ABSTRACT

LUCAS, BRENT ASHLEY. Factors Affecting the Adoption and Use of Target-Based Objectives in U.S. Local Public Health Departments. (Under the direction of James E. Swiss).

A large and growing body of empirical evidence has shown that well-constructed performance management systems, using target-based objectives, often substantially improve organizational performance. However, scholars do not fully understand why managers choose to adopt or not adopt such management tools.

This dissertation explores the adoption and the use of target-based objectives in U.S. local public health departments. It asks three principle questions. First, to what extent and for what purposes are target-based objectives used in local public health departments? Second, what factors predict whether a health department will implement target based objectives? Examined factors include managerial, organizational, and community characteristics. Third, how satisfied are local public health departments that have implemented such objectives?

This dissertation relies primarily on two sources of survey data: a national survey of local public health managers conducted by the National Association of County and City Health Officials, and a primary survey designed for this dissertation.

The study finds a substantial majority (61.7%) of U.S. local public health departments use target-based objectives. Reflecting the increasing importance of the tool, most users have adopted them within the past ten years.

Prior research has suggested a number of variables at the managerial, organizational, and community levels that are sometimes predictors of the extent to which organizations adopt innovations. This dissertation explored whether these innovation-focused findings
apply to the adoption of a specific management technique. Five variables are found to predict the adoption of target-based objectives: two at the managerial level (a manager’s previous work experience and a manager’s gender), two at the organizational level (an organization’s financial resources and the level of involvement of employees in establishing objectives) and one at the community level (the community’s education level).

Public health managers who adopt target-based objectives tend to use them more for internal management of the organization, such as budget decisions, rather than for outcome-oriented purposes, such as improving customer satisfaction. Those who use them primarily for internal purposes are also more likely to believe their systems improve organizational effectiveness. Ordinal regression results show a number of other differences in tool use and tool evaluation between managers who primarily use output-oriented targets rather than outcome-oriented targets.

Of those managers that have adopted target-based objectives, an overwhelming majority (82.8%) believe them to be an effective management tool. Even among managers who are not using target-based objectives, a surprisingly large percentage (40.8%) nonetheless think they are an effective management tool.

Although target-based objectives are generally perceived to be an effective management tool, adoption of the tool is not significantly related to managers’ perceptions of the effectiveness of their organizations, with both tool adopters and non-adopters generally believing that their organizations are highly effective.
Factors Affecting the Adoption and Use of Target-Based Objectives in U.S. Local Public Health Departments

by

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DEDICATION

This dissertation is dedicated to my parents, Rick and Sharon Lucas. Your love and actions continue to inspire me to be a better man every day, to treat others like I would like to be treated, and pursue any goal, no matter how difficult it may seem.
A North Carolina native, Brent Lucas was born in Sanford, North Carolina, and grew-up in nearby Lillington. He attended Boone Trail Elementary School, Western Harnett Middle School, and in 2003 graduated from Western Harnett High School. He received a Bachelor’s of Arts degree in Government, with a concentration in Public Policy and Public Administration, with minors in Business Administration and History, from Campbell University in 2006. Upon completing his bachelors, Mr. Lucas attended the University of North Carolina at Greensboro, where he received a Masters of Public Affairs degree in 2008. While a graduate student, he served as a graduate assistant for the Department of Political Science, the Environmental Studies Program, and the Office of Institutional Research. During this time, he also served as a policy intern for then Lieutenant Governor Beverly Perdue and a Research Assistant with the Fiscal Research Division of the North Carolina General Assembly. Mr. Lucas then began North Carolina State University’s Doctor of Philosophy program in Public Administration in the fall of 2008 and served as a teaching assistant and instructor for a variety of political science courses. In 2013, he began working as a program evaluator for the Program Evaluation Division of the North Carolina General Assembly.
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CHAPTER 1: INTRODUCTION

Public organizations are continuously seeking methods of improving service-delivery and enhancing client satisfaction. Practitioners encounter a number of management tools and techniques that claim to enhance organizational efficiency and effectiveness. While some of these techniques are merely fads or fashions (see Abrahamson, 1991), one that has strong empirical backing is a performance management system.

Performance management systems are usually considered part of a broader approach to management. This broader approach is often called strategic management or (synonymously) results-based management (RBM).

Performance management systems’ primary component—and driving force—is target-based objectives. This dissertation explores the adoption of these objectives in a particular type of public organization, U.S. local public health departments. These organizations have a range of responsibilities, ranging from immunizing citizens to providing direct medical treatment for conditions to both children and adults.

Results-Based Management

The components of today’s results-based management include a strategic plan that sets the organization’s long term direction, a performance management system which sets and tracks annual results-oriented objectives, and connections to both, including performance-based rewards, performance-based budgets and performance-based contracts. Each of these components will be briefly discussed in turn.
**Strategic Plans**

As part of the strategic planning process, the organizational environment is scanned and analyzed (through what is usually called SWOT analysis) and long-range objectives are established. The strategic plan sets the tone for the entire organization, highlighting what the organization sees as its most important long-range goals. Strategic planning has proven to often lead to greater organizational performance (Ramanujam, Venkatraman, & Camillus, 1986; Miller & Cardinal, 1994; Poister & Streib, 2005) and sets the tone for other organizational improvements (Berry & Wechsler, 1995).

The purpose of an organization’s strategic plan is to guide the actions and behaviors of the organization’s employees in order to reach desired long-range objectives. (In governmental strategic planning, “long-range” usually means approximately five years.) The strategic plan in turn guides the development of other management techniques, such as the annual performance management system. It is the performance management system that guides employee actions on a month-to-month basis in order to ensure that the long-range organizational goals outlined in the strategic plan are accomplished.

**Performance Management Systems**

The organization’s performance management system outlines the agency’s annual objectives. It also sets yet shorter-term measures of progress toward those annual objectives (“milestones”), and provides for regular feedback on progress. A central tenet of a performance management system is that such systems should drive every function in the organization, thus ensuring goal alignment through all organizational activities.
Connecting Other Systems to Performance Management Systems

Results-based management (RBM) seeks to create an organization-wide system in which an agency’s annual objectives align not only with the strategic plan, but also with the various subsystems of an organization, such as the human resources and budgeting functions of the organization. For example, part of all employees’ personnel evaluation would be linked to their performance on progress toward objectives for their particular organizational subunit. This connection ensures employees understand how their work relates to the organization’s objectives and that internal processes support organizational objectives.

This section has provided a brief overview of results-based management and its components of long-term strategic plans, annually-oriented performance management systems, and connected systems such as results-based personnel appraisals and results-based budgeting. The next section will focus more tightly on the primary concern of this dissertation, the performance management system.

The Components of Performance Management Systems

A performance management (PM) system sets annual objectives, tracks progress on them regularly, and takes remedial measures when there are shortfalls. For a large organization, a PM system works through goal cascades (Koteen, 1997). There are organization-wide objectives, which cascade down to produce related objectives for each subunit, which cascade down to produce related individual-level PM objectives. As can be seen from this description, a PM system is a system built on annual, results-oriented objectives.
Objectives

Objectives are set for the entire organization, cascading down to subunit objectives and individual employee objectives. Because they set the tone for all other objectives, the broader organizational objectives are the primary focus in this dissertation. An example of an organizational objective for a local health department would be: “The department will increase the number of flu vaccinations by 20% by May of next year.”

This objective and others in RBM systems typically have four components: a measure, a target, a date of completion, and a milestone.

Measure

A measure is a term for what is being tracked, such as the number of flu vaccinations in the previous example. A measure is sometimes called an indicator.

Target

In addition to the measure, objectives also should have a quantitative standard for expected performance, i.e., a target. Targets can take the form of whole numbers, such as the number of clients served, or could be reflected as a percentage. In the example objective above, the target is the 20% increase.

Date of Completion

Another component of objectives is the date set for the objective to be achieved. With the measures and targets set, there must be an overall date for the objective to be achieved. With this clear date, organization members know how much time they have to achieve the objective.
Objectives indicate where the organization wants to be within a given period of time, which is typically one year; however, no manager can foresee future circumstances and situations facing the organization. Rather than setting an objective and then reporting progress on the objective only at year’s end, managers will monitor progress toward these objectives on a regular monthly or quarterly basis.

To do this, objectives should ideally have multiple milestones. Milestones can be viewed as short-term sub-objectives, or alternatively they can be viewed as action steps to achieve the objective. One milestone for the flu objective could be the organization increasing the number of influenza vaccinations administered by 5 percent by December 30.

Milestones provide managers the ability to monitor feedback on the organization’s progress toward the objective and still have time to revise organizational practices to ensure the overall objective is achieved. Two more examples of milestones for the flu objective might be: (a) Initiate contact with five local public schools for flu vaccination drives by January of next year, and (b) Increase the number of flu vaccinations by 200 by January of next year. In all cases, a milestone allows managers to monitor progress toward the objective.

To summarize, well-constructed performance objectives have four pieces that help organizational members to focus their energies on the right things by telling them (a) what—the measure; (b) how much—the target; (c) when—the date; and (d) how—the milestones.

Objectives lose most of their efficacy if they are badly constructed. Sometimes badly constructed objectives lack a date, or have a measure that is not clearly operationalized.
However, the most common mistake in constructing objectives is to omit a target. An objective for a health department that simply says “increase the number of flu shots by May 1” without specifying a specific target will rarely have much effect. Throughout this dissertation there will be distinctions made between public health departments that simply monitor their performance—collecting numbers without comparing them to targets—to those that actually set measurable objectives with targets. This dissertation focuses on targets.

To summarize this discussion, management tools can be viewed as nested boxes within boxes. The largest box is results-based management, which includes such tools as strategic planning and performance management systems. Performance management systems in turn contain target-based objectives. In fact, most observers would believe that target-based objectives are the most essential component of performance management systems and the engine—the primary driver—of results-based management systems.

**Research Problems**

This dissertation addresses three research problems:

- First, to what extent and for what purposes are target-based objectives used in local public health departments;
- Second, what factors predict whether a health department will implement target-based objectives; and
- Third, how satisfied are health departments that have implemented such objectives?
First research topic: To what extent are target-based objectives adopted, and for what purposes do public health departments use target-based objectives?

This dissertation explores the extent to which local public health managers are using target-based objectives. Since this management tool has been gaining momentum among practitioners in the last ten years, it is expected that a majority of managers will be using target-based objectives. This study explores the frequency by which managers are using this management tool in a number of ways both as a dichotomy and in a more detailed manner. It then looks at whether managers are using the objectives to focus more on immediate organizational services (outputs) or effects on clients (outcomes). Finally, this dissertation also explores the specific decisions that these target-based objectives drive, ranging from making staffing decisions to improving customer satisfaction.

Second, what factors predict the adoption of target-based objectives?

As discussed in Chapter 2, a great deal of empirical evidence has shown that organizational performance is generally improved by well-constructed performance management systems, which by definition always include target-based objectives. Although researchers know that target-based objectives usually increase organizational performance, they do not fully understand why managers choose to adopt or not adopt such management tools.

One possible predictor of management system adoption may be the organization’s characteristics. This dissertation explores a number of organizational characteristics, including the organization’s financial resources and the organization’s number of employees.
Another possible predictor of management system adoption might be the manager’s characteristics. Some of these managerial characteristics may relate to the manager’s demographics, while others may relate to the manager’s beliefs or management style, such as conflict aversion in interacting with health department staff. This dissertation examines both demographic and psychological characteristics of the manager.

A third and final potential predictor of management system adoption might be characteristics of the community surrounding the agency. The dissertation examines community characteristics, such as population sizes and education levels.

**Third, do health department managers who adopt performance management systems believe that PM systems have improved their efficiency and effectiveness?**

This research also explores the opinions of public health managers on target-based objectives as used in their organizations. It begins by asking whether the tool itself is perceived as effective, and what aspects of adoption or use may affect this perception. It also asks whether adoption of the tool influences managers’ perceptions of their organizations’ overall effectiveness.

**A Brief History of Performance-based Management Tools in Practice and in Academia**

Because this dissertation focuses on the adoption and perceived usefulness of a specific management practice, it is useful to set the context for this discussion by briefly discussing the history of target-based objectives. The next sections discuss developments both in practice and in academia.
Practitioner History

Results-based management builds on a foundation established by earlier management systems. Performance measurement and management techniques date back to the establishment of the New York Bureau of Municipal Research in 1906, which emphasized the use of cost accounting, social surveys, and prior municipal statistics to inform management practice (Williams, 2002, p. 132). Beginning with New York City, the municipal research movement continued to grow from 15 bureaus of municipal research in 1916 to 74 bureaus in 1928 (Bureau of Municipal Research, 1916; Gulick, 1928).

Throughout the early 1900s managers began using a variety of techniques for managing their organizations using information on the organization’s performance, by emphasizing certain principles of management, such as focusing on performance through efficiency and spans of control (Taylor, 1910; Gulick, 1928).

After a lull of several decades, performance measurement was resurrected under the terminology of Management by Objectives (MBO) in the 1950s, which added target setting as an important component. Target-based objectives began in the business world as part of the MBO movement in the 1950s, and then moved to government during the 1970s. At the federal level, MBO was particularly emphasized by the Nixon and Ford administrations. By the early 1980s, the use of quantitative management objectives began to fade in government, although it never lost its importance in business. One reason for their governmental eclipse was that successful objectives depend on reliable measures of organizational performance, and the techniques of governmental performance measurement were undeveloped during the 1970s.
A decade later, during the Clinton presidency, a renewed emphasis on government accountability began to appear. As a result of Osborne and Gaebler’s influential *Reinventing Government* (1992) and the resulting New Public Management (NPM) and Managing for Results (MFR) paradigms, an increasing emphasis began to be placed on performance measurement and on holding government employees accountable for results that could be demonstrated through the use of performance information (Hood, 1991; Moynihan, 2008).

Results-based management has also increased the discretion public managers have in conducting day-to-day activities, because RBM’s main principle is to give managers more freedom from procedural rules and micromanagement, but then hold them accountable for the results they achieve with their new-found autonomy.

Target-based objectives are usually a key component of these reforms. In 1993, the U.S. Congress passed legislation, called the Government Performance Results Act of 1993 (GPRA), requiring all federal agencies to develop strategic plans outlining their missions as well as performance plans. Federal agencies still must submit these documents to the U.S. Congress and the U.S. Office of Management and Budget on a regular basis. GPRA says the required performance plans should “establish performance indicators to be used in measuring or assessing the relevant outputs, service levels, and outcomes of each program activity” (GPRA, 1993, p. 3). It also calls for “a target level of performance expressed as a tangible, measurable objective, against which actual achievement can be compared, including a goal expressed as a quantitative standard, value, or rate” (GPRA, 1993, p. 3).

In addition to GPRA, other managerial reforms at the federal level have addressed the importance of monitoring organizational performance. In 2004, the U.S. Office of
Management and Budget (OMB) initiated an effort to integrate GPRA’s strategic planning components with performance budgeting, and during the remainder of the Bush administration budgeting was connected to performance measures through the Program Assessment and Rating Tool (PART) (GAO, 2004, p. 7). The goal for PART was to tie a program’s measured performance to its funding. PART, although currently out of use, forced federal programs to think critically about their internal performance management systems.

The Obama administration designated the top management position in OMB to performance improvement, and those individuals (often termed “performance czars”) have overseen additional efforts in federal performance measurement, thus showing the continuing emphasis on organizational performance.

Many of these federal reforms stemming from the reinventing government movement have also been applied at the state and local levels of government in the past twenty years. In their study of city managers throughout the U.S., Kearney et al. (2000) find that many city managers are adopting reinvention-oriented techniques in their cities, and explore many characteristics about the manager and community to identify factors that facilitate the adoption of such techniques. Further, Rivera et al. (2000) also find support for the claims of local managers using reinvention principles in their work. Specifically relating to reform efforts such as GPRA, Bowling and Wright (1998) and Thompson (2002) argue many of the Act’s tenets are being applied at the state level.
Academic History

The history of practitioner implementation of these tools is mirrored by the history of academic researchers. A number of scholars made important contributions to the performance measurement and management movement. In particular, Clarence Ridley’s influential dissertation and subsequent writings in the late 1920s discussed many examples of municipalities using sophisticated accounting systems and internal studies to determine ways to improve their levels of performance (Ridley, 1927a; 1927b).

Building upon Ridley’s work and the growing number of municipal research bureaus, Walker (1929) attempted to develop a quality of life measurement index for municipalities across the U.S. Also prominent during this movement of municipal research was Luther Gulick, who became director of the Bureau of Municipal Research in 1920 (Blumberg, 1981). He argued for management to take on the role of monitoring the actions of employees using numerical indicators. In his Notes on the Theory of Organization, Gulick (1937) relied on the experiences of New York City’s Bureau of Municipal Research for suggestions on managerial behavior, commonly referred to as the POSDCORB orthodoxy, which includes: planning, organizing, staffing, directing, coordinating, reporting, and budgeting (p. 97) as well as the work of Henri Fayol (1930; 1937), with his discussion of the principles of management.

While future work went on to question such principles and to call for additional empirical study on administrative arrangements (Simon, 1946, p. 147), Gulick’s work still remains influential in the use of information and its focus on managers’ behaviors to affect organizational performance. Further, Simon argued that for such research on organizations
to be successful, one of two conditions must be met. First, the organization’s objectives must be specified for performance on these results to be analyzed, and second, researchers must be able to ensure the results are the effects of the administrative organization and not an outside force (1946, p. 147). It is Simon’s first criterion that is of special interest to this dissertation because it foreshadows the objectives of today’s PM systems.

The most influential author advocating target-based objectives for both business and public management was Peter Drucker. In his classic *Practice of Management* (1954), Drucker notes numerous examples of organizations using objectives to drive organizational activities. Drucker argues organizations need multiple objectives to direct organizational efforts across areas, as opposed to one single objective (1954, p. 63). These objectives tie the strategic plan and the performance management system together; as Drucker says “they [objectives] should always balance and harmonize the immediate and the long-range future” (1954, p. 356).

In discussing the content of objectives, Drucker argues objectives allow organizations to accomplish five things:

“To organize and explain the whole range of business phenomena in a small number of general statements, to test these statements in actual experience, to predict behavior, to appraise the soundness of decisions when they are still being made, and to enable practicing businessmen to analyze their own experience, and as a result, improve their performance” (Drucker, 1954, p. 63).

Further, Drucker notes that with these multiple objectives, the objectives of all employees align with those of their superiors, and those superiors’ objectives align with their superiors’, all the way up the organization.
A key point of Drucker’s discussion of objectives is that employees, particularly managers, should know their progress toward reaching such objectives. He notes “to be able to control his own performance a manager needs to know more than what his goals are. He must be able to measure his performance and results against the goal” (Drucker, 1954, p. 131).

Later, Drucker’s publication of *Managing for Results* (1964) outlined many examples of organizations using management techniques focusing on results and performance across units within these organizations. In calling for a “company-wide program for performance,” Drucker also argues there needs to be a “company-wide plan for the work to be done” (1964, p. 218), and that “the foundations of such a plan are of course the decisions on the idea of the business and its objectives; on the areas of excellence; on priorities; and on strategies. From these a work plan first derives goals and targets. What results are needed? Where? When?” (1964, p. 218).

In the early 1980s researchers in public administration began calling for the use of performance measurement and management techniques in all levels of government. Leading this call was Hatry (1980), who describes performance measurement as “the systematic assessment of how well services are being delivered to a community—both how efficiently and how effectively” (p. 312). Hatry’s work outlines factors local governments should consider in installing a performance measurement and notes numerous examples of local governments already using many of these techniques. For example, in discussing the trained observer method of data collection, he notes cities such as Charlotte, North Carolina and
Phoenix, Arizona were already using these techniques to monitor street cleanliness and maintenance before 1980 (Hatry, 1980, p. 325).

As a result of intergovernmental relations and funding, many state and local governments initiated performance-monitoring techniques in order to obtain additional federal funding (Dickinson et al., 1988). Wholey (1983) found that clinics that could show higher levels of performance were granted additional funds through the Community Health Centers program in the early 1980s, thus encouraging local public organizations to use performance measurement. Uhalde (1991) found support for the argument that state and local governments used performance management techniques as a result of additional funding being granted by the federal government and were rewarded for increased performance. Hatry et al. (1990) found many state and local governments used management systems to monitor organizational performance in a number of service areas, such as economic development and police services. Further, Richards and Shujaa (1990) found public education was a service area in which many state and local governments used performance monitoring, and found that South Carolina’s use of such performance monitoring systems improved student performance.

Researchers in specific disciplines, such as public health, have found the monitoring of performance through the use of mechanisms such as targets to be an essential component of a performance management system. In fact, one of the American Public Health Association’s (APHA) 10 essential public services is “monitoring health status to identify community health problems,” a type of performance tracking system (APHA, 2012; Derose et al., 2002). Further, many other public health researchers have called for the development
and implementation of performance standards (i.e. targets) to be set and for indicators of progress toward these standards to be monitored (Turnock & Handler, 1997; Handler et al., 1995; Handler et al., 2001; Handler et al., 2002). Despite all the calls for performance management, however, little research has yet explored the extent to which target-based objectives have been implemented by U.S. local public health departments.

Research on this topic can be useful to both management scholars and practicing managers. First, management scholars can better understand the “behind the scenes” factors that may influence the adoption of a particular management tool. Researchers already know a number of rationales exist for the use of a performance management system, such as elected official demand or funding requirements, but little research discusses why managers may adopt certain tools in attempting to accomplish organizational outcomes. Prior research has shown organizational-level variables, such as jurisdiction size, increase the likelihood of particular tool adoptions, but no research has explored the adoption of target-based objectives explicitly nor has it considered characteristics of public health managers that may affect management tool adoption. Filling this void is also important to practicing managers who might discover a technique they could implement and convince stakeholders to support because of the demonstrated success of targets.

