MANAGEMENT AND PERFORMANCE IN U.S. HEALTHCARE INSTITUTIONS:

DO SECTOR-DIFFERENCES MATTER?

A Dissertation

by

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ABSTRACT

This dissertation includes three essays that focus on a number of central themes in public management and performance. Using American hospitals and nursing homes, I explore how sector-differences matter in healthcare service delivery. I propose theoretical frameworks on how managers respond to performance information in the cyclical process and how they employ the information in their managerial decisions.

The three essays explore how public, nonprofit, and for-profit organizations perform differently in various performance dimensions, and how sector-differences leverage the ways of utilizing performance information on managerial decisions, networking and strategy. The first essay, *Do Public Hospitals Outperform Nonprofit and For-profit Hospitals?*, indicates that sector-differences matter in organizational performance where a trade-off relationship exists. The second essay, *Help! I Need Somebody*, provides evidence that managers strategically choose networking nodes in response to performance information. The third essay, *Looking for Strategy in All the Wrong Place*, reveals that performance information shapes managerial strategy, either prospecting or defending, but the impact is contingent on sectors. The findings contribute to public management literature that even if organizations have similar functions, tasks, rules and clients, sector-differences influence managerial decisions related to outcomes.

DEDICATION

To my husband and my parents

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This dissertation would not have been made without several individuals who have supported me to complete this long journey.

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NOMENCLATURE

ACA	Affordable Care Act
AHA	American Hospital Association
CASPER	Certification and Survey Provider Enhanced Reports System
CDC	Centers for Disease Control and Prevention
CMS	Centers for Medicare and Medicaid Services
GDP	Gross Domestic Product
HCAHPS	Hospital Consumer Assessment of Healthcare Providers and Systems
MDS	Minimum Data Set 3.0
NHC	Nursing Home Compare
OLS	Ordinary Least Squares
PI	Performance Information
PPS	Prospective Payment System
QMs	Quality Measures
TEFRA	The Tax Equity and Fiscal Responsibility Act

TABLE OF CONTENTS

LIST OF FIGURES

FIGURE Page

LIST OF TABLES

1. INTRODUCTION

This research focuses on the relationship between management and performance in public, nonprofit and for-profit healthcare institutions. Specifically, three articles explore 1) how sector-differences matter in performance, 2) how performance information influences managerial practices, and 3) how sector-differences leverage the relationship. Two streams of literature motivate this research.

Many public management scholars assert that public, nonprofit and for-profit organizations are fundamentally different (Bozeman and Loveless 1987; Rainey and Bozeman 2000; Rainey 2009). Public organizations have different organizational structure, leadership, tasks and functions relative to nonprofit and for-profit organizations. Moreover, performance goals of public organizations, such as accountability, equity and responsiveness, produce different incentives and evaluation systems, compared to nonprofit and for-profit organizations. (Amirkhanyan, Kim and Lambright 2008; Backx, Carney and Gedajlovic 2002; Barbetta, Turati, and Zago 2007; Horn 1995; Chun and Rainey 2005). However, other scholars in organization theory criticize that there is no difference among public, nonprofit and for-profit organizations (Haas and Hall 1966; Pugh et al. 1969). They contend that if organizations have the same practices of management, industries and products/services, the impact of sector-differences would be minimal. These conflicting arguments around sector-differences bring up an important question of whether or not public, nonprofit, and for-profit organizations are fundamentally different in management and performance when they have similar functions, tasks, and clientele.

Public management literature indicates that management is a key determinant of organizational performance (Meier and O'Toole 2005; Vigoda-Gadot and Yuval 2003; Lee,

Rainey and Chun 2009; Favero, Meier and O'Toole 2016; Milward and Provan 2003). Managerial networking and strategy influences organizational outcomes since all managerial activities affect organizational capacity to handle environmental uncertainty and organizational constraints (Lynn, Heinrich and Lynn Jr 2000; Peters and Pierre 2000). Empirical findings on these studies indicate that organizations have different managerial networking, or strategy even if they have similar resources, structures, environments, and process (Andrews et al. 2011; Milward 1996; Milward and Provan 2003). Variation in managerial actions brings up an interesting question of, what drives managers to pursue a certain type of management? Performance management literature assumes that, in a cyclical process, managers try to employ perceived performance information in their managerial actions (Moynihan and Pandey 2010). However, there is a lack of empirical studies on how managers perceive performance information, and under what conditions managers change their managerial practices in response to performance information.

Using U.S. hospital data in 2008-2009 and U.S. nursing home data in 2010-2012, this research explores how managers react to performance feedback information when deciding networking or strategy. This research also examines how sector-differences affect management and performance in the context of healthcare services. The findings will contribute to the understanding on the causal relationship between performance and management, and provide practical implications on U.S. healthcare systems.

The complex U.S. healthcare systems provide an interesting empirical context on managerial decisions. The United States healthcare systems have multiple payers and players. Healthcare managers need to make critical decisions on planning, strategy and networking: managers must deal with multiple actors, such as physicians, insurance companies, employers, and Medicaid/Medicare agencies in the processes of financing, insurance, delivery, and payments of services. Moreover, recent healthcare reforms, such as the Afford-

able Care Act, make new threats, or opportunities, in healthcare markets, which pushes healthcare managers to change their actions in order to increase efficiency and quality of healthcare services. As healthcare reforms emphasize quality of healthcare services and links reimbursement to quality, the question of how to employ performance information based on healthcare quality is a key management issue in hospitals and nursing homes.

In the United States, healthcare is the most salient issue to the public policy makers due to increasing expenditures and an aging society. In 2014, U.S. healthcare spending grew 5.3 percent, to reach $3.0 trillion, or $9,523 per person (see National Health Expenditures 2014). This expenditure is about 18.2% of total GDP, which will gradually increases over the next decade. When looking at U.S. spending, hospital care and long-term care are in a major spending category. In 2014, U.S. hospital spending reached $971.8 billion. This spending is greater than other care services, such as home healthcare and prescription drugs, combined. Due to increased coverage under the Affordable Care Act, hospital care spending is projected to increase more, proportionally, in upcoming years. Additionally, the proportion of total hospital services steeply increased in Medicaid and Medicare spending. Newly eligible enrollees under the Affordable Care Act have increased national spending; the demand for hospital services will continue to increase in next decade. Following hospital care, long-term care expenditures are another major proportion of healthcare spending. Since long-term care has received a lot of public funding from Medicare (14%), Medicaid (43%) and other public programs (5%) (see National Health Expenditures 2014), increasing long-term care demands have also become a major concern in public policy.

An aging population also brings a lot of political attentions to hospital care and long-term care. In the United States, the elderly population is gradually growing.The first Baby Boomer generation reached 65 years of age in 2011, and their followers will hit 65 years of

age in 2030. The percentage of the elderly population who are 65 and over is projected to increase from 13% in 2001 to over 20 % in 2030 (Kinsella and Velkoff 2001). The increasing number of elderly people over the age of 85 could be a major concern in hospital care and long-term care, especially as they start to suffer from disabilities and chronic disease. Due to decreasing fertility and marriage rates, limited kinship resources and the vertical extension of family structure increase the future demand for long-term care services.

As such demands for healthcare services increase, the number of nonprofit and for-profit hospitals and nursing homes is gradually increasing. In terms of hospitals, the nonprofit (58.3%) and for-profit (21.4%) sectors are larger relative to the public (20.4%) sector hospitals in 2014. The number of private sector hospitals is gradually increasing since the creation of the Affordable Care Act. Due to increasing financial pressures, many public hospitals owned by federal, state or local governments have to privatize. Among private hospitals, nonprofit hospitals are major healthcare providers. Managerial networking among different actors is a salient issue since most nonprofit hospitals are owned by community associations or nongovernment organizations. Nonprofit hospitals have different mission statements and payment systems: their primary mission is to serve the local community and their operating expenses are covered by endowments, donations, or third-party reimbursement. Individuals, partnerships, or corporations operate the for-profit, proprietary, investor-owned hospitals. The goal of for-profit hospitals is to benefit the entity that owns the hospitals, such as stockholders. As financial pressure of healthcare services increases, for-profit hospitals have the highest growth rate relative to public and nonprofit hospitals. An increase in the number of for-profit hospitals is linked to the growing number of inpatient beds and reduction in the average size (Shi and Singh 2014). This increase indicates that for-profit hospitals are operated by physicians; they are physician-owned,

speciality hospitals. Thus, different mission, payment systems and speciality across sectors may produce different managerial actions and performance.

Nursing homes also have a large number of for-profit (69%) and nonprofit (25%) organizations relative to public (6%) nursing homes. The growing number of nonprofit and for-profit hospitals and nursing homes provides an interesting context to explore how sector-differences matter in regards to the quality of healthcare services.

The Center for Medicare and Medicaid Services (CMS) and Hospital Consumer Assessment of Healthcare Providers and Systems (HCAHPS) provide good performance indicators. In terms of hospitals, HCAHPS can be applied to all hospitals regardless of their ownership, which makes it comprehensive to understand the quality of hospital care in terms of consumer perspectives. Moreover, the American Hospital Association (AHA) provides operating efficiency data across all registered U.S. hospitals that helps us to explore how public, nonprofit and for-profit hospitals perform differently in efficiency. Additionally, U.S. nursing homes have comprehensive performance indicators, the number of deficiencies and a 5-star-quality rating. CMS provides these standardized performance indicators in order to allow residents to evaluate each nursing home in their community. These indicators help managers utilize performance information in managerial decisions.

There are three articles that provide theoretical and empirical evidence that sector-differences matter in management and performance. In my first article, I examine how ownership shapes performance in various performance dimensions, while using American hospitals as my basis. It is well-known that public-like organizations have multiple performance goals, such as accountability, responsibility, equity, effectiveness and efficiency, which are not always compatible. Public managers need to prioritize the competitive performance goals in order to concentrate on a specific goal at the loss of others (Moynihan 2008*b*). This phenomenon indicates that by performing poorly in efficiency, public-like

organizations may be able to put their full effort toward achieving other performance goals such as responsibility or equity. Amirkhanyan, Kim and Lambright (2008) provide empirical evidence that public nursing homes do worse in effectiveness but do better in social equity. Wheeler, Fadel and D'Aunno (1992) show that public abuse treatment centers do better in equity, but at the loss of efficiency. These studies motivate the exploration of how public, non-profit and for-profit hospitals perform in different performance dimensions where a trade-off relationship exists. Using customer satisfaction and operating efficiency as measures, I find that public and nonprofit managers are more likely to improve customer satisfaction at the loss of operating efficiency, whereas, for-profit managers would rather chase efficiency at the loss of customer satisfaction. My findings speak to the new public management literature that it is necessary to revisit this trade-off relationship among competing performance goals in the public service industry. Public organizations may be more sensitive to policy-recipient satisfaction, which may compromise operating efficiency. With consideration for the importance of customer satisfaction in soft policy, this study contributes to the literature that sector-differences matter in improving the quality of healthcare services.

In my second article, I seek to answer the question of how the use of performance information affects managerial networking while using American nursing homes as my empirical context. Managerial networking involves the efforts of exploiting external opportunities and buffering potential risks (Meier and O'Toole 2011, p.i296). Existing research provides evidence that personnel characteristics may affect networking behavior; and organizational characteristics such as centralization, formalization and specialization may limit managerial ability to expand managerial networking. However, there are no prior studies on how the use of performance information influences managerial networking. Since all organizations have a cyclical process between management and performance, managers

who perceive performance information generated through a performance feedback loop evaluate whether their performance is satisfactory or not relative to their expectations, and then employ that information when deciding which actors they have to contact more. Networking activities can be changed toward internal or external nodes depending on whether they perform better or worse than expected. In this chapter, I theorize that managers who perceive negative performance information are more likely to contact internal networking nodes for ensuring internal efficiency, whereas managers with positive performance information are more likely to contact external networking nodes in search of new opportunities. In the consideration of multiple principals and goals in organizations, I also hypothesize that the direction and frequency of networking can be different depending on which performance dimensions are used. Performance perspectives and dimensions produce dissimilar incentives and punishments, so managers will evaluate which performance dimension that substantially affect their organizations differently. My findings support that the impact of performance information on networking differs across performance dimensions due to asymmetrical incentives and punishments. The findings reveal that managers expect punishments for low-performance in regulatory indicators, and incentives for high-performance on market-value indicators, therefore, research needs to consider which performance dimensions are used when measuring performance information.

In the third article, I explore the cyclical processes between performance and managerial strategy to answer questions of how performance information shapes managerial strategy, and how the relationship between two is contingent on sectors. Existing literature provides empirical evidence that the fit of managerial strategy coupled with environment, structure and process is a key to improve organizational performance (Snow and Hrebiniak 1980; Miles, Snow and Sharfman 1993; Meier et al. 2007; Andrews, Boyne and Walker 2006). However, there is a lack of scholarship on how performance information influences

managerial strategy in turn, and how this impact is contingent on sectors. I theorize that the performance information– the performance gap relative to past performance or performance of other competing organizations – influences managerial strategy. However, the impact can be different across public, nonprofit, and for-profit organizations due to different incentives, goal clarity and discretion. Public organizations can have invisible, unquantifiable, and hard to measure performance goals that may hinder managers to focus on a certain performance information. Moreover, public organizations have less managerial autonomy because of high red-tape and hierarchy in bureaucracy. The fewer economic and promotional incentives there are in public organizations affect of the use of performance in deciding on strategy may vary. Using American nursing homes as a measure, my findings indicate that performance information shapes managerial strategy: positive performance information (gains) motivates managers to adopt both prospecting and defending strategies. However, the effect of performance information on strategy is only significant in the for-profit sector where managers have a wider range of discretion, clearer goals and higher economic incentives to expand market shares. My findings contribute to the literature on performance management by the extent to which the use of performance information is important to shape strategies, however, this relationship is contingent on sectors.

The three essays on management, performance and sector-difference will expand the theoretical development for under what mechanisms public, nonprofit, and for-profit managers use performance information on their managerial decisions. Moreover, the essays provide empirical evidence on American healthcare institutions, hospitals and nursing homes, on how sector-differences affect management and performance when delivering healthcare services.

2. DO PUBLIC HOSPITALS OUTPERFORM NONPROFIT AND FOR-PROFIT HOSPITALS? OWNERSHIP, CUSTOMER SATISFACTION AND EFFICIENCY IN U.S. HOSPITALS

2.1 Introduction

One of the enduring debates of public administration is whether public and private organizations are fundamentally different in performance (Bozeman and Loveless 1987; Rainey and Bozeman 2000; Rainey 2009). Many academics in public administration assert that public organizations have distinctive organizational environments, hierarchical structure, and political constraints (Rainey 2009). Other scholars in organizational theory, however, criticize the notion that there is no difference between public and private organizations in performance, and if any differences are found, they are attributed to size, tasks, functions or structure rather than ownership (Haas and Hall 1966; Pugh et al. 1969).

Since the rise of demands for public services, the debate on the importance of sector-difference in policy outcomes has also emerged in policy implementation. Nonprofit and for-profit organizations dominate public service delivery across the country which is based on the notion that they outperform the public sector in terms of efficiency and effectiveness (Andrews et al. 2011). As the New Public Management (NPM) moves functions in public agencies to private institutions, privatization, contracting-out and business management practices are broadly applied in public service delivery. Healthcare is not an exception. The healthcare industry in the United States has sufficient numbers of for-profit sector healthcare providers competing against public sector providers (Goldstein and Naor 2005; Alam, Elshafie and Jarjoura 2008). Apart from the for-profit sector, many nonprofit institutions have been emerging in healthcare service delivery, which contributes to a more

blurred boundary between the public and private sectors. This trend brings important unanswered questions on how ownership affects performance in different dimensions into view.

Using American hospital data from 2008 to 2009, I will examine the effect of sector-differences on performance, focusing on customer satisfaction and efficiency. Customer satisfaction is the most important performance goal in hospitals since healthcare services aim to transform clients themselves, rather than their environments. When clients are satisfied with the level of healthcare service provided, an improved quality of service may directly increase clients' health conditions, achieving a desired outcome. Moreover, customer satisfaction is highly linked to loyalty. People with higher customer satisfaction with a certain hospital may be more likely to recommend another person to use this healthcare facility, promoting the profitability of the facility. Therefore, many scholars in the healthcare system contend that customer satisfaction should be considered a critical performance goal for hospitals (Berry and Parasuraman 1997; Heskett, Schlesinger et al. 1994) In the context of the United States, many states require hospitals to incorporate customer satisfaction in their strategic plans and performance goals (Andaleeb 1998).

Efficiency is another important goal in the healthcare service industry. All hospitals are concerned about economic viability and profit margins leading to improved medical technology and hospital care (Eldenburg et al. 2004). Particularly, nonprofit and for-profit hospitals that have less governmental funds to operate are more sensitive to market competition, driving them to focus on economic efficiency to maximize profits. In this research, I examine whether public hospitals outperform nonprofit and for-profit hospitals in different performance dimensions, and if so, how the sector-differences matter in regards to the trade-off relationships among performance goals.

In the following sections, I will review existing literature on ownership and performance, and introduce theoretical arguments on the impacts of ownership on customer satisfaction and efficiency. After presenting my analysis and findings, I will discuss the theoretical and practical implications of this study.

2.2 The Impact of Ownership on Customer Satisfaction

Ownership determines organizational structure, authority, goals, financing, markets, and tasks that produce different performances (Rainey 2009; Rainey and Bozeman 2000; Walker and Bozeman 2011; Meier and O'Toole 2011; Andrews, Boyne and Walker 2011). Public-like organizations have a more complex political environments, which relates to various performance goals such as accountability, responsiveness and efficiency. Moreover, public-like organizations are less likely to have performance-based incentive systems, that results in lower motivation to perform than business-like organizations (Backx, Carney and Gedajlovic 2002; Barbetta, Turati and Zago 2007; Horn 1995; Chun and Rainey 2005). Some studies, however, reject this argument that there is no difference between public and private organizations in performance (Haas and Hall 1966; Pugh et al. 1969). The studies contend that if organizations are in the same industry and have similar practices of management and products/services, the impact of sector-differences can be minimal. The Clinton administration's NPR, Total Quality Management and New Public Management movement has also supported this notion. These movements have pushed public organizations to adopt business management styles and performance-based management in order to ensure better performance. Although this debate is still ongoing, empirical studies provide mixed evidence on the relationship between ownership and performance (Bøgh Andersen and Blegvad 2006; Bartel and Harrison 2005; Bozeman and Loveless 1987) and most studies focus on limited performance dimensions – efficiency or effectiveness (Andrews, Boyne and Walker 2011).

Customer satisfaction has been emerging as an important performance goal in soft policies which aim to transform clients themselves. Soft policies, such as education or healthcare, require substantial amounts of clients' voluntary work, and motivation to be actively involved in the service delivery process. When clients are satisfied with the quality of services, their satisfaction links to higher trust and efficacy that goes along with being involved in a process that results in better policy outcomes. Empirical studies indicate that higher customer satisfaction is linked to higher profits due to public willingness to pay more for services from quality institutions (Andaleeb 1998; Boscarino 1992). Many scholars also advocate customer satisfaction as an emerging key performance goal in public service delivery (Hallowell 1996; Osborne and Gaebler 1992; Osborne and Plastrik 2000). However, it is still understudied how ownership matters in customer satisfaction.

Dahl and Lindblom (1953) contend that ownership makes a difference in customer satisfaction because public, nonprofit and for-profit organizations have different constraints imposed by political environments and market conditions. Profit-seeking organizations that primarily rely on market conditions are sensitive to market fluctuation and clients' demands for ensuring profitability. For-profit managers assume that customers with high satisfaction are willing to revisit and recommend the organizations to others, which ensures future profits. Business literature support this notion that high customer satisfaction in for-profit organizations increases customer loyalty, which generates more profit in turn (Hallowell 1996; Heskett, Schlesinger et al. 1994; Goldstein and Naor 2005). Nonprofit organizations, on the other hand, lack the simple performance goals, such as profitability or increasing market shares, used by for-profit organizations. Nonprofit organizations have different mission statements and goals that are more ambiguous and intangible (Forbes 1998), which makes nonprofit managers focus on longer-term benefits and social outcomes rather than short-term customer satisfaction (Liao, Foreman and Sargeant 2001,

p.259). In addition, nonprofit organizations have two different groups to serve: one that supplies funding for activities, and one that consumes services and goods produced by the organizations. Nonprofit managers anticipate that the first group will donate or participate in fundraising as long as they aim to pursue their mission statements. Then, how about public organizations? Niskanen (1979) contends that public managers are less likely to prioritize customer satisfaction as a performance goal due to the fact that public organizations obtain revenues from taxation, not from fees paid directly by customers. Empirical findings in business literature also indicates that customers are more satisfied with goods and services provided by market-competing organizations, and are least satisfied with public administration and government agencies (Fornell et al. 1996). Thus, different funding sources and goal priorities may make public organizations less responsive to their clients' demands.

Despite these competing arguments, there is a lack of empirical evidence on whether ownership matters in customer satisfaction when public, nonprofit and for-profit organizations serve similar clients in the same industry. Fornell et al. (1996) compares customer satisfaction across sectors, however, organizations in the empirical context have different tasks, functions, services, and clients, making it difficult to differentiate whether the impact comes from the sector-differences or different tasks. Chun and Rainey (2005) explore the relationship between publicness and customer satisfaction, but this study measures publicness as financial publicness and measures customer satisfaction as how managers in U.S. federal agency recognize customer satisfaction as their key managerial goals using survey responses from pubic managers. Thus, this study has a limitation because it cannot capture all public, nonprofit and for-profit managers' responses on customer service orientation, and it does not measure the actual customer satisfaction that comes from clients'

perspectives.[1] Therefore, it is worth examining whether sector-differences matter in customer satisfaction in public service delivery where public, nonprofit and for-profit sectors pursue similar goals in the same industry.

2.3 Chasing Two Rabbits in the Bunch? Customer Satisfaction and Efficiency

Public organizations have more complex performance goals, such as accountability, responsiveness, equity, openness, effectiveness and efficiency, relative to private organizations. Multiple principals in public organizations, political authorities, upper-level government agencies, interest groups, and the public, impose different goals and interests on the organizations, which makes it difficult for managers to prioritize performance goals. Complex performance goals force managers to make a choice among competing performance goals at the loss of others. Amirkhanyan, Kim and Lambright (2008) illustrate the notion that various performance goals act as rabbits in the bunch. Just as catching rabbits run off in different directions, in the bunches, public managers have to achieve competing performance goals at the same time. Thus, if public organizations do better in one performance dimension, they may not be able to enhance other performance dimensions at the same time.

