was intended to address the persistent and unequal provision of care for the nonelderly childless adults, nonelderly disabled, and indigent populations.

Medicaid expansion may not impact the bottom line of rural hospital's financial performance going forward, regardless whether the ACA is repealed and/or replaced. It is incumbent upon hospital executive teams working in tandem with the Board of Directors (BODs) to strategize and implement options to assuage the consequences of continuing threats. Some areas to consider:

1. Look at ways to cut cost and improve their bottom line by outsourcing some of their basic services due to low-patient volumes,

2. Reduce staffing to a bare minimum that meets their local and state regulators guidelines,
3. Consider closing lost leader product lines. These are services such as dexa scans (measures body fat and bone composition), obstetrics and gynecology, e.g. that loose money because of low volume of patients requiring these services.
4. Consider converting low census, aged physical plants in very isolated locations to rural health clinic (RHCs) that are reimbursed at higher rates; and
5. Personell layoffs if the facility cannot safely provide quality care services to its patients.

Study Limitations

The majority of hospital observations were located in states that didn't expand Medicaid, particularly the South, Southeast and Midwestern states. Future studies may consider comparing rural hospitals in expanded states to for profit and not-for profit hospitals in expanded and non-expanded states. Second, uncompensated care, Medicaid revenue and operating cost data were collected from secondary sources. Despite CMS and the Agency for Healthcare Research and Quality rules and guidelines for data quality, integrity, and reporting, these data could have issues with accuracy and completeness. Third, because this study was limited to rural hospitals with 30 acute care beds are less, there are limits to generalizability. Fourth, the percent of Medicare share, approximately 84% was very high. This could be a reason for no change in operating margins. While this study used financial metrics well established in previous literature, there may be other financial indicators that influence a rural hospital's financial performance. Future

researcher may choose financial ratios that represent a rural hospitals profitability, for example, liquidity and debt-to equity, days cash on-hand, return on assets, etc.

Implications for Future Research

While the present study has contributed to the body of scholarly work concerning Medicaid expansion and the effects on rural hospital's financial performance, it also points to the need for additional research. Future studies may focus on the social implications of a rural hospital's closure or reduced services due to continued reductions in reimbursement. Many of the closures in recent years affected Critical Access Hospitals, a designation by the Centers for Medicare and Medicaid Services for facilities that provide essential services in especially isolated communities. "And most closures amid financial woes are related to upkeep costs for things like leaking roofs, antiquated power supplies and aging clinical equipment" (HRSA, 2017, para. 5).

Explore other factors affecting operating margins and the financial performance of the hospitals in states that expanded and those that did not but are considering expansion given other external pressures facing their institutions. Studies could explore the summative impacts within the expansion context of various external forces on hospital performance. These include:

1. Shortage of primary care medical providers
2. The proposed changes by CMS to cut the payment rate for medications purchased through the 340B Drug program. The 340B Drug Discount Program is a US federal government program created in 1992 that requires drug manufactures to provide outpatient drugs to eligible health care organizations and covered entities

at significantly reduced prices. These reductions in drugs are passed along to seniors and low-income individuals which helps them pay for their medications

3. The impact of Disproportionate Share Withholds [DSH], and its potential effect on all hospitals, but particularly rural hospitals. Non-expansion states may experience greater financial difficulties due to foregoing Medicaid revenue
4. The impact of rural hospital closure and the effect on the communities, especially CAHs located in the South and Midwestern states
5. Continue to explore long-term effects of expansion performance. In addition, there is need for further understanding of why operating margins did not change despite expansion. Some plausible scenarios to explore: a) are individuals in the most isolated rural communities going to larger facilities for care, b) were there significant lag times between rural hospital's billing Medicaid for their services and the actual time frame for payment remittance, c) what about the subset of rural hospitals that are performing well, a deeper investigation as to why they are performing well may be extremely informative.

Conclusion

The purpose of this study was to examine the Effects of Medicaid Expansion on the Financial Performance of Rural Hospitals. Findings from this study suggest that Medicaid Expansion was positively associated with rural hospitals benefiting from increases in Medicaid revenue relative to rural hospitals in non-expansion states. Additionally, uncompensated care was lower in rural hospitals in expansion states compared to those in non-expansion states. The results for operating margins were not

statistically significant, with very little difference between expansion states and non-expansion states, both losing money at the operating margin level.

The framers of the ACA's hypothesized that Medicaid expansion would reduce hospitals' provision of uncompensated care by increasing insurance coverage rates among those most likely to be dependent on free or reduced medical cost of care, i.e., nonelderly childless adults, the indigent, and nonelderly disabled. While this may be obvious, as researchers, the assumptions must be empirically validated.

Evidence from the study results indicates that while the expansion was successful in reducing hospital provision of uncompensated care and increase in net Medicaid revenue in expansion states compared to non-expansion states, the differences between expansion states and non-expansion states are lower than this investigator thought would be the case based on the research literature. Moving forward, it is also important to keep the effects of the Medicaid expansion on hospitals' provision of uncompensated care, Medicaid revenue and improved financial performance at the operating margin level in focus.

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APPENDIX A

UNIVERSITY OF ALABAMA AT BIRMINGHAM INSTITUTIONAL REVIEW BOARD APPROVAL

THE UNIVERSITY OF ALABAMA AT BIRMINGHAM
Office of the Institutional Review Board for Human Use

470 Administration Building
701 20th Street South
Birmingham, AL 35294-0104
205.934.3789 | Fax 205.934.1301 | irb@uab.edu

NHSR DETERMINATION

TO: Brady, Keith

FROM: University of Alabama at Birmingham Institutional Review Board
Federalwide Assurance Number FWA00005960

DATE: 18-Jul-2017

IRBX

RE: IRB-300000003
Effects of Medicaid Expansion on the Financial Performance of Rural Hospitals

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The Office of the IRB has reviewed your Application for Not Human Subjects Research Designation for the above referenced project.

The reviewer has determined this project is not subject to FDA regulations and is not Human Subjects Research. Note that any changes to the project should be resubmitted to the Office of the IRB for determination.

if you have questions or concerns, please contact the Office of the IRB at 205-934-3789.