**Research Questions**

The research questions driving this research are as follows:

Research Question 1: To what extent, and for what purposes, are target-based objectives used in public health agencies?

Research Question 2: Why do some public organizations adopt performance management tools, such as target-based objectives?
Research Question 2.1: Do manager-level variables contribute to the adoption of performance management tools, such as target-based objectives?

Research Question 2.2: Do organization-level variables contribute to the adoption of performance management tools, such as target-based objectives?

Research Question 2.3: Do community-level variables contribute to the adoption of performance management tools, such as target-based objectives?

Research Question 3: Are target-based objectives perceived as effective by public health managers?

Research Question 4: Are public health managers who have implemented targets more likely to perceive their organizations to be effective?

Research questions relating to the extent of adoption of target-based objectives are based on the hypothesized model shown in Figure 1.
The research questions relating to managerial satisfaction with the implementation of such tools, and how they are expected to influence perceived effectiveness of the organization (research questions three and four), are based on the hypothesized model shown in Figure 2.

![Diagram Predicting Managerial Adoption and Effects of Target-Based Objectives](image)

**Figure 2: Diagram Predicting Managerial Adoption and Effects of Target-Based Objectives**

In exploring perceived effectiveness, users and non-users of target-based objectives are compared along a number of dimensions. Further, this dissertation explores whether the extent of tool use (such as partial or full implementation of target-based objectives) and the purposes for which managers are implementing the tool influence the perceived effectiveness of either the tool or the organization.

To explore all these research questions, three sources of data are explored. First, this study administered a survey to local public health managers in the United States in the fall of 2012 (See Appendix A). This survey specifically sought to explore managerial perceptions
of target-based objectives as well as their practices regarding target-based objectives. Second, a national survey conducted by the National Association of City and County Health Officials (NACCHO) in 2010 will be used to provide many of the independent variables of interest to this study, such as the training of the manager and organizational resources, among others. Third, data from the US Census will be used to examine several community-level factors.

**Potential Contributions of This Research**

It is useful to sum up some of this chapter’s earlier points about why this research will contribute potentially important information to both practitioners and academics.

- **Overview of importance.** Boyne and Walker (2010) argue there is still little understanding of the conditions that cause strategic (i.e., results-based) management to be an effective form of management. One such condition is likely the use of target-based objectives. Target-based objectives are increasingly used by government and nonprofit agencies, yet they are very rarely studied.

- **Contribution to the adoption literature.** As chapter 2 will indicate, there are many studies of the factors that promote organizational adoption of “innovations” – a very broad category that usually includes many non-managerial changes. However, there are relatively few studies that specifically examine the factors that promote adoption of management tools. In addition, there are no studies that specifically examine the factors promoting adoption of target-based objectives, the management tool that is
today strongly espoused by both business and public administration schools, and the tool with perhaps the most extensive empirical backing. What characterizes organizations that adopt – or perhaps more surprisingly, resist the evidence and the pressure and do not adopt – this tool?

- Increased accuracy of survey responses. One of the confounding factors of studying management tools by survey is that managers tend to “overclaim” by indicating they have adopted tools, which they have not. (Boyne, 2010; Frazier and Swiss, 2008). Some of this overclaiming is driven by social desirability forces, and some by respondents’ misunderstanding of what a tool involves. No survey can completely overcome overclaiming, but this study’s survey constantly provided respondents with examples of the tool, and also required managers to choose between specific levels of tool use and specific areas of tool use, greatly lessening the chances of casual overclaiming and therefore substantially increasing the likelihood of accurate responses.

- Contribution to the management literature: opening the black box of “objectives.” In contrast to studies that simply discuss “objectives,” this study drills down to ask how, why, and when target-based objectives are used, and whether these differences in usage matter. It examines both the focus (output or outcome) and the purpose (budgeting, staffing, etc.) of target-based objectives, and how differences in focus and purpose relate to managerial satisfaction. The level of analysis goes far beyond any earlier study of public
sector objectives, and the resulting information will be useful to both practitioners and academics.

**Preview of Chapter 2**
Chapter 2 presents the relevant management literature on the efficacy of target-based objectives and factors that researchers have previously explored in predicting the adoption of social innovations, such as target-based objectives.
CHAPTER 2: LITERATURE REVIEW

This chapter seeks to demonstrate the relationship of prior research to the current research topics. Specifically, this section will explore the three main research questions of this dissertation: how effective target-based objectives are (and are perceived to be); to what extent target-based objectives are used, and what factors predict the adoption of target-based objectives.

Effectiveness of Target-based Objectives
Almost all business organizations, and many public organizations, set objectives that they wish to achieve. (Objectives are the central part of a larger results-based management system.) As previously discussed, an objective specifies the level of performance the organization wishes to reach over a given timespan. Therefore, objectives are intended to set the direction of the organization and coordinate efforts within the organization to ensure that those objectives (and thus the organization’s mission) are achieved. It is these annual objectives in performance management systems that are of primary concern to this dissertation. Since these objectives are a form of goals, goal-setting theory can be applied.

Goal Theory and Empirical Results

Locke and Latham’s (1984) influential book on goal theory outlines the processes associated with goal setting within an organization, potential problems one might encounter in using goal setting theory, and methods to overcome such problems. A key concept they advocate is the participation of employees in the setting of objectives at all levels of the organization, thus providing employees with a sense of buy-in into the organizational mission. Further, Locke and Latham argue
“goals can be set for virtually any action or outcome that is verifiable or measurable; and since anything that exists, exists in a certain amount and is therefore in principle measurable, goal setting is almost universally applicable” (1984, p. 7).

As outlined in Locke and Latham’s steps, goal setting is not an easy process. Therefore, those considering setting goals and modifying organizational practices and employee behaviors would seek evidence the technique actually works.

In fact, much research since Locke and Latham’s (1984) publication has confirmed that goal setting often works. For example, Locke and Latham again address goal setting theory in their *A Theory of Goal Setting and Task Performance* (1990), with particular reference to the many empirical studies conducted on the topic and those findings. They find that goal setting theory has been empirically examined using almost 40,000 subjects, including managers, factory workers, engineers, and scientists. They discuss studies exploring the relationship between criteria such as physical effort, production efficiency, profit, and performance quality in terms of the relationship of these items to goal setting theory. Locke and Latham also discuss the different units of analysis goal setting theory studies explore, including individual, group, and organizational goals.

Locke and Latham discuss research demonstrating the effects of clear and specific goals on performance, and find support that goal setting increases performance (1990, p. 49). They also find support from the literature for the argument that feedback is important (Locke and Latham, 1990, p. 185). As discussed earlier, goal setting is a key tenet of Management by Objectives (MBO). A study by Kondrasuk and colleagues (1984) which finds significant increases in profit margins at private retail stores, is one of many studies that have
demonstrated the benefits of MBO on organizational results, which Locke and Latham (1990) argue is around 90 percent of all MBO studies.

The Management by Objective (MBO) literature is useful in the discussion of the effectiveness of objectives. According to Rodgers and Hunter (1992) MBO “is a management system that incorporates the features of three processes that are known to constitute good management practice in government: participating in decision-making, goal setting, and objective feedback” (p. 27). In their meta-analysis of 30 studies on the effects of MBO on government performance, Rodgers and Hunter determine that there are often substantial productivity gains for organizations using MBO.

They also found there are additional gains in performance, such as the productivity of city maintenance activities, when management is committed to the effort of promoting and aligning goals than if the manager did not display such a commitment (Rodgers and Hunter, 1992, p. 34). Many others also find empirical support for MBO increasing organizational performance (Alpin and Schoderbeck, 1976; Moore and Staton, 1981; Poister and McGowan, 1984; Poister and Streib, 1989).

**Importance of Clear Goals**

In their discussion of research on goal setting, Locke and Latham (1990) found support for the argument that clear goals increase many aspects of organizational performance. Pandey and Wright (2006) found that in 274 state-level public health organizations, those with greater goal ambiguity increasingly use bureaucratic structure as a method to handle such goal ambiguity, which results in an increase in employee role ambiguity. Such variables relating to bureaucratic structure include an organization’s red
tape, routinization, and centralization, all increase with goal ambiguity and further increase a manager’s role ambiguity (Pandey and Wright, 2006, p. 522). As a result, these authors note managers and perhaps even employees may appear to be shirking, but in reality they may in fact just be unclear about the goals to be achieved (Pandey and Wright, 2006).

Latham, Borgogni, and Petitta’s (2008) study using a municipal Italian government reinforces the necessity of goal clarity. They find that non-ambiguous goals, not monetary resources, determine the effectiveness of goal-setting practices. Chun and Rainey (2005) also found that goal ambiguity is negatively associated with four measures of organizational performance: perceived managerial effectiveness, customer service orientation, productivity, and work quality among U.S. federal government employees.

**Importance of Feedback**

In addition to clear goals, another condition researchers have found to increase the effectiveness of goal-setting is that of feedback. For the purposes of this discussion, feedback can be defined as periodic communication about and modification of organizational processes to ensure the goal’s aim is clear and feasible to achieve. Researchers have demonstrated that feedback of some sort, rather than no feedback at all, increases an organization’s level of performance (Bandura and Cervone, 1983; Becker, 1978; Strang, Lawrence, and Fowler, 1978; Erez, 1977). Locke and Latham (1990) found that 17 of the 18 studies they discuss support the argument for the combining of feedback and goals rather than goals being in place without feedback, and 21 of 22 studies they discuss argue that the combination of goals and feedback is better than feedback itself (p. 192). Locke and Latham (1990) continue their discussion of feedback, and include research by others (Carroll and
Tosi, 1973) showing that the specificity of the feedback also influences results. Other authors have also explored the importance of feedback, because noticing one’s progress toward the objective leads to increased effort toward the objective (Matsui, Oskada, and Inoshita, 1983).

**Importance of Goal Difficulty**

Goals must be difficult, yet still attainable, to direct employees’ efforts. Several researchers (Dossett, Latham, and Mitchell, 1979; Latham and Marshall, 1982; Latham and Steele, 1983) have found that the person setting the goals, be it managers or employees setting goals for themselves with the guidance of the managers, is not an influential predictor of the effectiveness of the goal. Further, other researchers (Stedry and Kay, 1966; Dachler and Mobley, 1973; Steers, 1975; Locke and Latham, 1990) have noted that the difficulty of the goal is an important predictor of organizational performance related to the goal. In the goal-setting process, goals should be realistically attainable for those working toward such goals. The research of these authors shows that less difficult goals result in lower levels of organizational performance. Alternatively, if goals are too difficult, those working toward the goals could become discouraged with the pressure to achieve the perceived unattainable goal. Therefore, a challenging yet still attainable goal (often called a “stretch” goal) is essential for goal-setting to be effective.

Another cornerstone of goal-setting theory is that goals should be important to the organization. If the goal is not important, managers must ask themselves why they are even setting the goal. In their study of employees in the U.S. Office of Personnel Management, Selden and Brewer (2000) found that employees who perceived the goals they were working
toward to be important experienced higher levels of performance and higher levels of job satisfaction.

**Importance of Goals to Organizational Strategy**

Some researchers have examined the use of goal setting techniques in the public sector. Sometimes these are long-term goals set through strategic planning efforts at the federal, state, and local levels (Poister and Streib, 1999). Many studies have found strategic planning to have a positive effect on a range of organizational variables ranging from employee job satisfaction to greater customer satisfaction (Berry, 1994; Poister and Streib, 1999, 2005; Boyne and Gould-Williams, 2003; Boyne et al., 2004; Poister, 2005; Daley, Vasu, and Weinstein, 2002; Andrews, Boyne, and Walker, 2006; Poister and Van Slyke, 2002; Meier, O’Toole, Boyne, and Walker, 2007; Poister, Pitts, and Edwards, 2010).

Others have discussed the failure of the U.S. and other democratic governments to link strategic planning to other areas of public management. In his criticism of strategic planning, with a focus on the PPBS during the Johnson presidency, Mintzberg (1994) echoes the findings of earlier researchers of public budgeting (Wildavsky, 1974, p. 205) that this system had little effect on linking planning and budgeting (Mintzberg, 1994, p. 121).

Bryson, Berry, and Yang (2010) argue that “the extent to which these tools [linked to strategic planning and management processes] are used in practice is unclear” (p. 503), suggesting more research on the extent of the use of such tools is necessary.

**Some Recent Studies of Goal (Target) Efficacy in the Public Sector**

In recent years there have been a small number of studies that shed light on the efficacy of goals (target setting) in the public sector.
Moynihan and Ingraham’s (2004) study of state governments demonstrated that “the emphasis that agency management places on performance information has a significant influence on whether it is used for agency activities” (p. 442). Building on the findings of Moynihan and Ingraham and incorporating the importance of leadership as it relates to organizational performance, Andrews and Boyne (2010) examine the relationship between management capacity, leadership, and performance in their study of English local governments. They measure management capacity with the criteria that management systems involve the setting of performance targets and monitoring of progress toward those targets, and in particular relate to financial decisions about the organization ensuring the appropriate use of resources.

Further, they measure organizational leadership with related measures of the manager being able to establish priorities for employees to work toward. Andrews and Boyne (2010) find that local governments that combine effective leadership and management systems, including those with mechanisms in place to monitor and report performance, have higher levels of organizational performance and customer satisfaction than those that do not (p. 450). It is interesting to note that when considered alone, the management systems variable was only a significant predictor for customer satisfaction, not for organizational performance. Further, when leadership is considered alone, it is significant neither for organizational performance nor customer satisfaction.

In his study of state government revenue offices, Franzel (2008) finds support for the argument for the importance of a well-designed performance management system. As previously discussed, well-designed performance management systems contain feedback
mechanisms, clear and challenging objectives, and lead to organizational changes that facilitate improvement. He finds that the strongest pathway in his model of predicting organizational results begins with performance feedback, which affects strategic planning, and strategic planning then affects performance measurement. Then, performance measurement affects process improvements, which increases organizational results. A key point in Franzel’s study is the sequence of events that lead to greater results, or performance.

**Empirical Evidence on Extent of Use of Goal-setting**

A few studies explore the extent to which performance measurement (without targets) is used in public organizations, but few studies specifically explore the extent of use of target-based objectives, which is one of the goals of this dissertation. In 2005, Melkers and Willoughby sought to explore the extent of the use of performance information in U.S. local governments as well as the effects of the use of such information on budgetary, communication, and long-lasting efforts in the organization. These authors find that over half of their respondents place an emphasis on outcome measures, particularly finding that citizen satisfaction is an importance outcome variable of interest to local governments (Melkers and Willoughby, 2005, p. 183).

Leep and colleagues (2009), using an earlier version of a data source this dissertation uses (the 2005 NACCHO survey), reported frequencies on the extent of adoption of several performance measurement efforts by the same population this dissertation explores, local public health managers. They find that 81% of respondents are using quality improvement efforts in at least one of 30 identified programming areas.
Nonetheless the focus of this dissertation is on targets because performance measures without targets have generally had a disappointing record as Sanger (2013) showed in her article in the *Journal of Policy Analysis and Management*.

**Adoption of Management Techniques**

There is a detailed literature on the factors facilitating the adoption of social innovations, such as target-based objectives. The following sections will address the following research question of this dissertation:

**Why do public organizations adopt performance management tools?**

The adoption of target-based objectives in public health organizations in part can be explained by the broader concept of adopting social innovations. In identifying the factors previous researchers have found to influence the adoption of innovations, particularly those with an orientation toward service-delivery, this literature exploration will establish variables for empirical testing in subsequent chapters.

**Definitions of Adoption**

Numerous scholars have explored the topic of adoption along a number of dimensions, varying from specific policy areas such as state lotteries (Berry and Berry, 1994), economic development policy (Gray, 1994), to educational policies (Gray, 1973; Mintrom, 1997). The primary models of adoption of an innovation come from two leading scholars in the diffusion and adoption literature, Everett Rogers (1962) and Jack Walker (1969). Both of these authors explore characteristics that facilitate adoption of a given innovation, particularly in the public sector. Rogers argues that the diffusion of innovation depends on several factors: characteristics of the innovation itself, its communication
channels, characteristics of the innovation process, the social system surrounding the innovation, and those promoting the innovation, so-called “change agents” (Rogers, 1962).

Of particular interest to this dissertation is the fifth factor of diffusion theory, the characteristics of these “policy entrepreneurs,” their organizations, and the communities in which they serve. Beyond having an innovation champion, Rogers argues innovations must go through five stages of the diffusion process to be fully implemented. The first stage is promoting awareness of the innovation, and the second is promoting receptivity among individuals about the innovation. At the third stage, potential adopters make the decision to adopt the innovation in question given a combination of the prior stages of knowledge-acquisition and being persuaded. The final two stages of the diffusion process are the implementation of the innovation and the outcomes that come about as a result of the innovation. This dissertation seeks to contribute to the literature about stages three and four in particular.

Given the primary focus of this dissertation on the adoption of a management tool, this research aligns closely with Walker’s (1969) model of factors affecting innovation adoption. By focusing on one of the two “distinct conceptualizations of innovation” (Downs and Mohr, 1976; Brudney and Seldon, 1995), the extent of adoption or non-adoption, this dissertation focuses on the adoption or non-adoption of target-based objectives.

The following sections discuss factors that have been sometimes found to affect the adoption of innovations. The factors discussed include those at the managerial, organizational, and community levels.
Managerial Factors and Adoption

A number of characteristics of a public manager likely affect the likelihood of adopting administrative innovations. Relatively few scholars have considered the attributes of managers themselves that may affect the adoption of an administrative innovation such as target-based objectives. One question that this dissertation asks is: Do manager-level variables contribute to the adoption of performance management tools, such as target-based objectives? This section will consider the literature that relates to that research question, looking first at psychological variables and then at demographic variables.

Managerial Psychology

In his highly influential work on the adoption of innovations in public organizations, Mohr (1969) explores a number of factors prior research suggests would increase the number and variety of healthcare-related innovations adopted. Mohr’s data consists of 93 public health departments across four U.S. states (New York, Ohio, Michigan, and Illinois) and Ontario, Canada. The main methodology Mohr employs in his study is the use of partial correlation coefficients.

Many of the relationships Mohr explores can be attributed to the work of Everett Rogers. Mohr’s guiding hypothesis is that:

“Innovation is directly related to the motivation to innovate, inversely related to the strength of obstacles to innovation, and directly related to the availability of resources for overcoming such obstacles” (p. 114).

Mohr’s hypotheses were found to be correct, yet he also explores some variables in more detail. In particular, Mohr discusses the activism-ideology of a public health leader, an echo of what other authors term a “project champion” (Scheirer, 2005). Mohr finds the motivation
of a public health officer is an important predictor of the number of progressive programs the department offers (1969, p. 117).

Exploring a related topic, Moon (1999) studied managerial entrepreneurship in public organizations. Managerial entrepreneurship likely has an effect on the adoption of administrative innovations in local governments as certain organizational or environmental characteristics likely affect managers’ behaviors. Moon argues there are three dimensions of managerial entrepreneurship: product based which emphasizes the quality of the final outcome, process-based which emphasizes administrative improvements and intra-organizational interactions, and behavior-based which emphasizes a manager’s propensity for “risk-taking” (Moon, 1999, p. 37).

Of particular interest to this dissertation are the product-based and process-based dimensions of managerial entrepreneurship. Moon explores the effects of organizational and environmental factors on each type of managerial entrepreneurship in both public and private organizations. The National Administrative Studies Project (NASP) is the source of the data for her investigation, which takes the form of a survey of 192 managers (109 state-level public managers and 83 private-sector managers). Her research notes that public organizations have lower levels of managerial entrepreneurship than their private-sector counterparts for all three dimensions explored. Moon attempts to show which organizational and environmental factors affect the three dimensions of managerial entrepreneurship using Ordinary Least Squares (OLS) regression.

Moon’s study’s use of the variable of managerial trust in subordinates is important for future studies to consider, which likely plays a role in their acceptance of a new innovation
and ultimately to the adoption of the innovation itself (as Mohr [1969] and Hall [2006] suggest).

Dull (2009) has also explored the extent of the use of performance information by U.S. federal government managers in surveys conducted during the era before and during the Government Performance and Results Act (GPRA), which requires federal agencies to state strategic objectives and methods of achieving them. He specifically explores the effect leadership may have on three dependent variables relating to performance measurement and management: credibility of the effort, the actual use of performance information, and the perceived usefulness of such efforts. Dull found that leadership is an important predictor of the use of performance measures and the credibility of the reform.

Brudney and Selden (1995) explore the factors that affect the adoption of computer technologies in local governments. Specifically, these authors investigate if the factors previously found to influence innovation adoptions in larger public organizations can be applied to smaller local governments. In their analysis of 297 municipalities in the state of Georgia with populations of less than 50,000, they explore many of the variables prior researchers, such as Mohr, found to affect innovation adoptions. The primary purpose of Brudney and Selden’s study is to see if there are different factors encouraging the adoption of innovations for smaller local governments than there are for larger local governments, because they note that scholarly research on the topic has focused on larger municipalities (50,000 or more in population). Brudney and Seldon find that the larger the organization and the greater the number of services offered by the local government, the more likely computer
technologies are adopted, and that professionalism and slack resources are not significant predictors of adoption (1995, p. 80).

Sturdy (2004) sets out to challenge the view that rational approaches fully explain the adoption of management practices. The alternative views explored, which are all discussed in terms of their relation to the rational view of adoption, include: psychodynamic, dramaturgical, political, cultural, institutional, multidimensional, and contingency. Sturdy argues these different views yield different theoretical models of the process of adoption as well as lead to different results when empirically investigated (Sturdy, 2004, p. 169). A rational perspective for this dissertation may be public health managers adopting target-based objectives because, after evaluations of available alternatives, they determine such techniques would increase organizational performance.