Among competing performance goals, customer satisfaction and operating efficiency are not always compatible (Anderson, Fornell and Rust 1997; Heikkilä 2002). If an organization needs to concentrate on operating efficiency, managers try to downsize costs and workforce size in order to increase cost-efficiency. However, fewer employees may decrease customer satisfaction because clients need to wait much longer to discuss their

[1] Chun and Rainey (2005) use a survey questionnaire that asks to public managers about:1) In my organization, there are service goals aimed at meeting customer expectations, 2)In my organization, there are well-defined systems for linking customers' feedback and complaints to employees who can act on the information, and 3) In my organization, employees receive training and guidance in providing high quality customer service. Though these questions can measure managerial practices focusing on customer service orientations, they cannot provide information how clients are actually satisfied with quality/quantity of public services.

needs with a smaller number of employees. The smaller the investment in the service delivery, there is a decrease in the quality of facilities and services. In healthcare, the trade-off relationship between efficiency and customer satisfaction is a more salient issue. Healthcare providers need a substantive amount of employees to provide high quality services because most patients have specific diseases, issues, and needs to take care of individually. If a hospital decides to downsize the workforce and costs per patient, a smaller workforce may have challenges meeting every patient's needs, resulting in lower customer satisfaction.

When two different performance goals are imposed to organizations, managers may have different priorities to achieve each goal depending on its sector (Moynihan 2008*b*). Ownership status determines organization's priority among various performance goals, such as profit maximization or customer satisfaction. Economic theory contends that for-profit organizations differ from nonprofit or public organizations because of goal clarity on profit maximization. For-profit managers are rewarded based on operating efficiency (Wheeler, Fadel and D'Aunno 1992), however, nonprofit and public managers have less incentive to increase efficiency due to a lack of goal clarity and a non-distribution of profits (Chun and Rainey 2005; Hansmann 1987). Nonprofit or public managers are more required to focus on public purpose. When public and nonprofit managers interact with their social and political principals, they need to be sensitive to customer satisfaction as one of key goals imposed by their principals. In addition to that, public managers are less concerned about profitability than nonprofit managers because their financial resources are publicly funded by taxes or government funds whereas nonprofit managers are more concern with fundraising outside of their organizations. The relatively stable funding system makes public managers meet the minimum requirement for operating efficiency, while

also focusing on improving clients' complaints, which may bring more positive social and political attention.

2.4 Empirical Evidence from the U.S. Hospitals

American hospitals provide a good empirical context to examine how sector-differences matter in performance. First, healthcare policy is an important soft policy. It aims to transform clients by medical services. Hospitals need to consider customer satisfaction as the top priority since it has a positive affect on clients' health conditions, which is a desired policy outcome. Customer satisfaction, additionally, includes how well patients communicate with doctors and nurses and how they receive appropriate information from staff, this may determine quality and quantity of healthcare services provided. Thus, it is important to explore whether public, nonprofit, and for-profit hospitals have different levels of customer satisfaction when delivering healthcare services. Since customer satisfaction can vary across how much patients revisit facilities and how often they receive services, this study focuses on discharged inpatient customer satisfaction that captures the average satisfaction during patient stays in hospitals. Second, the American healthcare industry has a sufficient number of public, nonprofit, and for-profit hospitals, which compete against each other for market shares (Goldstein and Naor 2005). Each hospital's proposition of revenue from government funding sources (e.g. Medicare and Medicaid) varies across sectors: the average portion of Medicare in revenue is about 40%, but it varies across the types of hospitals and ownerships. Third, many existing studies have examined the impact of ownership on performance using American healthcare institutions including American hospitals (Alexander and Lee 2006), American nursing homes (Amirkhanyan, Kim and Lambright 2008), American mental health agencies (Clark, Dorwart and Epstein 1994) and American substance abuse treatment centers (Hausman and Neufeld 1991), but these studies have only focused on the impact of ownership on effectiveness, efficiency, or

equity. None of these studies explores the trade-off relationship between customer satisfaction and efficiency. This study examines how public, nonprofit and for-profit hospitals perform customer satisfaction

Hypothesis 1 Public hospitals will outperform nonprofit or for-profit hospitals in customer satisfaction.

American hospitals have various performance goals, so it is important to test whether public hospitals are more likely to achieve high customer satisfaction at the loss of other performance goals. Particularly, when public hospitals spend more time with patients to provide more information, the costs of taking care of one patient increase. After 1982, The Tax Equity and Fiscal Responsibility Act (TEFRA) initiated hospital Medicare reimbursement as a prospective payment system (PPS) based on diagnosis-related groups. Under this payment system, hospitals can receive a reimbursement per admission according to the patient's diagnosis without considering the duration of the inpatient days. In order to maximize profits, hospitals managers are motivated to constrain costs below the fixed reimbursement amount as much as possible. Other payers and insurers also adopted PPS methods to reimburse hospitals, which are more likely to lead hospital managers to minimize costs per bed, and reduce the length of stay after admission (Shi and Singh 2014). Therefore, it is important to explore whether public hospitals are more likely to prioritize customer satisfaction at the loss of operating efficiency and whether for-profit hospitals focus on operating efficiency at the loss of customer satisfaction. It would be worth exploring whether nonprofit hospitals have a position between two sectors to make a balance between customer satisfaction and efficiency.

Hypothesis 2 Public hospitals are more likely to promote customer satisfaction at the loss of efficiency than nonprofit or for-profit hospitals.

2.5 Research Design

2.5.1 Data and Method

I use the American Hospital Association (AHA) database and Hospital Consumer Assessment of Healthcare Providers and Systems (HCAHPS) Survey for measuring ownership and performance across American hospitals. The AHA database provides ownership information and organizational characteristics for about 5,800 U.S. hospitals by years. HCAHPS provides a standardized annual survey questionnaire, which allows access to a patient's satisfaction about health care received from hospitals. The Centers for Medicare and Medicaid Services (CMS) and the HCAHPS project team ensure credible and practical surveys. Respondents are randomly selected among discharged adult patients between 48 hours and six weeks after discharge. Hospitals are required to conduct surveys using an approved survey vendor or collect their own HCAHPS approved by CMS. Each hospital can choose from four different survey modes – mail, telephone, mail with telephone follow-up, or active interactive voice response (using telephone keypads). CMS recommends that hospitals achieve at least 300 survey responses from the sample of discharged patients per year.

I use aggregated data by hospitals from 2008 to 2009 thatdoes not include pediatric, psychiatric, or institutional (prison hospital, college infirmary) hospitals, hospitals which have fewer than 100 respondents in their annual survey and hospitals which have survey results based on less than 12 months of data. The total number of hospitals in the sample is 995, 516 in 2008, and 479 in 2009. To control for cross-hospital and cross-time heterogeneity, I use Ordinary Least Squared regression with fixed effects for years and robust standard errors. Since performance dimensions are correlated (Martin and Smith 2005),

I conduct a Seemingly Unrelated Regression (SUR) analysis for the full model of each customer satisfaction and efficiency. The descriptive analysis is noted in Appendix A.

2.5.2 Dependent Variables: Customer Satisfaction and Efficiency

Customer Satisfaction I measure customer satisfaction by patients' perceptions on the quality of healthcare that each hospital provides. HCAHPS asks 10 categorized questions to patients based on the quality of hospitals and management, communication with doctors and nurses, cleanliness, quietness, pain management, the responsiveness of hospital staff, communication about medicines, discharge information, and overall rating of the hospitals. I calculate the percentage of patients who are very satisfied with those categories, then I conduct factor analysis and create the first factor as an indicator of overall customer satisfaction as noted in the Table 2.1. The first factor loads positively, which indicates the first factor is a general customer satisfaction measure.

Table 2.1: The Factor Analysis Result of Customer Satisfaction

Variable	**Loading**
How often did doctors communicate well with patients?	0.8199
How often did nurses communicate well with patients?	0.9394
How do patients rate the hospital overall?	0.8663
Would patients recommend the hospital to friends and family?	0.7504
How often did patients receive help quickly from hospital staff?	0.8840
How often did staff explain about medicines before giving them to patients?	0.8461
How often was patient?s pain well controlled?	0.8658
How often was the area around patients? rooms kept quiet at night?	0.7007
How often were the patients? rooms and bathrooms kept clean?	0.7518
Were patients given information about what to do during their recovery at home?	0.5483
Eigenvalue	6.27
N	995

Efficiency I measure efficiency through a reversed standardized ratio of hospital expenses per bed. I divide total expenses by the total number of beds in a hospital, and then calculate the reversed standardized ratio. Since the original value represents how much more hospitals pay to manage one bed (high inefficiency), the reversed standardized ratio is more convenient to see how much hospitals save relative to the average costs among other hospitals. Thus, the reversed standardized index represents an operating efficiency measure. Alexander and Lee (2006) use this measure as one of operational, strategic, and financial performance. Although the number of sample is limited because of a lack of information on total expenses in some hospitals, the model still has a relatively representative sample across sectors: 192 public, 742 nonprofit, and 61 for-profit sectors. Though the model has less observations, the representative sample related to ownership provides an interesting context to seek whether ownership makes a difference in operating efficiency.

2.5.3 Independent Variable: Ownership

I measure ownership based on three categories, public (government), nonprofit, and for profit sectors. AHA data divides hospitals based on ownership information into four categories, government (nonfederal), nongovernment and investor-owned private [2]. I merge nonfederal and federal hospitals into one category for public hospitals and create three dummy variables: public, nonprofit, and for-profit hospitals to make a category consistent with existing literature (Wheeler, Fadel and D'Aunno 1992; Alam, Elshafie and Jarjoura 2008). The portion of public hospitals (19.30%) and for-profit hospitals (6.13%) are relatively small compared to nonprofit hospitals (74.05%). The portion of hospitals in each sector in the sample represents the population characteristics.

[2]In this sample, federal hospitals are not included. All governmental hospitals in this sample are owned by state, county, city and city-county

2.5.4 Control Variables

As control variables, I first measure organizational size as the number of outpatient and emergency visits. Since the number of total beds has a high multicollinearity with efficiency and managerial capacity, the number of outpatients can be a proxy measure of organizational size. Organizational size is an important control variable since organization theory literature contends that the impact of ownership can be misleading because of the organizational size. Generally public organizations are larger than nonprofit or for-profit sectors, so differences in performance can be derived from size, not by ownership. I include log transformed inpatient size and outpatient size in the models to eliminate any impact of size that could be a confounding variable in the ownership-performance link. In terms of inpatient context, I controlled for the log transformed adjusted patient days because the longer the duration of a patient stay, the patient receives healthcare services could be related to customer satisfaction. The AHA database provides adjusted patient days through the equation below:

Adjusted patient days=

*Inpatient Days + (Inpatient Days * (Outpatient Revenue/Inpatient Revenue))*

Besides size and organizational capacity, I include the percentage of full-time licensed nurses among total nurses as a measure of managerial quality. If a hospital has a substantively large number of full-time licensed nurses, patients can be provided with more information on medicine or treatments compared to hospitals that only have vocational nurses. Moreover, nurses are street-level managers in healthcare institutions, so whether they are qualified to serve patients in an appropriate manner is important to enhance customer satisfaction and efficiency (Taylor and Baker 1994; Meier and O'Toole Jr 2002; Vigoda-Gadot and Yuval 2003). I also control for organizational capacity that may in-

crease customer satisfaction or operating efficiency. I calculate the ratio of physicians per bed, the ratio of nurses per bed and the ratio of doctors per nurse as organizational capacity indicators. I use the log transformation for all of these measures.

In terms of environmental factors, I control for market competition by accounting for market share in the county (Johansen and Zhu 2014). Market share is defined as the number of hospitals with specialties in the county. The underlying logic in this measure is that with fewer hospitals in the county and in the specialty there will be lower levels of market competition. The impact of market competition can also matter in the relationship between ownership and performance, since hospitals with a higher level of competition are more likely to be concerned about customer satisfaction. The market competition also provides an interesting indicator,whether customers have various options to move from one hospital to another if they were not satisfied with the quality of care received.

In terms of organizational structure, I measure whether a hospital is contracted and networked. If hospitals are contract-managed, it is easier for them to obtain resources (human or capital) and help from upper-level organizations. As Meier and O'Toole (2009) indicate, the quantity and quality of resources are important to manage other environmental shocks, and the ability to manage environmental risks is directly related to performance. As with the variable for contracted hospitals, whether hospitals have strong networks with other hospitals, or upper-level healthcare institutions, it is important for management of environmental risks. If organizations are networked, it is easier to obtain resources or information when they face difficult tasks (Meier and O'Toole 2003; O'Toole and Meier 1999). Here I measure networked- or contracted hospitals as dummy variables to control for the effect of affiliation.

2.6 Empirical Findings

To explore how sector-differences affect performance in different dimensions, I use two performance dimensions, customer satisfaction and efficiency. Then, I examine whether public, nonprofit, and for-profit organizations have an outstanding performance in one dimension at the loss of others.

Table 2.2: The Impact of Ownership on Customer Satisfaction

DV:Customer Satisfaction	1.Basic b/se	2.Size controls b/se	3.Management controls b/se	4.Full Model b/se
Nonprofit	-0.306**	-0.111	-0.115	-0.084
	(0.09)	(0.08)	(0.08)	(0.08)
For-profit	-0.595**	-0.667**	-0.646**	-0.644**
	(0.15)	(0.14)	(0.15)	(0.15)
yr2008	-0.112+	-0.121*	-0.119*	-0.121*
	(0.06)	(0.06)	(0.06)	(0.06)
Log(total number of outpatients)		-0.364**	-0.408**	-0.390**
		(0.04)	(0.06)	(0.06)
Log(adjusted patient days)		-0.058	-0.038	-0.043
		(0.06)	(0.06)	(0.06)
Log(doctors per bed)			0.907	0.958
			(0.61)	(0.61)
Log(nurses per bed)			0.179	0.168
			(0.20)	(0.20)
Log(doctors per nurse)			-0.303	-0.331
			(0.73)	(0.74)
Skilled nurse			-1.062*	-1.129*
			(0.52)	(0.52)
Log(Market competition)				0.036*
				(0.02)
Contracted hospitals (dummy)				0.211*
				(0.11)
Networked Hospitals (dummy)				-0.058
				(0.06)
(constant)	0.323**	5.152**	5.672**	5.336**
	(0.08)	(0.55)	(0.61)	(0.61)
R-Squared overall	0.0246	0.1547	0.1634	0.1728
N	995	995	995	995

Note: Robust Standard Errors in parenthesis. Public nursing homes are baseline.
*Two-tailed tests of significance + p<0.10, * p <0.05, ** p <0.01, *** p <0.001*

Table 2.2 presents the customer satisfaction model with OLS model specification. Here I employ nonprofit and for-profit hospitals as dummy variables and set public hospitals as the baseline in the model. The findings support hypothesis 1 that ownership matters in customer satisfaction: for-profit hospitals are less likely to increase customer satisfaction than public hospitals, whereas public and nonprofit hospitals do not have significant difference in customer satisfaction. The findings are consistent and rigorous when I control for organizational size, management and patient characteristic factors. It reveals that public and nonprofit hospitals that rely on public fundings and various social desirable goals are more concerned about customer satisfaction than market-driven hospitals. Even after controlling for management and environment factors, the gaps between public and for-profit hospitals on customer satisfaction exist.

In terms of controls, the smaller hospitals are more likely to increase customer satisfaction and the larger number of nurses per bed is positively associated with customer satisfaction. These finding indicates that customer satisfaction is highly related to the small size hospitals and street-level managers, which may increase interaction between patients and the street-level staffs. The high percentage of skilled nurses is negatively associated with customer satisfaction. It reveals that nurses are concentrated on a higher structure for supporting doctors rather than helping patients. The higher percentage of registered full time nurses among total number of nurses reflects that there is a lack of street-level nurses who can serve patients' daily needs. The findings also indicate that contacted-hospitals increase customer satisfaction. It indicates that more personnel or financial resources in contracted hospitals benefit patients. The findings indicate that size, management, and organizational environment influence customer satisfaction as the existing literature indicates, but ownership still matters after controlling those factors.

Table 2.3: The Impact of Ownership on Efficiency

DV:Efficiency	1.Basic b/se	2.Size controls b/se	3. Management controls b/se	4.Full Model b/se
Nonprofit	-0.214**	-0.100	-0.115	-0.132+
	(0.08)	(0.08)	(0.07)	(0.07)
For-profit	0.578**	0.547**	0.435**	0.417**
	(0.09)	(0.09)	(0.08)	(0.09)
yr2008	0.152*	0.147*	0.119*	0.120*
	(0.06)	(0.06)	(0.05)	(0.05)
Log(total number of outpatients)		-0.232**	0.191**	0.188**
		(0.04)	(0.07)	(0.07)
Log(adjusted patient days)		0.008	-0.190**	-0.193**
		(0.06)	(0.05)	(0.05)
Log(doctors per bed)			-1.561	-1.567
			(1.03)	(1.02)
Log(nurses per bed)			-1.763**	-1.770**
			(0.24)	(0.24)
Log(doctors per nurse)			-2.009+	-2.037+
			(1.10)	(1.11)
Skilled nurse			1.391*	1.318*
			(0.56)	(0.57)
Log(Market competition)				0.017
				(0.02)
Contracted hospitals (dummy)				-0.049
				(0.09)
Networked Hospitals (dummy)				0.102+
				(0.05)
(constant)	0.077	2.643**	0.895	0.890
	(0.08)	(0.58)	(0.58)	(0.60)
R-Squared overall	0.0464	0.0921	0.2843	0.2879
N	995	995	995	995

Note: Robust Standard Errors in parenthesis. Public nursing homes are baseline.

*Two-tailed tests of significance + p<0.10, * p <0.05, ** p <0.01, *** p <0.001*

Table 2.3 shows how ownership influences efficiency: I measure efficiency as a *reversed* standardized ratio of total expenses to beds, so a high value in efficiency means spending less money to operate a bed or a high operating efficiency. The models support hypothesis 2 that for-profit hospitals are more likely to increase efficiency relative to public hospitals, but nonprofit hospitals are less likely to increase efficiency compared to public hospitals. This finding is consistent across all models. Table 2.4 indicates SUR model specification for each performance dimension. It shows consistent results that for-profit hospitals are more likely to focus on operating efficiency at the loss of customer satisfaction relative to public hospitals. Nonprofit hospitals do not show significant differences in customer satisfaction with public hospitals, but they perform worse in efficiency. A comparison of the customer satisfaction model with the efficiency model gives interesting evidence that public-like hospitals do better in customer satisfaction but worse in efficiency relative to business-like hospitals. It indicates that public and nonprofit hospital managers who have various performance goals need to make a choice among competitive performance goals in order to concentrate on specific performance goals. Therefore, which goals public and nonprofit hospital managers choose first and why they do are more important questions to answer.

Meier and O'Toole (2003) contend that there is an autoregressive relationship between management and performance: performance in the current year (t) is highly correlated with past performance (t-1), so it is necessary to test whether the impact of management is still significant after controlling for past performance. Ownership affects organizational stability, structure and managerial styles, so it is necessary to test for an autoregressive relationship between ownership and performance as well by controlling for past performance (t-1). As noted in Table 2.5 and Table 2.6, autoregressive models in customer satisfaction do not show a significant relationship between ownership and customer satisfaction, how-

Table 2.4: SUR Regression Models: The Impact of Ownership on Satisfaction versus Efficiency

	Customer satisfaction b/se	Efficiency b/se
Nonprofit	-0.084	-0.132+
	(0.08)	(0.07)
For-profit	-0.644**	0.417**
	(0.14)	(0.12)
Log(total number of outpatients)	-0.390**	0.188**
	(0.05)	(0.05)
Log(adjusted patient days)	-0.043	-0.193**
	(0.06)	(0.05)
Log(doctors per bed)	0.958	-1.567*
	(0.68)	(0.62)
Log(nurses per bed)	0.168	-1.770**
	(0.19)	(0.17)
Log(doctors per nurse)	-0.331	-2.037**
	(0.75)	(0.68)
Skilled nurse	-1.129*	1.338**
	(0.51)	(0.47)
Log(Market competition)	0.036*	0.017
	(0.02)	(0.01)
Contracted hospitals (dummy)	0.211*	-0.049
	(0.10)	(0.09)
Networked Hospitals (dummy)	-0.058	0.102+
	(0.06)	(0.06)
yr2008	-0.121*	0.120*
	(0.06)	(0.05)
(constant)	5.336**	0.890+
	(0.55)	(0.51)
R-Squared overall		0.1728
N		995

*Note: Robust Standard Errors in parenthesis. Public nursing homes are baseline. Two-tailed tests of significance + p<0.10, * p <0.05, ** p <0.01, *** p <0.001*

Table 2.5: The Impact of Ownership on Customer Satisfaction: Autoregressive Model

DV:Customer Satisfaction	1.Basic b/se	2.Size controls b/se	3.Management controls b/se	4.Full Model b/se
Lagged customer satisfaction	0.864**	0.852**	0.851**	0.851**
	(0.03)	(0.03)	(0.03)	(0.03)
Nonprofit	0.024	0.036	0.048	0.040
	(0.06)	(0.06)	(0.06)	(0.06)
For-profit	0.121	0.110	0.111	0.097
	(0.10)	(0.11)	(0.10)	(0.10)
Log(total number of outpatients)		-0.033	-0.078*	-0.080+
		(0.03)	(0.04)	(0.04)
Log(adjusted patient days)		0.003	0.025	0.024
		(0.04)	(0.04)	(0.04)
Log(doctors per bed)			0.265	0.246
			(0.47)	(0.48)
Log(nurses per bed)			0.155	0.148
			(0.14)	(0.14)
Log(doctors per nurse)			-0.217	-0.164
			(0.57)	(0.59)
Skilled nurse			0.016	0.012
			(0.43)	(0.44)
Log(Market competition)				0.015
				(0.01)
Contracted hospitals (dummy)				-0.068
				(0.08)
Networked Hospitals (dummy)				0.004
				(0.05)
(constant)	0.083+	0.438	0.585	0.557
	(0.05)	(0.40)	(0.42)	(0.43)
R-Squared overall	0.7918	0.7926	0.7940	0.7952
N	400	400	400	400

Note: Robust Standard Errors in parenthesis. Public nursing homes are baseline.