In contrast to the rational view, Sturdy’s psychodynamic view argues managers adopt innovations in an attempt to address underlying anxieties, which Gill and Whittle (1992) describe as relating to a number of contexts in which the manager works, such as the cultural, organizational and economic contexts. This dissertation will examine some of these factors facilitating or discouraging a manager from adopting target-based objectives, such as the opinions of the department’s employees. The third perspective in Sturdy’s model is the dramaturgical view, which centers largely on the rhetoric of an innovation. In particular, and as Fineman and Gabriel (1994) and Ford and Ford (1995) discuss, this view emphasizes the pressure for adopting an innovation that results from the rhetoric surrounding the innovation, not necessarily the necessity of the innovation for the particular organization. The dramaturgical perception likely may present itself in public health organizations, as many
managers are members of professional associations, which may emphasize the importance of target-based objectives or another managerial technique.

Sturdy’s fourth view in his model of the adoption of management practices is the political view, whereby a manager may adopt practices because of reasons relating to the pursuit of power, such as either to promote the manager as an individual or the manager’s organization. For example, managers may adopt such practices to promote themselves or their organizations, or to set themselves apart from other managers (Armstrong, 1986; Whittington and Whipp, 1992; Grint, 1997). A public health manager may adopt such a technique to appear as a leader among other department leaders or to use as an argument for greater budget shares. The fifth view of the adoption of management techniques, the cultural view, argues the characteristics surrounding the particular innovation and those who may adopt it (such as the particular subject area) are important predictors for the likelihood of adoption (Parker, 1995; du Gay, 1996; Lam, 1997). The sixth view Sturdy discusses is the institutional view, which holds that managers adopt practices because others in similar organizations are adopting the innovation (Tolbert and Zucker, 1996) and for a sense of legitimacy (Whittington, 1992).

Sturdy’s work is interesting as it provides a variety of perspectives on the adoption process, emphasizing that variables other than rationality explain adoption decisions. In particular, unlike many of the other articles this dissertation explores, this article focuses specifically on management practices, while other articles have examined the broader topic of administrative innovations (Subramanian & Nilakant, 1996; Naranjo-Gil, 2009).
Managerial Demographics

Several authors have explored factors relating to the demographics of managers that influence their decisions to adopt management tools. Damanpour and Schneider (2009) explore the causes of the adoption of innovations by 725 U.S. local government managers. They particularly explore managerial characteristics and characteristics of the innovation that may affect the adoption of a public management innovation. They find that a manager’s tenure, ideology (liberal-leaning), and attitude toward innovation (favoring innovation) are all significant predictors of the likelihood of the adoption of 25 government innovations along four dimensions: relationships with constituents, financing, service delivery, and governance and structure (Damanpour and Schneider, 2009, p. 516). Damanpour and Schneider do not explore each innovation individually, and thus, no direct link between a specific administrative innovation can be made to that of target-based objectives. What the study does show is that administrative innovations are different than technical innovations, which dominate the literature, and the factors predicting the adoption of these differ.

Interestingly, the manager’s age, gender, and education level were not significant predictors of the adoption of innovations (Damanpour and Schneider, 2009, p. 509). Further, they found several control variables beyond the organization itself to be important predictors of the adoption of innovations, particularly a mayor-council form of government decreasing the likelihood of adoption and the size of the community increasing the likelihood of adoption of innovations (Damanpour and Schneider, 2009, p. 509).

Since theories regarding the adoption of innovations are primarily based in the technical innovation adoption literature, further research should explore the factors
specifically predicting the adoption of such administrative innovations. Thus, this dissertation seeks to explore such factors by including a number of managerial, organizational, and community-level variables to predict the likelihood of the adoption of administrative innovations such as target-based objectives.

An article by Melkers and Willoughby (2005) is one of few that explore managerial-level causes. They find a strong correlation between the variables of leadership support of the effort and a culture that values such performance management efforts. Although these authors were using correlations for this portion of their study, this finding leads one to believe these variables may prove to be true indicators of the adoption of performance management tools and techniques if further statistical analyses were used. Melkers and Willoughby also found that a manager’s tenure in government is a significant predictor of the adoption of such tools.

**Organizational-Level Factors and Adoption**

In addition to manager-level factors, much of the literature discusses factors predicting the likelihood of adopting innovations that relate to the organization itself. More research has been conducted on these factors than on the manager-level factors.

Mohr (1969) finds several organizational-level variables hinder the innovation process. These organizational variables include employee resistance to innovation, and the training of other leaders in the organization (Mohr, 1969, p. 119). Similarly, “current norms” and other aspects of the organization’s culture are described by Hall (2006) as an important predictor of the likelihood of an organization’s choice to adopt an innovation.
Overall, Mohr finds that measures of size for the community and organization are the most important predictors of innovation adoption. Throughout his article, Mohr notes many of the other variables he discusses (a public officer’s motivation to innovate, obstacles to innovation, and resources available for innovation) must be considered in relation to an organization and community’s size as these latter “size” variables influence almost every variable of interest.

Building on Mohr’s findings, this dissertation takes both of these size variables into account, as innovation could occur in, for instance, smaller communities with larger health organizations (as Brudney and Selden [1995] attempt to explain). Other contributions of Mohr’s work to this dissertation include the variables relating to managerial motivations and those relating to obstacles to innovation, especially employee resistance.

Mohr’s work is of particular interest to this dissertation as it is one of few that focuses specifically on adoption in local public health departments, specifically public health programs. While much of Mohr’s work relies on correlation coefficients, this dissertation uses additional statistical techniques to measure innovation. As discussed in the following sections, scholars are still studying the same variables Mohr identified 40 years ago.

In her study of the adoption of one particular management innovation, strategic planning, in U.S. state agencies, Berry (1994) finds support for several variables of interest to this dissertation. Specifically, she seeks to connect theories on the adoption of innovation from the public policy literature to the adoption of administrative innovations. Using the policy innovation adoption literature, Berry (1994) finds support for the diffusion and adoption of innovations based on a state’s region, with the idea being neighboring states will
hear about the experiences of a neighboring state with strategic planning and are more likely to adopt the technique as a result. She also finds that a state’s slack resources are an important predictor.

Next, two dependent variables guide Brudney and Selden’s (1995) research on the adoption of computer technologies in U.S. local governments: a dichotomous variable measuring adoption or non-adoption of computer technology, and a variable measuring the extent of computer technology usage for various purposes (i.e. business licenses, voter registration, etc.).

In addition to the already discussed managerial factors found to be significant predictors of a manager’s decision to adopt computer technology, Brudney and Selden find by using binomial logistic regression that only the environmental factors (both demand for government services and the city’s population) to be significant. Not a single organizational variable was found to be a significant predictor of adoption. This finding is interesting as it contradicts the findings of previous scholars, such as Mohr (1969), who would argue organizational items, such as staff size, are significant predictors of adoption of an innovation.

Although no organization-level factors were found to be significant in Brudney and Selden’s study, their methodology and operationalization of the model is useful for this dissertation. First, they measure the organization’s professionalism as simply if the municipality employs a full-time manager (FTM). This may be misleading as even cities that do employ a FTM may not have a good one, or may have one that is not extremely qualified. A more appropriate approach, used by this dissertation, is to investigate the qualifications of
the managers themselves, such as their education levels or specific types of training (i.e. Masters of Business Administration, Masters of Public Administration, etc.).

Melkers and Willoughby (2005) find that aspects of the performance management system itself (benchmarking within the organization and the organization’s performance management system being a part of a local government-wide performance management system) have significant effects relating to the use of performance information.

Further, Damanpour and Schneider (2009) explore the characteristics of the innovation itself, and the potential effects such characteristics may have on the likelihood of adopting the innovation. On its face, one would expect a more complex or costly innovation might decrease the likelihood of the adoption of the innovation. These authors find, however, that the complexity of the innovation itself has no effect on the adoption of the innovation (Damanpour and Schneider, 2009, p. 510). Interestingly, these authors also find that the cost of the innovation actually increases the likelihood of the adoption of the innovation (Damanpour and Schneider, 2009, p. 510). These authors tentatively suggest some of their findings may be due to the distinction between administrative and technical innovations.

In his study of the introduction of results-based procurement reform in U.S. federal agencies, Kelman (2005) notes both why organizations are resistant to reform as well as the conditions that facilitate the reform. He notes there are five reasons individuals may resist reform, such as the introduction of a new management technique: employees believe they will be worse off after the reform, the reform will alter current behaviors, the lack of familiarity or understanding of the reform, the disruption of current actions, and the lack of
understanding of the employee’s performance and what is considered good performance (Kelman, 2005, pp. 22-23).

Kelman goes on to explain that several sources of discontent, though, can facilitate the adoption of a reform. These sources of discontent may be seen as an opportunity for a change agent to introduce a reform, and in Kelman’s discussion of results-based procurement reform include: employees’ desire for autonomy, the introduction of total quality management and identifying the customer, the characteristics of a bureaucracy as abundant in procedures and hierarchies, and the desire for results to be emphasized more than processes (2005, p. 43). Kelman specifically notes that this discontent is largely initiated by frontline employees as demonstrated through his interviews of employees, and argues “the first key to the successful initiation of procurement reform was the frontline discontent with the traditional system [that] existed before reform got launched” (2005, p. 42). Kelman’s findings are important to this dissertation because they present the idea that frontline employee opinions should be a consideration when installing a new management technique, and this dissertation will address the opinions of frontline employees.

Lindblad (2006) seeks to explore the factors that affect the adoption of performance measurement instruments in local governments’ economic development organizations. Using multiple data sources (i.e. International City and County Managers Association [ICMA], US Census, etc.) this study uses multinomial logistic regression to predict the use of performance measures in these 442 cities’ economic development organizations.

He uses three dependent variables for measuring the use of performance measurement all of which center on organizational efficiency (costs to benefits) and effectiveness (jobs
created): both efficiency and effectiveness, either efficiency or effectiveness, or neither effectiveness nor efficiency (Lindblad, 2006, p. 653). Through logistic regression, Lindblad found several agency variables to be important predictors of performance measure use: the organization’s resources (number of employees and budget size), technical capacity (number of activities the organization engages in, all relating to economic development), external forces (partnering with other governments), and formalized planning for economic development (Lindblad, 2006, pp. 658-659; p. 665). Lindblad also found several structural independent variables, those relating to the municipality itself, to be important predictors of the adoption and use of performance measurement tools in local economic development organizations. These will be discussed later in this chapter.

As previously mentioned Lindblad investigated differences between agency and structural variables. In comparing the two models and the explanatory power of each, he finds the agency model to predict performance measure use better than the structural model, but the greatest explanatory power in predicting performance measurement use occurs when both agency and structural variables are considered together.

This article is useful for a number of reasons. Lindblad’s work demonstrates an effort no other study explored in this review has attempted—measuring the influence of a group of variables as factors on a measure of an innovation’s use, then comparing the two models to determine which factor and its respective variables are more important when considered alone. The only potential drawback of Lindblad’s research might be the methods of categorizing variables to their sub-factors and then to either agency or structural factors.
Community Level Factors and Adoption

As earlier sections in this chapter suggest, a number of variables relating to a public organization’s community affects the adoption of social innovations.

Mohr (1969) discusses specific obstacles he expects will stifle the innovation process in local health departments. In particular, he identifies two groups of variables that decrease the number of innovation adoptions when a community’s size is taken into consideration: community and organizational level factors. Community-level factors, such as the education level and occupation levels of the jurisdiction are found to actually decrease the number of public health programming innovations, perhaps because a community with higher occupation and education levels does not necessarily need an abundance of public health programs.

Franzel (2008) explores the leading innovations in the 100 most populated communities in the United States in 2004. His survey asked respondents (both academics and public professionals) to identify the top three “mainstream innovations” and which of the most populated cities were leading users of the three innovations (Franzel, 2008, p. 262). From the 200 responses, he finds the three most important innovations, all of which relate to technical innovations as discussed earlier in this chapter (see Damanpour and Schneider, 2009), are a centralized web portal for the city, online GIS services, and internet-based electronic transactions (Franzel, 2008, p. 263).

Franzel goes on to investigate the organizational, environmental, political, and economic factors that contribute to a city being identified as a leading user of each of the three innovations. As an aside, this focusing on perceived leading users is one of the main
limitations of this study; had this study solicited information from all cities on their uses of
the innovations rather than their perceptions of lead users, a more robust analysis could take
place. A number of independent variables were regressed on this dependent variable using
binomial logistic regression. Franzel finds three variables to be significant predictors of a
municipality being identified as a leading innovation user—city population, city advantaged
[wealth], and city Democratic affiliation (2008, p. 273). To demonstrate this finding, his
study runs separate regression analyses for each of the three leading innovations. Many of the
variables found to be significant predictors of leading users reinforce the findings of Mohr

One variable this dissertation explores given Franzel’s study is the municipality’s
structure of government (council-manager vs. mayor-council). Melkers and Willoughby
(2005) found that a local government’s form of government is not a significant predictor of
any of the three effects of performance information use (budgetary, communication, or long-
lasting) (p. 188). Further, Melkers and Willoughby’s study reveals no significant
relationship between a local government’s population and its use of performance
information.

In their study of the adoption of computer technologies in U.S. local governments,
Brudney and Selden’s (1995) finding of the significance of city size confirms the findings of
other scholars on two accounts. First, larger cities do indeed adopt this particular innovation
more often than smaller cities, but smaller organizations are still adopting, which shows the
size variable may not be a significant factor for predicting adoption. Second, it shows that the
demand for city services, which likely is greater in larger municipalities, is another reason
larger municipalities adopt computer technologies. This finding in particular supports Mohr’s (1969) argument that size is a variable that plays a role in a number of independent variables in attempting to predict the adoption of an innovation by public sector organizations. These findings relate to this dissertation because community level indicators, such as a community’s size, are expected to influence the adoption of target-based objectives.

Naranjo-Gil (2009) explores the organizational and environmental factors that affect the adoption of both administrative and technical innovations in 112 Spanish public hospitals. This article is the only one that establishes a causal link from the types of innovation to greater organizational performance; this is a different approach than that taken by Brudney and Selden (1995) who consider organizational performance as an independent variable predicting innovation adoption.

Using path analysis techniques, Naranjo-Gil finds the adoption of administrative innovations by managers (i.e. management information and control systems) is affected by what they conceptualize as a focus on flexibility that allows them to “adopt new administrative techniques” with more ease (2009, p. 812).

His finding regarding administrative and technical innovations as they relate to organizational performance relates to this dissertation by showing that innovation increases performance. Using ANOVA techniques, Naranjo-Gil finds that the highest level of organizational performance occurs when there are high levels of both technical and administrative innovations.

This source is useful for a study on public health departments in the United States even if there are inherent differences in the healthcare sectors between the U.S. and Spain.
This study’s construct of “adoption of administrative innovation” is particularly useful to this dissertation as it is made up of several relevant management approaches (i.e. Balanced Scorecards, benchmarking, etc.). This article is also useful for the methodologies used. By using Partial Least Squares techniques for measuring adoption of innovations, and then ANOVA for predicting performance given these adoptions, Naranjo-Gil’s methodology differs from the typical methodology of logistic regression being used to predict adoption.

Naranjo-Gil’s piece does have several limitations, however. First, many of his measures of performance would apply only to hospitals, not public health departments. Second, his study does not explore cultural variables that may have an effect on the adoption of innovations, such as employee or managerial attitudes toward innovation or change within the department (i.e. Moon, 1999).

Leep and her co-authors (2009) explore reasons local public health officials in the United States use a number of quality-improvement initiatives. Using survey data from the National Association of City and County Health Officials (NACCHO) from their 2005 Profile study, a follow-up survey was conducted for 181 respondents who participated in the particular performance module. They also conducted 30 follow-up interviews as well. Their study explores a number of quality-improvement (QI) techniques public health departments throughout the United States are using and seek to understand if certain factors increase the use of such efforts.

The results of Leep and colleagues’ survey shows that local health departments are in fact engaging in quality-improvement efforts, but Leep et al. primarily report frequencies of the tools that are used. The authors do, however, consider the effect of two variables on the
use of QI efforts; the size of the jurisdiction the health department serves and whether the health department operates autonomously or under a state health organization. The data show that for specific health program areas, QI initiatives were conducted more often in health departments that have larger jurisdictions and in health departments that are units of a state health organization.

The element of “evaluate success” (a possible but ambiguous proxy for targets) was used more often in smaller (less than 50,000 citizens) and larger (more than 500,000 citizens) jurisdictions than in medium-sized jurisdictions (50,000-499,999 citizens). One QI effort that captures a major aspect of target-based objectives “set[ting] goals that relate to public health outcomes” was used more often in medium and larger jurisdictions. Further, likely two of the most important elements of QI to this dissertation are: “measure progress against goals” to which jurisdiction size did not relate, and “include work plans” to which jurisdiction size relates for all three sizes of the department’s jurisdiction.

One major limitation of Leep and her colleagues’ work is the failure of this study to provide definitions for what they mean by each QI effort; they indicate that they omitted definitions intentionally in order to encourage individual interpretation. However, as she and her co-authors note in their conclusion, much research on QI efforts lacks a general vocabulary that all public health managers can agree on; thus, “work plans” to one manager may be the same as “measuring progress toward objectives” for another manager. Their article appropriately notes a “shared vocabulary may allow further research to discern significant differences.” In accord with their suggestion, this dissertation provides
definitions and examples of QI efforts in order to avoid confusion when respondents complete this dissertation’s survey.

Using data from U.S. local governments regarding their economic development policies and plans, Kwon, Berry, and Feiock (2009) attempt to predict not only the adoption patterns of such policies and plans, but also the timing of the adoption of such plans and policies. They find that for the adoption of such policies and plans, a local government’s form of government is not an important predictor. They do find that the manager’s membership in professional affiliations is an important predictor, reinforcing the claim from Rainey and Steinbauer (1999) of the demonstration of a commitment to professional norms and practices within the manager’s own organization. Kwon and colleagues also find a community’s population and the professionalism of the staff are important predictors of the adoption of economic development policies and plans (2009, pp. 982-983). In regards to the timing of the adoption of such plans, those with a council-manager form of government are more likely to be early adopters of such plans and policies.

**Summary of Adoption Literature**

Researchers typically explore two overarching factors in attempting to predict the adoption of an innovation: organizational-level factors and environmental-level (i.e., community) factors. Organizational-level variables often include measures of an organization’s size or its other resources, while environmental-level variables often include measures of the community’s size or political environment. With the exception of Lindblad (2006), most of the studies discussed here look at only a limited number of variables from each of these two factors.
There is very little research on the adoption of innovations in local public health departments. The only study that specifically relates to management innovations in US public health departments, conducted by Leep and colleagues (2009), does not clearly define what constitutes a quality improvement effort, and does not use any statistical means of predicting adoption.

The adoption of target-based objectives could be seen as the adoption of action plans or tracking mechanisms as discussed by researchers. A number of researchers have suggested this is an aspect of strategic management that should be explored (Locke and Latham, 1990; Poister and Streib, 1999, 2005; Poister, 2010; Newcomer, 2011). In fact, as discussed by Poister and Streib (2005), only 22% of municipalities reporting the use of strategic management components use such efforts to link performance measures to goals and objectives, the highest level of connection between strategic planning and measurement (p. 49).

**Conclusion of Chapter 2**

This chapter has discussed the relevant literature for this dissertation. It began by examining the goal-setting literature, especially the empirical literature on its efficacy. The literature indicated that there is general agreement among researchers that target-based objectives often increase organizational effectiveness, thus supporting the importance of studying why managers do or do not adopt this tool.

This chapter then discussed the literature on the adoption of innovations in public organizations. In general, the literature has primarily focused on the adoption of “innovations” and it has shown a number of variables along the managerial, organizational,
and community-level dimensions contribute to managers’ decisions to adopt innovations. A few studies look at the adoption of a more specific type of innovation, new management techniques. However, no literature has specifically narrowed the focus to just the adoption of perhaps the most important current management technique, target-based objectives. In addition, very little research explores the use of performance management techniques in local public health departments in the United States. Table 2-1 summarizes the findings of previous literature relevant to this dissertation.
### Table 2-1: Summary of Relevant Literature

<table>
<thead>
<tr>
<th>Independent Variable</th>
<th>Author(s)</th>
<th>Findings of Significance</th>
<th>Dependent Variable</th>
</tr>
</thead>
<tbody>
<tr>
<td>Manager's Motivation/Ideology</td>
<td>Mohr (1969)</td>
<td>Increases the DV</td>
<td>Number of Innovations Adoption</td>
</tr>
<tr>
<td>Manager's Product-based entrepreneurship (quality of final outcome emphasized)</td>
<td>Moon (1999)</td>
<td>Increases the DV</td>
<td>Number of Administrative Innovations Adopted</td>
</tr>
<tr>
<td>Manager's Process-based entrepreneurship (administrative improvements)</td>
<td>Moon (1999)</td>
<td>Increases the DV</td>
<td>Number of Administrative Innovations Adopted</td>
</tr>
<tr>
<td>Manager's behavior-based entrepreneurship (propensity for risk-taking)</td>
<td>Moon (1999)</td>
<td>Increases the DV</td>
<td>Number of Administrative Innovations Adopted</td>
</tr>
<tr>
<td>Manager's Prospector Strategy</td>
<td>Naranjo-Gil (2009)</td>
<td>Increases the DV</td>
<td>Number of Administrative Innovations Adopted</td>
</tr>
<tr>
<td>Employee Resistance to Innovation Adoption</td>
<td>Mohr (1969)</td>
<td>Decreases the DV</td>
<td>Number of Innovations Adoption</td>
</tr>
<tr>
<td>Organization's Financial Resources</td>
<td>Mohr (1969)</td>
<td>Increases the DV</td>
<td>Number of Innovations Adoption</td>
</tr>
<tr>
<td>Organization's Size</td>
<td>Mohr (1969)</td>
<td>Increases the DV</td>
<td>Number of Innovations Adoption</td>
</tr>
<tr>
<td>Organization's Size</td>
<td>Naranjo-Gil (2009)</td>
<td>Increases the DV</td>
<td>Adoption of administrative and technical innovations</td>
</tr>
<tr>
<td>Organization's Professionalism</td>
<td>Brudney and Selden (1995)</td>
<td>Increases the DV</td>
<td>Extent to Adoption of Computer Technology Innovations</td>
</tr>
<tr>
<td>Organization's Slack Resources</td>
<td>Brudney and Selden (1995)</td>
<td>Increases the DV</td>
<td>Extent to Adoption of Computer Technology Innovations</td>
</tr>
<tr>
<td>Organization's Slack Resources</td>
<td>Subramanian and Nilakanta (1996)</td>
<td>Increases the DV</td>
<td>Adoption of administrative or technical innovations</td>
</tr>
<tr>
<td>City's Fiscal health</td>
<td>Franzel (2008)</td>
<td>Increases the DV</td>
<td>Adoption of 3 leading innovations</td>
</tr>
<tr>
<td>City's IGR Revenue</td>
<td>Franzel (2008)</td>
<td>Increases the DV</td>
<td>Adoption of 3 leading innovations</td>
</tr>
<tr>
<td>Manager's Trust in Subordinates</td>
<td>Moon (1999)</td>
<td>Increases the DV</td>
<td>Number of Administrative Innovations Adopted</td>
</tr>
<tr>
<td>Organization's Size</td>
<td>Lindblad (2006)</td>
<td>Increases the DV</td>
<td>Adoption of performance measurement instruments</td>
</tr>
<tr>
<td>Organization’s Expenditures</td>
<td>Lindblad (2006)</td>
<td>Increases the DV</td>
<td>Adoption of performance measurement instruments</td>
</tr>
<tr>
<td>Organization's Performance</td>
<td>Brudney and Seldon (1995)</td>
<td>Increases the DV</td>
<td>Extent to Adoption of Computer Technology Innovations</td>
</tr>
<tr>
<td>Organization's Structure (Centralization)</td>
<td>Subramanian and Nilakanta (1996)</td>
<td>Decreases the DV</td>
<td>Adoption of administrative or technical innovations</td>
</tr>
<tr>
<td><strong>Organization's Structure (Hierarchy)</strong></td>
<td>Moon (1999)</td>
<td>Decreases the DV</td>
<td>Number of Administrative Innovations Adopted</td>
</tr>
<tr>
<td>----------------------------------------</td>
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<td>---------------------------------------------</td>
</tr>
<tr>
<td><strong>Organization's Structure (centralization and managerial control)</strong></td>
<td>Moon (1999)</td>
<td>Decreases the DV</td>
<td>Number of Administrative Innovations Adopted</td>
</tr>
<tr>
<td><strong>Organization's Mission Clarity</strong></td>
<td>Moon (1999)</td>
<td>Increases the DV</td>
<td>Number of Administrative Innovations Adopted</td>
</tr>
<tr>
<td><strong>Organization's Formalized Planning</strong></td>
<td>Lindblad (2006)</td>
<td>Increases the DV</td>
<td>Adoption of performance measurement instruments</td>
</tr>
<tr>
<td><strong>Community Education Level</strong></td>
<td>Mohr (1969)</td>
<td>Increases the DV</td>
<td>Number of Innovations Adoption</td>
</tr>
<tr>
<td><strong>Community Occupation Level</strong></td>
<td>Mohr (1969)</td>
<td>Increases the DV</td>
<td>Number of Innovations Adoption</td>
</tr>
<tr>
<td><strong>Community Population/Size</strong></td>
<td>Mohr (1969)</td>
<td>Increases the DV</td>
<td>Number of Innovations Adoption</td>
</tr>
<tr>
<td><strong>Community Population/Size</strong></td>
<td>Brudney and Selden (1995)</td>
<td>Increases the DV</td>
<td>Extent to Adoption of Computer Technology Innovations</td>
</tr>
<tr>
<td><strong>Community Publicness</strong></td>
<td>Moon (1999)</td>
<td>Decreases the DV</td>
<td>Number of Administrative Innovations Adopted</td>
</tr>
<tr>
<td><strong>Community Complexity</strong></td>
<td>Franzel (2008)</td>
<td>Decreases</td>
<td>Adoption of 3 leading innovations</td>
</tr>
<tr>
<td><strong>Community with Reformed Structure</strong></td>
<td>Franzel (2008)</td>
<td>Increases</td>
<td>Adoption of 3 leading innovations</td>
</tr>
<tr>
<td><strong>Community Median Age</strong></td>
<td>Franzel (2008)</td>
<td>Decreases</td>
<td>Adoption of 3 leading innovations</td>
</tr>
<tr>
<td><strong>Community Minority Population</strong></td>
<td>Franzel (2008)</td>
<td>Decreases</td>
<td>Adoption of 3 leading innovations</td>
</tr>
<tr>
<td><strong>Community Mayor's term in office</strong></td>
<td>Franzel (2008)</td>
<td>Increases</td>
<td>Adoption of 3 leading innovations</td>
</tr>
<tr>
<td><strong>Community's Percent Democratic</strong></td>
<td>Franzel (2008)</td>
<td>Increases</td>
<td>Adoption of 3 leading innovations</td>
</tr>
<tr>
<td><strong>Community's Environmental Uncertainty</strong></td>
<td>Naranjo-Gil (2009)</td>
<td>Increases</td>
<td>Adoption of administrative and technical innovations</td>
</tr>
<tr>
<td><strong>Community's Market Concentration</strong></td>
<td>Naranjo-Gil (2009)</td>
<td>Increases</td>
<td>Adoption of administrative and technical innovations</td>
</tr>
<tr>
<td><strong>Manager's Support of Performance Improvement Efforts</strong></td>
<td>Melkers and Willoughby (2005)</td>
<td>Correlates</td>
<td>Performance Culture</td>
</tr>
<tr>
<td><strong>Community Population/Size</strong></td>
<td>Melkers and Willoughby (2005)</td>
<td>Does not increase the DV</td>
<td>Performance information use (budgetary, communication, or long-lasting)</td>
</tr>
<tr>
<td><strong>Community form of government</strong></td>
<td>Melkers and Willoughby (2005)</td>
<td>Does not increase the DV</td>
<td>Performance information use (budgetary, communication, or long-lasting)</td>
</tr>
<tr>
<td>Manager's tenure</td>
<td>Melkers and Willoughby (2005)</td>
<td>Increases the DV</td>
<td>Performance information use (budgetary, communication, or long-lasting)</td>
</tr>
<tr>
<td>------------------</td>
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<td>---------------------------------------------------------------------</td>
</tr>
<tr>
<td>Organization uses benchmarking</td>
<td>Melkers and Willoughby (2005)</td>
<td>Increases the DV</td>
<td>Performance information use (budgetary, communication, or long-lasting)</td>
</tr>
<tr>
<td>Organization's PM System part of System-wide PM System</td>
<td>Melkers and Willoughby (2005)</td>
<td>Increases the DV</td>
<td>Performance information use (budgetary, communication, or long-lasting)</td>
</tr>
<tr>
<td>Ambiguous Goals</td>
<td>Latham et al. (2008)</td>
<td>Increases the DV</td>
<td>Effectiveness of Goal-setting practices</td>
</tr>
<tr>
<td>Monetary Resources</td>
<td>Latham et al. (2008)</td>
<td>Decreases the DV</td>
<td>Effectiveness of Goal-setting practices</td>
</tr>
<tr>
<td>Ambiguous Goals</td>
<td>Latham et al. (2008)</td>
<td>Decreases the DV</td>
<td>Perceived managerial effectiveness</td>
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<tr>
<td>Ambiguous Goals</td>
<td>Latham et al. (2008)</td>
<td>Decreases the DV</td>
<td>Customer service orientation</td>
</tr>
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<td>Ambiguous Goals</td>
<td>Latham et al. (2008)</td>
<td>Decreases the DV</td>
<td>Organizational productivity</td>
</tr>
<tr>
<td>Ambiguous Goals</td>
<td>Latham et al. (2008)</td>
<td>Decreases the DV</td>
<td>Organizational work quality</td>
</tr>
<tr>
<td>Feedback on goals</td>
<td>Matsui et al. (1983)</td>
<td>Increases the DV</td>
<td>Individual's efforts toward goal</td>
</tr>
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<td>Organization members perceive goals important</td>
<td>Selden and Brewer (2000)</td>
<td>Increases the DV</td>
<td>Job Performance</td>
</tr>
<tr>
<td>Organization members perceive goals important</td>
<td>Selden and Brewer (2000)</td>
<td>Increases the DV</td>
<td>Job Satisfaction</td>
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<td>Prospector strategy</td>
<td>Andrews et al. (2006)</td>
<td>Increases the DV</td>
<td>Organizational performance</td>
</tr>
<tr>
<td>Organizational structural improvements</td>
<td>Andrews et al. (2006)</td>
<td>Correlates</td>
<td>Prospector strategy</td>
</tr>
<tr>
<td>Defender strategy</td>
<td>Meier et al. (2007)</td>
<td>Increases the DV</td>
<td>Organizational performance/student achievement</td>
</tr>
<tr>
<td>Target Setting</td>
<td>Boyne and Gould-Williams (2003)</td>
<td>Decreases the DV</td>
<td>Perceived best value resulted in service being more aligned with customer needs (NEEDS)</td>
</tr>
<tr>
<td>Target Setting</td>
<td>Boyne and Gould-Williams (2003)</td>
<td>Decreases the DV</td>
<td>Best value improved service quality (IMP)</td>
</tr>
<tr>
<td>Target Setting</td>
<td>Boyne and Gould-Williams (2003)</td>
<td>Decreases the DV</td>
<td>Best value has improve the efficiency of the service (VEFF)</td>
</tr>
<tr>
<td>Internal Analysis</td>
<td>Boyne and Gould-Williams (2003)</td>
<td>Decreases the DV</td>
<td>Benefits of introducing Best Value have so far outweighed any costs incurred (BEN)</td>
</tr>
<tr>
<td>External Analysis</td>
<td>Boyne and Gould-Williams (2003)</td>
<td>Decreases the DV</td>
<td>Benefits of introducing Best Value have so far outweighed any costs incurred (BEN)</td>
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<td>Increases the DV</td>
<td>Perceived best value resulted in service being more aligned with customer needs (NEEDS)</td>
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<td>Best Value has resulted in more paper work that outweighs any tangible improvements in service (VAP)</td>
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Table 2-1 Continued

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Preview of Chapter 3

Chapter 3 details specific hypothesis to be explored and the variables and measures that will be used to explore such relationships. It also discusses the methodology, including research design, participants, the operationalization of specific variables, and validity and reliability concerns.
CHAPTER 3: METHODOLOGY

Prior research has investigated factors that influence the adoption of organizational innovations. However, this research rarely focuses on how these factors relate to the adoption of management tools in general, much less to a particular management tool such as target-based objectives. Moreover, there is strong reason to believe that the patterns of adoption may differ in different types of organizations, and there has been almost no research on the adoption of management tools in public health organizations.

While target-based objectives have been shown to increase organizational performance, researchers do not fully understand why some public managers adopt this technique, while others do not. This chapter describes the methodologies used in this dissertation to investigate this question. A secondary research topic, how managers evaluate the efficacy of target-based objectives, will use most of the same variables and all of the same data sources; therefore, its discussion is brief.

This chapter has three sections. The first section discusses the research design, including the instruments, sampling procedures, and methods of data collection. The second section presents the variable operationalization and the potential relationships among the dependent variable (target-based objectives adoption) and independent variables used. The third section discusses the use of statistical procedures for analyzing the data.

This study primarily relies on two internet-based surveys of public health managers—one conducted by a national association in 2010 and the other conducted for this dissertation in early 2013.
NACCHO Survey Background and Dataset

Beginning in 1998, the National Association of City and County Health Officials (NACCHO) began surveying local public health officials throughout the United States on a variety of topics. In addition to demographic questions about the public health managers themselves, respondents also answer many questions about the tools and practices of their respective health departments.

The NACCHO survey is the result of a partnership between the NACCHO, the US Department of Health and Human Services, the Centers for Disease Control and Prevention, and the Robert Wood Johnson Foundation, with the latter three organizations providing funding for the survey. Since 1998, this survey has been conducted seven times, with the latest version conducted in 2013. Questions on the NACCHO survey have been modified throughout the years to address current trends and areas of interest to NACCHO member health department officials. The 2013 dataset was not made available until after this dissertation’s prospectus had been approved. Moreover, many questions on the 2010 Profile Study relating to performance improvement were not asked in the 2013 Profile Study. Therefore, the 2010 study (although older) is used for this dissertation.

The 2010 dataset of the NACCHO survey used in this study is the restricted version, obtained from the Association. The “restricted” version is more complete as it contains a number of questions regarding public health managers’ opinions and use of performance improvement tools, as well as demographic and contact information of the public health managers. NACCHO’s non-restricted dataset is publicly available, but for confidentiality reasons does not contain any information about the specific health department, its resources,
or its manager. The restricted dataset used in this dissertation does contain this information, including the details of the specific health department and its manager.

The restricted dataset was obtained through an application with NACCHO detailing the scope of this research, and the data was provided in the Statistical Package for the Social Sciences (SPSS) format. The terms of agreement required a signed pledge to maintain the confidentiality of respondents and their responses. Each LHD was given a unique identification number, which is the same across all versions of the survey. These questions present a compatible data source to which additional sources of data could be connected, without the need for solicitation of likely the same or similar responses from the same population twice.

The NACCHO survey uses stratified random sampling among all LHDs in the U.S. based on the jurisdiction’s population, with the exception of Massachusetts because of the method by which this state structures its LHDs.

The 2010 NACCHO survey consisted of the core module, as in previous studies, and two additional modules to which those responding would be randomly selected to complete. In addition to the core module asking questions on governance, funding, and workforce issues, Module 1 related to quality improvement and performance measurement topics, and Module 2 focused on policymaking and health impact assessments (NACCHO, 2010, p. 17). Overall, the 2010 survey had a response rate of 82%, with Module 1 having a response rate of 85% (N=531) (NACCHO, 2010, p. 18; p. 20).
The Primary Survey for this Dissertation

The second source of data is a primary survey, conducted for this dissertation, that asks questions specifically relating to target-based objectives and other management practices (See Appendix A). This survey was administered online (using SurveyMonkey) to local public health managers across the United States in early 2013. Using contact information from the restricted version of the NACCHO survey, participants who had completed NACCHO’s Module 1 were contacted and invited to participate in this online study.

An initial cover letter and user-agreement was provided assuring confidentiality to participants prior to their completing the survey. The cover letter detailed the goal of the research, thanked them for considering participation, and outlined the confidentiality rights of participants (See Appendix B). The user agreement specifically noted the compliance of this research with North Carolina State University’s Institutional Review Board (IRB), and outlined methods of commenting or addressing concerns about the research with the IRB (See Appendix C). As discussed below, the survey was piloted to two different groups of non-manager public health officials (i.e. assistant directors, nursing supervisors, etc.) in late 2012. In all, the survey was administered to 479 public health officials across the United States, with varying jurisdiction sizes, in early 2013. Those not responding to the initial request to complete the survey were contacted two more times to encourage them to participate. Each follow-up request for completion was three days apart.

As already noted, in this survey each respondent has a unique identifier that links to the NACCHO survey data. Respondents were assured any information obtained through this
linking of NACCHO data and this dissertation’s survey results would not be made public, and reports generated from this research would be purely in aggregate form. E-mail addresses were only available for 479 of the 531 (90.2 %) public health officials who had completed Model 1 on the 2010 NACCHO survey.

The response rate for this dissertation’s survey was 34.45% (165 of 479 potential respondents), generally considered acceptable for social science research. This dissertation focuses on top managers, and therefore it dropped some respondents (24 respondents) not in this role. This produced a final response rate of 29.43% (141 of 479 potential respondents). Although there is some debate about the use of internet-based surveys as opposed to traditional, mail-in surveys, the literature notes the response rates from Internet surveys to be as high as more traditional methods (Mehta and Sivadas, 1995; Schaeffer and Dillman, 1998; Truel, Bartless, and Alexander, 2002) and sometimes higher than traditional mail surveys (Matz, 1999; Scheehan and McMillan, 1999). Later sections of this chapter present a discussion of other concerns regarding the validity and reliability of this primary survey.

Additional Sources of Data

Two additional sources of data were used for this study: the U.S. Census data from 2010, and data from states’ board of elections websites. The following sections discuss each of these data sources.

U.S. Census Data

The variable of interest to this dissertation from the 2010 U.S. Census was a jurisdiction’s citizen education level. This variable is measured by the percent of a community’s population holding at least a Bachelor’s degree. It is expected that a
community’s citizen education level may affect a manager’s decision to adopt target-based objectives.

State Election Data

Mohr (1969) found that a community’s political affiliation affected the manager’s decision to adopt a social innovation such as target-based objectives. Therefore, this research included such a variable. For each respondent to this dissertation’s primary survey, it was determined for which 2012 Presidential candidate the community voted by visiting the respective State’s board of elections website. Each LHD received a dichotomous score indicating whether a majority of citizens voted for the 2012 Democratic presidential candidate (coded as 1) or for the Republican presidential candidate (coded as 0). (The limitations of such a simple measure will be discussed in later chapters.)

Participants

The population of interest to this study includes the top-executives or directors of public health departments throughout the United States. Rhode Island, Massachusetts, and Hawaii, however, are excluded from this study because they do not have local public health departments, instead having state-level health organizations. With these states excluded, there are 2,794 local public health departments throughout the United States. In most of these local departments, there is a top-executive responsible for the day-to-day operations and management of public health departments. Only 531 public health departments completed Module 1 of the NACCHO survey in 2010, and thus are considered in this study. In both the NACCHO survey and this dissertation’s survey, respondents were asked to provide their organizational position/rank from a number of options (top-executive, senior
manager, etc.) to ensure alignment between respondents from these two surveys, particularly if the person holding the position has changed.

**Unit of Analysis**
The primary unit of analysis in this study is the individual local health department. Focusing at this level allows for an exploration of the managerial, organizational, and community factors that are expected to influence the manager’s adoption of target-based objectives.

**Validity Threats**
The following sections will discuss threats to the internal and external validity of this dissertation, and methods by which these threats were addressed.

**Internal Validity**
Internal validity relates to the confidence a researcher has that what is attempting to be measured or investigated is truly what is being measured or investigated. Discussed below are methods by which this dissertation addresses common and unique threats to internal validity.

**Pilot Study**
In the fall of 2012, a pilot study of this dissertation’s primary web-based survey was administered to two groups of current public health officials; one of four and one of three. Those asked to participate held management positions within a mix of five rural and urban local public health departments. The chosen participants were not the top executives of their organizations, who could potentially receive this survey, in order to avoid sample contamination for the actual distribution of the survey. The pilot groups were informed that any information or feedback provided from participation in the pilot study would remain
confidential. They were asked to complete the survey, and then participate in a discussion about the survey’s structure, flow, and wording. The average time for members of the pilot groups to complete the survey was 12:04 minutes, with a median completion time of 11:32 minutes.

If at least three pilot members agreed on a suggested change, the suggestion was incorporated into the survey. All pilot members said the survey followed a clear order, and suggestions primarily centered on items local public health departments measure or to which they have access. For example, in questions 1 and 3 on this dissertation’s survey, the outcome of Community Teen Pregnancy Rate replaced the outcome of Community Diabetes Rate, as all seven interviewees said diabetes rates are not outcomes they regularly monitor. In another example, in question 2 the example measure was changed from “maternity care visits” to “missed maternity care visits,” as all pilot group members agreed this is a better example of an item that their departments track and work to decrease. As a result of feedback from the pilot group on this dissertation’s survey, these and other revisions help ensure the face validity and content validity of the concepts under investigation.

Constructs

Each independent variable corresponds to one of three factors: managerial, organizational, or community level. When relevant, reliability analysis was conducted for scaled measures with the evaluation of each scale’s Cronbach’s alpha score of internal consistency to ensure alignment and agreement between the items comprising the constructs. As noted in the discussion of each independent or dependent variable in the following sections, reliability analyses were conducted and reliability coefficients reported as necessary.
to ensure construct validity. In some cases, additional statistical procedures were necessary to ensure construct validity (such as Tukey’s Test of Additivity and raising to the power), and are discussed in subsequent sections as applicable.

**External Validity**

External validity is a concern of every quantitative study as it relates to the generalizability of the study’s findings. As Garson (2013b) notes, “External validity has to do with possible bias in the process of generalizing conclusions from a sample to a population, to other subject populations, to other settings, and/or to other time periods” (p. 27).

Garson (2013b) adds that external validity is increased when random sampling techniques of all members of the population are used. The data this dissertation uses is relativity high in external validity for numerous reasons. First, the NACCHO study used stratified random sampling based on the population of a LHD’s jurisdiction. Also, the NACCHO survey was administered to every public health department in the U.S., thus increasing its external validity because each respondent had an equal chance of responding to any module. The response rates among each population category and across modules were comparable, and NACCHO officials did not note any discernible differences between characteristics of public health officials completing or not completing a specific module.

Second, this dissertation’s primary survey also attempted to reach the entire population of U.S. local public health departments that responded to the 2010 NACCHO module of interest (Module 1) with locatable email addresses. All of these LHDs received the same survey, and attempts were made to contact LHDs without information online. The
NACCHO surveys across all modules and within modules consistently had a response rate of greater than 80%. Of the 479 potential respondents for this dissertation’s survey, the original response rate was approximately 34% (N=165) (i.e. including administrative support staff). Once filtered to exclude non-managers, the final response rate was approximately 29% (N=141), which is generally considered acceptable by researchers in the social sciences.

**Operationalization of Variables**

The operationalization of each of the variables and constructs for this dissertation’s research questions is discussed in the following sections.

**Operationalization of Adoption of Target-Based Objectives Model**

_Research Question 1: To what extent are target-based objectives used in public health agencies?_

This research question explores the number of public health departments using target-based objectives, and the purposes for which they are used.