*Two-tailed tests of significance + p<0.10, * p <0.05, ** p <0.01, *** p <0.001*

Table 2.6: The Impact of Ownership on Efficiency: Autoregressive Model

DV:Efficiency	1.Basic b/se	2.Size controls b/se	3.Management controls b/se	4.Full Model b/se
Lagged efficiency	1.042**	1.040**	1.013**	1.010**
	(0.03)	(0.03)	(0.04)	(0.04)
Nonprofit	-0.068+	-0.066+	-0.082+	-0.092*
	(0.04)	(0.04)	(0.04)	(0.04)
For-profit	-0.022	-0.019	-0.015	-0.019
	(0.05)	(0.05)	(0.05)	(0.05)
Log(total number of outpatients)		-0.009	0.040+	0.039
		(0.02)	(0.02)	(0.02)
Log(adjusted patient days)		0.011	-0.017	-0.019
		(0.03)	(0.03)	(0.03)
Log(doctors per bed)			-0.899	-0.892
			(0.56)	(0.54)
Log(nurses per bed)			-0.114	-0.119
			(0.12)	(0.12)
Log(doctors per nurse)			0.666	0.617
			(0.56)	(0.54)
Skilled nurse			0.007	-0.044
			(0.31)	(0.32)
Log(Market competition)				0.003
				(0.01)
Contracted hospitals (dummy)				-0.035
				(0.04)
Networked Hospitals (dummy)				0.061*
				(0.03)
(constant)	-0.072*	-0.086	-0.255	-0.205
	(0.04)	(0.24)	(0.24)	(0.24)
R-Squared overall	0.9143	0.9143	0.9175	0.9187
N	400	400	400	400

Note: Robust Standard Errors in parenthesis. Public nursing homes are baseline.

*Two-tailed tests of significance + p<0.10, * p <0.05, ** p <0.01, *** p <0.001*

ever, autoregressive model in efficiency indicates that nonprofit hospitals perform worse in efficiency relative to public hospitals. This findings provide more rigorous evidence that ownership matters in explaining performance, especially in operating efficiency. After controlling types of services, size and staff quality, the findings indicate that public hospitals do better than nonprofit hospitals in efficiency.

Table 2.2 and Table 2.3 allow us to compare the results of the impact of ownership on each performance goal separately, but it does not show whether managers pursue one goal over another. When performance goals are competing each other, the trade-off relationship makes managers sacrifice one goal to achieve another one. If public and nonprofit organizations perform worse than for-profit organizations in operating efficiency, it may be derived from their managerial priority on other performance goals, such as customer satisfaction. On the contrary to for-profit organizations, public and nonprofit organizations have less incentives to increase cost-efficiency in operation for a profit in a short-term period. This lack of incentive and motivation may shift their managerial strategy from efficiency to customer satisfaction, which may bring more rewards from public and political entities.

To test their trade-off relationship, I analyze the impact of ownership on customer satisfaction with the addition of efficiency as a control variable as noted in Table 2.7. Though the number of observations is different between the basic model and the new model, it gives empirical evidence that efficiency has a trade-off relationship with customer satisfaction. Efficiency is negatively associated with customer satisfaction, which means that a larger amount of operating costs for taking care of patients may be needed to increase customer satisfaction. When hospital managers need to choose one competing performance goal at the cost of others, public and nonprofit managers are more likely to focus on cus-

Table 2.7: The Trade-off Relationship between Customer Satisfaction and Efficiency

DV:Customer Satisfaction	Basic Model b/se	New model b/se
Nonprofit	-0.084	-0.095
	(0.08)	(0.08)
For-profit	-0.644**	-0.608**
	(0.15)	(0.15)
Log(total number of outpatients)	-0.390**	-0.373**
	(0.06)	(0.06)
Log(adjusted patient days)	-0.043	-0.060
	(0.06)	(0.06)
Log(doctors per bed)	0.958	0.820
	(0.61)	(0.62)
Log(nurses per bed)	0.168	0.013
	(0.20)	(0.20)
Log(doctors per nurse)	-0.331	-0.510
	(0.74)	(0.74)
Skilled nurse	-1.129*	-1.013+
	(0.52)	(0.52)
Log(Market competition)	0.036*	0.037*
	(0.02)	(0.02)
Contracted hospitals (dummy)	0.211*	0.206*
	(0.11)	(0.10)
Networked Hospitals (dummy)	-0.058	-0.049
	(0.06)	(0.06)
yr2008	-0.121*	-0.110+
	(0.06)	(0.06)
Standardized efficiency		-0.088*
		(0.04)
(constant)	5.336**	5.414**
	(0.61)	(0.62)
R-Squared overall	0.1728	0.1781
N	995	995

*Note: Robust Standard Errors in parenthesis. Public nursing homes are baseline. Two-tailed tests of significance + p<0.10, * p <0.05, ** p <0.01, *** p <0.001*

tomer satisfaction, whereas for-profit managers choose efficiency at the lost of customer satisfaction.

2.7 Conclusion

Ownership is an important key factor that determines organizational structure, managerial styles and tasks/functions. However, there is still ongoing debate on whether ownership matters in performance. Existing literature indicates that there are controversial arguments on the impact of ownership on performance. Empirical studies also provide mixed evidence on the impact of performance based on effectiveness or efficiency (Rainey and Bozeman 2000; Rainey 2009; Andrews et al. 2011). Using American hospital data, I focus on customer satisfaction as a key performance goal in healthcare service delivery. I revisit the theoretical argument on how public, nonprofit, and for-profit managers perform differently in customer satisfaction relative to efficiency. The findings indicate that public and nonprofit managers are more likely to improve customer satisfaction at the loss of efficiency whereas for-profit managers focus on efficiency at the loss of customer satisfaction. The findings contribute to the theoretical arguments on the impact of ownership using multiple performance dimension. It also sheds a new light on how ownership forces managers to focus on one performance goal over others when performance goals are not compatible.

For the next steps, it is worthwhile to examine how managerial networking affects performance goal priority and how the impact differs across public, nonprofit, and for-profit hospitals. The findings of this study support public service motivation theory that emphasizes the importance of individual prepositions on public value and public demands. If public and nonprofit managers are more likely to care about customer satisfaction than for-profit managers, how managers meet and how frequently they meet can reflect individ-

ual managerial prepositions and strategic decisions more clearly. Moreover, managerial networking shows how public, nonprofit and for-profit managers respond to external opportunities or potential risk (O'Toole and Meier 2004*a*,*b*).

Another question to be answered is how public and nonprofit managers perform differently. The findings of this study imply that there is no difference between public and nonprofit hospitals in customer satisfaction and efficiency when controlling organizational and environmental factors. Existing nonprofit literature, however, indicates that compensation levels, salaries and incentive systems make substantive differences in the behavior of public and nonprofit organizations (Roomkin and Weisbrod 1999; Weisbrod 1997). Particularly, nonprofit hospitals may have distinctive characteristics that make a difference to private-for-profit and governmental hospitals. Future studies need to look into nonprofit hospitals with consideration for personnel, organizational, and environmental characteristics.

In terms of practical implications, this study provides evidence that public and nonprofit hospitals do better in communicating patients, cleanliness, quietness, and responsiveness. It indicates that public and nonprofit hospitals are more likely to pay attention to the quality of healthcare services on clients' perspectives. This finding is consistent with the existing studies on American nursing homes (Amirkhanyan, Kim and Lambright 2008). It allows us to consider under what conditions public and nonprofit hospitals do better in customer satisfaction: do they have a higher financial security, or do they have different patient characteristics? With consideration for the importance of customer satisfaction for better policy outcomes, these questions should be answered to improve the quality of healthcare services.

3. HELP! I NEED SOMEBODY: PERFORMANCE INFORMATION AND MANAGERIAL NETWORKING IN U.S. NURSING HOMES

3.1 Introduction

Managerial networking has received attention from scholars in public management based on the notion that it affects organizational performance (Agranoff and McGuire 2004; O'Toole and Meier 2003, 2004*b*, 2011; Juenke 2005). In uncertain environments, public managers need to collaborate with multiple stakeholders and organizations to improve public service quality (Lynn, Heinrich and Lynn Jr 2000; Peters and Pierre 2000). Managers in charge of public service delivery need to make strategic decisions on which actors they contact in order to obtain necessary resources, such as political support, monetary resources and information. Through this voluntary interaction, managers can exploit opportunities or buffer risks when they face environmental uncertainty, resulting in better policy outcomes. Existing literature provides theoretical and empirical evidence that managerial networking positively influences organizational performance (O'Toole, Meier and Nicholson-Crotty 2005; O'Toole and Meier 2003).

Despite the importance of managerial networking, the determinants of managerial networking are rarely studied.(Andrews et al. 2011; Milward 1996; Milward and Provan 2003). A few studies provide empirical evidence that personnel or organizational characteristics generate different networking patterns, however, little is known as to how performance information affects managerial networking. Managers closely monitor performance and evaluate whether it is satisfactory or not relative to a reference point. In the cyclical process, managers may employ such performance information when deciding on which actors they should contact more. When their performance does not fulfill expectations,

managers may increase internal networking to closely monitor the work process. Managers in higher performing organizations may try to exploit the opportunity by networking with external nodes more often. O'Toole, Meier and Nicholson-Crotty (2005, p.66), for example, contended that low-performing schools received a great deal of political attention and these performance pressures induced managers to contact upward networking nodes (e.g. school board) more often, however, this proposition still remains untested.

This research explores how performance information shapes managerial networking. In the classic book, *A Behavioral Theory of the Firm*, Cyert and March (1963) emphasize performance feedback in competitive markets such that managers in firms evaluate their goal attainment relative to their expectations, and then employ the information to make managerial decisions. If managerial networking enhances performance, then how do managers choose to network with particular actors in response to performance information? This question is important for understanding the underlying mechanisms in the networking-performance cyclical process. I theorize that managers who perceive negative performance information (loss) are more likely to contact internal networking nodes, whereas managers perceived positive performance information (gain) are willing to contact external networking nodes in search of new niches using their slack-resources. In the consideration of multiple goals in organizations, I also hypothesize that the direction and frequency of networking can be different depending on which performance dimensions are used for obtaining performance information. Different performance dimensions produce dissimilar incentives and punishments, which make managers estimate the carrots or sticks that substantially affect their organizations.

This study of managerial decisions concerning network action will examine the nursing home industry in the United States. The U.S. nursing home industry provides a good empirical context because it has been provided by public, nonprofit and for-profit organiza-

tions and has a performance appraisal system that applies various performance indicators applied to all homes. Since most public services in public health are delivered by for-profit or non-profit organizations, and only a few of them are solely handled by public organizations,[1] this broad context allows us to explore how public, nonprofit, and for-profit managers network (Agranoff 2007; Kickert, Klijn and Koppenjan 1997). The nursing home industry is characterized by imperfectly competitive markets; in 2012, nursing homes were mostly funded by Medicaid (61%), other public (4.7%), out-of-pocket (22.4%), and other private sources (11.9%) (O'Shaughnessy 2014). Since this characteristic of government funding applies equally to all homes regardless of ownership (Amirkhanyan, Kim and Lambright 2008, Appendix A), nursing homes are an interesting context to explore how managers shape networking in response to performance information in less competitive markets. Using this context, this study may contribute to generalize the theory that performance information shapes managerial networking, not only in competitive markets (Cyert and March 1963), but also in uncompetitive markets.

In the subsequent section, I review the literature on the relationship between performance information and managerial networking, and propose theoretical propositions that introduce performance information as a key determinant of networking. I then present empirical analysis and key findings, and discuss the theoretical and practical contributions of this research.

3.2 The Determinants of Managerial Networking: Revisiting Moore's Theory

Networks refer to "structures of interdependence involving multiple organizations or parts thereof, where one unit is not merely the formal subordinate of the others in some

[1] For example, in 2012, United States 60% of public health services are delivered by non-profit hospitals and over 65% of long-term care services are provided by for-profit nursing homes. As governments are more likely to buy public services rather than to make them, collaboration among public, non-profit and for-profit organizations in the same industry has received more attention.

larger hierarchical arrangement" (O'Toole 1997, p.45). As this definition emphasizes, a network is a structural interdependence among organizations, not individuals, for coordinating joint activities as part of managerial decisions (Agranoff 2007). Though managing a network is not as easy as handling two- or three-party relationships, due to the complexity and absence of clear authority, managers are willing to be involved in mandated networks (e.g. political or regulatory links) or voluntary networks (e.g. other competing organizations or clientele links) in order to obtain significant advantages, such as expertise, resources and information that can lead to better outcomes (O'Toole and Meier 2011; Turrini et al. 2010). Due to the challenges and environmental uncertainty in public services, multi-organizational networked arrangements are encouraged in policy implementation.

Although managerial networking has been emerging as a core component of management linked to performance and has received substantial study (O'Toole 2015), what drives managers to contact a particular actor needs further study. In the context of contingency theory, environmental uncertainty or innovative strategies motivate managers to look for additional information outside of their organizations (Andrews et al. 2011; Boschken 1988). Other studies also provide empirical evidence that decentralized, informal and specialized organizations are more likely to contact external actors to seek opportunities or buffer risks (Andrews et al. 2011; Burt 2004). These studies, however, limit networking nodes to external actors (e.g. third-party actors) and do not include internal actors, such as clients, staff within organizations. The topic of measuring managerial networking as a frequency of interacting with all networking nodes, therefore, is still understudied in regards to what determines contact with individual networking nodes and why managers choose those particular networking nodes over other ones.[2] In his book, *Creat-*

[2]For instance, Andrews et al. (2011) provide theoretical and empirical evidence that organizational and environmental characteristics in Texas school districts encourage superintendents to contact external actors more, but the aggregated measure of external actors does not gives evidence on how and why managers choose a certain type of external actors over other options.

ing Public Value, Moore (1995) conceptualizes managerial networking in public services in a tripartite way that managers manage upward, downward, and outward to networking nodes when considering their stakeholders who significantly influence production of public value. This parsimonious expression for a complex set of managerial networking implies that managerial networking works in three different directions with various frequencies to achieve goal attainment. Managing upward indicates a way of networking with political principals such as upper-level governmental agencies. Managing downward reflects a way of networking with employees and clientele as a core component of internal management. Managing outward refers to networking with external actors outside of their organizations such as civic groups, vendors, and other competing organizations. O'Toole, Meier and Nicholson-Crotty (2005) developed these concepts as testable propositions to reveal whether the tripartite ways of networking influence organizational performance. They conceptualized that upward and downward networking reflects internal networking within an organization as a primary interaction with subordinates, clientele, and political principals, whereas outward networking shows external networking exists outside of an organization as a voluntary interaction with external actors, not including principals or hierarchical oriented links. They provide empirical evidence that managing outward network nodes positively influences most performance dimensions, whereas managing upward and downward shows a mixed influence on performance, managing upward network nodes never positively influences performance, and managing downward negatively relates with some performance dimensions. These findings raise the questions on why managers network in different ways and why does networking have different impacts on the networking-performance linkage. One possible explanation for such different impacts of networking is that managers in low-performing organizations are forced to interact with upward nodes because political principals are demanding that the organization increase its level of performance (O'Toole, Meier and Nicholson-Crotty 2005, p. 60),

however, this reversed causal relationship has received little empirical study. Under what circumstances do managers interact with upward or downward nodes over outward ones? If performance information affects managerial networking, which performance dimension is important to generate significant information that influences networking? Since public service organizations have various performance goals- effectiveness, equity and efficiency (Conrad et al. 2003; Juenke 2005; O'Toole and Meier 2004*a*,*b*), it is worthwhile to unpack how managers contact upward, downward, and outward networking nodes in response to performance information.

3.3 Performance Information and Managerial Networking

Cyert and March (1963) emphasize a feedback loop in an organizational decision-making process. In the cyclical process, managers are likely to evaluate their goal attainment, and then decide who they should contact more frequently in response to performance information. Their theory indicates that managerial networking is not only determined by personnel or organizational characteristics, but also generated through the performance feedback process.

Once managers receive performance information, they evaluate whether the performance is satisfactory or not relative to reference points. Without those reference points, managers cannot evaluate whether their current performance is good enough or bad enough to change their managerial actions, including the level of contact with various networking nodes. The Reference Dependence Theory assumes a bounded rationality process whereby organizations evaluate their performance by comparing the gain or loss in performance relative to past performance or performance of other competitors (Greve 1998; Levinthal and March 1981; Tversky and Kahneman 1991; McDermott, Fowler and Smirnov 2008). Based on the gap between current performance and past performance, historical aspiration,

or the gap between their performance and other competing organizations' performance, social aspiration, managers are likely to decide who they have to contact more frequently in terms of upward, downward and outward networking nodes. Meier, Favero and Zhu (2015) develop this notion using a Bayesian logic that prior expectations can be separately generated by past year performance, the trend in past performance, or performance of other competitors. All these aspects of performance information can be incorporated into a complex model of prior expectations. Olsen (2013) hypothesizes that historical and social aspirations offer asymmetrical sources of comparison: historical aspirations provide a source of cumulative performance of the current organization, whereas social aspiration allows managers to evaluate the performance simultaneously achieved by other competing organizations. In addition, contrary to historical aspirations, he proposes that managers may be more sensitive to social aspirations than historical aspirations since social aspirations can be a proxy of absolute information without confounding effects of exogenous disturbances over time. Other scholars, however, contend that public service organizations cannot foresee future policy outcomes due to the complex environments and goal ambiguity so that they must make managerial decisions based on retrospective information, that is, historical aspirations (Meier, Favero and Zhu 2015; Lee, Rainey and Chun 2009). Such conflicting propositions illustrate the need for empirical research to determine whether historical or social aspirations have the greater influence on managerial networking. Following those studies, I conceptualize performance information as either a gain or a loss relative to 1) historical aspirations of the past year (a short-term), 2) historical aspirations linked to the trend in past two years (a long-term) and 3) social aspirations linked to the average performance of other competitors to explore which aspiration is more influential for managerial networking.

Hypothesis 1 Performance information will influence managerial networking, and in that relationship, social aspirations are more influential in changing managerial networking than historical aspirations are.

3.4 Looking For Different Incentives? Performance Information from Different Dimensions

Then, how does performance information influence managerial networking? Performance information can be separated into two types of information - positive and negative - depending on whether the current performance is higher than the aspiration level. When organizations outperform past performance or other competitors, managers perceive this feedback as positive information, otherwise the information is perceived as negative information. Existing literature emphasizes that managers react differently to positive versus negative information (Kahneman and Tversky 1979; Meier, Favero and Zhu 2015; Greve 2007), but it is understudied how managers choose networking actors in response to performance information. One group of scholars contends that since public service organizations are risk-averse, managers are more likely to change their managerial practices in response to failure than in response to success (Cameron and Zammuto 1983; Greve 2007). Due to political attention and performance pressure, negative information may be more likely to push managers to find some help from inside and outside of their organizations, which results in increasing networking in upward, downward, and outward networking nodes (Zhu and Johansen 2013). Other literature, however, contends that it is unrealistic to assume that high-performing organizations (those that are exceeding aspirations) do nothing or are less likely to contact external actors (Rainey 2009). Meier, Favero and Zhu (2015) contends that, similar to gambling with house money, successful organizations are more likely to invest their positive gains or slack-resources to expand market shares or take on other initiatives. The private sector literature also supports this notion that high-performing or-

ganizations are more likely to look for new market niches, which may lead to greater networking with external actors (Teece 2009).

In this study, I theorize that the impact of performance information on managerial networking differs depending on which performance dimensions are used to measure performance information. Existing theoretical and empirical evidence on networking effectiveness indicates that the impact of networking significantly differs across performance dimensions – goal attainment (O'Toole and Meier 2003), equity (O'Toole and Meier 2004*a*), community level effectiveness (Fawcett et al. 2000; Conrad et al. 2003), and client level effectiveness (Provan and Milward 1995; Turrini et al. 2010). Thus, there needs to be further examination whether different performance dimensions also produce asymmetric incentives or constraints in contacting other actors whether upward, downward, or outward.

Public service organizations have less competitive markets compared to other private firms who do not deliver public services due to a high dependence on public funding and less clear goals (Meier and O'toole 2001; Rainey 2009). For instance, as a long-term care industry, nursing homes are widely spread out in the United States across sectors, public, non-profit and for-profit, but their clientele and funding sources are relatively similar (Amirkhanyan, Kim and Lambright 2008, Appendix A.3). Moreover, most public service organizations have to serve two different principals – state regulatory agencies and clientele, who monitor the process of public service delivery, so they have to meet the regulatory requirements imposed by the state and the demands of the clientele at the same time, generating a complex performance evaluation process and ambiguous goals (Chun and Rainey 2005).

In public policy areas with more than one performance criterion, I theorize that performance criteria produce different incentives or constraints in contacting networking nodes.

Managers may be more concerned about performance goals that are emphasized by their primary principals. As noted in Table 3.1, regulatory agencies require public service organizations to meet the minimum standards of performance in order to protect the public.