**Dependent Variable**

Two sources of data contribute to the dependent variable relating to the adoption of target-based objectives, the NACCHO survey and this study’s study.

**Dependent Variable Measure**

This dissertation’s survey specifically asks if a health department uses target-based objectives. To avoid differing interpretations of the word “target-based objective,” respondents were provided an example of a target-based objective in the question.

This dissertation relies on two variables for measuring this concept of adoption: a dichotomous yes or no measure, and an “extent of use” measure, which is a scale, constructed with more than two levels.
First, the *Use of Target-Based Objectives* variable measures the adoption of targets as a dichotomy; either target-based objectives are adopted or not. This variable is measured by a response to Question 2 on this study’s survey:

- “This question relates to target-based objectives. Target-based objectives are written goals stating by what percent or amount a quantitative performance measure should change with a date attached. For example, aiming for a 10 percent decrease in the number of missed maternity care appointments by July 10.

Using the example above, target-based objectives typically have the following three characteristics: a measure for what is being tracked (missed maternity care appointments), a target (10% decrease), and a date of completion (July 10).

With target-based objectives being defined as having these three criteria (a measure, a target, and a date of completion), does your organization regularly set specific numerical target-based objectives in at least one service area?

- Yes [1]
- No [0]” (LUC_Q2).

Frequencies will be reported for this variable to detail the adoption, and presumed use, of target-based objectives.

Second, the variable of *Extent of Use of Target-Based Objectives* was originally designed to be an ordinal measure measuring the comprehensiveness of the use of target-based objectives. This variable is the dependent variable for models predicting the adoption of such techniques. This variable is created from Question 4 from this dissertation’s primary survey:

- “How important are target-based objectives to you in each of these areas? (If you do not use target-based objectives in a particular area, please selected ‘Not Used’): number of flu vaccinations administered (Q4a).
- number of patients seen (Q4b).
- client satisfaction (Q4c).
- community health status (Q4d).
number of missed maternity care appointments (Q4e).
number of child vaccinations (Q4f).
community teen pregnancy rate (Q4g).

Not important at all [1]
Relatively Unimportant [2]
Somewhat Important [3]
Very Important [4]
Not used [0]” (LUC_4).

The *Extent of Use of Target-Based Objectives* variable is a measure of the comprehensiveness of the public health department’s use of target-based objectives. This index sums to a maximum score of 35 with seven areas and five levels of importance, including “Not Used,” and these measures of levels of importance serve as a surrogate for use of target-based objectives. Therefore, in contrast to a binary variable, this scaled value for each respondent prevents attenuation and allows for further analysis of the extent of use of target-based objectives. As a result, this variable is used in models predicting the adoption of target-based objectives.

Upon initial review of the data, the scale showed high internal consistency scores but failed Tukey’s Test of Additivity. This suggested the need for transformation of this variable (discussed further in Chapter 4). For purposes of this research and with these modifications, this variable will be treated as an interval-level variable.

Descriptive statistics including frequencies on both the *Use of Target-Based Objectives* and the *Extent of Use of Target-Based Objectives* are presented in Chapter 4 and relate to the following hypothesis:

**Hypothesis 1:** More than half of all public health departments will use target-based objectives.
Control Variables

For Research Question 1, no control variables are necessary for this research question as only frequencies are being reported.

This discussion of the Extent of Use of Target-Based Objectives serves as the dependent variable for this dissertation’s second research question:

*Research Question 2: Why do some public organizations adopt performance management tools, such as target-based objectives?*

Dependent Variable

The dependent variable is the same across these additional research questions regarding the adoption of such administrative innovations. As previously discussed, the Extent of Adoption of Target-Based Objectives is a construct from multiple questions from this dissertation’s survey. Through linear regression techniques, any increase in this scaled measure of the extent of adoption at a significant level (p < .05) will indicate that the independent variable is a significant predictor of the extent to which targets are adopted by the LHD.

Independent Variables

This dissertation groups these independent variables the literature suggests to be importance predictors of the adoption of management innovations based on their respective level of analysis: the individual manager, the health department, or the jurisdiction the health department serves. In the following sections, variables at the following levels of analysis will be considered:

1) Manager’s Demographics
Manager’s Psychology

Organization’s Resources

Organization’s Community

Managerial Independent Variables

As discussed in Chapter 2, the literature generally indicates that a manager’s higher education level increases the likelihood of social innovation adoption, but the literature is often contradictory on many other manager-level variables this dissertation includes. This section will explore the following research question:

Research Question 2.1: Do manager-level variables contribute to the adoption of target-based objectives?

Managerial Demographic Independent Variable Measures

A number of variables relating to the demographics of public health managers will be explored, including a manager’s education, age, and tenure. For the purposes of consistency, it should be noted that the NACCHO survey does not provide a distinction between position titles of public health “manager” and “top-executive,” and instead uses the term “supervisor” to refer to subordinates to the local health manager. As a result, the term “manager” and “top-executive” are assumed to be synonymous between the NACCHO survey and this dissertation’s survey. These demographics of public health managers lead to the following hypothesis:

Hypothesis 2: Factors relating to the demographics of public health managers will influence their decisions to adopt target-based objectives.

These demographic variables of interest include:

a) Manager’s Age

71
b) Manager’s Education Level
a. Manager’s Education MPH
c) Manager’s Tenure as Manager in the Organization
d) Manager’s Gender
e) Manager being a first time manager

The operationalization of each variable will be discussed in the following sections.

a) Manager’s Age was measured by responses to the following open-ended item on the NACCHO survey:

- “What is the age of this person? _____________ (c4q30)”

b) Manager’s Education Level was measured from responses to four questions (Questions 31 to 32) on the NACCHO survey asking about the manager’s level of formal education, as shown in the following survey items:

- “Indicate all degrees that your top-executive holds (not just the highest degree):
  - “Associate Degree
    AD/ASN (c4q31a)
  - Bachelor’s Degree
    BA (c4q32a)
    BS (c4q32b)
    BSN (c4q32c).
  - Master’s Degree
    MPH (c4q33a)
    MSN (c4q33b)
    MBA (c4q33c)
    Other (specify) (c4q33d) ______________________ (c4q33dtext).
  - Doctoral Degree
    MD (c4q34a)
    DO (c4q34b)
    DNS (c4q34c)
    DrPH (c4q34d)
    DDS (c4q34e)
    DVM (c4q34f)
    JD (c4q34g)
For the purposes of this study, only the highest level of education was used to denote the manager’s level of education. This required the creation of a new four point categorical variable (0=Associates Degree, 1=Bachelor’s Degree, 2=Master’s Degree, 3=Doctoral Degree).

Further, the specific fields in which a manager has formal education will be considered. Particularly of interest to this study is the training received in Masters of Public Health (MPH) programs (c4q33a). As a result, a new dichotomous variable is computed for all respondents’ who hold or do not hold an MPH [1=Yes, 0=No], called *Manager’s Education MPH*.

c) *Tenure as Manager in the Organization* was measured by responses on the NACCHO survey to the following item:

- “What date did the top executive assume this position?
  q24a Month (MM)
  q24b Year (YYYY)” (c4q24)

This variable was transformed given the time at which the survey was conducted to compute a figure of the total number of years the top-executive has held the position.

d) *Manager’s Gender* was found in the NACCHO survey to the following item:

- “What is the gender of the person in the top executive position?
  Male [1]
  Female [2] (c4q29).”
e) *First Time Manager* is measured using a NACCHO survey item. Question 25 on the NACCHO survey asks:

- “Is this his/her first position as the top executive of an LHD? Select only one.
  - Yes [1]
  - No [0]
  - Unknown [2] (c4q25).”

*Managerial Psychology Independent Variable Measures*

In addition to the demographics of managers, it is expected that factors relating to the psychology of managers will affect their decisions to adopt target-based objectives. This leads to the next hypothesis:

**Hypothesis 3**: Factors relating to the psychology of public health managers influence their decisions to adopt target-based objectives.

The following variables relating to the psychology of managers are expected to influence the extent of adoption of target-based objectives:

a) Manager’s Conflict Aversion
b) Manager’s Importance of Outcomes
c) Manager’s Importance of Outputs
d) Manager’s Local Elected Officials Support
e) Managers State Public Health Officials Support

Each of these variables is operationalized in the following sections.

a) *Conflict Aversion* addresses managers’ actions in attempting to avoid conflict with their staffs. It is expected that managers who are less conflict averse will be more likely to adopt target-based objectives. Conflict aversion is measured by responses to Question 10 on this study’s survey:

- “These questions are about target-based objectives. Whether or not your organization uses target-based objectives, to what extent do you agree
with the following statements about the use of target-based objectives? (Reminder: Target-based objectives are written goals saying by what percent or amount a quantitative performance measure should change with a date attached. An example of a target-based objective is decreasing the number of missed patient appointments by 10 percent by March 30):

Target-based objectives increase conflict within the organization (LUC_Q10a).
Target-based objectives increase tensions in the organization (LUC_Q10d).

Strongly Disagree [1]
Somewhat Disagree [2]
Neither Agree nor Disagree [3]
Somewhat Agree [4]
Strongly Agree [5]” (LUC_Q10).

This resulted in the creation of a scale, which is discussed in further detail in Chapter 5 of this dissertation.

b) Manager’s Importance of Outcomes was measured by responses to

Question 1 on this dissertation’s survey (LUC_Q1) and is a summative measure for outcome-related items. It is expected that managers who believe tracking outcomes to be of high importance to the organization would be more likely to adopt target-based objectives, and is measured by responses to the following items on this dissertation’s survey:

• “Whether your organization uses target-based objectives or not, which of the following do you track quantitatively? If you track them, how important are they to your organization? If your organization has no quantitative measure, please select Don’t Track
  Community Health Status (LUC_Q1b).
  Client Satisfaction (LUC_Q1d).
  Community Teen Pregnancy Rate (LUC_Q1g).
  Not Important at all [1]
  Relatively Unimportant [2]
  Somewhat Important [3]
  Very important [4]
  Don’t Track [0] ” (LUC_Q1).
The importance of each of these outcome-oriented measures was summed to provide a total score of importance for outcomes. Then, the median of all respondents’ total scores was computed. The variable of a Manager’s Importance of Outcomes was computed for each manager as a “1” if the manager’s total score was above the median, and a “0” if the total score was below the median.

(c) Manager’s Importance of Outputs was computed in a similar fashion to the method by which Manager’s Importance of Outcomes was computed. This variable summed the importance for the importance of three output-oriented areas of service at local public health departments, by a response to the following questions:

- “Whether your organization uses target-based objectives or not, which of the following do you track quantitatively? If you track them, how important are they to your organization? If your organization has no quantitative measure, please select Don’t Track
  Number of Influenza Vaccinations (LUC_Q1a).
  Number of Patients Seen (LUC_Q1c).
  Number of Child Vaccinations (LUC_Q1f).
  Not Important at all [1]
  Relatively Unimportant [2]
  Somewhat Important [3]
  Very important [4]
  Don’t Track [0]” (LUC_Q1).

The median score for all respondents was computed for this output level variable, and managers with a total score above the median were coded as a “1,” and those below the median were coded as a “0.” With this variable, it is
expected that managers who value outcomes more than outputs (compared to the measure discussed before) will adopt targets to a greater extent.

A second way of measuring output versus outcome subtracts the total score a respondent gives for the importance of outputs from the total score they give for outcomes. This operationalization will be further discussed in Chapter 4.

d) *Manager’s Local Elected Officials Support* was measured by a response to the following item on this dissertation’s survey:

- “To what extent do you agree with the following statement: My local elected officials (i.e. Board of Health, County Commissioners, etc.) are very concerned with monitoring my department’s progress toward its goals and receiving regular updates.
  
  Strongly Disagree [1]
  Somewhat Disagree [2]
  Neither Agree nor Disagree [3]
  Somewhat Agree Disagree [4]
  Strongly Agree [5]” (LUC_Q13a).

It is well documented that managers who feel as though they have the backing and support of the elected group with whom they most closely work, feel they can take actions necessary to promote the health department without fear of punishment or public embarrassment if such efforts do not fully succeed.

e) *Manager’s State Public Health Officials Support* was measured by a response to the following item on this study’s survey:

- “To what extent do you agree with the following statement: State public health officials are very concerned with monitoring my department’s progress toward its goals and receiving regular updates.
  
  Strongly Disagree [1]
  Somewhat Disagree [2]
  Neither Agree nor Disagree [3]
  Somewhat Agree Disagree [4]
  Strongly Agree [5]” (LUC_Q13a).
Strongly Agree [5]” (LUC_Q13b).

One would expect state public health officials to encourage LHDs to use management techniques with demonstrated results, and this variable attempts to measure this.

Next, independent variables relating to the organization itself are discussed.

Organizational Independent Variables

This section discusses organizational-level variables that are expected to affect a manager’s decision to adopt target-setting tools addresses the following research question:

*Research Question 2.2: Do organization-level variables contribute to the adoption of performance management tools, such as target-based objectives?*

A number of variables relating to the organization’s size, resources, and staff will be explored in this dissertation.

Organizational Independent Variable Measures

3) An *Organization’s Resources* are expected to influence the adoption of target-based objectives. Such resources include both financial and employee resources. Thus, the following hypothesis will be explored:

**Hypothesis 4: An organization’s resources influence managers’ decisions to adopt target-based objectives.**

The organizational variables this dissertation explores include:

a) Organization’s Staff Size
b) Employee Opinion of Target-Based Objectives
c) Employee Involvement in Setting Objectives
d) Budget Size
e) Strategic Plan Connected to Target-Based Objectives
f) Prior Performance Management System

The operationalization of each variable this dissertation explores is discussed in the following section:

a) *Organization’s Staff Size* (NACCHO_Q37) was measured by the NACCHO survey for the following item:

- “What is the total Full-time Equivalents (FTEs) workforce at your LHD? Please include ALL regular full-time, part-time, and contractual employees. To calculate FTEs, count a full-time employee as 1 FTE, a half-time employee as a 0.5 FTE, etc. __________________________ (q37).”

This interval-level measure uses the number of full-time employee positions at the local public health department, which still includes contractual and part-time employees.

b) *Employee opinion of target-based objectives* measures LHD employees’ opinions of target-based objectives. One reason managers may or may not adopt target-based objectives is because of the input of employees on target-based objectives. This is measured by a response to the following item, with reverse coding as necessary.

- “These questions are about target-based objectives. Whether or not your organization uses target-based objectives, to what extent do you agree with the following statements about the use of target-based objectives? (Reminder: Target-based objectives are written goals saying by what percent or amount a quantitative performance measure should change with a date attached. An example of a target-based objective is decreasing the number of missed patient appointments by 10 percent by March 30).
Most employees perceive target-based objectives as fair (LUC_Q10b). Most employees would say target-based objectives impose additional work on them (LUC_Q10e). Target-based objectives often distort employees priorities (LUC_Q10f). Target-based objectives help employees know how they are doing (LUC_Q10g). Using Target-based objectives decreases employee morale (LUC_Q10h). Most employees would say target-based objectives limit their flexiblility (LUC_Q10i).

Strongly Disagree [1]
Somewhat Disagree [2]
Neither Agree nor Disagree [3]
Somewhat Agree [4]
Strongly Agree [5]” (LUC_Q10).

A summative index was created, which resulted in the creation of a new variable for Employee Opinion of Target-Based Objectives. With a high Cronbach’s score but failing Tukey’s Test of Additivity, transformation of this variable was required and is discussed in Chapter 5.

c) Employee involvement in setting objectives measures the organization’s involvement of employees, besides the manager, in the target-based objectives process. This variable explores the level of influence non-managerial employees (“Other Employees”) have in the process of setting targets. It uses the following question from this dissertation’s survey:

- “Different members of an organization have different influences on targets. Please indicate how much influence each of the following have on setting targets:
  Other Employees.
  Not Influential at All [1]
  Slightly Influential [2]
  Moderately Influential [3]
  Very Influential [4]
d) **Budget size** was measured by a response to the NACCHO survey of the following item:

- “For your most recently completed year, what were the LHD’s total expenditures?
  Amount (Enter whole number): ______________________(c3q15).”

One might expect health departments with larger budgets to be the adopters of target-based objectives techniques because (a) they likely could afford to have a position whose responsibility includes monitoring the performance of the organization, or (b) could afford to take risks with a new management technique; or (c) need more sophisticated management tools to manage their more complex organization.

e) **Strategic plan connected to target-based objectives** is expected to influence the adoption of target-based objectives, as it is more likely target-based objectives will be adopted if they are connected to the organization’s strategic plan. This was measured by a LHD responding to the following item from this dissertation’s survey:

- “To what extent do the goals in your strategic plan (long range plans) connect to your annual goals?
  Not Connected at All [1]
  Somewhat Less Connected [2]
  Neither Connected nor Disconnected [3]
  Somewhat More Connected [4]
  Highly Connected [5]
  No Strategic Plan [0]” (LUC_Q8).
f) Prior Management Approach is measured by a response of a Yes or “checked” response to any of the management approaches used by the LHD in the past year discussed below. Therefore a new dichotomous variable is created from these responses. A “Yes” is recorded if the LHD has used any of these frameworks or approaches in the last year:

- “There are many different frameworks or approaches to quality or performance improvement. Check each framework or approach to quality improvement that your LHD has used over the past year. (select all that apply)
  Baldrige Performance Excellence Criteria (or state version) (m1q170a)
  Balanced Scorecard (m1q170b)
  ISO 9000 (m1q170c)
  Lean (m1q170d)
  Six Sigma (m1q170e)
  TQM (Total Quality Management) (m1q170f)
  Turning Point Performance Management Framework (m1q170g)
  No specific framework or approach (m1q170h)
  Other (m1q170i) ______________________” (m1q170itext)

Further, a response of “Yes” to “No specific framework or approach” or “Other” will also be included as a “Yes” response as the department is using some framework or approach, or principles from such approaches.

Community-Level Independent Variables

Aside from variables relating to the manager and organization, the literature suggests variables relating to the community may influence the adoption of a performance management tool, such as target-based objectives. These variables relate to the community of the LHD and are also expected to influence the extent of adoption of target-based objectives.

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Research Question 2.3: Do community-level variables contribute to the adoption of target-based objectives?

Community-Level Independent Variable Measures

This dissertation explores Community-level variables relating to the community and jurisdiction of the LHD and addresses the following hypothesis:

Hypothesis 5: Community-level variables influence managers’ decision to adopt target-based objectives. These community-level variables include a community’s:

a) Population
b) Education Level
c) Political Affiliation
d) Form of Government

a) A Community/Jurisdiction’s Population is expected to increase the likelihood of LHDs adopting target-based objectives. Each jurisdiction’s population in 2010 was found using the website for the U.S. Census.

b) Community Education Level was measured by responses through the U.S. Census Bureau, American Community Survey in 2010, regarding a local government’s percent of its population holding a college degree or higher.

c) The Political Affiliation of a jurisdiction was measured by the 2012 Presidential vote of each U.S. county, depending on whether the county voted for the Democratic nominee (incumbent President Barack Obama) or Republican nominee (Governor Mitt Romney of Massachusetts). For each county, the candidate with the most votes was scored as either a Republican District [1] or Democratic district [2]. For instance, a county with even only one more vote for President Obama than Governor Romney would be scored as Democratic [2].
This data is obtained from each state’s board of elections website. Although this is not a precise measure of political affiliation, it gives a rough indication of local voter behavior and ideology.

d) A Jurisdiction’s Form of Government is expected to influence the adoption of performance management tools as discussed in Chapter 2, because the council-manager form of government is considered by many to be the more professionally administered form of local government management. This dissertation used each local government’s Internet website to determine the local government’s form of government.

Control Variables

For Research Question 2, an organization’s number of full-time employees was initially considered an appropriate control variable. However, the literature suggests this variable could contribute to the adoption of target-based objectives. As a result, no control variables will be used for Research Question 2.

The following sections of this dissertation discuss the operationalization of variables attempting to answers questions about managers’ perceptions of the effectiveness of target-based objectives.

Operationalization of Perceived Effectiveness of Target-Based Objectives Model

As discussed in chapter 2, much research has shown that the use of target-based objectives as part of a larger performance management system can increase an organization’s results. This dissertation’s third research question explores the perceptions of public health
managers regarding the usefulness of target-based objectives in their organizations, and is as follows:

Research Question 3: Are target-based objectives perceived as effective by public health managers?

The primary hypothesis guiding this research question is:

Hypothesis 6: Public health managers who adopt target-based objectives are more likely to perceive target-based objectives as effective than managers who do not adopt target-based objectives.

Dependent Variable

The dependent variable of interest to this research question is the opinion of public health managers about the effectiveness of target-based objectives. Factors expected to influence the extent of adoption of targets (discussed in the next section) may also relate to a manager’s opinion of target-based objectives.

Dependent Variable Measures

Manager’s Perceived Effectiveness of Target-Based Objectives was measured by a response to an item from Question 10 on this dissertation’s survey. The question was asked on a 5-point Likert scale ranging from Strongly Disagree to Strongly Agree, and read as follows:

- “These questions are about target-based objectives. Whether or not your organization uses target-based objectives, to what extent do you agree with the following statements about the use of target-based objectives? (Reminder: Target-based objectives are written goals saying by what percent or amount a quantitative performance measure should change with a data attached. An example of a target-based objective is decreasing the number of missed patient appointments by 10 percent by March 30.):
  Target-based objectives improve my organization’s effectiveness (LUC_Q10k).
  Strongly Disagree [1]
  Somewhat Disagree [2]
Neither Agree nor Disagree [3]  
Somewhat Agree [4]  
Strongly Agree [5]” (LUC_Q10k).

Descriptive statistics for this question are reported in Chapter 5 based on the manager’s decision to adopt or not adopt target-based objectives.

**Operationalization of Perceived Effectiveness of the Organization**

This dissertation originally planned to explore not just the perceived effectiveness of target-base objectives, but also – in just two survey questions – the perceived effectiveness of the performance management system. After consulting the literature, it was determined that for face validity purposes, the two performance management system questions should be dropped from this analysis. Target-based objectives are the primary component of a performance management system and therefore the concepts overlap so substantially as to make distinctions impossible.

Thus, this section explores the direct relationship between the adoption of target-based objectives and the perceived effectiveness of the organization. As shown in Research Question 4, it is expected that managers who perceive target-based objectives to be effective will also perceive their organizations to be effective.

**Research Question 4: Do public health managers perceive their organizations to be effective?**

The following hypothesis guides this research question regarding perceived organizational effectiveness:

**Hypothesis 7: Public health managers who perceive target-based objectives to be effective will be more likely to perceive their organizations to be more effective.**

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Dependent Variable

The dependent variable of interest to the Manager’s Perceived Effectiveness of the Organization is measured by a response to the following ordinal item on this dissertation’s primary survey;

- “To what extent do you agree with the following statement: My organization is one of the more effective local public health departments
  Strongly Disagree [0]
  Somewhat Disagree [1]
  Neither Agree nor Disagree [2]
  Somewhat Agree [3]
  Strongly Agree [4]” (LUC_Q16).

Independent Variable

There are two independent variables this dissertation explores that are expected to relate to the variable of Manager’s Perceived Effectiveness of the Organization. The first independent variable is the Extent of Adoption of Target-Based Objectives, as measured by the scaled construct from Question 4 in the primary survey. The second independent variable is the Perceived Effectiveness of Target-Based Objectives, which was measured by a single-item from Question 10 on the primary survey. Further, additional ordinal regression procedures are performed to see the effects of variables previously discussed on the perceived effectiveness of the organization, including: the importance of outcomes to the manager, frequency of feedback on output and outcome measures, and purposes for which targets are used.
Control Variables

For this research question, two regression analyses are performed. First, for the influence of the Extent of Adoption of Target-Based Objectives on the Perceived Effectiveness of the Organization, an organization’s Staff Size, and Jurisdiction’s Form of Government are used as control variables in order to control for variation in the data. Second, for the influence of the Perceived Effectiveness of Target-Based Objectives, only users of targets are considered as to avoid bias from a portion of respondents that cannot accurately say if targets are effective or not since they have not used them. The three control variables in this model include the organization’s Years Using Targets, Staff Size, and Jurisdiction’s Form of Government. For the additional regression equations relating to the perceived effectiveness of the organization, these three control variables are also used.

Data Analysis Tools and Procedures

These sections discuss statistical procedures performed to ensure the validity and reliability of the data as well as to measure the concepts of interest. This study explored the potential for missing values and bivariate correlations that could affect statistical procedures, including linear and ordinal regression. Each of these is discussed below, and results for these are presented in subsequent chapters.

Missing Values

The data was examined to ensure no patterns in missing values in order to ensure data validity and reliability. Data missing in a pattern could represent an issue with the survey instruments. Researchers would like any missing data to be randomly distributed, and not
necessarily on a single variable. Thus, this research explores missing values using Missing Values Analysis techniques (MVA) in SPSS, and the results are presented in Chapter 4.

**Bivariate Pearson Correlations**

Using SPSS, correlations were run to ensure there is no multicollinearity, or correlation among independent variables, in the data for each research question. Multicollinearity could inflate the true effects of variables on a dependent variable in a regression equation, thus limiting a true interpretation of respective variables.

**Linear Regression**

Linear regression is a common method to predict the influence of independent variables on some dependent variable. Commonly referred to as OLS Regression, linear regression attempts to establish the importance of independent variables on a dependent variable. It also allows one to see the variation explained by the use of such variables on predicting a response variable, the dependent variable (Garson, 2012a, p. 10). With Research Question 2 from this dissertation, this dissertation attempts to predict the importance of managerial, organizational, and community-level variables on the extent to which managers adopt target-based objectives.

Linear regression assumes independent variables are continuous, and that dependent variables are continuous. However, it has become more common and acceptable in social science research for ordinal variables to be treated as valid independent variables for OLS regression (Garson, 2012a, p. 13). For each independent variable, OLS predicts the amount by which the dependent variable changes for each one-unit increase in the independent variable.
variable when other variables in the model are held constant (Garson, 2012a, p. 13). Beta weights from OLS regression allow researchers to see and compare the influence of each independent variable predicting the dependent variable, but must also be considered with the related statistical significance for each variable.

**Ordinal Regression**

Another statistical technique used in this dissertation is ordinal regression. Ordinal regression is used to answer the research question about the perceived effectiveness of targets and the organization because these regression models use ordinal (categorical) dependent variables. Several assumptions guide the use of ordinal regression (Garson, 2013a). First, an ordinal dependent variable is required. In this research, the dependent variable is a categorical 5-point measure; with responses ranging from strongly disagree to strongly agree, asking respondents if they agree with the statement that targets and their organizations are highly effective.

A second assumption of ordinal regression Garson notes is that of the parallel lines assumption, where a finding of non-significance indicates the model does not violate the assumption (2013a). The parallel lines assumption states that there should be no significant difference between the regression lines formed by the independent variables on the single categorical dependent variable, thereby showing the model where slopes of the independent variables are parallel and constrained is not different from an unconstrained model. In this research, the parallel lines assumption has not been violated, and the slopes for each level of the dependent are the same. This model shows the desired non-significant figure and is discussed in greater detail in Chapter 5.
A third assumption of ordinal regression is adequate cell space, where no cells in the data space should have a zero count and at least 80% of the cells should have a count of five or more (Garson, 2013a). However, because the factor scores used as covariates are continuous variables, the proportion of cells with zero counts is not a useful measure.

Further, attempts at correcting cell counts and thus chi-square figures, such as Yates’ correction, would not work with this data as the Yates correction requires a two by two table, which would not be possible with the categorical dependents used in this research. Regardless, because of the cells in this model that have zero counts, measures of goodness of fit such as chi-square may be less reliable than if there was an adequate cell count. A fourth assumption of ordinal regression is that, like many other techniques using maximum likelihood estimation, a larger sample size is required (Garson, 2013a). This research has a relatively large sample size (n=141), yet this is still below the recommended minimum of 200. Therefore, the findings for this research question may be less valid and reliable than if a larger sample had been used.

**Conclusion of Chapter 3**

Chapter 3 has discussed the methodology by which the research questions outlined earlier are explored in Chapters 4, 5, and 6.

**Preview of Chapter 4**

Chapter 4 will discuss the findings about frequencies of each of the variables explored in this dissertation.
CHAPTER 4: SUMMARY STATISTICS OF ADOPTION, USE, AND SATISFACTION

This chapter reports the summary statistics on target-based objectives’ adoption, use, and satisfaction. This chapter lays the groundwork for the findings from the regression procedures predicting the adoption of target-based objectives (discussed in Chapter 5). First, a comparison of characteristics relating to respondents and non-respondents to this dissertation’s survey and missing values from both the NACCHO survey and this dissertation’s survey will be discussed to ensure no significant differences exist, which will allow for greater generalizability of this dissertation’s findings.

Second, there is a discussion of the descriptive statistics relating to the dichotomous variable of manager’s adopting target-based objectives or not. Third, descriptive statistics on the extent of adoption are presented. Fourth, descriptive statistics are presented about the purposes for which targets are used. Fifth, this chapter discusses public health managers’ perceived satisfaction with this tool.

Comparison of Respondents and Non-Respondents

Ideally, all those asked to participate in a survey would respond. As with most surveys, this was not the case. Researchers want to be sure there is no statistically significant reason for participants choosing to respond or not. Table 4-1 presents descriptive information on the characteristics of both the respondents and non-respondents along four dimensions: a manager’s age, organization staff size, organization resources, and the jurisdiction’s population. These four dimensions were selected because they are interval level measures and would clearly show variation in the variable, as opposed to ordinal level
variables, such as the manager’s current position being the first time as a manager, which would be limited in its variation because of its coding. As shown in the following table, the managers’ ages were roughly the same, but respondents’ organizations were clearly smaller than those of non-respondents. More specifically, respondents had lower organizational expenditures and employees, and were in less-populated communities.

<table>
<thead>
<tr>
<th>Variable</th>
<th>Mean of Respondents</th>
<th>Mean of Non-Respondents</th>
<th>Levene’s Test for Equality of Variances Significance</th>
<th>t-test for Equality of Means Significance</th>
</tr>
</thead>
<tbody>
<tr>
<td>Manager's Age (years)</td>
<td>53.02</td>
<td>52.76</td>
<td>.324</td>
<td>.776</td>
</tr>
<tr>
<td>Organization FTEs</td>
<td>80.47</td>
<td>132.26</td>
<td>.095</td>
<td>.297</td>
</tr>
<tr>
<td>Organization Expenditures (dollars)</td>
<td>$12,615,868.40</td>
<td>$25,060,078.00</td>
<td>.105</td>
<td>.346</td>
</tr>
<tr>
<td>Community's Population</td>
<td>186,240.76</td>
<td>229,552.27</td>
<td>.399</td>
<td>.507</td>
</tr>
</tbody>
</table>

* Statistically Significant at the .10 level
**Statistically Significant at the .05 level
***Statistically Significant at the .01 level

In order to compare these two, an independent samples test was conducted. Respondents and non-respondents were compared on available data elements from the 2010 NACCHO survey. They were compared on the following elements: manager’s age, and gender; the LHD’s staff size and expenditures; and the jurisdiction’s population. To test for such differences, Levene’s Test for Homogeneity of Variance and a T-test for equality of means were calculated for all variables in the various models.
Levene’s Test for Homogeneity of Variance

For examining differences between respondents and non-respondents, one would want a non-significant result from Levene’s Test for the homogeneity of variance. A significant Levene’s test value (p < .05) would say that the respondents and non-respondents do not have equal variance on the indicators. Thus, a non-significant Levene’s score would show that the two do have equal variance, which is important for interpretation of the t-statistic for the equality of means test.

T-test for Equality of Means

The t-test for equality of means tests the assumption that the mean score of respondents and non-respondents are not different at a statistically significant level. For example, one would prefer the average age of managers who responded to this study’s survey to be relatively close to the mean age of managers who did not. As shown earlier in Table 4-1, no variables were at a statistically significant (p < .05) level. This indicates there is no difference between the groups that might have influenced a decision to respond or not, thus greatly increasing the generalizability of this study’s findings.

Nonetheless, the sizeable differences in organizational size and budget between the respondents and non-respondents could potentially influence the results of further statistical analyses. This analysis must therefore be careful in projecting any findings onto the largest public health departments.

Next, the results of missing values analysis will be discussed to ensure there are no patterns to missing data from this dissertation’s data sources.
Missing Values Analysis

Missing Values Analysis (MVA) seeks to ensure that there are no underlying patterns for variables with missing data. Such patterns could indicate a number of potential problems, such as bias being present in the responses (Garson, 2012b, p. 5). Researchers would like data to be Missing Completely at Random (MCAR), showing that there is no consistent or bias in the data. Testing for MCAR uses the expectation maximization (EM) algorithm, which results in a score on Little’s MCAR test (Garson, 2012b, p. 7). A statistically significant score on this test (p < .05) indicates the data is not missing completely at random, and could be missing at random, indicating some pattern to the missing values. Little’s MCAR test was run on all variables having more than 5 percent of missing values (Organization’s Staff Size [7.1%], Organization’s Total Expenditures [17.7%], and Prior Management Approach [15.6%]).

Although passing Little’s MCAR test (p > .05), two independent variables (Organization’s Total Expenditures and Prior Management Approach) had such a large percentage of missing cases that case deletion was deemed not to be appropriate, particularly given the relatively small sample size. Thus, missing data imputations were run for these missing values. Five separate imputations for this data were created, and with each statistical run for future analyses, the median overall model-fit score (i.e. R-Squared) will be selected among the five iterations.

Descriptive Statistics for Adoption

This section discusses the descriptive statistics of this dissertation’s model predicting adoption, which was explored by two questions from this dissertation’s survey.
For Research Question 2, which relates to the adoption of targets, descriptive statistics are reported on both the Extent of Use of Target-Based Objectives as well as the dichotomous Use of Target-Based Objectives measure.

**Descriptive Statistics for Adoption of Target-Based Objectives Dichotomy**

The general question being asked with the adoption of target-based dichotomy is “What percentage of LHDs use target-based objectives?”. This is measured by a response to the following question on this dissertation’s primary survey:

- “This question relates to target-based objectives. Target-based objectives are written goals stating by what percent or amount a quantitative performance measure should change with a date attached. For example, aiming for a 10 percent decrease in the number of missing maternity care appointments by July 10. Using the example above, target-based objectives typically have the following three characteristics: a measure for what is being tracked (missed maternity care appointments), a target (1% decrease), and a date of completion (July 10).

With target-based objectives being defined as having these three criteria (a measure, a target, and a date of completion), does your organization regularly set specific numerical target-based objectives in at least one service area?

- Yes
- No” (LUC_Q2).

Of the 141 respondents in the dissertation’s survey and as shown below in Table 4-2, it is found that 87 (61.7%) have adopted this technique, and 54 (38.3%) have not.

**Table 4-2: Findings for Adoption of Target-Based Objectives**

<table>
<thead>
<tr>
<th>Adoption of Target-Based Objectives</th>
<th>Number of LHD Managers</th>
<th>Percent of LHD Managers</th>
</tr>
</thead>
<tbody>
<tr>
<td>Yes</td>
<td>87</td>
<td>61.7%</td>
</tr>
<tr>
<td>No</td>
<td>54</td>
<td>38.3%</td>
</tr>
</tbody>
</table>
Thus, support is found for Hypothesis 1, which relates to Research Question 1, that most public health managers have adopted target-based objectives.

Research Question 1: To what extent are target-based objectives used in public health agencies?

Hypothesis 1: More than half of public health departments will use target-based objectives.

This dissertation’s finding of support for this hypothesis was in keeping with the findings of Leep and colleagues (2009), who found that many public health managers “measure progress against goals” and “include work plans.” As earlier discussed, however, the Leep study does not define the terms or check affirmative answers by asking about usage, and therefore it is difficult to be certain of the comparability of their findings and this finding. Regardless, this dissertation has shown that a majority of managers are using such techniques.

It was found, however, from participants’ responses to Question 3 on this study’s survey, that of these respondents who have adopted target-based objectives with three components (targets, dates, and measures), only 45.2% of these respondents use milestones at least usually. Because monthly or quarterly milestones (i.e. subobjectives) provide feedback, this finding suggests that many managers are using target-based objectives, but in a suboptimal way because they are not receiving all possible feedback.

Discussed next are the descriptive statistics of a more detailed investigation of the adoption of target-based objectives.
Descriptive Statistics for Extent of Adoption of Target-Based Objectives

To gain a better understanding of the factors affecting a manager’s decision to adopt and use target-based objectives, the variable *Extent of Use of Target-Based Objectives* is used.

This provides a more nuanced look at adoption than the simple yes/no question discussed earlier, by using responses to the following items:

- “How important are target-based objectives to you personally in each of these areas (If you do not use target-based objectives in a particular area, please select ‘Not Used’):
  Number of influenza vaccinations.
  Number of patients seen.
  Client satisfaction.
  Community health status.
  Number of missed maternity care appointments.
  Number of child vaccinations.
  Community teen pregnancy rate.
  - Not Important at all
  - Relatively Unimportant
  - Somewhat Important
  - Very Important
  - Not Used” (LUC_Q4a, b, c, d, e, f, g).

The descriptive statistics for responses to Question 4 are shown in Table 4-3.
### Table 4-3: Descriptive Statistics of Importance of Target-Based Objectives by Area

<table>
<thead>
<tr>
<th>Output or Outcome Orientation</th>
<th>Variable</th>
<th>Not Used</th>
<th>Not Important at all</th>
<th>Relatively Unimportant</th>
<th>Somewhat Important</th>
<th>Very Important</th>
<th>Mean</th>
<th>Median</th>
</tr>
</thead>
<tbody>
<tr>
<td>Output-Oriented</td>
<td>Number of child vaccinations</td>
<td>46 (32.6%)</td>
<td>1 (0.7%)</td>
<td>1 (0.7%)</td>
<td>6 (4.3%)</td>
<td>87 (61.7%)</td>
<td>2.62</td>
<td>4.00</td>
</tr>
<tr>
<td></td>
<td>Number of patients seen</td>
<td>54 (38.3%)</td>
<td>1 (0.7%)</td>
<td>3 (2.1%)</td>
<td>21 (14.9%)</td>
<td>62 (44.0%)</td>
<td>2.26</td>
<td>3.00</td>
</tr>
<tr>
<td></td>
<td>Number of influenza vaccinations</td>
<td>56 (39.7%)</td>
<td>1 (0.7%)</td>
<td>4 (2.8%)</td>
<td>20 (14.2%)</td>
<td>60 (42.6%)</td>
<td>2.19</td>
<td>3.00</td>
</tr>
<tr>
<td></td>
<td>Number of missed maternity care appointments</td>
<td>95 (67.4%)</td>
<td>2 (1.4%)</td>
<td>4 (2.8%)</td>
<td>15 (10.6%)</td>
<td>25 (17.7%)</td>
<td>1.10</td>
<td>0.00</td>
</tr>
<tr>
<td>Outcome-Oriented</td>
<td>Client Satisfaction</td>
<td>50 (35.5%)</td>
<td>1 (0.7%)</td>
<td>0 (0.0%)</td>
<td>14 (9.9%)</td>
<td>76 (53.9%)</td>
<td>2.46</td>
<td>4.00</td>
</tr>
<tr>
<td></td>
<td>Community health status</td>
<td>55 (39.0%)</td>
<td>1 (0.7%)</td>
<td>4 (2.8%)</td>
<td>27 (19.1%)</td>
<td>54 (38.3%)</td>
<td>2.17</td>
<td>3.00</td>
</tr>
<tr>
<td></td>
<td>Community teen pregnancy rate</td>
<td>63 (44.7%)</td>
<td>1 (0.7%)</td>
<td>3 (2.1%)</td>
<td>21 (14.9%)</td>
<td>53 (36.6%)</td>
<td>2.00</td>
<td>3.00</td>
</tr>
</tbody>
</table>

Based on the means, monitoring the number of child vaccinations and client satisfaction rates were the most important uses of target-based objectives.

Missed maternity appointments were the least valued use. Although this measure was included at the recommendation of those participating in the primary survey’s pilot, it may be a measure that only these particular public health officials use and might not be generalizable across the U.S.

With this, the reasons managers use targets that relate to outputs could be ranked from highest to lowest importance as follows: number of child vaccinations, number of patients seen, the number of influenza vaccinations, and the number of child vaccinations.

Next, managers thought the most important outcome-oriented reason to use targets was for monitoring client satisfaction. The least important outcome-oriented reason was monitoring the community’s teen pregnancy rate.
Interestingly, managers thought two measures relating to pregnancy and maternity care were the least important use of targets. Both the output measure (number of missed maternity care appointments) and outcome measure (community teen pregnancy rate) were rated as the least important to managers, and were the two areas for which targets were used the least by managers.

**Scale Measures for Extent of Adoption Scale Reliability**

As discussed in chapter 3, the answers to Question 4 (shown in the table above) were used to create the variable of Extent of Adoption of Target-Based Objectives. Because each of these items (responses to Question 4) is on the same scale, there was no need to standardize.

When these items were scaled, they present a strong internal consistency (Cronbach’s alpha=. 893), but fail Tukey’s Test of Additivity (p = .000), with a power estimate of .508. Thus, to achieve additivity, this power was applied. After being raised to this power, the scale presents a maximum score of 15.85, which represented the use of seven items (which were all on the same five-point scale). This score of 15.85 represents the highest score a manager who thinks targets in all seven areas are “Very Important”, and a score of zero would represent a manager who does not use targets at all for any of these seven areas.

This variable resulted in a mean score of 8.39, with a standard deviation of 5.57. As a result, this variable will be treated as an interval-level variable rather than an ordinal variable as to not attenuate the data, because these scores can be interpreted without binning the data.

This interval level variable will be used as the dependent variable in attempting to predict the reasons public health managers adopt target-based objectives because it is a more
representative measure than a dichotomous variable of adoption or non-adoption. Rather than looking at the true score on this item, a look at the variable categorically could be helpful. Using the original scaling function, intervals of 2.26 would be necessary for such a categorization along this interval variable. As shown below in Table 4-4, slightly more than 40% are “high adopters” whereas slightly more than 30% are not adopters or are low adopters.

<table>
<thead>
<tr>
<th>Extent of Adoption Scale Intervals</th>
<th>Frequency of LHD Managers (Percentage)</th>
</tr>
</thead>
<tbody>
<tr>
<td>0 to 2.26</td>
<td>24.80%</td>
</tr>
<tr>
<td>2.27 to 4.52</td>
<td>9.10%</td>
</tr>
<tr>
<td>4.53 to 6.78</td>
<td>9.70%</td>
</tr>
<tr>
<td>6.79 to 9.04</td>
<td>6.10%</td>
</tr>
<tr>
<td>9.05 to 11.30</td>
<td>7.30%</td>
</tr>
<tr>
<td>11.31 to 13.56</td>
<td>22.40%</td>
</tr>
<tr>
<td>13.57 to 15.85</td>
<td>20.60%</td>
</tr>
</tbody>
</table>

Further, one could argue the creation of this comprehensive scale measuring the extent of usage of target-based objectives represents two dimensions: scope and intensity. First, the scope of target-based objectives is captured by the number of areas (of seven) in which managers are using target-based objectives. Second, the intensity of the use of target-based objectives could be captured by the extent to which managers believe targets in an area are “Very Important.”