Table 3.1: The Impact of Performance Information (PI) on Networking across Different Performance Dimensions

	Positive PI	Negative PI
rule compliance Dimension	None (Less Incentives)	Internal Networking (+) (Upward & Downward)
Market-value Performance Dimension	External Networking (+) (Outward)	None (Less Incentives)

In the context of nursing homes, regulatory agencies set rules and guidelines for long-term care service quality, and then evaluate those organizations based on their rule compliance. These rules and guidelines aim to deter inappropriate or dangerous behavior by punishing poorly performing organizations that fail to meet the minimum requirements. For instance, in the context of a long-term care industry, U.S. nursing homes are annually monitored by CMS based on whether they have any deficiencies in their facilities (Amirkhanyan, Kim and Lambright 2008; Harrington et al. 2000). When a nursing home has a relatively large number of deficiencies, state Medicare and Medicaid agencies revisit the nursing home until the substantial corrections for the deficiencies are made. If the nursing home fails to correct the deficiencies by the time of the first revisit, any repeat revisits are counted as low-performance by the regulatory agency. Rule compliance indicators generally focus on ensuring low-end performance, such that low-performance on these indicators are likely to bring a great deal of political attention that generate greater performance pressures. Because the deficiency standards are relatively low, exceptional performance is seen as a matter of course and is not likely to engender much concern. Meier and O'Toole (2011)

also indicate that since managers perceive low-end performance differently, in their case such indicators as drop-out rate or enrollment rates as compared to high-end performance, such that different incentives and constraints derived from those dimensions bring asymmetrical managerial practices. Low-performing organizations within the rule compliance dimension are more likely to contact upward networking nodes to reassure them that they have corrected any deficiency. Likewise, low-performing organizations need to increase downward networking nodes, as well to find out what generated the deficiencies and how to eliminate them. Managers in those organizations may be more likely to contact staff and clientele within their organizations to find out ways to address the problems. On the contrary, these managers may be unlikely to increase outward networking since their greatest need is to respond to the regulatory pressure by fixing the problems within their organizations.

Contrary to the regulatory dimension, the market-value performance indicator focuses on future clientele and creates additional incentives to increase external networking. Public service organizations are not only concerned about the evaluation of regulatory agencies, they are additionally concerned with clientele evaluations to attract future customers. Public service organizations are willing to increase market-value performance as a way of advertising their organizations as among higher quality organizations (Perry and Wise 1990; Rainey 1982; Wittmer 1991; Brewer and Selden 2000). Using slack-resources and greater managerial discretion, managers in high-performing organizations within the market-value performance dimension should be willing to put their time and energy to look for opportunities outside of their organizations, and give more discretion to their competent mid-level and street-level employees, resulting in increasing outward networking. Managers in low-performing organizations, however, have less incentives to increase any networking efforts because in the imperfectly competitive public service delivery industries low-performance

on such dimension is not directly linked to profits. Most of public service delivery organizations' revenue comes primarily from public funding. In nursing homes, for example, most of revenue comes from Medicaid and Medicare reimbursement. Additionally, nursing homes have a relatively stable amount of customers because clientele rarely move from one nursing home to another, unless there is a dramatic quality drop. Such stable clientele makes managers sluggish to responding to low-performance within the market-value dimensions in regards to networking. Due to the high dependence on public funding and the lower salience of service quality that limits incentives to change networking, low-performing organizations will generally choose not to increase networking until political principals force them to do so. I, therefore, hypothesize that different incentives for different performance dimensions leverage the impacts of performance information on managerial networking in different ways: negative performance information in a rule compliance indicator will increase inward and downward networking, whereas positive performance information in a market-value performance indicator will increase outward networking.

Hypothesis 2 Due to the increased likelihood of punishment, negative performance information in a rule compliance indicator will be more likely to increase upward and downward networking.

Hypothesis 3 Due to the high incentives of rewards, positive performance information in a market-value indicator will be more likely to increase outward networking.

3.5 Research Design

3.5.1 Data and Method

To test the hypotheses, I analyzed 714 U.S. nursing homes including 259 public, 254 non-profit, and 201 for-profit nursing homes. U.S. nursing homes provide a good empirical

context for exploring the impact of performance information on networking. Performance of nursing homes has received more attention by policy makers and constituents recently, due to increased public spending and the salience of health care generally. During 2013, U.S. nursing homes had about 1.4 million residents and 1.7 million licensed beds, and about 75% of those residents used government funds from Medicare and Medicaid (CDC 2013). As the percentage of elderly, those over the age of 60, has increased and is estimated to be 26% of U.S. population by the year 2050 (Kinsella and Velkoff 2001), the concerns about nursing home quality has also increased, and led managers to adopt performance-based management systems. In addition, nursing homes have existing rule compliance and market-value performance indicators that are equally applied to all homes. All these characteristics help to explore how performance information affects managerial networking on different performance dimensions.

This study used the 2013 Nursing Home Administrative Survey, 2010-2013 Nursing Home Compare (NHC) data, and 2010 Census data. The Nursing Home Administrative Survey data, collected by Project of Equity, Representation, and Governance (PERG), provided information on managerial practices and perceptions of nursing home administrators including networking behaviors, strategies and goal priorities. Since the number of U.S. nursing homes is unbalanced across sectors, 69% are for-profit homes, 25% non-profit homes, and 6% public homes in 2013. The researchers selected a stratified random sample from each sector to make a representative sample. They generated a random sample of 2,900 nursing homes: 1,000 for-profit and 1,000 non-profit, and the full population of 903 public nursing homes and conducted a three-wave survey from January of 2013 to May of 2013 through both online and mail. A total of 725 nursing home administrators responded, a 24.9% response rate, but for this study, I analyzed only 714 homes because of missing data on managerial networking.

Nursing Home Compare data also provides general information on organizational characteristics of nursing homes such as the number of certified beds, the number of staff, nurses, occupancy rates, chain affiliations, percentage of residents who have special needs, and ownership status. The data also provide information on nursing home performance indicators, the number of health deficiencies derived from both health and complaint inspections and the 5-star overall quality rating score, reported by the Centers for Medicare & Medicaid Services (CMS). The number of deficiencies is a good performance indicator to gauge whether a nursing home is complying with the rules and regulations imposed by state regulatory agencies. All nursing homes participating in Medicare and Medicaid programs should receive an annual inspection in terms of deficiencies; trained state survey teams assess each nursing home on the basis of their compliance with federal requirements. There are approximately 180 regulatory requirements in terms of health deficiency categorizes 1) medication management, 2) proper skin care, 3) assessment of resident needs, 4) nursing home administration, 5) environment, 6) kitchen/food services, 7) resident rights and 8) quality of care (CMS 2012). State inspectors investigate health and complaint statuses in each nursing home annually on average and count the number of deficiencies. Based on the most recent three years inspection surveys, state inspectors decide whether any repeat revisits are needed to correct those deficiencies, so most revisits indicate that a nursing home has serious quality problems.

The five-star overall quality rating is also a good indicator for current and future residents' performance perspectives because the rating quality helps residents to evaluate each home's quality intuitively in terms of health inspection, quality outcomes, and diversity of staff (RN/LPN/nurse aide). CMS reports the five-star overall quality rating for each home on their 'nursing home compare' website: the top 10 percent homes in each State earn a five-star rating, the middle 70 percent earn a rating of two, three or four stars, approx-

imately 23.3 percent in each rating category, and the bottom 20 percent earn a one-star rating. The indicator helps clientele to easily compare nursing homes within their county, so the performance information generated from this indicator would serve as a way to attract future residents to the nursing home. I also used 2010 Census data at the county level to provide information on the elderly population, poverty rates, and urbanized rate for resident characteristics and other environmental factors.

For the data analysis, I specified the general networking model using an Ordinary Least Squares (OLS) specification with the consideration of cross-unit heterogeneity. Since a general networking variable measured as a first factor is derived from factor analysis of all networking nodes, the continuous networking variable fits the OLS assumptions. Specifically, for testing the impact of performance information on each networking node, I used the Ordered Probit model specification for the analysis of each ordinal networking node.

3.5.2 Dependent Variable: Managerial Networking

I measured managerial networking as a frequency of contacting other actors on a 6-point scale, from never to daily. O'Toole, Meier and Nicholson-Crotty (2005) use this measure on the assumption that managers cannot engage in networking without coming into contact with other actors. The Nursing Home Administrative Survey provides responses to the question of "As a Nursing Home Administrator, how frequently do you interact with the following organizations and persons?" for a range of network nodes from nursing home corporate offices to information/assistive technology vendors. Table 3.2 indicates that all items load positively on the first factor loads positively which taps a general propensity to engage in managerial networking.

I treated each networking node separately to explore whether performance information motivates managers to contact each actor differently. Networking with each actor is mea-

Table 3.2: Factor Loadings of 7 Networking Nodes Items Using U.S. Nursing Home Administrator Surveys

Items	Mean	Std. Dev.	Factor 1
Your nursing home's corporate office	3.776	1.18	0.4513
Other nursing home staff	4.803	0.61	0.2126
Nursing home residents or resident-groups	4.679	0.74	0.2996
State regulatory agencies	1.365	0.59	0.4294
State Medicaid	1.52	1.06	0.6488
Insurance companies	1.519	1.07	0.6454
Information assistive technology vendors	1.745	1.22	0.7168
Eigenvalue			1.8741

sured on a six-point scale from 0 to 5 by 'never', 'yearly', 'monthly', 'weekly', 'more than once a week', and 'daily', I used this ordinal variable for each networking node to see the direction and the frequency of networking with each actor. I categorized each networking node to how it represents the direction of networking among upward, downward and outward according to Moore (1995). I treated 'residents' and 'staff' as downward networking nodes, 'corporate office', 'state regulatory agencies' and 'state Medicaid' as upward networking nodes and 'insurance companies' and 'informative/assistive technology vendors' as outward networking nodes. As noted in Appendix B, managers in nursing homes contact downward/internal networking nodes, such as staffs and residents, more frequently than other upward or outward networking nodes on average. However, the frequency of networking for each actor varies across homes, which provides variation to examine the impact of performance as a determinant of managerial networking.

3.5.3 Independent Variable: Performance Information

To measure a key independent variable, performance information, I created both historical aspirations and social aspirations using the number of deficiencies and the overall 5 star-rating performance indicators. I measured historical aspiration as 1) a performance

gap between performance in 2012 (t-1) and performance in 2011(t-2) within a nursing home, and 2) a performance gap between performance in 2011 (t-2) and performance in 2010 (t-3) within a nursing home. Those two historical aspirations variables provide both performance information relative to the past year, a short-term effect, and performance information on a trend for the past two years, a long-term effect. Since managerial networking nodes are measured in 2013 (t), it is assumed that top managers in nursing homes perceived historical performance information in both a short-term and a long-term frame, and tried to apply that information when deciding who to contact more in the up-coming year. Though it is difficult to test the causal effect of performance information on managerial networking using one-time cross-sectional survey data, such historical performance gaps help to set performance information as antecedents to managerial networking.

Social aspirations are measured as a performance gap between a nursing home and the average nursing homes within the county. The average of all competitors within a competitive market area has been seen as a threshold point for deciding when managers make decisions (Greve 2007). If an organization performs poorly relative to the average of other competitors, it should be a signal to change managerial networking and to seek help to improve performance in order to survive in the market. Potential residents for nursing homes are likely to choose a nursing home within their own county, this means that a county-level social aspiration measure can be a good indicator for whether each nursing home outperforms competitors, on average (Amirkhanyan, Kim and Lambright 2008). The latest social aspirations gap is likely to have a significant impact on decision-making in management practices (Olsen 2013); I used 2012 performance data in all nursing homes to measure social aspirations.

I created the performance information measures using two different performance dimensions, rule compliance and market-value dimensions. The number of deficiencies

represents a rule compliance indicator because it is derived from annual state regulatory evaluations on health quality and compliant surveys. [3] Moreover, the total sum of deficiencies has been commonly used as a standard performance indicator in the field of nursing homes (Harrington et al. 2000; Amirkhanyan, Kim and Lambright 2008). Since a higher number of deficiencies indicates that a nursing home has more regulatory violations and lower performance, I reversed the direction of deficiencies to create a performance indicator consistent with the other performance indicators. The historical aspiration measure in 2012-2011 ranges from -29 to 35, with a mean of 0.24 and a standard deviation of 5.60, whereas the social aspiration measure ranges from -24.2 to 9.67 with a mean of 0 and a standard deviation of 4.59.

The five-star overall quality rating score reflects market-value quality performance. All nursing homes participating in Medicare or Medicaid are subject to evaluation by the Centers for Medicare and Medicaid Services (CMS) in terms of health inspection, staffing and quality measures; then the total quality score is transferred to the five-star point scale to provide for a simple and comprehensible measure for potential and current residents. In contrast to the number of deficiencies, the five-star rating score aims to provide a more visible and intuitive performance indicator for consumers, so anyone who is interested in looking for a good quality home can easily access the score through the 'Nursing Home Compare' website, and make a decision by comparing to other competitors based on this score. Thus, for nursing homes to succeed in recruiting future residents, they need to be concerned about the five-star rating performance and put their efforts into increasing this score. I used the five-star overall quality rating score for health inspections, staffing and Quality Measures and created a set of historical aspirations and social aspirations.

[3] The CMS report indicates that state inspections are conducted annually on average; nursing homes rarely have more than 15 months gap between surveys. Since it brings some technical problems to create consistent performance measures across homes in each year, this research measures performance information based on the performance gaps between surveys in each nursing homes.

Historical aspirations on the 5-star rating are measured as a short-term effect, January 2013-January 2012, and a long-term effect, January 2012- January 2011. Social aspiration is calculated based on January 2013 reports on performance gaps between a single nursing home and the average nursing homes on the county-level. As noted in Appendix B, the descriptive analysis on performance information on the five-star ratings indicates that the five star-ratings vary across year and across homes within a county.

3.5.4 Control Variables

Existing studies on the determinants of managerial networking indicate that organizational characteristics and administrative capacity may influence managerial networking. I controlled for organizational characteristics of nursing homes, the size, occupancy rate, task difficulty, capacity (nurses per residents), hospital-affiliation, chain-affiliation, market competition, managerial strategy (prospecting and defending) and ownership. These organizational characteristics are related to the potential resources and managerial capacity that may affect both performance and managerial networking. I included tenure as a control variable to exclude any effect of organizational learning from their job experience within a specific home. I also controlled for environmental factors such as urbanization and the elderly population using Census data at the county-leveled in order to minimize the influence of environmental challenges on managerial networking. The specific measurements and data sources are described in table 3.3.

3.6 Empirical Findings

For testing the hypothesis 1, I analyzed three models to explore the impact of performance information derived from each aspiration level on general managerial networking. Table 3.4 shows that, in terms of the rule compliance, social aspirations significantly influences how managers contact other networking nodes whereas both short-term and long-

Table 3.3: The Summary of Control Variable Measurement

Variable	Operational Definition/Measurement	Sources
Organizational Size	Total number of beds	NHC 2013
Task difficulty	The sum of squared of the number of residents dependent on staffs in terms of transferring, toilet, eating, continence, mobility, skin integrity, mental status and loosing weight (Herfindal index)	NHC 2013
Occupancy	The total number of residents divided by the total beds	NHC 2013
Managerial capacity	The number of nurses (registered and vocational nurses) per a resident	NHC 2013
Hospital affiliated	Networked with hospital; Dummy variable (1= yes, 0=no)	NHC 2013
Chain affiliated	Chain-affiliated nursing homes; Dummy variable (1= yes, 0=no)	NHC 2013
Market competition	The sum of squared market shares for all facilities in the county (Herfindal index)	NHC 2013
Strategy	Managerial Strategy measured as a prospector and a defender using the first factor of factor analysis of responses on questions of their tendency of exploiting opportunity or focusing on efficiency given environmental uncertainty.	PERG Executive Survey 2013
Ownership	Dummy Variable: Public=1, Non-profit=2, and For-profit=3	NHC 2013
Tenure	Average tenure of a chief manager in a current nursing home	PERG Executive Survey 2013
Elderly	Proportion of population in elderly (65 years or order) in the county	Census 2010
Urban	The percentage of residents who live in urban areas in the county	Census 2010

Table 3.4: The Impact of Performance Information on General Managerial Networking: Rule Compliance

DV: General Managerial Networking	Model1 b/se	Model2 b/se	Model3 b/se
Short-term Historical Aspiration: rule compliance PI	-0.007		
	(0.01)		
Long-term Historical Aspiration: rule compliance PI		-0.007	
		(0.01)	
Social Aspiration: rule compliance PI			-0.027*
			(0.01)
Size	-0.000	-0.000	-0.000
	(0.00)	(0.00)	(0.00)
Occupancy	-0.512	-0.557	-0.437
	(0.45)	(0.44)	(0.44)
Task Difficulty	0.572	0.640	0.500
	(0.64)	(0.64)	(0.63)
Capacity	-0.218	-0.220	-0.099
	(0.35)	(0.35)	(0.36)
In hospital	-0.144	-0.161	-0.198
	(0.24)	(0.24)	(0.24)
In chain	-0.146	-0.128	-0.159
	(0.12)	(0.12)	(0.12)
Urban	-0.001	-0.001	-0.001
	(0.00)	(0.00)	(0.00)
Elderly	-0.041*	-0.041*	-0.039*
	(0.02)	(0.02)	(0.02)
Market Competition	0.537	0.525	0.571
	(0.31)	(0.31)	(0.31)
Tenure	0.022**	0.022**	0.022*
	(0.01)	(0.01)	(0.01)
Prospector	0.122*	0.121*	0.125*
	(0.05)	(0.05)	(0.05)
Defender	0.100	0.103	0.109
	(0.06)	(0.06)	(0.06)
Public	-0.541***	-0.520**	-0.523**
	(0.16)	(0.16)	(0.16)
Non-profit	-0.413**	-0.403**	-0.374**
	(0.13)	(0.13)	(0.13)
(constant)	1.194*	1.219*	1.074
	(0.59)	(0.59)	(0.59)
R-square	0.167	0.169	0.178
N	299	298	299

Note: Higher value in performance information means higher level of rule compliance.

For-profit nursing homes are base-line.

The number of sample is reduced because of missing observations in networking nodes

*Two-tailed tests of significance * p <0.05, ** p <0.01, *** p <0.001*

term historical aspiration do not have significant impacts on networking. The findings indicate that managers are less likely to contact other actors when they outperform other competitors on average. These results support the hypothesis 1 that managers are more concerned about social aspiration than historical aspiration, and as long as their performance is higher than the average of others in the rule compliance dimension, they are less likely to seek other help or information inside or outside of their organizations. The findings show that managers perceive rule compliance as a low-end performance dimension that essentially generates more pressure and political attention for low-performing organizations. Nursing homes performing worse than others, therefore, need to explain their results to upper-level monitoring organizations more frequently, to put more controls on work process in their internal management, and to seek help and resources from external actors.

As noted in table 3.5, social aspiration is consistently more significant than historical aspiration in market-value performance indicators. The findings support hypothesis 1 that regardless of performance dimensions, nursing home managers are more concerned about how much they outperform others, rather than how well they perform as compared to previous years when deciding managerial networking. Interestingly, market-value performance information shows a different direction: social aspiration positively influences managerial networking. This positive influence indicates that the effect of performance information differs across performance dimensions. In terms of the market-value performance information, managers in a higher-performing organization are more likely to exploit opportunities through expanded networking because of slack-resources and a good reputation as a competitive organization. However, this general networking analysis does not provide information whether managers in high-performance organizations are more

Table 3.5: The Impact of Performance Information on General Managerial Networking: Market-value Performance Indicator

DV:Networking nodes	Model1 b/se	Model2 b/se	Model3 b/se
Short-term Historical Aspiration: Market-value PI	-0.037		
	(0.06)		
Long-term Historical Aspiration: market-value PI		-0.057	
		(0.06)	
Social Aspiration: Market-value PI			0.207*
			(0.10)
Size	-0.000	-0.000	-0.000
	(0.00)	(0.00)	(0.00)
Occupancy	-0.552	-0.563	-0.612
	(0.44)	(0.44)	(0.44)
Task Difficulty	0.549	0.538	0.711
	(0.64)	(0.64)	(0.63)
Capacity	-0.225	-0.242	-0.281
	(0.35)	(0.35)	(0.35)
In hospital	-0.147	-0.138	-0.126
	(0.24)	(0.24)	(0.24)
In chain	-0.137	-0.139	-0.137
	(0.12)	(0.12)	(0.12)
Urban	-0.001	-0.001	-0.001
	(0.00)	(0.00)	(0.00)
Elderly	-0.040*	-0.042*	-0.042*
	(0.02)	(0.02)	(0.02)
Market Competition	0.532	0.561	0.510
	(0.31)	(0.31)	(0.30)
Tenure	0.023**	0.022*	0.024**
	(0.01)	(0.01)	(0.01)
Prospector	0.124*	0.123*	0.099
	(0.05)	(0.05)	(0.05)
Defender	0.104	0.098	0.095
	(0.06)	(0.06)	(0.06)
Public	-0.525**	-0.537***	-0.540***
	(0.16)	(0.16)	(0.16)
Non-profit	-0.407**	-0.396**	-0.420**
	(0.13)	(0.13)	(0.13)
(constant)	1.203*	1.225*	1.279*
	(0.59)	(0.59)	(0.59)
R-square	0.166	0.168	0.179
N	299	299	299

For-profit nursing homes are base-line.

The number of sample is reduced because of missing observations in networking nodes

*Two-tailed tests of significance * p <0.05, ** p <0.01, *** p <0.001*

focused on outward networking than downward or upward networking, so further analysis of the impact of performance information on individual networking nodes is needed.

Table 3.6: The Impact of Performance Information of Rule Compliance on Individual Networking Nodes: Standardized Coefficients

	Resident b/se	Staff b/se	Corporate b/se	Regulate b/se	Medicaid b/se	Insurance b/se	Vendors b/se
Short-term historical aspiration	0.072	-0.034	-0.014	0.004	-0.016*	-0.009	-0.011
	(0.10)	(0.57)	(0.01)	(0.01)	(0.01)	(0.01)	(0.01)
Pseudo R-square	0.037	0.043	0.034	0.019	0.030	0.024	0.018
N	713	712	374	711	678	668	636
Long-term historical aspiration	-0.016*	0.039	-0.002	-0.008	-0.004	0.011	0.002
	(0.01)	(0.01)	(0.01)	(0.01)	(0.01)	(0.01)	(0.01)
Pseudo R-square	0.037	0.041	0.032	0.019	0.028	0.023	0.016
N	706	705	370	705	672	662	632
Social aspiration	-0.024	-0.017	-0.031*	-0.013	-0.019*	-0.007	-0.004
	(0.01)	(0.01)	(0.01)	(0.01)	(0.01)	(0.01)	(0.01)
Pseudo R-square	0.036	0.004	0.037	0.020	0.030	0.023	0.017
N	713	712	374	711	678	668	636

Note: 1. All equations control for size, occupancy, task difficulty, tenure, managerial strategy (prospecting and defending) market competition, hospital affiliation, chain affiliation, operating groups, urban areas, elderly and ownership.
2. High-value in rule compliance information means high-levels of rule compliance in the regulatory indicator.
*3. Two-tailed tests of significance + $p<0.10$, * $p<0.05$, ** $p<0.01$*

Table 3.6 shows the impact of performance information on individual networking nodes for rule compliance. Although individual networking nodes show different relationships with aspirations, all significant coefficients indicate that performance information for the rule compliance indicator are negatively associated with downward and upward networking nodes. Managers who outperform past performance are less likely to contact regulatory agencies, i.e. Medicaid, or residents, and managers who outperform other competitors are also less likely to expand their networking with their corporate offices and Medicaid. However, performance information in regard to rule compliance does not have a significant relationship with outward networking nodes. This supports my second hypothesis that rule compliance information induces managers to seek problem solutions

from inside of their organizations and seek help from upper-level monitoring agencies in the expectation of punishment.