These dimensions of scope, intensity, and the combined extent to which target-based objectives are used when evaluated separately present fairly strong reliably scores. Further, when these separate items were combined together using the separate variables, they
presented a strong reliability score of internal consistency (Cronbach’s alpha = .889) and passed Tukey’s Test of Additivity (p = 1.00). Thus, these findings support the case for the combining of these items, and although these dimensions of scope and intensity present interesting ways of approaching the use of target-based objectives, this dissertation uses its more comprehensive measure, “extent of adoption,” which combines both scope and intensity.

The next section discusses descriptive statistics relating to the areas in which public health managers use targets.

**Descriptive Statistics for Areas and Methods of Using Targets**

This section explores the actual use of targets among LHD managers and considers two aspects: specific areas in which targets are used, and the monitoring and feedback mechanisms managers use. The frequencies for the responses from these questions are reported only for those managers that responded “Yes” to Question 2 on this dissertation’s primary survey, indicating they use targets. Only looking at these responses (N = 87) ensures that only users are considered.

**Purposes for which Target-Based Objectives are Used**

This section explores the purposes for which local public health managers are using target-based objectives.

**Purposes of Use**

Purposes were measured by a response to the following item:

- “Many organizations use information from measures they track (for example, the number of influenza vaccinations) to help make decisions. How important is using target-based objectives to you for the following uses:
Budget Adjustments (LUC_Q8a).
Budget Preparation (LUC_Q8b).
Staff Allocation (LUC_Q8c).
Reporting requirements to higher level public health organizations (LUC_Q8d).
Improving customer satisfaction (LUC_Q8e).

- Don’t track
- Not important at all
- Relatively unimportant
- Relatively important
- Very important” (LUC_Q8).

Descriptive statistics are reported below in Table 4-4 for managers that use targets.

Table 4-4: Descriptive Statistics of Purpose for Which Target-Based Objectives Were Used

<table>
<thead>
<tr>
<th>Variable</th>
<th>Don’t track</th>
<th>Not important at all</th>
<th>Relatively Unimportant</th>
<th>Somewhat Important</th>
<th>Very Important</th>
<th>Mean</th>
</tr>
</thead>
<tbody>
<tr>
<td>Budget adjustments</td>
<td>4.7%</td>
<td>1.2%</td>
<td>3.5%</td>
<td>25.9%</td>
<td>64.7%</td>
<td>3.45</td>
</tr>
<tr>
<td>Budget preparation</td>
<td>3.5%</td>
<td>1.20%</td>
<td>2.4%</td>
<td>15.3%</td>
<td>77.6%</td>
<td>3.62</td>
</tr>
<tr>
<td>Staff allocation</td>
<td>4.7%</td>
<td>0</td>
<td>3.5%</td>
<td>27.1%</td>
<td>64.7%</td>
<td>3.47</td>
</tr>
<tr>
<td>Reporting requirements to higher level</td>
<td>5.9%</td>
<td>2.4%</td>
<td>7.1%</td>
<td>25.9%</td>
<td>58.8%</td>
<td>3.29</td>
</tr>
<tr>
<td>public health organizations</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Improving customer satisfaction</td>
<td>9.5%</td>
<td>0</td>
<td>9.5%</td>
<td>41.7%</td>
<td>39.3%</td>
<td>3.01</td>
</tr>
</tbody>
</table>

As the table shows, targets are important to managers for each of these purposes. Using the mean, the most important area was for budget preparation, followed by staffing allocations, and the least important area is for improving customer satisfaction. Nonetheless, more than 50% of respondents agreed that each one of these reasons for using targets (except for improving customer satisfaction) is at least “Somewhat Important.”

Investigating the descriptive statistics more closely reveals three potential conclusions about the use of target-based objectives. First, managers think using targets are “Very
Important” most often for purposes relating to internal management, such as for budget adjustments, budget preparation, and making staff allocations.

Second, a majority of managers think targets are “Very Important” for reporting requirements to higher-level public health agencies, such as to a state public health office. One possible reason is that a number of states have state-mandated goals for particular areas of service delivery, and local health managers may find having their own targets useful in helping them to meet these state goals.

Third, the least important use of targets (when interpreted as a “Very Important” response) was for improving customer satisfaction. This is a particularly interesting finding since these responses are only for managers who use targets. As discussed earlier, 53.9% of all managers, regardless if they adopted targets or not, thought improving customer satisfaction was “Very Important” for the use of targets. As Table 4-4 shows, this number is dramatically less when only users of targets are considered (39.3%). Thus, this indicates non-users of targets think the tool could be useful for this precise purpose, but managers who are actually using targets do not think it is as important for this purpose.

Comparing Purposes of Use by Perceived Importance of Outcomes

In the era of results-based management, managers often emphasize the importance of outcome measures over output or process-oriented measures in order to ensure the organization is achieving its intended purpose.

Respondents were not asked explicitly about “outputs” or “outcomes” because many might not know the distinction. However their answers to questions about specific measures allow for a determination of the relative weight they give to outputs and outcomes.
• Outputs are a late process measure, indicating the number of services or products that an organization has produced. The survey asks about a number of outputs, including flu vaccinations, number of patients seen, and number of vaccinations given.

• Outcomes are measures of an effect or change on clients. They are the primary results that are of interest to results-based management. “Number of flu shots” is an output, but the resulting reduction in flu cases would be an outcome. The survey asks about a number of outcomes, including client satisfaction and community health status.

This section first explores the importance of outcomes and outputs to managers separately and then looks at how much more important outcomes are than outputs. The last section explores if there is a relationship between the relative importance of outcomes to a manager and specific uses of targets.

The literature suggests managers who are focused on outcomes, or organizational effectiveness, are likely better managers. The independent variable Importance of Outcomes to the Manager seeks to explore the relationship between the importance a manager associates with organizational outcomes, such as client satisfaction, and the extent to which managers adopt target-based objectives. One would expect that managers who think outcomes are more important to their organizations adopt targets to a greater extent. For a true measure of the importance of outcomes, this dissertation compares managers’ perceptions of the importance of outcomes to the perceptions of the importance of outputs.

Thus, Question 1 from this dissertation’s survey asked about the importance of three outputs (number of influenza vaccinations, number of patients seen, number of childhood
vaccinations) and three outcomes (community health status, client satisfaction, community
teen pregnancy rate), as well as a choice of “Don’t Track,” as shown below:

- “Whether your organization uses target-based objectives or not, which of the
  following do you track quantitatively? If you track them, how important are they to
  your organization? If your organization has no such quantitative measure, please
  select Don’t Track:
    Number of influenza vaccinations.
    Number of patients seen.
    Number of child vaccinations.
    Community health status.
    Client Satisfaction.
    Community teen pregnancy rate.
    • Not important at all
    • Relatively Unimportant
    • Somewhat Important
    • Somewhat Important
    • Very Important
    • Don’t Track” (LUC_Q1).

With both the importance of outputs questions and importance of outcomes questions
being on the same common scale, the importance of outcomes was summed across the three
measures of outcomes (for example, managers responding “Very Important” for all three
outcome measures yielded a score of 12). Then, the importance of outputs was summed
across the three measures of outputs in the same fashion. Each of these two concepts (one
for outputs and one for outcomes) showed high internal consistency scores thus ensuring
each one is measuring its intended concept.

For the summed construct of the importance of outcomes, the mean was 9.34, with a
median of 11.00. For the importance of outputs, the mean was 10.57, and the median was
12.00. The mean difference for respondents was -1.23, with this negative direction
indicating on average, managers think these particular outputs are more important than the

specified outcomes. This dissertation focused on the importance of outcomes in predicting the extent of adoption of targets, and for a true focus on this concept, the summed score for outputs was subtracted from the summed score for outcomes. Thus, this difference shows how much more important outcomes are to managers than outputs.

<table>
<thead>
<tr>
<th>Summed Measure of Importance to Manager</th>
<th>Mean Importance</th>
<th>Median Importance</th>
</tr>
</thead>
<tbody>
<tr>
<td>Outcomes</td>
<td>9.336</td>
<td>11</td>
</tr>
<tr>
<td>Outputs</td>
<td>10.567</td>
<td>12</td>
</tr>
<tr>
<td>Difference Between Outcomes and Outputs</td>
<td>-1.234</td>
<td>-1</td>
</tr>
</tbody>
</table>

Thus, at least along the six dimensions asked in this dissertation’s survey, managers perceive output-oriented areas of service to be more important than outcome-oriented areas.

Next, this dissertation explored the relationship between managers valuing outcomes more than outputs, and if there are differences between how targets are used. For example, might a manager who thinks outcomes are more important than outputs use targets more for staffing allocations? This question is addressed by reporting frequencies of respondents who said that each of the specific uses of targets (budget allocations, budget preparations, etc.) was “Very Important,” which is split along two dimensions of the importance of outcomes overall to the manager. These two dimensions are a manager thinking either outcomes or outputs are more important. Overall, a majority of managers (75.9%) rated outputs more important than outcomes (24.1%). As shown in Table 4-5, the percentage of managers thinking outcomes are more important think all but one (budget preparation) of the uses listed
in the table are a “Very Important” use of target-based objectives. Further, one would expect managers who value outcomes more than outputs to value the only outcome-oriented use (improving customer satisfaction) more than managers who value outputs more. As the table shows, this was not the case; slightly more managers who think outputs are more important think improving customer satisfaction is a “Very Important” use of targets (39.1% compared to 38.1%).

Table 4-5: Comparison of Importance of Outputs and Outcomes for the Use of Target-Based Objectives

<table>
<thead>
<tr>
<th>Purpose of Use Response of there “Very Important”</th>
<th>Percent of Respondents Saying Outputs are More Important than Outcomes</th>
<th>Percent of Respondents Saying Outcomes are more Important than Outputs</th>
</tr>
</thead>
<tbody>
<tr>
<td>Budget Adjustments</td>
<td>66.4%</td>
<td>57.1%</td>
</tr>
<tr>
<td>Budget Preparation</td>
<td>75.5%</td>
<td>81.0%</td>
</tr>
<tr>
<td>Staffing Allocations</td>
<td>67.6%</td>
<td>52.4%</td>
</tr>
<tr>
<td>Reporting requirements to higher level public health organizations</td>
<td>62.7%</td>
<td>42.9%</td>
</tr>
<tr>
<td>Improving customer satisfaction</td>
<td>39.1%</td>
<td>38.1%</td>
</tr>
</tbody>
</table>

The next section discusses how employees fit into a discussion of target-based objectives, particularly through managers providing feedback and involving employees in establishing objectives.

**Employee Involvement in Target-Based Objectives**

There are a number of ways that employees can be involved with target-based objectives. One way is by participating in feedback sessions about progress once objectives are established. Another way is involvement in establishing objectives. Both of these ways are indicators of managers considering the opinions of employees when using target-based
objectives. It is possible that these approaches differ when objectives focus on outcomes rather than outputs, and that is the focus of the next sections.

Feedback From the Use of Target-Based Objectives

This dissertation explored ways in which managers might interact with employees through the use of target-based objectives. One might expect the interactions to differ based on the orientation (output or outcome) of the objective itself; thus, the following sections explore differences between managers interacting with employees on an output measure and an outcome measure to identify any differences. The first relevant question reads as follows:

• “If your organization uses target-based objectives for tracking the number of influence vaccinations, how often do you:
  Meet with employees to set target-based objectives (LUC_Q5a).
  Discuss progress on target-based objectives with your employees (LUC_Q5b).
  • Never
  • Weekly
  • Monthly
  • Quarterly
  • Semi-Annually
  • Annually
  • Don’t Use” (LUC_Q5).

Among those who adopted targets, it was found that 66.9% of respondents do not meet with employees to establish targets on this output measure of influenza vaccinations. For those that reported using target-based objectives for this output measure, most say they only meet with employees to establish target-based objectives semi-annually (11.8%), with the second highest score being weekly (9.4%).

The second part of question five asked managers about the frequency by which they discuss target-based objectives with their employees on a specific output (flu vaccinations).
The data show that the greatest numbers of managers discuss this quarterly (19.5%) or semi-annually (16.1%) with their employees. It should be noted that quite a few managers report discussing progress toward target-based objectives monthly (9.2%).

Similar questions were asked about an organizational outcome, client satisfaction, and read as follows:

- “If your organization uses target-based objectives in measuring client satisfaction, how often do you:
  Meet with employees to set target-based objectives (LUC_Q6a),
  Discuss progress on target-based objectives with your employees (LUC_Q6b)
  - Never
  - Weekly
  - Monthly
  - Quarterly
  - Semi-Anually
  - Annually
  - Don’t Use” (LUC_Q6).

Of managers that use target-based objectives in at least one area, most LHD managers (68.6%) report they do not use target-based objectives for this outcome measure; of those that do, most (13.3%) managers meet semi-annually with staff to set target-based objectives for this outcome, although some (7.4%) meet annually. When reporting the frequency with which managers discuss progress on client satisfaction, most (22.9%) discuss progress semi-annually, and some meet quarterly (13.3%).

An interesting note from the reporting of these frequencies is that managers are more likely to discuss progress more frequently with employees rather than meet with employees to establish targets in these two areas.
Employee Influence on Setting Targets

Employee participation in, and influence over, the content of a performance management system is essential to a well-managed organization. This dissertation’s survey measured participation through the following item on this dissertation’s survey from responses of managers who adopt targets:

- “Different members of your organization have different influences on target-based objectives. Please indicate how much influence each of the following have on setting target-based objectives.
  
  Other Employees:
  - Not Influential at All
  - Slightly Influential
  - Moderately Influential
  - Very Influential
  - Don’t Use” (LUC_Q7c).

With this variable of employee influence on setting targets, it is intuitive that only organizations that use targets will be considered. For responses relating to employee involvement in setting target-based objectives, more than half of respondents who use targets said employees have moderate influence in setting targets (54.1%), and more than a quarter of managers say employees are “Very Influential” (27.1%). Therefore, more than three-quarters of respondents who use targets say employees are at least “Moderately Influential” in setting targets

Descriptive Statistics for Other Measures of Usage

This section reports descriptive statistics on other aspect of target-based objective usage.
Use of Milestones

As discussed in Chapter 1, target-based objectives are ideally comprised of four components: a measure, a target, a date of completion, and some milestones. This last component, milestones—short-range subobjectives that provide regular feedback—are sometimes missing. Milestone usage was measured by a response to Question 3:

- “Your "yes" response to question 2 indicates that your organization sometimes uses target-based objectives that include targets and dates. Some target-based objectives also include one more component: interim measures of progress toward the objective, called milestones. For example, if one of our objectives for the year is to decrease missed maternity care appointments by 15% by June 30th, a milestone an interim measure of progress might be "decrease them by 10% by March 1. Does your organization use such written interim targets (milestones) along with your annual target-based objectives?
  - Never
  - Sometimes
  - Usually
  - Always” (LUC_Q3).

Table 4-6: Frequencies for Managers Using Target-Based Objectives with Milestones

<table>
<thead>
<tr>
<th>Frequency by which Target-Users’ Organizational Objectives Include Milestones</th>
<th>Percent of Target-Using Respondents</th>
</tr>
</thead>
<tbody>
<tr>
<td>Never</td>
<td>16.10%</td>
</tr>
<tr>
<td>Sometimes</td>
<td>37.90%</td>
</tr>
<tr>
<td>Usually</td>
<td>37.90%</td>
</tr>
<tr>
<td>Always</td>
<td>8.00%</td>
</tr>
</tbody>
</table>

As can be seen, most managers’ organizations either “Sometimes” (37.9%) or “Usually” (37.9%) include milestones, while less than 10% of managers who use targets report “Always” using milestones. Combining the “Always” and “Usually” responses, one can state that nearly half of the managers typically use milestones as part of their monitoring system. The large group that does not typically use milestones is losing the benefits of
feedback that accompany milestones and their systems can be viewed as somewhat incomplete because the literature indicates that feedback is an essential component for a well-managed and well-performing organization (Erez, 1977; Bandura and Cervone, 1983; Locke and Latham, 1990).

In fact, many have found feedback on an organization’s objectives to increase the organization’s performance (Strang, Lawrence, and Fowler, 1978; Bandura and Cervone, 1983). In addition, as Matsui and colleagues (1983) discuss, this monitoring of progress toward objectives leads to increased employee efforts toward the objective, and thus organizational results.

**Strategic Planning**

It is expected that organizations whose strategic plans are connected to their annual goals will be more likely to use target-based objectives. For this variable, both users and non-users of targets are included. This concept is measured by a response to the following item:

- “To what extent do the goals in your strategic plan (long range plans) connect to your annual goals?
  - Not Connected At All
  - Somewhat Less Connected
  - Neither Connected nor Disconnected
  - Somewhat More Connected
  - Highly Connected
  - No Strategic Plan or Don’t Use Target-Based Objectives” (LUC_Q9).

It was found that more than a quarter of respondents (27.50%) either do not use target-based objectives or do not use strategic planning. This would have been a useful concept to measure separately. Among the remaining LHDs (72.5%), half (50%) consider their goals to
be highly connected to their strategic plan, and only a small percentage (2.9%) consider these not to be connected at all or somewhat less connected. This is interesting, and presents the likely situation that managers are over-reporting the connection between their goals and their strategic plans since approximately 40% of managers reported not using target-based objectives in the dichotomous measure (Question 2).

**Descriptive Statistics for Perceived Effectiveness of Targets**

Three questions from this dissertation’s primary survey focused on LHD managers’ perceived effectiveness of target-based objectives. Since these questions do not require the use of target-based objectives in an organization, the frequencies of both those using targets and those not using targets will be reported to see if there are differences in perspectives of the two groups of managers. Perceived effectiveness was measured by responses to the following items:

- “These questions are about target-based objectives. Whether or not your organization uses target-based objectives, to what extent do you agree with the following statements about the use of target-based objectives?:
  - I like target-based objectives (LUC_Q10j).
  - Target-based objectives improve my organization’s effectiveness (LUC_Q10k).
  - Overall, I am satisfied with target-based objectives (LUC_Q10l).
    - Strongly Disagree
    - Somewhat Disagree
    - Neither Agree nor Disagree
    - Somewhat Agree
    - Strongly Agree” (LUC_Q10j, k, l).

As can be seen, there were three questions relating to a manager’s perception of target-based objectives. As shown in Table 4-7, users of target-based objectives consistently hold a higher opinion of targets than those that do not use targets. Nonetheless, the 3.46 rating of non-users suggests that many non-users may be receptive to adopting objectives.
### Table 4-7: Comparison of Perceived Effectiveness of Targets by Users and Non-Users

<table>
<thead>
<tr>
<th>Question</th>
<th>Non-Users of Targets Mean Agreement</th>
<th>Users of Targets Mean Agreement</th>
</tr>
</thead>
<tbody>
<tr>
<td>I like target-based objectives</td>
<td>3.63</td>
<td>4.22</td>
</tr>
<tr>
<td>Target-based objectives improve my organization’s effectiveness.</td>
<td>3.46</td>
<td>4.22</td>
</tr>
<tr>
<td>Overall, I am satisfied with target-based objectives.</td>
<td>3.37</td>
<td>4.11</td>
</tr>
</tbody>
</table>

The following sections report descriptive statistics for the perceived effectiveness of the tool among those managers that have adopted and have not adopted targets. As shown in Table 4-8, most managers (42.5%) who use targets “Somewhat Agreed” that they “like target-based objectives.” In fact, the second most frequent response was “Strongly Agree” (41.4%). Thus, one could say that almost three-quarters of managers at least somewhat like target-based objectives.
### Table 4-8: Comparison of Respondents and Non-Respondents on Perceptions of Satisfaction and Effectiveness of Target-Based Objectives

<table>
<thead>
<tr>
<th>Satisfaction or Effectiveness Measure</th>
<th>Non-Users of Targets</th>
<th>Users of Targets</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Strongly Disagree</td>
<td>Somewhat Disagree</td>
</tr>
<tr>
<td>“I like target-based objectives.”</td>
<td>0.0%</td>
<td>7.4%</td>
</tr>
<tr>
<td>“Target-Based Objectives improve my organization’s effectiveness.”</td>
<td>1.9%</td>
<td>7.4%</td>
</tr>
<tr>
<td>“Overall, I am satisfied with target-based objectives.”</td>
<td>0.0%</td>
<td>7.4%</td>
</tr>
</tbody>
</table>
The second question for Question 10 asked whether a manager agreed that target-based objectives improved the effectiveness of their organizations. Combining “Somewhat Agree” (41.4%) and “Strongly Agree” (41.4%), it can be said that more than three-quarters (82.8%) think the tool increases the effectiveness of their organizations. Most of the remaining responses were “Neither Agree nor Disagree” (14.9%).

Another question relating to perceptions of target-based objectives asked managers if they are satisfied with the technique. Most respondents who use targets “Somewhat Agree” (42.5%) that they are satisfied with the technique, and many respondents “Strongly Agree” (36.8%). Thus, this suggests again that more than three-quarters of managers who use target-based objectives are satisfied with the technique.

Based on these three questions (LUC_Q10j, LUC_Q10k, and LUC_Q10l) it appears that the large majority of managers who are using target-based objectives overwhelmingly like the tool, and believe it improves organizational effectiveness. However, one could also investigate the thoughts about the effectiveness of target-based objectives according to their perceived importance of outcomes and outputs. For example, those that think targets improve their organizations’ effectiveness would likely perceive outcomes to be more important, because effectiveness is certainly more outcome-oriented than output-oriented.

Perception of the Importance of Outcomes on the Perception of the Effectiveness of Targets

One would expect managers who think target-based objectives to be important would also perceive outcomes (such as client satisfaction) to be more important than process-oriented outputs (such as counts of immunizations). Table 4-9 shows two broad ways by
which the manager’s importance of outputs and outcomes can relate to the perceived effectiveness of targets. For each of these two methods of reporting frequencies, only managers who adopted targets are considered, since they are the ones who can most accurately gauge the tool’s effectiveness. First, using the median scores of all managers for the importance of each type of measure (outcome or output). Second, it shows if a dichotomous variable including both measures, and scored as a “1” when managers think outcomes are more important.