How is the impact different in the market-value indicator? Table 3.7 shows supporting evidence for the third hypothesis that high-performing organizations on the market-value indicator are more likely to contact insurance companies or information/assistive technology vendors, which is consistent with the incentive to recruit future clientele. Positive performance information in previous years also increases networking with upward networking nodes (Medicaid) in response to the market-value indicator. Since Medicaid is a major source of funds as well as a regulatory agency, managers in a high-performing nursing home may respond to an increased demand of services. Another interesting finding is that low-performing organizations relative to the past year are more likely to contact corporate offices, but that impact is not consistent with other contacts with residents or staff. In all likelihood this relationship reflects the need to justify to the corporate office the decline in quality scores even though there is no effort to do so for the clientele or the staff. Though Table 3.7 shows mixed findings in terms of downward and upward networking, the imperfect market context of U.S. nursing homes may provide an explanation for why managers are only concerned about networking with corporate offices and Medicaid.

3.7 Conclusion

This research revisits Moore (1995)'s management typology to examine the impact of performance information on managerial networking nodes. By expanding the scope of existing literature on managerial networking, I contend that the impact of performance information differs depending on the specific performance dimensions (regulatory versus market-value indicators), aspirations (historical versus social aspirations) and individual networking nodes (downward, upward, and outward). The findings provide some support

Table 3.7: The Impact of Performance Information of Market-value Indicator on Individual Networking Nodes: Standardized Coefficients

	Resident b/se	Staff b/se	Corporate b/se	Regulate b/se	Medicaid b/se	Insurance b/se	Vendors b/se
Short-term historical aspiration	0.005	0.005	-0.137*	-0.033	-0.029	0.073+	0.041
	(0.05)	(0.06)	(0.06)	(0.04)	(0.04)	(0.04)	(0.04)
Pseudo R-square	0.036	0.043	0.037	0.020	0.028	0.025	0.017
N	713	712	374	711	678	668	636
Long-term historical aspiration	0.020	-0.097	0.033	0.082	0.105*	-0.059	-0.003
	(0.06)	(0.07)	(0.06)	(0.05)	(0.05)	(0.05)	(0.05)
Pseudo R-square	0.036	0.046	0.032	0.021	0.031	0.024	0.017
N	713	712	374	711	678	668	636
Social aspiration	-0.001	-0.076	0.068	-0.016	-0.020	0.020	0.209*
	(0.11)	(0.12)	(0.10)	(0.09)	(0.08)	(0.08)	(0.08)
Pseudo R-square	0.036	0.044	0.033	0.019	0.028	0.023	0.020
N	713	712	374	711	678	668	636

Note: 1. All equations control for size, occupancy, task difficulty, tenure, managerial strategy (prospecting and defending) market competition, hospital affiliation, chain affiliation, operating groups, urban areas, elderly and ownership.
*3. Two-tailed tests of significance + p<0.10, * p <0.05, ** p <0.01*

for my theory that the impact of performance information on networking differs depending on performance dimensions because of asymmetrical incentives and punishments. Managers strategically choose who they have to contact depending on specific performance feedback. Managers are also more concerned with social aspirations rather than historical aspirations in decisions on general networking, which indicates that managers consider social aspirations as the best proxy of value when they decide whether the current performance is either high or low enough to justify a change in network behavior. This study makes several theoretical and practical contributions; it revisits the causal relationship between managerial networking and performance, and explores the reverse causal relationship that performance information derived from historical and social aspirations generates different incentives to change managerial networking. The findings show that networking, as an important factor that determines organizational performance (Meier and O'Toole 2011; O'Toole and Meier 2011; Andrews et al. 2011), is not only determined by managers' personnel characteristics and organizational characteristics, but also affected through the

performance feedback process. As performance-based management increases in public service delivery (Moynihan 2008*b*), how performance information influences managerial practices is an important question to be tested. This study takes a one step forward to explore the underlying mechanisms of determining managerial networking through the performance process. This study also contributes to the literature of public policy that the context of industries in public services need to be understood first when governments design performance evaluation systems. Public service organizations have less competitive markets and rely on public funding sources, so they perceive different incentives and punishments from different performance indicators. The findings reveal that managers expect punishments from low-performance in regulatory indicators and incentives from high-performance on market-value indicators; therefore, research needs to consider which performance dimensions are used when measuring performance information in manager's minds. If policy makers aim to increase the quality of a long-term care industry, they need to carefully examine incentives and punishments for each performance indicator.

4. LOOKING FOR STRATEGIES IN ALL THE WRONG PLACES: THE IMPACT OF PERFORMANCE INFORMATION ON MANAGERIAL STRATEGY IN U.S. PUBLIC, NON-PROFIT, AND FOR-PROFIT NURSING HOMES

4.1 Introduction

The relationship between managerial strategy and performance is an enduring topic in public administration (Andrews et al. 2008; Boyne and Walker 2004; Olson, Slater and Hult 2005; Zahra and Pearce 1990). With uncertain environments and limited resources, managers should make strategic decisions on adopting innovations or focusing on core tasks with consistent procedures. In their seminal work, Miles and Snow (1978) introduced a fourfold typology of strategy, prospecting, defending, analyzing and reacting, and emphasized that the fit of strategy coupled with environment, process and structure is a key for better performance. Though their study was ignored until 1990, recently many scholars have provided theoretical and empirical evidence of strategies in achieving better outcomes in public and private organizations (Nutt and Backoff 1995; Meier et al. 2010; Zahra and Pearce 1990; Ingraham, Joyce and Donahue 2003; Ketchen, Thomas and McDaniel 1996). Walker (2013) indicates that among 25 empirical studies, over 50 percent of studies support Miles and Snow's theory showing that managerial strategy is a key determinant of organizational performance.

Despite the high volume of studies on managerial strategy and performance, how managers make a strategic decision in response to performance has less attention in the public management (Nielsen and Baekgaard 2015). Since organizations have a cyclical process between performance and management (Ingraham, Joyce and Donahue 2003), performance information, whether organizations have a satisfactory achievement relative

to prior expectations, may make managers engage in result-oriented planning in terms of goal setting, resource allocation, and personnel management (Rainey 2009; Moynihan 2008*a*). Managerial strategy is not an exception. Through this feedback loop, managers analyze gains and losses, and use this information to modify their strategy to find the best way for enhancing performance (Meier, Favero and Zhu 2015). Performance management literature also emphasizes that performance information is frequently communicated to employees, stakeholders and the public, which may shift the focus of managers from inputs to the process toward results (Moynihan 2008*a*). In this perspective, managerial strategy is not only predetermined by personnel or organizational characteristics, but generated through performance information. However, there are no prior studies of how and why performance information shapes managerial strategy.

This research looks to change the causal direction between managerial strategy and performance in the previous literature. I explore how and why managers adopt a certain strategy in response to performance information and how the relationship is contingent on sectors. American nursing homes provide the good empirical context for this research question. With an increase in public spending and a rapidly growing elderly population, the quality of long-term care has received attention. Specifically, performance management for nursing home managers is now required. In addition, as the standardized quality index, a five-star rating which helps residents evaluate nursing home quality at a glance, has increased in use, managers need to change their management strategy in response. Finally, American nursing homes have three different sectors, public, nonprofit, and for-profit, which allows us to explore how the use of performance information differs across sectors when deciding managerial strategy.

This study provides several contributions to public management and healthcare management. First, I conceptualize how performance information is generated using reference

dependence theory. Organizational performance is socially constructed and interpreted (Brewer Selden, 2000; Forbes, Hill Lynn, 2006, p. 255). Even if an organization receives a performance score that is equitable to other organizations, the score can be interpreted and constructed differently depending on its prior aspirations. The findings highlight that managers are more responsive to how much they outperform others rather than whether they perform better than past years, when deciding managerial strategy.

Second, I explore how the use of performance information on strategy is contingent on sectors. Ownership determines goal clarity, managerial discretion or incentives that may influence a manager's ability to use performance information on strategy selection. Although a manager might want to engage in a certain strategy with perceived performance information, a lack of clear goals, discretion or incentives constrain their ability to utilize performance information in managerial strategy. The findings indicate that for-profit managers are the only type of manager that adopt both a prospecting and a defending strategy in response to positive performance information; whereas public and non-profit managers do not change strategy regarding of performance information.

Finally, this research contributes to the healthcare management literature that the standardized quality index, a five-star rating, provides an important signal for managers to change strategy, however, this is only significant in for-profit organizations. The findings reveal that a five-star rating is valid and communicated with managers only if the organization has a higher dependency on clientele, few slack resources, and low service measurability. The findings will provide practical implications to healthcare service organizations that it is important to develop valid performance measures to ensure the effectiveness of performance-based management.

4.2 The Theory of Managerial Strategy

Managerial strategy refers to a way of a manager handle operations and adjusts alignments with external environments. In the theory of adoptive cycle, Miles and Snow (1978) contend that organizations have to deal with three types of problems: entrepreneurial problems in market-product domains, engineering problems in an organization's technical systems, and administrative problems in structures and processes. These problems force a manager to develop a managerial strategy for adjusting their organizations to better suit their environments. Miles and Snow suggest four typologies of managerial strategies: prospecting- searching market opportunities or innovations, defending-searching efficiency by focusing on core products, analyzing- having a blend of prospecting and defending, and reacting- having no action until forced to adopt a strategy by external pressures.

Based on those four strategies, Mile and Snow demonstrate that the the fit of strategy coupled with external environment, process, and structure is important to improve performance. After their seminal work, many scholars in public management have explored dynamic aspects of managerial strategy in both public and private organizations. Empirical studies using English local governments find that prospectors are more likely to be successful when they have flexible circumstances and a decentralized structure with many key stakeholders to negotiate with (Andrews et al. 2011; Andrews, Boyne, Law and Walker 2012). Studies using private firms support the empirical evidences that, in the uncertain environments, prospectors are more likely to be successful in increasing their market-share by seeking new niche market opportunities (Conant, Mokwa and Varadarajan 1990; Shortell and Zajac 1990). Texas school district studies, on the other hand, indicate that defenders are more successful in centralized and stable organizations by allowing top-managers to hold a planned and consistent approach to implement strategies (Meier et al. 2007, 2010).

Following studies emphasize that managers generally pursue multiple strategies to develop their capacities to fit in complex environment (Meier et al. 2010; Walker 2013; Boyne and Walker 2004). Organizations might be prospectors on some tasks, but be more defenders on others, so analyzing, a blended strategy between prospecting and defending, is redundant because all organizations are analyzers at some point. Additionally, a reacting strategy is not predictable based on organization characteristics because reactors can lack strategy altogether and rely on decisions from powerful stakeholders instead (Walker 2013). Miles and Snow's theoretical arguments also concentrate on prospecting and defending strategies as the most distinctive types, and provide little discussion on the other two strategies (Meier et al. 2010), thus, I focus on the prospecting and defending strategy.

Though following studies of Miles and Snow (1978) contribute to our understanding on the strategy-performance link, they also raise an important question that still remains unanswered. Most studies do not explore whether performance affects strategy. Existing studies assume that strategy is constant and predetermined by organizational structure, environment, and process (Ginsberg 1988; Donaldson 2001), and neglect to examine under what conditions strategy can be changed. Even though a few studies include prior-performance indicators in their models to control for the possibility of reverse-causality (Andrews, Boyne, Meier, O'Toole and Walker 2012; Walker et al. 2010), they do not provide enough evidence on how the information influences managerial strategy.

4.3 Managerial Strategy and Performance Information

Managers consider performance information and try to employ the information to management (Meier, Favero and Zhu 2015). Performance management literature emphasizes that such utilization of performance information causes managers to adjust goals and tasks (Hartley and Allison 2002; Moynihan and Ingraham 2004; Askim 2008). In this per-

spective, managerial strategy is not only predetermined by personnel or organizational characteristics, but is generated through the performance-feedback process.

In their classic book,'*Behavioral Theory of the Firm*', Cyert and March (1963) focused on a cyclical process between management and performance, and explore how managers utilize performance information when deciding managerial actions. Managers analyze their goal attainment, and try adjust their process based on whether they perform better than prior expectations. Once managers perceived performance feedback, they evaluate whether the performance is satisfactory or not based on their aspiration levels. Without aspiration levels, managers may not be able to decide whether their current performance is good enough or bad enough to change strategy. Theories of reference dependence and prospecting theory provide interesting assumptions on aspiration points. Managers evaluate their performance by information of gains or loss comparing to past performance (historical aspiration) or performance of other competitors (social aspiration) (Tversky and Kahneman 1991; McDermott, Fowler and Smirnov 2008). Meier, Favero and Zhu (2015) also introduce performance information, using Bayesian theory, that finds the prior expectations can be separately generated by past year performance or performance of other competitors, and all aspects of performance information are incorporated into a complex model of prior expectations. Following those studies, I conceptualize performance information (PI) as gains or loss relative to past year historical aspiration, and social aspiration, the average performance of other competing organizations.

$$PI_{historical\ aspiration} = P_{it} - P_{i(t-1)}, \qquad where\ t\ is\ current\ year$$

$$PI_{social\ aspiration} = P_{it} - \overline{P_{jt}}, \qquad where\ j\ indicates\ other\ competing\ organizations$$

How do managers utilize performance information when deciding strategy? Performance information can be separated into two types, positive and negative, depending on whether the current performance is better than the aspiration levels. When organizations outperform past performance, or the average of other competing organizations, managers perceive that information as positive, otherwise, the information is perceived as negative. Existing literature emphasized that managers respond differently to positive and negative performance information (Kahneman and Tversky 1979; Greve 2007).

Meier, Favero and Zhu (2015) contend that positive performance information produces slack resources and more discretion to managers. They illustrate that positive performance information is the equivalent of gambling with house money. When performance exceeds prior expectations, managers can invest positive gains in expanding market shares or trying to find out new market opportunity. The strategic planning literature also supports this notion that managers are more likely to adopt innovation when they have strong fiscal resources to invest (Berry 1994), that may come from positive performance information. Moreover, positive performance also generates greater managerial autonomy. Rourke (1969) contend that the good reputation for performance expands managerial autonomy, thus, managers are able to utilize gains to services by innovating. Carpenter (2001)) also provides empirical evidence that the reputation for positive performance over years versus positive performance for other competing organizations generates trust and support from upper level authorities, which results in greater managerial discretion. Such a wider autonomy allows managers to think about a long-term plan for investing slack resources in searching for new opportunities such as, adopting a prospecting strategy

Hypothesis 1 Performance information will be positively associated with prospecting strategy.

Unlike to positive performance information, negative performance information may not have a clear linear relationship with strategy. Once unsatisfactory performance, relative to the historical or social aspiration, is perceived, managers should try to fix problems within organizations first. It may increase control or oversight for internal management and core tasks. However, as Meier, Favero and Zhu (2015) propose, relatively modest negative performance information is likely to lead managers to adopt a defending strategy and make modest incremental changes in their strategy. Unless the poor performance results in receiving significant attention from stakeholders or upper level authorities, managers may focus on operating efficiency and core values. Managers may think that optimizing procedures and buffering the environment can help to compensate for modestly poor performance. In this sense, a defending strategy may be mostly adopted when organizations have an acceptable range of negative performance information. Other studies indicate that managers with modestly poor performance may try to limit influences of external environment so that employees can concentrate on internal efficiency and core tasks (Meier and O'Toole 2008; Walker 2013). However, once the negative information is large enough to attract attention from stakeholders and upper-level agencies, managers may need to make major changes in procedures and structures according to the instructions of regulatory agencies, which may decrease defending strategies. Poor performing nursing homes in the United States, for example, are under the control of state Medicare agencies. When a nursing home performs poorly in consecutive years, state Medicare staff will visit the facility to check whether there have been any improvements in response to the agency?s instructions. The number of revisits is included as one of the performance measure that could lead to shutting down the nursing home or reducing its reimbursement rate of Medicare and Medicaid.

Hypothesis 2 Performance information will have a inverted U-shape relationship with defending strategy.

4.4 Finding Strategies in All the Wrong Places? The Impact of Sector-differences

As the demand for public services increases, nonprofit and for-profit organizations are gradually increasing in the number of public services they deliver. To ensure better quality services, performance-based management becomes a general way to evaluate goal attainment that is applied to all public, nonprofit and for-profit organizations. Based on standardized quality index, managers can perceive performance information on a regular basis and employ the information in managerial practices (Ferlie 1996; Pollitt 2003). As it becomes easier to compare the quality of services across sectors, public organizations are more likely to use business sector management tools, based on this concept that there is no difference across sectors (Murray 1975). However, there is no empirical evidence on how the use of performance information on strategies differ across sectors.

Ownership generates different goal clarity, managerial autonomy, and economic incentive across sectors (Rainey 2009; Rainey and Bozeman 2000; Hvidman and Andersen 2014). The differences may generate a different degree of motivation to use performance information on managerial strategy. Public organizations have less invisible, unquantifiable, and hard to measure performance goals, such as equity, openness, and responsiveness, when compared to private organizations. This goal ambiguity influences public organizations to be reluctant to change their strategy, even if it is needed. Public organizations may make incremental changes based on past performance, rather than performance of other organizations. The nonprofit sector has relatively ambiguous performance goals compared to for-profit organization. Forbes (1998) contends that nonprofit organizations lack simple performance goals, such as profitability, that for-profit organizations have.

Additionally, Herzlinger (1995) argues that the complex non-financial performance goals in nonprofit organizations hinder measurements of effectiveness. For-profit organizations, on the other hand, have relatively clear goals in delivering public services, such as profitability and shareholder returns. For-profit managers are more sensitive to performance information since the negative/positive performance gap is directly related to their profits. For-profit managers may be more likely to invest positive gains to expand market shares for profitability, however, nonprofit, or public managers, are reluctant to invest positive gains since the complex and ambiguous goals make it difficult to prioritize performance goals.

Even if public, nonprofit, and for-profit organizations have a similar degree of goal clarity in delivering public services, the different extent of managerial autonomy may influence the use of performance information. If managers are restricted from changing managerial actions, apparently they are less likely to employ performance information in their strategy (Boyne and Chen 2007; Moynihan 2006). Moynihan and Pandey (2010) indicate that administrative flexibility fosters the use of performance information. If managers have the freedom to pursue process change, they may be more willing to get information from performance data to find rationales for the changes. Public managers who receive a higher level of political attention and oversight have less managerial discretion to adopt innovations in work processes. The higher red-tape and hierarchy in bureaucracy limit public managers? ability to change managerial strategy in response to performance information (Boyne 2002). Nonprofit organizations have a relatively large number of shareholders who impose rules and procedures when delivering public services, so that they have less managerial autonomy to change strategy in a short-term period relative to for-profit organizations.

Lastly, managers may employ performance information in management only if they expect high incentives regarding managerial actions (Hvidman and Andersen 2014). If there is no incentive, managers may not care about performance information and are reluctant to change what they have been doing in response to performance information (Boyne and Chen 2007; Swiss 2005). Konisky and Teodoro (2015) contend that public and private organizations have different compliant costs and incentives to follow regulation, thus the effectiveness of regulation may differ across sectors. Public and nonprofit organizations have less economic incentives to achieve performance goals relative to for-profit organizations (Hirth 1997). Public and nonprofit organizations have public purposes or social goals; their managers are less likely to be rewarded based on marginal profits than for-profit managers are (Davies 1981). The lower economic incentive may decrease for public and nonprofit managers to change strategy in response to performance information.

Hypothesis 3 The effect of performance information on strategy is contingent on sector. For-profit organizations are more sensitive to performance information than public or nonprofit organizations when they decide managerial strategy.

4.5 Empirical Evidence From U.S. Nursing Homes

This study explores how managers utilize performance information in their decisions on managerial strategy using data on American nursing homes between the years 2011-2013. American nursing homes provide a good empirical context to test the impact of performance information. First, performance information of nursing homes is important to policy makers and constituents due to increased public spending and the health care quality issue; about 1.49 million residents and 2.5 million discharges received nursing home care during 2008, and 71% of those residents use Medicare and Medicaid resources (CDC National Center for Health Statistics-Nursing Home Current Residents June 2008).

The elderly population , those over the age of 60, are estimated to be 26% of the U.S. population by the year 2050 (Administration on Aging, 2010). Consequently, the pressure on nursing home quality has increased, which requires managers to adopt performance-based management strategies.

Second, despite the huge volume of public funding sources, about two-thirds of nursing homes are for-profit (The National Nursing Home Survey 1999), and government-owned homes are under intense pressure to privatize(Amirkhanyan, Kim and Lambright 2008). Governments tend to decide to buy long-term care services from the private sector rather than making it themselves; this is due to the assumption that public homes suffer from red-tape, bureaucratic inefficiency and low quality compared to private homes (Lemke and Moos 1989). As private for-profit nursing homes have been growing rapidly, it brings up the unanswered question of whether public, nonprofit, and for-profit nursing homes are fundamentally different in management. Without careful consideration of the impact of ownership in the decision making process, the increased privatization and business-style management in nursing homes may produce undesirable policy outcomes. Therefore, it is necessary to explore whether public, nonprofit, and for-profit nursing home administrators react differently to performance information in their decision making process, which may result in different outcomes.

Third, American nursing homes have standardized performance indicators applied to all Medicare certificated nursing homes regardless of ownership. State governments conduct annual health inspections of all certificated nursing homes in the United States to assess facilities? quality based on 180 regulatory requirements set by Congress. Since 2008, the centers for Medicare and Medicaid Services (CMS) transformed this assessment as an intuitive performance indicator, a five-star rating, and posted the ratings for each

nursing home online [1], in order to help residents and their families easily understand the quality of nursing homes. Nursing home administrators may be sensitive to the changes in this administrative assessment because the standardized quality index allows residents and families to evaluate the quality of each nursing home relative to other nursing homes, or one in a past year, which may significantly affect profitability. In addition, state Medicare can give warning to or terminate low-performing nursing homes from the market, thus, nursing homes that heavily rely on Medicare reimbursement need to be alert to the 5-star-rating in every year. If any significant changes are noticed, administrators may use the performance information in their managerial strategy. This standardized performance indicator allows us to explore how public, nonprofit, and for-profit administrators adopt different strategies in response to performance information.

4.6 Research Design

4.6.1 Data and Methods

For the dataset, I use the 2013 Nursing Home Administrative Survey, Nursing Home Compare (NHC) data in 2010-2013, and 2010 Census data. The Nursing Home Administrative Survey provides information on managerial practices including managerial strategies across public, nonprofit, and for-profit nursing homes. Since the number of U.S. nursing homes is unbalanced across sectors - 69% of nursing facilities are private homes, 25% non-profit homes, and 6% public homes in 2013, the researchers selected a stratified random sample from each sector-1,000 for-profit, 1,000 non-profit, and 903 public nursing homes in order to make a representative sample. To increase response rates, Project for Equity, Representation, and Governance (PERG) at Texas A&M University conducted a three wave survey from January of 2013 to May of 2013 both online and by mail. A total

[1] visit www.medicare.gov/nursinghomecompare

of 725 nursing home administrators responded (24.9% response rate), but for this study, I analyze 714 homes ? 259 public, 254 nonprofit, and 201 private nursing homes ? due to missing observations in managerial strategies.

Nursing Home Compare provides information for control variables, such as the number of certified beds, the number of staffs, occupancy, chain-affiliation, and the percentage of residents who have special needs and ownership status. The data also provides organizational performance through a five-star overall quality rating score, reported by the Centers for Medicare & Medicaid Services (CMS). CMS reports the five-star overall quality rating in each home on their website; the top 10 percent of homes in each state earned a five-star rating, the middle 70 percent earn a rating of two, three, or four stars – approximately 23.3 percent in each rating category, and the bottom 20 percent earn a one-star rating. Because all certified nursing homes participating are subject to be evaluation by Centers for Medicare and Medicaid Services (CMS), the overall quality rating provides comprehensible information to residents and managers. Nursing home administrators recognize the changes of overall ratings on the websites easily, anticipating that current and future residents may move from home to home if the quality rating is significantly low. Thus, it is credible to assume that the 5-star rating is a good performance indicator that produces significant signals for managers to change strategy. I use 2010 Census data to control for resident characteristics and environments.

For the data analysis, I use an Ordinary Least Squares (OLS) model specification with the consideration of cross-unit heterogeneity. I use factor-analyzed measures for managerial strategy, prospecting and defending. Thus, the continuous dependent variable fits the OLS assumptions. [2]

[2]Since the dependent variables –prospecting and defending – are ordinal variables from 1 to 4, I also analyze ordered probit model specifications for each strategy survey item to investigate whether the effect of performance information differ across survey item. The results are consistent with ones in OLS model specifications but show weak relationship.

4.6.2 Dependent Variable: Managerial Strategy

The dependent variable in this research is managerial strategy. Following Miles and Snow (1978)'s typology and Boyne and Walker (2004), I use two types of managerial strategy, prospector and defender, by using Nursing Home Administrator survey. The Nursing Home Administrative Survey provides responses to questions on what extent a chief manager agree(s) or disagree(s) to adopt a certain type of strategy when they face opportunities or risks, on a four-point scale in the range from 'strongly disagree' to 'strongly agree'. To make a common measurement, I weighed a point value from 1 to 4 on each answer choice, and then created each strategy variable as the first factor derived from each factor analysis using the percentage of respondents to questions.

For a prospecting strategy, I use questions that ask about administrator's perspectives on adoption of innovation and new ideas. I then factor-analyze the items separately. As noted in Table 4.1, the three items related to innovation and new opportunities load on a single factor with an eigenvalue of 2.24, indicating 74% of the total variance in these items, which shows high internal reliability. It allows us to examine managers' intended strategy on initiating innovation, new ideas, and searching new opportunities that provide substantially similar operational meaning for prospectors. The measure is consistent with strategy content measures used in Andrews, Boyne, Law and Walker (2012); Meier et al. (2007, 2010), who helped build the empirical evidence.

For defending strategy, I use five survey items related to consistent procedures, efficiency, and buffering facilities from external environments. Miles and Snow (1978, p. 48) define defenders as managers who chase efficiency in core tasks and strive to limit external influence. Defenders have a conservative view of innovation, so they stress subordinates to follow consistent procedures on core tasks for achieving efficiency. Thus, the five items

contain all of the dimensions of a defender as Miles and Snow indicate, which increases face validity. As noted in Table 4.1, the five items all loaded on a single factor with an eigenvalue of 1.60.

Table 4.1: Measuring Organizational Strategies

1. Prospecting Indicators	Factor Loading
Our nursing home is always among the first to adopt new technology and practices.	.87
We continually search for new opportunities to provide services to our community.	.80
Our nursing home is always among the first to adopt new ideas and practices	.91
$Eigenvalues = 2.24$	
2. Defending Indicators	**Factor Loading**
How important is the average cost per patient?	.48
How important is financial performance for your nursing home?	.47
I like to implement consistent policies and procedures in this nursing home.	.27
I always try to limit the influence of external events on the staff and nurses.	.69
I strive to control those factors outside the nursing home that could have an effect on my organization.	.76
$Eigenvalues = 1.60$	

4.6.3 Independent Variables: Performance Information and Ownership

As a key independent variable, I use a five-star overall quality rating to tab performance information relative to aspiration levels. The five-star overall quality rating includes health inspection, the number of deficiencies and the number of repeat revisits of Medicare staff who monitor the improvement of deficiencies, staff quality, and quality measures based on Minimum Data Set (MDS) 3.0 resident assessments. Each of three categories has its own five-star rating that indicates the multi-dimensional quality of nursing homes. CMS constructed the overall quality five-star quality rating based on three categories as following.

1) They start with a health inspection five-star rating, 2) they add one star to the first rating if a staffing rating is greater than a health inspection rating, or subtract one star if staffing is one star. However, an overall rating cannot be more than five stars or less than one star. 3) They add one star to the second rating if MDS quality measure rating is five stars, or subtract one star if MDS quality measure rating is one star. 4) If the health inspection rating is one star, then other two measures, staffing or quality measure, cannot upgrade the overall quality rating. The composition rule of overall quality measure covers three dimensions, but highly concentrates on health inspection dimensions. The overall five-star rating is applied to all certified nursing homes regardless of ownership.

I measure performance information into two ways: 1) the gap between ratings in the current year, 2013, and ratings in the previous year, 2012, the historical aspiration, and 2) the gap between ratings in each nursing home and the average rating of the county, the social aspiration. The first one indicates how nursing homes improve their quality relative to past years, and the latter one reveals whether nursing homes have higher quality relative to other competing homes in the county, on average. Both performance information measures are consistent with the conceptual meaning in Meier, Favero and Zhu (2015). The descriptive analysis (see Appendix C) indicate that performance information varies across nursing homes and seems normally distributed.

I measure ownership as a dummy variable for public, nonprofit, and for-profit nursing homes. As noted in Table 4.2, American nursing homes vary across ownership. Since all nursing homes are funded by Medicare/Medicaid and received substantive regulations on delivering services, ownership is a distinct factor used to differentiate sector-differences. Moreover, the increased pressures on privatization and business management require empirical evidence on whether ownership makes a difference in performance and management. By using an ownership dummy variable, I focus on how public, nonprofit, and

Table 4.2: U.S. Nursing Homes across Ownership

Type of Ownership	Freq.
Government - City	26
Government - City/county	18
Government - County	134
Government - Hospital district	40
Government - State	41
Non profit - Church related	50
Non profit - Corporation	189
Non profit - Other	15
For profit - Corporation	168
For profit - Individual	13
For profit - Limited liability company	2
For profit - Partnership	18
total	714

for-profit managers adopt managerial strategies differently in response to performance information.

4.6.4 Control Variables

I include several control variables in the models to explore the unique influence of performance information on strategy. Chain-affiliation or hospital-affiliation determines the degree of independence, managerial discretion, and shared resources. A centralized structure in chain-or hospital-affiliated nursing homes creates a hierarchical command process that limits managers' ability to change managerial strategy (Amirkhanyan, Kim and Lambright 2008; Hodge and Piccolo 2005). On the other hands, chain or hospital-affiliated nursing homes have more shared resources that may push administrators to adopt prospecting strategies regardless of performance information. The adoptive strategic planning literature indicates that fiscal resources can be a condition that managers use to exploit new opportunities and innovation (Berry 1994). Even if they perform poorly in the past,

for examples, chain or hospital-affiliated nursing homes can utilize slack resources, such as shared personnel (e.g. nurses or doctors) or monetary resources through affiliation to adjust capacity (Anderson et al. 2003).

Table 4.3: The Summary of Control Variable Measurement

Variable	Operational Definition/Measurement	Sources
Chain affiliated	Chain-affiliated nursing homes; Dummy variable (1= yes, 0=no)	NHC 2013
Hospital affiliated	Networked with hospital; Dummy variable (1= yes, 0=no)	NHC 2013
Occupancy	The total number of residents divided by the total beds	NHC 2013
Organizational size	Total number of beds	NHC 2013
Managerial capacity	The number of nurses (registered and vocational nurses) per a resident	NHC 2013
Task difficulty	The sum of squared of the number of residents dependent on staffs in terms of transferring, toilet, eating, continence, mobility, skin integrity, mental status, and loosing weight (Herfindal index)	NHC 2013
Tenure	Average tenure of a chief manager in a current nursing home	PERG Executive Survey 2013
Elderly	Proportion of population in elderly (65 years or order) in the county	Census 2010
Medicaid resident	The percentage of Medicaid residents	NHC 2013
Market competition	The sum of squared market shares for all facilities in the county (Herfindal index)	NHC 2013

Organizational size, occupancy, and managerial capacity produce slack resources and buffering zones that may influence the impact of performance information on strategy. When organizations are capable to buffer consequences of negative performance information, the impact of performance information can be minimal. I include task difficulty and the percentage of Medicaid residents to control for the factors in resident-side. When

nursing homes have residents who need special treatments and cares, staff may need to put more time and resources to take care of those residents. In addition, a large number of Medicaid residents who heavily rely on government funds, not out-of-pocket money, may affect managerial strategy to exploit or buffer external environment. In terms of environmental factors, I also control for the percent of elderly people and market competition that may lead managers to exploit opportunity to expand market shares in competitive markets. The specific measurement of control variables are described in table 4.3.

4.7 Empirical Findings

For descriptive analysis, I first analyze a cross-sectional correlation between performance information and strategy. As noted in Appendix D, prospecting and defending strategies are positively associated with performance information, but the size of impact is relatively small. The correlation analysis also indicates that prospecting and defending strategies are positively correlated each other, which supports Boyne and Walker (2004) that prospecting and defending are not mutually exclusive.

To explore the individual effects of historical and social aspiration, I include historical and social aspiration performance information separately in each strategy model. In terms of prospecting strategies, Table 4.4 shows that both historical and social aspiration are positively associated with prospecting. Nursing home administrators are more likely to exploit opportunities by adopting innovations when they perform better than other competing organizations and past years. This finding supports my first hypothesis that performance information increases prospecting at an increasing rate.

In terms of defending strategies, I analyze two models, a linear and a non-linear model, to examine whether performance information has a linear or an inverted U-shape relationship with defending strategies. Table 4.5 shows that historical aspiration is positively asso-

Table 4.4: The Impact of Performance Information on Prospecting Strategy: All Nursing Homes

DV: Prospecting	1 b/se	2 b/se
Historical Aspiration PI	0.068+	
	(0.04)	
Social Aspiration PI		0.097*
		(0.04)
In chain	0.371**	0.375**
	(0.09)	(0.09)
In hospital	-0.129	-0.114
	(0.13)	(0.13)
Occupancy	0.003	0.002
	(0.00)	(0.00)
Size	0.002**	0.002**
	(0.00)	(0.00)
Capacity	-0.097	-0.113
	(0.11)	(0.09)
Task Difficulty	0.177	0.294
	(0.52)	(0.54)
Elderly	0.009	0.012
	(0.01)	(0.01)
Tenure	0.018**	0.018**
	(0.01)	(0.01)
market competition	0.133	0.112
	(0.17)	(0.17)
(constant)	-0.856*	-0.902**
	(0.35)	(0.34)
R-Squared overall	0.0709	0.0718
N	572	583

Notes: Robust Standard Errors in parenthesis. Clustered by districts
$+p < 0.10, *p < 0.05, **p < 0.01$; two-tailed test

Table 4.5: The Impact of Performance Information on Defending Strategy: All Nursing Homes

DV: Defending	1 b/se	2 b/se
Historical Aspiration PI	0.073+	
	(0.04)	
Social Aspiration PI		-0.004
		(0.04)
In chain	0.063	0.058
	(0.09)	(0.09)
In hospital	-0.128	-0.101
	(0.14)	(0.14)
Occupancy	-0.002	-0.002
	(0.00)	(0.00)
Size	0.002**	0.002**
	(0.00)	(0.00)
Capacity	-0.272**	-0.270**
	(0.09)	(0.09)
Task Difficulty	-0.577	-0.695
	(0.44)	(0.46)
Elderly	-0.020+	-0.018
	(0.01)	(0.01)
Tenure	0.001	0.001
	(0.01)	(0.01)
market competition	0.326+	0.249
	(0.17)	(0.17)
(constant)	0.375	0.374
	(0.29)	(0.29)
R-Squared overall	0.0384	0.0294
N	560	570

Notes: Robust Standard Errors in parenthesis. Clustered by districts
$+p < 0.10, *p < 0.05, **p < 0.01$; two-tailed test

Table 4.6: Testing Non-linear Relationship between Performance Information and Defending Strategy: All Nursing Homes

DV: Defending	1	2
	b/se	b/se
Historical Aspiration PI	0.076+	
	(0.04)	
Squared (Historical AspirationPI)	-0.009	
	(0.02)	
Social Aspiration PI		-0.003
		(0.04)
Squared (Social Aspiration PI)		0.027
		(0.03)
In chain	0.064	0.061
	(0.09)	(0.09)
In hospital	-0.128	-0.100
	(0.14)	(0.14)
Occupancy	-0.002	-0.002
	(0.00)	(0.00)
Size	0.002**	0.001**
	(0.00)	(0.00)
Capacity	-0.266**	-0.269**
	(0.10)	(0.09)
Task Difficulty	-0.577	-0.701
	(0.44)	(0.46)
Elderly	-0.020+	-0.017
	(0.01)	(0.01)
Tenure	0.001	0.001
	(0.01)	(0.01)
market competition	0.328+	0.293
	(0.17)	(0.18)
(constant)	0.381	0.321
	(0.29)	(0.30)
R-Squared overall	0.0386	0.0304
N	560	570

Notes: Robust Standard Errors in parenthesis. Clustered by districts
$+p < 0.10, *p < 0.05, **p < 0.01$; two-tailed test

ciated with defending strategies whereas social aspiration is not significant. Managers are more concerned about historical aspiration when they decide to use a defending strategy. Once they perceive better performance information relative to the previous year, managers are more likely to have a consistent procedure and buffer the external environments to focus on core tasks that they have been doing well. Table 4.6 indicates that there is no non-linear relationship between performance, information, and defending in both historical and social aspiration. Even after putting squared performance information, the findings indicate that historical aspirations still have a positive linear relationship with defending. The findings partially support my second hypothesis that performance information is positively related to defending strategy, but the relationship looks linear and exists in only historical aspirations. This finding reveals that managers are more likely to focus on core tasks, and take incremental changes in procedure when they perform better than the previous year.

Table 4.7: ANOVA Test: Prospecting across Ownership

D_ownership	mean	std.dev	freq.
Public	-0.059	0.980	221
Nonprofit	-0.012	1.018	225
Private	0.089	0.999	178
total			624

ANOVA Test	F	Prob F
Between groups	1.13	0.3240
Within groups		

Then, how does the relationship look across sectors? To analyze the effect of sector-difference in strategy, I first conducted an ANOVA analysis. As Table 4.7 and Table 4.8 indicate, ownership makes a statistical difference in defending strategies, but not in prospect-

Table 4.8: ANOVA Test: Defending across Ownership

D_ownership	mean	std.dev	freq.
Public	0.099	0.961	217
Nonprofit	-0.133	1.026	218
Private	0.042	1.000	175
total			610

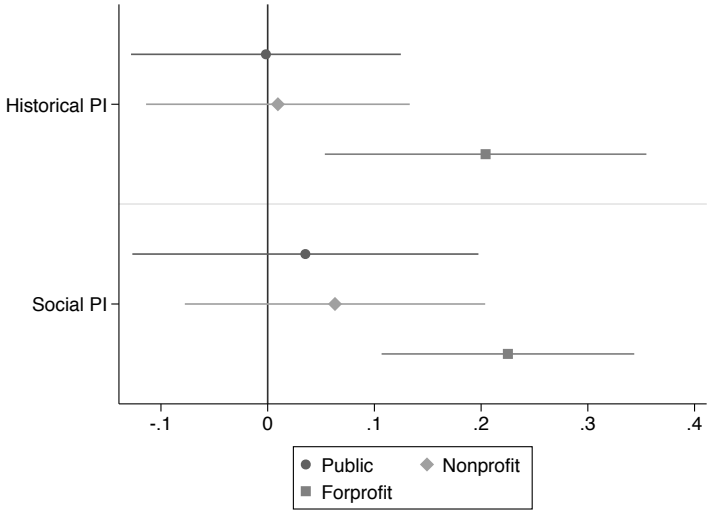
ANOVA Test	F	Prob F
Between groups	3.20	0.041
Within groups		

ing strategies. Table 4.8 shows that nonprofit nursing homes are less likely to take defending strategy relative to public and for-profit homes and that difference is statistically significant (F-value=3.20, p-value ¡0.04). It indicates that nonprofit nursing homes have different characteristics that result in different management actions. Amirkhanyan, Kim and Lambright (2008) indicate that nonprofit nursing homes focus on the third-party insurance residents and are less likely to accept Medicaid residents. The resident characteristics in each sector can make a different strategy, thus it is necessary to test whether the effect of performance information is leveraged by sector-difference when deciding a managerial strategy. [3]. How does ownership leverage the effect of performance information on strategy? For prospecting strategy, Table 4.9 indicates that public and nonprofit organizations have a negative relationship with prospecting relative to for-profit nursing homes. (For-profit homes are baseline) For-profit managers are more likely to adopt a prospecting strategy when they perform better than other competing nursing homes or better than the previous year. However, public and nonprofit managers do not change strategy in response to performance information regardless of whether it comes from historical aspirations or social aspirations. The findings support my third hypothesis that the effect of performance

[3]To explore whether there is any other leverage effect between performance information and strategy, except sector-difference, I conducted interaction models with Medicaid residents and with market competition

information on strategy is contingent on sectors. As figure 4.1 indicates, for-profit managers are more likely to adopt a prospecting strategy, about 0.22 standard deviations, when their social or historical performance information is increased by a one-star rating. However, the marginal effect is only significant in for-profit nursing homes. Nonprofit and public managers do not have statistically different strategies in response to performance information.

Figure 4.1: The Marginal Effect of Performance Information on Prospecting across Sectors



In defending strategies, the findings are consistent. Table 4.10 shows that the effect of performance information on strategy is only significant when it comes to historical aspiration. Interestingly, in terms of defending strategies, the sector-difference is consistently important; for-profit managers are more likely to adopt defending strategies, but the relationship is enforced more when they perform better than previously. If we look at the marginal effect of performance information across all sectors, Figure 4.2 shows that for-profit managers adopt defending strategies, about 0.20 standard deviations, when their

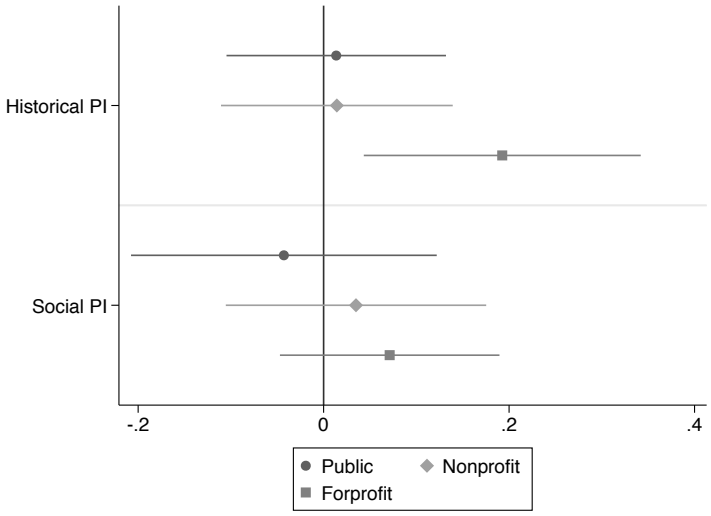
Table 4.9: Interaction Models: The Impact of Performance Information on Prospecting Strategy across Sectors

DV:Prospecting	1	2
Baseline: For-profit Nursing Homes	b/se	b/se
Nonprofit	-0.049	-0.094
	(0.11)	(0.11)
Public	-0.060	-0.068
	(0.11)	(0.11)
Historical Aspiration PI	0.207**	
	(0.08)	
Nonprofit × Historical Aspiration PI	-0.179+	
	(0.10)	
Public × Historical Aspiration PI	-0.216*	
	(0.10)	
Social Aspiration PI		0.197**
		(0.06)
Nonprofit × Social Aspiration PI		-0.119
		(0.09)
Public × Social Aspiration PI		-0.179+
		(0.10)
In chain	0.367**	0.356**
	(0.09)	(0.09)
In hospital	-0.099	-0.092
	(0.13)	(0.13)
Occupancy	0.003	0.003
	(0.00)	(0.00)
Size	0.002**	0.002**
	(0.00)	(0.00)
Capacity	-0.065	-0.112
	(0.11)	(0.09)
Task Difficulty	0.184	0.215
	(0.51)	(0.55)
Elderly	0.009	0.013
	(0.01)	(0.01)
Tenure	0.018**	0.018**
	(0.01)	(0.01)
market competition	0.162	0.087
	(0.18)	(0.17)
(constant)	-0.851*	-0.846*
	(0.35)	(0.35)
R-Squared overall	0.0811	0.0782
N	572	583

Notes: Robust Standard Errors in parenthesis. For-profit homes are baseline
$+p < 0.10, *p < 0.05, **p < 0.01$; two-tailed test

rating increases by one-star relative to the previous year. However, this relationship cannot be found in social aspiration. The findings also support my third hypothesis that for-profit managers are the only ones who adopt defending strategies when they perform better than previous years. Nonprofit and public managers do not change strategy in response to performance information.

Figure 4.2: The Marginal Effect of Performance Information on Defending across Sectors



The findings provide an interesting insight into the different organizational characteristics across sectors, such as goal clarity, incentive, and managerial discretion; these characteristics may produce different extents of motivation for managers to adopt strategies. For-profit managers, who are highly concerned about market-share and profitability, have to closely monitor whether they have been doing well relative to other nursing homes or the previous year, and then try to employ the information in management. A high economic incentive and a greater extent of managerial discretion may also allow for-profit managers to exploit the opportunity to expand market shares. The economic or promo-

Table 4.10: Interaction Models: The Impact of Performance Information on Defending Strategy across Sectors

DV:Defending	1	2
Baseline: For-profit Nursing Homes	b/se	b/se
Nonprofit	-0.350**	-0.369**
	(0.11)	(0.11)
Public	-0.264*	-0.260*
	(0.11)	(0.12)
Historical Aspiration PI	0.202**	
	(0.08)	
Nonprofit× Historical Aspiration PI	-0.188+	
	(0.10)	
Public× Historical Aspiration PI	-0.189+	
	(0.10)	
Social Aspiration PI		0.076
		(0.06)
Nonprofit× Social Aspiration PI		-0.066
		(0.09)
Public× Social Aspiration PI		-0.136
		(0.11)
In chain	0.013	-0.001
	(0.09)	(0.09)
In hospital	-0.044	-0.033
	(0.15)	(0.14)
Occupancy	-0.001	-0.001
	(0.00)	(0.00)
Size	0.002**	0.001**
	(0.00)	(0.00)
Capacity	-0.246**	-0.271**
	(0.09)	(0.09)
Task Difficulty	-0.759+	-0.913+
	(0.45)	(0.47)
Elderly	-0.017	-0.014
	(0.01)	(0.01)
Tenure	0.002	0.002
	(0.01)	(0.01)
market competition	0.327+	0.225
	(0.18)	(0.18)
(constant)	0.524+	0.541+
	(0.29)	(0.29)
R-Squared overall	0.0667	0.0510
N	560	570

Notes: Robust Standard Errors in parenthesis. Clustered by districts
$+p < 0.10, *p < 0.05, **p < 0.01$; two-tailed test

tional incentives based on performance are another key motivator for for-profit managers to pursue prospecting strategies, while bearing a risk of failure. Contrastingly, nonprofit and public managers who have less incentive, discretion, and goal clarity are reluctant to change their strategies solely based on performance information. Interestingly, in the context of nursing home management, non-profit and public managers are not statistically different in adopting strategies in response to performance information.

4.8 Conclusion

Managerial strategies, prospecting and defending, have received attention from public management scholars due to the belief that strategies ensure better performance. Yet, there is no prior study on the reverse relationship between management and performance. In this research, I theorize that managers perceive performance information by analyzing whether current performance is satisfactory or not relative to aspiration points. Using a theory of reference dependence, I contend that historical aspirations and social aspirations are key reference points that generate performance information. Such performance information may motivate managers to pursue either prospecting and defending strategies; positive performance information may be associated with prospecting strategies, whereas, negative performance information may have an inverted U-shape relationship with defending strategies. These relationship between performance information and strategy, however, may be contingent on sectors because of different incentives, discretion, and goal clarity.

The findings provide interesting empirical evidence that there is a reversed causal relationship between management and performance. In a cyclical process, performance information, generated through historical and social aspiration, determines management actions taken. The findings indicate that positive social aspiration pushes managers to exploit opportunities through innovations. Positive historical aspiration also leads managers

to adopt defending strategy –focusing on core tasks and operating efficiency using consistent procedures. The findings partially support the theory that performance information is associated with strategy, and offers interesting theoretical and practical implications.

First, findings indicate that prospecting and defending strategies are not mutually exclusive. Against my second hypothesis, the findings show that positive performance information increases both prospecting and defending strategies at an increasing rate. It supports Boyne and Walker (2004)'s theory that successful managers try to adopt new ideas, but at the same time, they preserve actions, which lead to successful core tasks. The findings also support other studies that claim all managers are analyzers at some point when they have multiple tasks (Walker 2013)

Second, findings indicate that managers perceive performance information differently across aspiration points. Social aspiration is more significant when adopting a prospecting strategy, whereas historical aspiration is more important when adopting a defending strategy. This finding gives an insight about the process of perceptual performance information. Managers may obtain different signals and motivations from social or historical aspiration. Olsen (2013) investigates this difference between social and historical aspiration. His findings indicate that social aspiration has more influence on managerial decisions than historical aspiration, which suggests that signals of social and historical aspiration might be different. Meier, Favero and Zhu (2015) also contend that all aspects of aspiration points are necessarily incorporated into a complex model of prior expectation. The findings require investigating the underlying mechanisms of how managers construct performance information through different aspiration points. If we compare the gaps between perceptual performance information and administrative performance information in various performance dimensions, the findings may help to find the cognitive mechanism in performance information.

Third, the findings reveal that the relationship between strategy and performance is contingent on sectors. Even after I control for organizational and environmental factors,sector-difference is still a major factor in the relationship. It indicates that ownership may have a unique function that affects the cognitive process of receiving performance information, or the process of applying performance information into strategy. Organization theory literature contends that different incentives, goal clarity, and managerial discretion across sectors generate different motivations to employ performance information on strategy (Rainey 2009; Rainey and Bozeman 2000; Hvidman and Andersen 2014). This study requires future research on what factors actually generate the effect. Another interesting finding in this study is that nonprofit and public nursing homes are not different in adopting strategies in response to performance information. What makes nonprofit nursing homes similar to public nursing homes in adopting strategies? What factors make a difference between the for-profit and non-profit sector? These questions still need to be unpacked, analyzed, and answered.

Finally, this study indicates that performance information is important in managerial decision, but public, nonprofit, and for-profit managers can interpret the information differently. Without considering sector-differences, we may find the effect of performance information in all the wrong places. Moynihan (2008*a*) contends that performance information is not determined but generated through interactive dialogue among actors. If public, nonprofit, and for-profit nursing homes have different political entities, shareholders, managers, and clientele, the same star-rating performance can be differently interpreted. These findings suggest that we need to consider sector-differences seriously when evaluating management and performance.

5. CONCLUSION

One of the enduring debates in public administration is how to ensure the quality of public services. As public demand of public services increases, governments reform public organizations by evaluating the results of activities based on a standardized performance index. Such performance-based management has been a movement in public service delivery with a belief that performance information ensures the quality of public services. (Radin 2006). Governments require public service managers to report their strategic goals, targets, and goal-attainment, which produce massive amounts of performance information (Kettl and Kelman 2007). Public management theory assumes that such performance information improves the quality of public services (Moynihan 2008*b*), yet it is understudied how managers utilize performance information when making decisions.

Healthcare services have received significant attention from the public and policy makers due to the growing demand, expenditures and political pressures. Hospitals and nursing homes are major health care institutions that receive a large amount of Medicare and Medicaid funding. After initiating the Affordable Care Act, the government is more concerned with the quality of hospitals and nursing homes. With a growing demand for healthcare and a decrease in public funding, more nonprofit and for-profit organizations will be left with the impression that they outperform public healthcare institutions. Privatization and business management are pushing this notion that private-like organizations ensure better quality for less money (Kamensky 1996). However, there have been a few empirical studies on how public, nonprofit and for-profit healthcare institutions are different in managerial actions and performance.

In this dissertation, I seek to explore how managers utilize performance information when deciding networking or their strategy. I also examine how sector-differences leverage the relationship between performance and management. The first article finds that public, nonprofit and for-profit hospitals are fundamentally different in performance. When organizational performance goals have a trade-off relationship that is not compatible, public, nonprofit and for-profit managers prioritize goals differently. Even after controlling for other organizational and environmental factor, ownership still produces a significant difference in performance. Public hospitals have higher customer satisfaction with low operating efficiency, whereas for-profit hospitals have higher efficiency at the loss of customer satisfaction. The findings contribute to the understanding on how sector-differences are important in organizational performance. The second article provides empirical evidence that performance information influences managerial networking nodes. The findings indicate that there is a reverse-causal relationship between performance and networking. Managers choose a networking node based on whether they perform better than a reference point, historical aspiration or social aspiration. The third article finds that performance information influences managerial strategy, either prospecting or defending; I found that positive performance information increases both prospecting and defending strategies. Positive performance information may produce slack resources and trust from upper-level agencies, which prompts managers to exploit opportunities. However, my research shows that the effect of performance information on strategy is contingent on sectors.

5.1 Seeking Causal Claims in Management and Performance: Theoretical Implications

This research contributes to the understanding of the causal relationship between management and performance. The second and the third article revisits classic management theories, and explore how performance influence managerial actions in turn. The findings indicate that managerial actions are determined by personnel characteristics or organiza-

tional factors. Managerial actions are generated through a cyclical process between performance and management. Managers analyze their winning points or failing points by comparing current performance to past performance, or the average performance of other competing organizations, then they apply this information when making decisions. My research supports the performance management literature (Moynihan 2008*b*) that performance information is important to shape managerial practices.

The findings provide theoretical implications that managers perceive performance information differently across aspiration points. In chapter 4, social aspiration is more significant when adopting a prospecting strategy, whereas historical aspiration is more important for adopting defending strategy. These results support existing literature that managers perceive different signals and motivations from social or historical aspiration (Olsen 2013). The research reveals the underlying mechanism of how managers construct performance information through different aspiration points.

My findings indicate that there is a reverse-causal relationship between management and performance, which brings up more unanswered questions. The articles employ objective performance information, a five-star rating scale, to measure performance information with an assumption that managers are sensitive to the standardized performance index. However, we do not know whether there is a difference between perceptual performance information and administrative assessment. Due to the organizational or environmental factors, managers may perceive administrative assessment differently based on their perspectives, values and priorities on performance. If managers have lower values and priorities on quality of healthcare services, for example, a lower performance in administrative assessment may not be important to managers. As Moynihan (2008*a*) contends, in this context, objective performance can be differently interpreted by managers.

Following studies need to ask whether there is a systematic difference between perceptual performance information and objective performance information.

5.2 Speaking to the U.S. Healthcare Systems: Practical Implications

Using U.S. hospitals and nursing homes, the findings provide empirical evidence on whether sector-difference is important in management and performance. The first article finds that customer satisfaction, responsiveness to policy recipients, can be achieved by public hospitals. This finding gives an insight to policy makers that public and private distinctions affect performance. If public managers are more responsive to patients, the high customer satisfaction can improve the quality of hospital care, which is linked to overall health outcomes. In addition, this article gives an implication that performance goals are not always compatible. Competing goals produce different incentives and managerial priority. Policy makers need to consider these sector-distinctions seriously when designing performance evaluations, especially when there is a trade-off relationship among performance goals.

The findings also suggest that the context of the health care industry needs to be considered. Hospitals and nursing homes have various performance goals they like to achieve simultaneously. This goal complexity may produce different motivations to employ performance information on managerial actions across sectors. Thus, policy makers need to consider which performance dimensions should be used when measuring performance information across sectors. If policy makers aim to increase the quality of health care services, they need to carefully examine incentives and punishments for each performance indicator.

Last, this research finds that the effect of performance information on strategy is only significant in for-profit nursing homes, whereas there is no difference between the public

and nonprofit sectors. Ownership has a unique function that affects the process of applying performance information into strategy. The different incentives, goal clarity, and managerial discretion across sectors may generate different motives to employ performance information on strategy. Even if managers receive similar performance information, the decisions that each manager makes can be different. My findings provide an interesting insight into Medicare staff who evaluate nursing homes, and that the effectiveness of a standardized performance index may differ across sectors.

REFERENCES

Agranoff, Robert. 2007. *Managing within Networks: Adding Value to Public Organizations*. Washington D.C.: Georgetown University Press.

Agranoff, Robert and Michael McGuire. 2004. *Collaborative Public Management: New Strategies for Local Governments*. Washington D.C.: Georgetown University Press.

Alam, Pervaiz, Essam Elshafie and David Jarjoura. 2008. "The Effect of Ownership Structure on Performance of Hospitals." *Academy of Accounting and Financial Studies Journal* 12(3):37.

Alexander, Jeffrey A. and Shoou-Yih D Lee. 2006. "Does Governance Matter? Board Configuration and Performance in Not-for-profit Hospitals." *Milbank Quarterly* 84(4):733–758.

Amirkhanyan, Anna A., Hyun Joon Kim and Kristina T. Lambright. 2008. "Does the Public Sector Outperform the Nonprofit and For-profit Sectors? Evidence from a National Panel Study on Nursing Home Quality and Access." *Journal of Policy Analysis and Management* 27(2):326–353.

Andaleeb, Syed. 1998. "Determinants of Customer Satisfaction with Hospitals: A Managerial Model." *International Journal of Health Care Quality Assurance* 11(6):181–187.

Anderson, Eugene W., Claes Fornell and Roland T. Rust. 1997. "Customer Satisfaction, Productivity, and Profitability: Differences between Goods and Services." *Marketing Science* 16(2):129–145.

Anderson, Randy, H. Weeks, Bradley Hobbs and James Webb. 2003. "Nursing Home Quality, Chain Affiliation, Profit Status and Performance." *Journal of Real Estate Research* 25(1):43–60.

Andrews, Rhys, George A. Boyne, Jennifer Law and Richard M. Walker. 2008. "Organizational Strategy, External Regulation and Public Service Performance." *Public Administration* 86(1):185–203.

Andrews, Rhys, George A Boyne, Jennifer Law and Richard M. Walker. 2011. "Strategy Implementation and Public Service Performance." *Administration & Society* 43(6):643–671.

Andrews, Rhys, George A Boyne, Jennifer Law and Richard M Walker. 2012. *Strategic Management and Public Service Performance*. London, U.K.: Palgrave Macmillan.

Andrews, Rhys, George A. Boyne, Kenneth J. Meier, Laurence J. O'Toole and Richard M. Walker. 2012. "Vertical Strategic Alignment and Public Service Performance." *Public Administration* 90(1):77–98.

Andrews, Rhys, George A. Boyne and Richard M. Walker. 2006. "Strategy Content and Organizational Performance: An Empirical Analysis." *Public Administration Review* 66(1):52–63.

Andrews, Rhys, George A Boyne and Richard M. Walker. 2011. "Dimensions of Publicness and Organizational Performance: A Review of the Evidence." *Journal of Public Administration Research and Theory* 21(suppl3):i301–i319.

Askim, Jostein. 2008. Determinants of performance information utilization in political decision making. In *Performance Information in the Public Sector*, ed. Wouter Van Dooren and Steven Van de Walle. London, U.K.: Palgrave Macmillan pp. 125–139.

Backx, Mattijs, Michael Carney and Eric Gedajlovic. 2002. "Public, Private and Mixed Ownership and the Performance of International Airlines." *Journal of Air Transport Management* 8(4):213–220.

Barbetta, Gian Paolo, Gilberto Turati and Angelo M. Zago. 2007. "Behavioral Differences between Public and Private Not-for-profit Hospitals in the Italian National Health Service." *Health Economics* 16(1):75–96.

Bartel, Ann P. and Ann E. Harrison. 2005. "Ownership versus Environment: Disentangling the Sources of Public-sector Inefficiency." *Review of Economics and Statistics* 87(1):135–147.

Berry, Frances Stokes. 1994. "Innovation in Public Management: The Adoption of Strategic Planning." *Public Administration Review* 54(4):322–330.

Berry, Leonard L. and A. Parasuraman. 1997. "Listening to the Customer–the Concept of a Service-quality Information System." *MIT Sloan Management Review* 38(3):65.

Bøgh Andersen, Lotte and Marianne Blegvad. 2006. "Does Ownership Matter for the Delivery of Professionalized Public Services? Cost-efficiency and Effectiveness in Private and Public Dental Care for Children in Denmark." *Public Administration* 84(1):147–164.

Boscarino, Joseph A. 1992. "The Public's Perception of Quality Hospitals II: Implications for Patient Surveys." *Journal of Healthcare Management* 37(1):13.

Boschken, Herman L. 1988. *Strategic Design and Organizational Change: Pacific Rim Seaports in Transition*. Tuscaloosa, AL: University of Alabama Press.

Boyne, George A. 2002. "Public and Private Management: What's the Difference?" *Journal of Management Studies* 39(1):97–122.

Boyne, George A. and Alex A. Chen. 2007. "Performance Targets and Public Service Improvement." *Journal of Public Administration Research and Theory* 17(3):455–477.

Boyne, George A. and Richard M. Walker. 2004. "Strategy Content and Public Service Organizations." *Journal of Public Administration Research and Theory* 14(2):231–252.

Bozeman, Barry and Steve Loveless. 1987. "Sector Context and Performance a Comparison of Industrial and Government Research Units." *Administration & Society* 19(2):197–235.

Brewer, Gene A. and Sally Coleman Selden. 2000. "Why Elephants Gallop: Assessing and Predicting Organizational Performance in Aederal agencies." *Journal of Public Ad-*

ministration Research and Theory 10(4):685–712.

Burt, Ronald S. 2004. "Structural Holes and Good Ideas." *American Journal of Sociology* 110(2):349–399.

Cameron, Kim S. and Raymond Zammuto. 1983. "Matching Managerial Strategies to Conditions of Decline." *Human Resource Management* 22(4):359–375.

Carpenter, Daniel P. 2001. *The Forging of Bureaucratic Autonomy: Reputations, Networks, and Policy Innovation in Executive Agencies, 1862-1928*. Princeton, NJ: Princeton University Press.

CDC. 2013. *Long-term Care Services in the United States: 2013 Overview*. Washington D.C.: CDC National Center for Health Statistic.

Chun, Young Han and Hal G. Rainey. 2005. "Goal Ambiguity and Organizational Performance in U.S. Federal Agencies." *Journal of Public Administration Research and Theory* 15(4):529–557.

Clark, Robin E, Robert A. Dorwart and Sherrie S. Epstein. 1994. "Managing Competition in Public and Private Mental Health Agencies: Implications for Services and Policy." *The Milbank Quarterly* 72(4):653–678.

CMS. 2012. 5-star Technical User's Guild for Description of Certification Survey. Technical report Center for Medicaid and Medicare Services.

Conant, Jeffrey S., Michael P. Mokwa and P Rajan Varadarajan. 1990. "Strategic Types, Distinctive Marketing Competencies and Organizational Performance: A Multiple Measures-based Study." *Strategic Management Journal* 11(5):365–383.

Conrad, Douglas A., Sarah H. Cave, Martha Lucas, Jennifer Harville, Stephen M. Shortell, Gloria J. Bazzoli, Romana Hasnain-Wynia, Shoshanna Sofaer, Jeffrey A. Alexander and Elizabeth Casey. 2003. "Community Care Networks: Linking Vision to Outcomes for Community Health Improvement." *Medical Care Research and Review* 60(suppl4):95S–129S.

Cyert, Richard M and James G March. 1963. *A Behavioral Theory of the Firm*. Vol. 2 Englewood Cliffs, NJ: Wiley-Blackwell.

Dahl, Robert Alan and Charles Edward Lindblom. 1953. *Politics, Economics and Welfare: Planning and Politico-economic Systems, Resolved into Basic Social Processes*. New York: Harper & Brothers.

Davies, David G. 1981. "Property Rights and Economic Behavior in Private and Government Enterprises: The Case of Australia's Banking System." *Research in Law and Economics* 3(3):112–142.

Donaldson, Lex. 2001. *The Contingency Theory of Organizations*. Washington D.C.: Sage.

Eldenburg, Leslie, Benjamin E. Hermalin, Michael S. Weisbach and Marta Wosinska. 2004. "Governance, Performance Objectives and Organizational Form: Evidence from Hospitals." *Journal of Corporate Finance* 10(4):527–548.

Favero, Nathan, Kenneth J. Meier and Laurence J. O'Toole. 2016. "Goals, Trust, Participation, and Feedback: Linking Internal Management with Performance Outcomes." *Journal of Public Administration Research and Theory* 26(2):327–343.

Fawcett, Stephen B, Vincent T Francisco, Adrienne Paine-Andrews and Jerry A Schultz. 2000. "A Model Memorandum of Collaboration: A Proposal." *Public Health Reports* 115(2):174–179.

Ferlie, Ewan. 1996. *The New Public Management in Action*. New York: Oxford University Press.

Forbes, Daniel P. 1998. "Measuring the Unmeasurable: Empirical Studies of Nonprofit Organization Effectiveness from 1977 to 1997." *Nonprofit and Voluntary Sector Quarterly* 27(2):183–202.

Fornell, Claes, Michael D Johnson, Eugene W. Anderson, Jaesung Cha and Barbara Everitt Bryant. 1996. "The American Customer Satisfaction Index: Nature, Purpose, and Find-

ings." *The Journal of Marketing* 60(4):7–18.

Ginsberg, Ari. 1988. "Measuring and Modelling Changes in Strategy: Theoretical Foundations and Empirical Directions." *Strategic Management Journal* 9(6):559–575.

Goldstein, Susan Meyer and Michael Naor. 2005. "Linking Publicness to Operations Management Practices: A Study of Quality Management Practices in Hospitals." *Journal of Operations Management* 23(2):209–228.

Greve, Henrich R. 1998. "Managerial Cognition and the Mimetic Adoption of Market Positions: What You See is What You Do." *Strategic Management Journal* 19(10):967–988.

Greve, Henrich R. 2007. "Exploration and Exploitation in Product Innovation." *Industrial and Corporate Change* 16(5):945–975.

Haas, J. Eugene and Norman J. Hall, Richard H .and Johnson. 1966. "Toward an Empirically Derived Taxonomy of Organizations." *Studies on Behavior in Organizations* 157(1):180.

Hallowell, Roger. 1996. "The Relationships of Customer Satisfaction, Customer Loyalty, and Profitability: An Empirical Study." *International Journal of Service Industry Management* 7(4):27–42.

Hansmann, Henry. 1987. Economic theories of nonprofit organization. In *The Nonprofit Sector: A Research Handbook*, ed. Walter W. Powell and Richard Steinberg. Vol. 1 New Haven, CT: Yale University Press pp. 27–42.

Harrington, Charlene, David Zimmerman, Sarita L Karon, James Robinson and Patricia Beutel. 2000. "Nursing Home Staffing and Its Relationship to Deficiencies." *The Journals of Gerontology Series B: Psychological Sciences and Social Sciences* 55(5):S278–S287.

Hartley, Jean and Maria Allison. 2002. "Good, Better, Best? Inter-organizational Learning in a Network of Local Authorities." *Public Management Review* 4(1):101–118.

Hausman, William J. and John L. Neufeld. 1991. "Property Rights versus Public Spirit: Ownership and Efficiency of US Electric Utilities Prior to Rate-of-return Regulation." *The Review of Economics and Statistics* 73(3):414–423.

Heikkilä, Jussi. 2002. "From Supply to Demand Chain Management: Efficiency and Customer Satisfaction." *Journal of Operations Management* 20(6):747–767.

Herzlinger, Regina E. 1995. "Can Public Trust in Nonprofits and Governments be Restored?" *Harvard Business Review* 74(2):97–107.

Heskett, James L., LA. Schlesinger et al. 1994. "Putting the Service-profit Chain to Work." *Harvard Business Review* 72(2):164–174.

Hirth, Richard A. 1997. "Competition between For-profit and Nonprofit Health Care Providers: Can It Help Achieve Social Goals?" *Medical Care Research and Review* 54(4):414–438.

Hodge, Matthew M. and Ronald F. Piccolo. 2005. "Funding Source, Board Involvement Techniques, and Financial Vulnerability in Nonprofit Organizations: A Test of Resource Dependence." *Nonprofit Management and Leadership* 16(2):171–190.

Horn, Murray J. 1995. *The Political Economy of Public Administration: Institutional Choice in the Public Sector*. Cambridge, MA: Cambridge University Press.

Hvidman, Ulrik and Simon Calmar Andersen. 2014. "Impact of Performance Management in Public and Private Organizations." *Journal of Public Administration Research and Theory* 24(1):35–58.

Ingraham, Patricia W, Philip G Joyce and Amy Kneedler Donahue. 2003. *Government Performance: Why Management Matters*. UK: Taylor & Francis.

Johansen, Morgen and Ling Zhu. 2014. "Market Competition, Political Constraint, and Managerial Practice in Public, Nonprofit, and Private American Hospitals." *Journal of Public Administration Research and Theory* 24(1):159–184.

Juenke, Eric Gonzalez. 2005. "Management Tenure and Network Time: How Experience Affects Bureaucratic Dynamics." *Journal of Public Administration Research and Theory* 15(1):113–131.

Kahneman, Daniel and Amos Tversky. 1979. "Prospect Theory: An Analysis of Decision under Risk." *The Econometric Society* 47(2):263–291.

Kamensky, John M. 1996. "Role of the" Reinventing Government" Movement in Federal Management Reform." *Public Administration Review* 56(3):247–255.

Ketchen, David J., James B. Thomas and Reuben R. McDaniel. 1996. "Process, Content and Context: Synergistic Effects on Organizational Performance." *Journal of Management* 22(2):231–257.

Kettl, Donald F and Steven Kelman. 2007. *Reflections on 21st Century Government Management*. Washington, DC: IBM Center for the Business of Government.

Kickert, Walter JM, Erik-Hans Klijn and Johannes Franciscus Maria Koppenjan. 1997. *Managing Complex Networks: Strategies for the Public Sector*. Washington D.C.: Sage.

Kinsella, Kevin and Victoria A Velkoff. 2001. An Aging World, 2001: International Population Reports. Technical report US Cencus Bureau, Economic and Statistics Administration, Department of Commerce.

Konisky, David M. and Manuel P. Teodoro. 2015. "When Governments Regulate Governments." *American Journal of Political Science* 60(3):559–574.

Lee, Jung Wook, Hal G. Rainey and Young Han Chun. 2009. "Of Politics and Purpose: Political Salience and Goal Ambiguity of U.S. Federal Agencies." *Public Administration* 87(3):457–484.

Lemke, Sonne and Rudolf H. Moos. 1989. "Ownership and Quality of Care in Residential Facilities for the Elderly." *The Gerontologist* 29(2):209–215.

Levinthal, Daniel and James G. March. 1981. "A Model of Adaptive Organizational Search." *Journal of Economic Behavior & Organization* 2(4):307–333.

Liao, Mei-Na, Susan Foreman and Adrian Sargeant. 2001. "Market Versus Societal Orientation in the Nonprofit Context." *International Journal of Nonprofit and Voluntary Sector Marketing* 6(3):254–268.

Lynn, Carolyn J Heinrich Laurence E, Carolyn J Heinrich and Laurence E Lynn Jr. 2000. *Governance and Performance: New Perspectives*. Washington D.C.: Georgetown University Press.

Martin, Stephen and Peter C. Smith. 2005. "Multiple Public Service Performance Indicators: Toward an Integrated Statistical Approach." *Journal of Public Administration Research and Theory* 15(4):599–613.

McDermott, Rose, James H. Fowler and Oleg Smirnov. 2008. "On the Evolutionary Origin of Prospect Theory Preferences." *The Journal of Politics* 70(02):335–350.

Meier, Kenneth J. and Laurence J. O'toole. 2001. "Managerial Strategies and Behavior in Networks: A Model with Evidence from US Public Education." *Journal of Public Administration Research and Theory* 11(3):271–294.

Meier, Kenneth J. and Laurence J. O'Toole. 2003. "Public Management and Educational Performance: The Impact of Managerial Networking." *Public Administration Review* 63(6):689–699.

Meier, Kenneth J. and Laurence J. O'Toole. 2005. "Managerial Networking Issues of Measurement and Research Design." *Administration & Society* 37(5):523–541.

Meier, Kenneth J. and Laurence J. O'Toole. 2008. "Management Theory and Occam's Razor: How Public Organizations Buffer the Environment." *Administration & Society* 39(8):931–958.

Meier, Kenneth J. and Laurence J. O'Toole. 2009. "The Dog That Didn't Bark: How Public Managers Handle Environmental Shocks." *Public Administration* 87(3):485–502.

Meier, Kenneth J and Laurence J. O'Toole. 2011. "Comparing Public and Private Management: Theoretical Expectations." *Journal of Public Administration Research and*

Theory 21(suppl3):i283–i299.

Meier, Kenneth J., Laurence J. O'Toole, George A. Boyne and Richard M. Walker. 2007. "Strategic Management and the Performance of Public Organizations: Testing Venerable Ideas against Recent Theories." *Journal of Public Administration Research and Theory* 17(3):357–377.

Meier, Kenneth J, Laurence J. O'Toole, George A. Boyne, Richard M. Walker and Rhys Andrews. 2010. "Alignment and Results Testing the Interaction Effects of Strategy, Structure, and Environment from Miles and Snow." *Administration & Society* 42(2):160–192.

Meier, Kenneth J. and Laurence J. O'Toole Jr. 2002. "Public Management and Organizational Performance: The Impact of Managerial Quality." *Journal of Policy Analysis and Management* 21(4):629–43.

Meier, Kenneth J., Nathan Favero and Ling Zhu. 2015. "Performance Gaps and Managerial Decisions: A Bayesian Decision Theory of Managerial Action." *Journal of Public Administration Research and Theory* 25(4):i221–i246.

Miles, Grant, Charles C Snow and Mark P. Sharfman. 1993. "Industry Variety and Performance." *Strategic Management Journal* 14(3):163–177.

Miles, Raymond E and Charles C Snow. 1978. *Organizational Strategy, Structure and Process*. New York: McGraw-Hill.

Milward, H. Brinton. 1996. "Symposium on the Hollow State: Capacity, Control, and Performance in Interorganizational Settings." *Journal of Public Administration Research and Theory* 6(2):193–195.

Milward, H. Brinton and Keith Provan. 2003. "Managing the Hollow State Collaboration and Contracting." *Public Management Review* 5(1):1–18.

Moore, Mark Harrison. 1995. *Creating Public Value: Strategic Management in Government*. Cambridge, MA: Harvard University Press.

Moynihan, D. 2008*a*. Advocacy and learning: An interactive-dialogue approach to performance information use. In *Performance Information in the Public Sector*, ed. Wouter Van Dooren and Steven Van de Walle. London, U.K.: Palgrave Macmillan pp. 24–41.

Moynihan, Donald P. 2006. "What do We Talk about When We Talk about Performance? Dialogue Theory and Performance Budgeting." *Journal of Public Administration Research and Theory* 16(2):151–168.

Moynihan, Donald P. 2008*b*. *The Dynamics of Performance Management: Constructing Information and Reform*. Washington D.C.: Georgetown University Press.

Moynihan, Donald P. and Patricia Wallace Ingraham. 2004. "Integrative Leadership in the Public Sector: A Model of Performance-information Use." *Administration & Society* 36(4):427–453.

Moynihan, Donald P. and Sanjay K. Pandey. 2010. "The Big Question for Performance Management: Why do Managers Use Performance Information?" *Journal of Public Administration Research and Theory* 20(4):849.

Murray, Michael A. 1975. "Comparing Public and Private Management: An Exploratory Essay." *Public Administration Review* 35(4):364–371.

Nielsen, Poul A. and Martin Baekgaard. 2015. "Performance Information, Blame Avoidance, and Politicians' Attitudes to Spending and Reform: Evidence from an Experiment." *Journal of Public Administration Research and Theory* 25(2):545–569.

Niskanen, William A. 1979. "Competition among Government Bureaus." *American Behavioral Scientist* 22(5):517–524.

Nutt, Paul C. and Robert W. Backoff. 1995. "Strategy for Public and Third-sector Organizations." *Journal of Public Administration Research and Theory* 5(2):189–212.

Olsen, Asmus L. 2013. "Compared to What? Experimental Evidence on Social and Historical Reference Points in Performance Evaluation." *Presented at the Public Management Research Conference, Madison, Wisconsin* .

Olson, Eric M., Stanley F. Slater and G. Tomas M. Hult. 2005. "The Performance Implications of Fit among Business Strategy, Marketing Organization Structure, and Strategic Behavior." *Journal of Marketing* 69(3):49–65.

Osborne, David E and Peter Plastrik. 2000. *The Reinventor's Fieldbook: Tools for Transforming Your Government*. San Francisco, CA: Jossey-Bass.

Osborne, David and Ted Gaebler. 1992. *Reinventing Government: How the Entrepreneurial Spirit is Transforming Government*. Boston, MA: Adison Wesley.

O'Shaughnessy, C. V. 2014. National Spending for Long-term Services and Supports (LTSS). Technical report National Health Policy Forum. Retrived from http://www.nhpf.org/library/details.cfm/2783: .

O'Toole, Laurence J. 1997. "Treating Networks Seriously: Practical and Research-based Agendas in Public Administration." *Public Administration Review* 57(1):45–52.

O'Toole, Laurence J. 2015. "Networks and Networking: The Public Administrative Agendas." *Public Administration Review* 75(3):361–371.

O'Toole, Laurence J and Kenneth J. Meier. 1999. "Modeling the Impact of Public Management: Implications of Structural Context." *Journal of Public Administration Research and Theory* 9(4):505–526.

O'Toole, Laurence J. and Kenneth J. Meier. 2003. "Plus ça change: Public Management, Personnel Stability, and Organizational Performance." *Journal of Public Administration Research and Theory* 13(1):43–64.

O'Toole, Laurence J and Kenneth J. Meier. 2004*a*. "Desperately Seeking Selznick: Cooptation and the Dark Side of Public Management in Networks." *Public Administration Review* 64(6):681–693.

O'Toole, Laurence J. and Kenneth J. Meier. 2004*b*. "Public Management in Intergovernmental Networks: Matching Structural Networks and Managerial Networking." *Journal of Public Administration Research and Theory* 14(4):469–494.

O'Toole, Laurence J and Kenneth J Meier. 2011. *Public Management: Organizations, Governance, and Performance*. Cambridge, MA: Cambridge University Press.

O'Toole, Laurence J., Kenneth J. Meier and Sean Nicholson-Crotty. 2005. "Managing Upward, Downward and Outward: Networks, Hierarchical Relationships and Performance." *Public Management Review* 7(1):45–68.

Perry, James L. and Lois Recascino Wise. 1990. "The Motivational Bases of Public Service." *Public Administration Review* 50(3):367–373.

Peters, B. Guy and Jon Pierre. 2000. *Governance, Politics and the State*. London, U.K.: Palgrave Macmillan.

Pollitt, Christopher. 2003. "Public Management Reform." *OECD Journal on Budgeting* 3(3):121–134.

Provan, Keith G. and H Brinton Milward. 1995. "A Preliminary Theory of Interorganizational Network Effectiveness: A Comparative Study of Four Community Mental Health Systems." *Administrative Science Quarterly* 40(1):1–33.

Pugh, Derek S., David J. Hickson, Christopher R. Hinings and Christopher Turner. 1969. "The Context of Organization Structures." *Administrative Science Quarterly* 14(1):91–114.

Radin, Beryl. 2006. *Challenging the Performance Movement: Accountability, Complexity, and Democratic Values*. Washington DC: Georgetown University Press.

Rainey, Hal G. 1982. "Reward Preferences among Public and Private Managers: In Search of the Service Ethic." *The American Review of Public Administration* 16(4):288–302.

Rainey, Hal G. 2009. *Understanding and Managing Public Organizations*. Hoboken, NJ: John Wiley & Sons.

Rainey, Hal G. and Barry Bozeman. 2000. "Comparing Public and Private Organizations: Empirical Research and the Power of the a Priori." *Journal of Public Administration Research and Theory* 10(2):447–470.

Roomkin, Myron J. and Burton A. Weisbrod. 1999. "Managerial Compensation and Incentives in For-profit and Nonprofit hospitals." *Journal of Law, Economics, and Organization* 15(3):750–781.

Rourke, Francis E. 1969. *Bureaucracy, Politics, and Public Policy*. Boston, MA: Little, Brown.

Shi, Leiyu and Douglas A Singh. 2014. *Delivering Health Care in America*. MA: Jones & Bartlett Learning.

Shortell, Stephen M. and Edward J. Zajac. 1990. "Perceptual and Archival Measures of Miles and Snow's Strategic Types: A Comprehensive Assessment of Reliability and Validity." *Academy of Management Journal* 33(4):817–832.

Snow, Charles C. and Lawrence G. Hrebiniak. 1980. "Strategy, Distinctive Competence, and Organizational Performance." *Administrative Science Quarterly* 25(2):317–336.

Swiss, James E. 2005. "A Framework for Assessing Incentives in Results-based Management." *Public Administration Review* 65(5):592–602.

Taylor, Steven A. and Thomas L. Baker. 1994. "An Assessment of the Relationship Between Service Quality and Customer Satisfaction in the Formation of Consumers' Purchase Intentions." *Journal of Retailing* 70(2):163–178.

Teece, David J. 2009. *Dynamic Capabilities and Strategic Management: Organizing for Innovation and Growth*. New York: Oxford University Press.

Turrini, Alex, Daniela Cristofoli, Francesca Frosini and Greta Nasi. 2010. "Networking Literature about Determinants of Network Effectiveness." *Public Administration* 88(2):528–550.

Tversky, Amos and Daniel Kahneman. 1991. "Loss Aversion in Riskless Choice: A Reference-dependent Model." *The Quarterly Journal of Economics* 106(4):1039–1061.

Vigoda-Gadot, Eran and Fany Yuval. 2003. "Managerial Quality, Administrative Performance and Trust in Governance Revisited: A Follow-up Study of Causality." *Interna-*

tional Journal of Public Sector Management 16(7):502–522.

Walker, Richard M. 2013. "Strategic Management and Performance in Public Organizations: Findings from the Miles and Snow Framework." *Public Administration Review* 73(5):675–685.

Walker, Richard M. and Barry Bozeman. 2011. "Publicness and Organizational Performance." *Journal of Public Administration Research and Theory* 21(suppl3):i279–i281.

Walker, Richard M., Rhys Andrews, George A. Boyne, Kenneth J. Meier and Laurence J. O'Toole. 2010. "Wakeup Call: Strategic Management, Network Alarms, and Performance." *Public Administration Review* 70(5):731–741.

Weisbrod, Burton A. 1997. "The Future of the Nonprofit Sector: Its Entwining with Private Enterprise and Government." *Journal of Policy Analysis and Management* 16(4):541–555.

Wheeler, Jr., Huda Fadel and Thomas A. D'Aunno. 1992. "Ownership and Performance of Outpatient Substance Abuse Treatment Centers." *American Journal of Public Health* 82(5):711–718.

Wittmer, Dennis. 1991. "Serving the People or Serving for Pay: Reward Preferences among Government, Hybrid Sector, and Business Managers." *Public Productivity & Management Review* 14(4):369–383.

Zahra, Shaker A. and John A. Pearce. 1990. "Research Evidence on the Miles-Snow Typology." *Journal of Management* 16(4):751–768.

Zhu, Ling and Morgen Johansen. 2013. "Managerial Networking under Performance Change: Comparing Public, Nonprofit, and Private Organizations." *Presented at the Public Management Research Conference, Madison, Wisconsin* .

APPENDIX A: DESCRIPTIVE ANALYSIS FOR THE SECTION 2

Variable	Mean	Std. Dev.	Min.	Max.	N
Customer Satisfaction	0	1	-3.686	3.946	
Standardized Efficiency	0.032	0.988	-8.932	1.727	995
Log(Outpatients)	11.805	0.954	5.394	14.946	995
Log(Adjusted Inpatient Days	11.455	0.682	8.894	13.607	
	995				
Log (Physicians per Bed)	0.065	0.1	0	0.847	995
Log (Nurses per Bed)	0.697	0.265	0.053	1.453	995
Log (Doctors per Nurse)	0.067	0.091	0	0.639	995
Skilled Nurses	0.374	0.065	0.099	0.492	995
Log(Market Competition)	5.103	1.842	0	7.279	995
Chain Affiliation	0.107	0.309	0	1	995
Network Affiliation	0.375	0.484	0	1	995
year	2008.481	0.5	2008	2009	995

APPENDIX B: DESCRIPTIVE ANALYSIS FOR THE SECTION 3

Variables	Obs	Mean	Std. Dev.	Min	Max
Dependent Variables:Networking					
Corporate Office	374	3.776388	1.188263	0	5
Other Staff	712	4.803629	0.6152364	0	5
Residents	713	4.67932	0.7467853	0	5
Regulatory Agency	711	1.365718	0.5917662	0	4
Medicaid	678	1.52012	1.062743	0	5
Vendors	636	1.519784	1.070285	0	5
Insurance	668	1.745298	1.221925	0	5
Key Independent Variables					
rule compliance information					
historical short-term PI	714	0.2366947	5.604671	-29	35
historical long-term PI	707	-0.0777935	5.776616	-27	23
social PI	714	6.51E-09	4.587125	-24.2	9.666
Market-value Performance Information					
historical short-term PI	714	0.1755686	1.022237	-3	3
historical long-term PI	714	-0.0476541	0.8860526	-3	3
social PI	714	-1.67E-09	0.5239835	-3	2
Controls					
Size	714	88.7042	67.8714	2	694
Occupancy	714	0.8467414	0.163255	0.0352	3.093
Task Difficulty	714	0.143724	0.0880284	0.0136	0.8182
Capacity	714	0.282356	0.2756689	0	5.5706
In Hospital	714	0.1162465	0.320745	0	1
In Chain	714	0.35154	0.4777861	0	1
Urban	714	59.049	32.8561	0	100
Elderly	714	15.82686	4.162717	6.8	36
Market Competition	714	0.2804983	0.2986759	0.0025	1
Tenure	714	7.134622	7.153543	0	38
Prospector	714	6.08E-09	1	-3.069	1.9478
Defender	714	2.00E-10	1	-2.407	2.1249
Ownership (dummy)	714	1.967787	0.7981914	1	3
Public	239				
Nonprofit	259				
For-profit	216				

Notes: There are some missing observations in each node because some nursing homes are not applicable to contact a certain type of networking node (i.e. corporate office).

APPENDIX C: DESCRIPTIVE ANALYSIS FOR THE SECTION 4

Variable	Mean	Std. Dev.	Min.	Max.	N
DV: Managerial Strategy					
Prospector	0	1	-2.928	1.867	624
Defender	0	1	-3.145	2.332	609
IV: Performance Information (PI)					
Historical aspiration PI	0.165	1.027	-3	3	695
Social aspiration PI	0.187	1.003	-2.879	3	707
Ownership (dummy)	714	1.967787	0.7981914	1	3
Public	239				
Nonprofit	259				
For-profit	216				
Controls					
In Chain	0.352	0.478	0	1	714
In Hospital	0.116	0.321	0	1	714
Occupancy	84.779	16.074	4	303	714
Size	88.704	68.063	2	694	710
Capacity	0.282	0.276	0	5.571	710
Task Difficulty	0.144	0.088	0.014	0.818	714
Elderly	15.827	4.174	6.8	36	710
tenure	7.135	7.391	0	38	669
Medicaid Resident	50.683	33.632	1	108	714
Market Competition	0.28	0.299	0.003	1	714

APPENDIX D: CROSS-CORRELATION TABLE FOR SECTION 4.6

Variables	1	2	3	4
1. Prospecting	1.00			
2. Defending	0.23	1.00		
	(0.00)			
3. Historical Aspiration PI(t-1)	0.06	0.07	1.00	
	(0.14)	(0.08)		
4. Social Aspiration PI	0.08	0.01	0.34	1.00
	(0.05)	(0.76)	(0.00)	