As shown in Table 4-9, comparing managers who think outcomes are more important than outputs shows that a smaller percentage of respondents “Strongly Agree” that targets improve their organizations’ effectiveness (28.6%) than managers who think outputs are more important (45.5%).

<table>
<thead>
<tr>
<th>Agreement with: “Target-based objectives improve my organization’s effectiveness.”</th>
<th>Compared to Median for Each Type of Measure</th>
<th>Importance When Outputs and Outcomes Measured Dichotomously</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Percent of Respondents Saying Outputs are More Important to them Than Median Importance to Managers</td>
<td>Percent of Respondents Saying Outcomes are More Important to them Than Median Importance to Managers</td>
</tr>
<tr>
<td>Strongly Disagree</td>
<td>0.0%</td>
<td>0.0%</td>
</tr>
<tr>
<td>Somewhat Disagree</td>
<td>2.2%</td>
<td>1.9%</td>
</tr>
<tr>
<td>Neither Agree Nor Disagree</td>
<td>13.0%</td>
<td>11.1%</td>
</tr>
<tr>
<td>Somewhat Agree</td>
<td>26.1%</td>
<td>40.7%</td>
</tr>
<tr>
<td>Strongly Agree</td>
<td>58.7%</td>
<td>46.3%</td>
</tr>
</tbody>
</table>
This table shows that the more managers think both outputs and outcomes are important, the more likely they are to believe that target-based objectives are an effective management technique. It is worth noting, however, that 84.7% of respondents who think outputs are more important than their peers at least “Somewhat Agree” that target-based objectives are an effective management tool; this compares to 87% of managers who think similarly about outcomes compared to their peers. Thus, this indicates a small difference between the two groups.

A particularly interesting finding is that of managers who do think outcomes are more important than outputs (as measured by the dichotomous variable), only 57.1% “Somewhat Agree” and 28.6% “Strongly Agree” that targets improve organizational effectiveness. Comparing this to those managers who think outputs are more important, 36.4% “Somewhat Agree,” and 45.5% “Strongly Agree.”

The next section discusses other factors that might affect managers’ perceptions of the effectiveness of targets, such as the purposes for which they use the tool.

**Perception of the Importance of Uses of Targets on the Perception of the Effectiveness of Targets**

This section examines whether the purposes for which managers find targets useful affect their perceived effectiveness of the technique. As shown below in Table 4-10, responses from this dissertation’s survey showed some variation in the perception of the effectiveness of target-based objectives when the purposes of using this tool are considered.
Table 4-10: Comparison of Perceived Effectiveness of Targets based on Perceived Importance of Purpose Targets are Used

<table>
<thead>
<tr>
<th>Purposes of Use of Target-Based Objectives Believed to be “Very Important”</th>
<th>Percent of Respondents Strongly Agree that Target-Based Objectives Improve their Organization’s Effectiveness</th>
<th>Percent of Respondents Somewhat Disagreeing that Target-Based Objectives Improve their Organization’s Effectiveness</th>
</tr>
</thead>
<tbody>
<tr>
<td>Budget Adjustments</td>
<td>85.3%</td>
<td>0%</td>
</tr>
<tr>
<td>Budget Preparation</td>
<td>94.1%</td>
<td>0%</td>
</tr>
<tr>
<td>Staffing Allocations</td>
<td>76.5%</td>
<td>2.9%</td>
</tr>
<tr>
<td>Reporting requirements to higher level public health organizations</td>
<td>76.5%</td>
<td>5.9%</td>
</tr>
<tr>
<td>Improving customer satisfaction</td>
<td>57.60%</td>
<td>3.0%</td>
</tr>
</tbody>
</table>

Of managers who “Strongly Agree” that target-based objectives improve their organizations’ effectiveness, an overwhelming majority (94.1%) thinks budget preparation is a “Very Important” use of targets. Only 57.6% of managers who “Strongly Agree” that targets improve their organizations’ effectiveness think improving customer satisfaction is a “Very Important” use of targets. Thus, for all managers who “Strongly Agree” that targets improve their organizations’ effectiveness, more than 75% agrees that each of the four output-oriented purposes for using targets are “Very Important.” With this, one could say that for managers who think targets are an effective tool, more often than not they think the purposes for which targets are most important are output-oriented; however, the inclusion of an additional outcome-oriented measure could have provided more insight into this distinction.

Conclusion of Chapter 4

This chapter began with a short section analyzing the quality of data from this dissertation’s primary survey. It then presented summary statistics for the adoption of target-based objectives among local public health departments. It has also discussed managers’ perceptions about the effectiveness of this management technique, as well as how they use
this tool.

**Preview of Chapter 5**

Chapter 5 presents the results of regression analyses on the primary topic this dissertation explores, factors facilitating the adoption of target-based objectives in U.S. local public health departments.
CHAPTER 5: ANALYSIS OF ADOPTION MODEL

Target-based objectives have been shown to often substantially increase organizational effectiveness, and they are taught as a major component of “good” management in business schools, public administration schools, and public health schools. Yet as noted in Chapter 4, nearly 40% of public health managers nonetheless choose to not use them. What distinguishes adopters from non-adopters? This chapter explores this question by analyzing the factors that predict the extent of adoption of target-based objectives.

Chapter 5 is organized into four sections. First, descriptive statistics detail the manner in which independent variables are interpreted in relation to the dependent variable. The descriptive statistics for the dependent variable, *Extent of Adoption of Target-Based Objectives*, was presented in Chapter 4. Second, bivariate correlations are presented and concerns of multicollinearity among independent variables are addressed. Third, the procedures involved in ANOVA in predicting the adoption of target-based objectives are discussed for each level of variable used: those at the managerial, organizational, and community levels. Finally, this chapter discusses the findings from these analyses in relation to hypotheses for each of the three groups of predictors.
Descriptive Statistics for Adoption of Target-Based Objectives

Chapter 4 discussed the dependent variables of the extent to which local public health managers have adopted target-based objectives. The following sections will discuss the independent variables relating to each public health department’s manager, organization, and community.

Managerial Demographic Independent Variables

This section discusses the descriptive statistics relating to demographic characteristics of the manager that are expected to predict a manager’s adoption of target-based objectives. Such demographic characteristics include:

- Manager’s Education
- Manager’s Age
- Manager’s Gender
- Manager’s Tenure
- Manager’s First Time as Manager
- Manager’s Perception of the Importance of Outcomes
- Manager’s Conflict Aversion
- Manager’s Perception of Local Support
- Manager’s Perception of State Support
- Managerial Entrepreneurship

Manager’s Education

A manager’s level of education is expected to influence the extent to which managers adopt target-based objectives. A variable was created scoring each case with manager’s highest level of education. Thus, a manager with only an associate’s degree would be scored as 0, a bachelor’s degree as 1, a master’s degree as 2, and a doctorate degree as 3.

Most managers held a doctorate (45.5%), followed by those with a master’s degree
(36.2%), and those with a bachelor’s degree as their highest level of education (16.3%). No managers hold an associate’s degree. Further, 37 LHD managers (27%) hold a Masters of Public Health (MPH) degree.

**Manager’s Age**

A manager’s age is expected to influence the extent of adoption. It was found that the average age of LHD managers responding to this study’s survey was 52.43 years, and the median age for respondents was 53 years. The youngest manager was 47 and the oldest manager was 78 years old, creating a range of 28 years. To control for variation in the data and limit the influence of outliers, the variable of a manager’s age was centered on its mean.

**Manager’s Gender**

A majority of managers are female (59%) and a smaller percentage is male (41%).

**Manager’s Tenure**

The average number of years for a manager’s tenure at the current LHD was 11.39 years, with a median of 8.12 years. The longest-serving manager has been at the current LHD for 38 years, and the newest manager for less than a year. In an attempt to control variation in the data, the variable of a manager’s tenure as manager within the LHD was centered on its mean.

**First Time Manager**

This study expects managers without experience as a manager at another LHD to be more likely to adopt target-based objectives. More than three-quarters of respondents, or 109 managers, (77.6%) say their current job is their first job as a LHD manager.
Managerial Psychology Independent Variables

Manager’s Perception of the Importance of Outcomes

The importance of two types of measures, outputs and outcomes, were expected to influence the extent to which managers adopt target-based objectives. Outputs relate to processes, with some numerical level of output such as the number of influenza vaccinations, and outcomes relate to an effect or change that organizational efforts have (hopefully) produced on the outside community, such as the community’s health ratings. For the purposes of predicting the extent to which targets are adopted, the importance of each of these two types of measures was computed.

First, this dissertation was interested to see if the importance of outputs was a significant predictor of the extent of adoption. To see how influential this concept was, Question 1 from this dissertation’s survey was used, as it measured each manager’s rankings of importance (Very Important to Not Important at All) of three output measures (number of influenza vaccinations, number of patients seen, and number of child vaccinations). Thus, with these three measures, a total score of 12 was possible if managers responded that all three outputs were important to track, and a total score of zero was possible if the manager did not track any of the three outputs. The median was computed for the importance of outputs to managers (12.00), with a relatively smaller mean (10.57). Then, managers who thought outputs were more important than their peers (as measured by the median) were coded as a “1,” and those who did not think they were as important were coded as a “0.” As shown below in Table 5-1, slightly more than half of all public health managers responding
to this survey (53.90%) thought outputs were more important than the median importance of outputs among all managers.

<table>
<thead>
<tr>
<th>Measure</th>
<th>Percent of Respondents Below Median</th>
<th>Percent of Respondents Above Median</th>
</tr>
</thead>
<tbody>
<tr>
<td>Outputs</td>
<td>46.10%</td>
<td>53.90%</td>
</tr>
<tr>
<td>Outcomes</td>
<td>48.90%</td>
<td>51.10%</td>
</tr>
</tbody>
</table>

Second, this dissertation was interested in determining if the importance of outcomes was a significant predictor of the extent of adoption. With this, a second variable was computed for outcome measures using the same procedures previously discussed (computing the median and constructing a dichotomous variable). When responses from the three outcomes from Question 1 are totaled for each manager, the median total score is 11.00. The data showed again that slightly more than half (51.10%) of all public health managers thought outcomes were more important than the median score for this type of measure among all managers. If a manager highly values all performance measures, she will likely appear in both the “high outcome emphasis” group and the “high output emphasis” groups because this measure does not require managers to choose one or the other. Each of these two measures will be used in the linear regression equation predicting the extent of adoption of target-based objectives.

An alternative measure of output and outcome emphasis would compare the relative importance of outcomes to the importance of outputs, showing how much more important outcomes are than outputs to a specific manager. The total score of the importance of
outputs was subtracted from the total score of the importance of outcomes for each manager. When this difference was greater than zero (coded as “1”), this indicated the manager thought outcomes were more important than outputs. These descriptive statistics were computed, and the data for all managers responding to this dissertation’s survey show that more than three-quarters (78%) believe outputs (a score of “0”) are more important than outcomes, with the remaining 22% believing outcomes (a score of “1”) are more important than outputs. Thus, this indicates a majority of managers think outputs are more important than outputs. However, in constructing this variable, one cannot see the individual influence of outputs and outcomes individually.

Both these formulations of the variable are derived by adding managers’ rankings of specific outputs and specific outcomes – for example, flu shots. A different list of possible outputs and outcomes might have produced a somewhat different survey ranking. However the three ranked outputs and three ranked outcomes are very common and very important measures, and therefore the overall ranking should be a fairly reliable measure.

Thus, as mentioned earlier, the linear regression predicting the extent of adoption of target-based objectives will include the two dichotomous measures of the importance of outputs and outcomes above their medians. As a preface, each of these three measures importance of outcomes, outputs, and the comparison of outputs and outcomes will be discussed in later sections of this dissertation with particular attention to differences between the perceived effectiveness of target-based objectives.
Manager’s Conflict Aversion

This study expects a manager’s conflict aversion to influence the extent of adoption of target-based objectives by local public health managers. Thus, one would expect a manager who avoids conflict to adopt target-based objectives to a lesser extent, because this management technique could introduce conflict to the organization by holding workers accountable for achieving targets. This scaled construct is measured by responses to two items on this study’s survey, and resulted in a Cronbach’s alpha score of .834, demonstrating high internal consistency, and passed Tukey’s test of additivity (p = .856). The items used for this measure from this study’s survey are:

- “These questions are about target-based objectives. Whether or not your organization using target-based objectives, to what extent do you agree with the following statements about the use of target-based objectives?
  Target-based objectives increase conflict within the organization (LUC_Q10a).
  Target-based objectives increase tensions in the organization” (LUC_Q10d).
  - Strongly Disagree
  - Somewhat Disagree
  - Neither Agree nor Disagree
  - Somewhat Agree
  - Strongly Agree” (LUC_Q10).

When they are considered separately, only two managers (1.4%) strongly feel that target-based objectives increase conflict and tensions in the organization. The “Neither Agree nor Disagree” response was most popular for the technique increasing conflict at the organization (29.8%), and for the question relating to increasing tensions (also 29.8%). For both questions, a majority of respondents selected “Strongly Disagree” or “Somewhat Disagree,” thus indicating little concern about the conflict and tensions surrounding target-
based objectives. The mean score was 2.40 with a median of 2.00 when the two measures are considered together.

Manager’s Perceived Local Support

The literature suggests managers who believe their local elected officials support their performance management efforts are more likely to run successful organizations. This study measures a LHD manager’s perceived level of support from local officials by a response to the following question from this study’s survey:

- To what extent do you agree with the following statement: My local elected officials (i.e. Board of Health, County Commissioners, etc.) are very concerned with monitoring my department’s progress toward its goals and receiving regular updates.
  - Strongly Disagree
  - Somewhat Disagree
  - Neither Agree nor Disagree
  - Somewhat Agree
  - Strongly Agree” (LUC_Q13a).

For this variable, most respondents answered “Somewhat Agree” (35%), 20.7% “Strongly Agree,” 20% “Neither Agree nor Disagree,” 17.9% “Somewhat Disagree,” and 6.4% “Strongly Disagree.” These results show slightly more than half of the respondents (55.7%) feel like their local elected officials are concerned about the LHD’s activities.

With these descriptive statistics, one could argue that most department managers think local elected officials are supportive of their organizations’ progress toward achieving its goals. However, an alternative explanation is the strong interest in monitoring measured results reveals a lack of support. Perhaps local elected officials are very concerned about receiving reports because they do not trust the agencies. Going a step further, this could reveal a tendency for elected officials to try to micromanage the department by closely
monitoring progress toward goals. Therefore this question may not accurately measure the concept – support – that it was designed to measure; however, it remains a useful measure of whether “close monitoring” affects adoption.

Manager’s Perceived State Support

Question 13 sought to measure state support of the local agency by a response to the following question:

- To what extent do you agree with the following statement: “State public health officials are very concerned with monitoring my department’s progress toward its goals and receiving regular updates.
  - Strongly Disagree
  - Somewhat Disagree
  - Neither Agree nor Disagree
  - Somewhat Agree
  - Strongly Agree” (LUC_Q13b).

Like the perceived level of local elected official support, most respondents on this item selected “Somewhat Agree” (41%), followed by “Strongly Agree” (24.5%). It should be noted that more managers perceive greater state monitoring with responses to “Somewhat Agree” and “Strongly Agree” (65.5%) than close monitoring from local elected officials (55.7%).

As discussed for the local support measure, the close monitoring of state officials may reflect distrust rather than support. Nonetheless, the measure allows asking whether state-level “close monitoring” (or “high interest”) for any reason affects the extent of adoption.

Managerial Entrepreneurship

It is expected that a manager’s willingness to take risks, such as adopting new innovative management techniques, may influence the extent of adoption. To measure this
risk-taking behavior, Question 17 asked the following question:

“Top management in this organization is not afraid to take risks.
- Strongly Disagree
- Somewhat Disagree
- Neither Agree nor Disagree
- Somewhat Agree
- Strongly Agree” (LUC_Q17).

A majority of respondents (46.1%) agree somewhat with this statement, with the second highest percentage of respondents strongly agreeing (33.3%). Most of the remainder were neutral. These descriptive statistics indicate that more than three-quarters of respondents to this study’s survey think top managers in these LHDs are willing to take risks, which one would expect to be a significant indicator of adopting a social innovation such as targets.

**Organizational Independent Variables**

Several independent variables at the organizational level are expected to predict the extent to which a manager target-based objectives, including: its budget size, staff size, the connection of its strategic plan to target-based objectives, and the influence of employees on setting target-based objectives. Two variables at the organizational level required this study to conduct reliability analysis to ensure internal consistency.

The organizational-level factors expected to influence the adoption of target-based objectives are:

- Employee Opinions of Target-Based Objectives
- Prior Performance Management System
- Organization’s Resources
- Organization’s Staff Size
- Connection of Strategic Plan to Objectives
- Employees’ Influence in Establishing Target-Based Objectives
Employee Opinions of Target-Based Objectives

It is expected that managers are more likely to adopt target-based objectives if their employees have a good opinion about this management technique. To measure a manager’s perception of employee’s opinions, managers responded to five items on this study’s survey, and the descriptive statistics of each will be discussed:

- “These questions are about target-based objectives. Whether or not your organization uses target-based objectives, to what extent do you agree with the following statements about the use of target-based objectives?
  - Most employees perceive target-based objectives as fair.
  - Most employees would say target-based objectives impose additional work on them.
  - Target-based objectives often distort employees priorities.
  - Target-based objectives help employees know how they are doing.
  - Most employees would say target-based objectives limit their flexibility.
  - Strongly Disagree
  - Somewhat Disagree
  - Neither Agree nor Disagree
  - Somewhat Agree
  - Strongly Agree” (LUC_Q10b, e, f, g, i).

The frequencies (by percentage) of managers’ responses for each of these five items are presented in Table 5-2.

<table>
<thead>
<tr>
<th>Measures of Perception of Employee Satisfaction with Target-Based Objectives</th>
<th>Strongly Disagree</th>
<th>Somewhat Disagree</th>
<th>Neither Agree nor Disagree</th>
<th>Somewhat Agree</th>
<th>Strongly Agree</th>
</tr>
</thead>
<tbody>
<tr>
<td>“Most employees perceive target-based objectives as fair.”</td>
<td>0.00%</td>
<td>13.50%</td>
<td>29.10%</td>
<td>44.70%</td>
<td>12.80%</td>
</tr>
<tr>
<td>“Most employees would say target-based objectives impose additional work on them.”</td>
<td>7.10%</td>
<td>22.70%</td>
<td>24.80%</td>
<td>37.60%</td>
<td>7.80%</td>
</tr>
<tr>
<td>“Target-based objectives often distort employees priorities.”</td>
<td>19.90%</td>
<td>31.20%</td>
<td>32.60%</td>
<td>14.20%</td>
<td>2.10%</td>
</tr>
<tr>
<td>“Target-based objectives help employees know how they are doing.”</td>
<td>7.00%</td>
<td>5.00%</td>
<td>13.50%</td>
<td>48.20%</td>
<td>32.60%</td>
</tr>
<tr>
<td>“Most employees would say target-based objectives limit their flexibility.”</td>
<td>7.80%</td>
<td>30.50%</td>
<td>36.90%</td>
<td>22.70%</td>
<td>2.10%</td>
</tr>
</tbody>
</table>
For the first item measuring *Employee Opinions of Target-Based Objectives*, “Most employees perceive target-based objectives as fair,” most respondents (44.7%) agreed somewhat, followed by not necessarily agreeing or disagreeing (29.1%), demonstrated by the mean of 3.57.

Second, most managers thought employees would somewhat agree that target-based objectives create additional work (37.6%), but a smaller number strongly agreed (7.8%). Considered together, these two response categories mean almost half of respondents agreed to some degree (45.4%). Again, the second most popular response was “Neither Agree nor Disagree” (24.8%).

More than half of respondents (51.1%) disagreed to some degree that target-based objectives often distort employee priorities, but a number thought they distort priorities (16.3%), and the largest group neither agreed nor disagreed (32.6%). This finding is somewhat surprising, as the intention of target-based objectives is to make employees’ priorities clearer and more aligned with those of the organization.

When asked whether target-based objectives help employees know how they are doing, more than three-quarters (80.8%) of respondents agreed to some degree. For the question relating to the perception of employee flexibility being limited by target-based objectives, a substantial minority agreed to some degree (38.3%).

These items resulted in a fairly high measure of internal consistency, with a Cronbach’s alpha value of .746, but failed to pass Tukey’s test of additivity (p = .000). Thus, each item was raised to Tukey’s estimate of power to achieve additivity, and then all items
were summed to attempt to ensure internal consistency in measuring the manager’s perception of employee’s opinions of target-based objectives.

Prior Management Approach

This study expects an organization’s experience with any type of management approach to influence the likelihood of adopting target-based objectives. Thus, responses were gathered from the NACCHO survey, which asked if any formal management approach had been used in the last two years, including such items as Lean Six Sigma or the Baldridge Criteria. A response of “Yes” to any of these items would be considered as the organization using a management approach. Reliability analysis on these items resulted in less than ideal Cronbach’s alpha values and also failed Tukey’s Test of Additivity, which is again likely attributable to the variety of meanings associated with these types of management frameworks and approaches. Regardless, these items do pass a face validity test in that they are measuring whether an organization has used a management approach, and thus the variable remains in the model. The use of any management system or framework in the past few years was scored as 1, and no such system being used was scored as 0.

With this transformation, it is found that a majority of respondents (53.8%) had not used a systematic management approach in the last two years, while 46.2% had. Of those LHD managers reporting they used a specific approach, the highest number of respondents said they used “Plan Do Check Act” as an approach followed by Lean Six Sigma.

Organization’s Budget Size

In an attempt to control for large variations in the data, the organization’s budget size,
measured through its annual expenditures as a response to a NACCHO item as discussed in Chapter 3, was centered on its mean. For LHD’s responding to this survey the average amount spent per year was $8,479,263. The range for public health department expenditures was $183,721,445, with a minimum of $53,223 and a maximum of $183,774,668. Further investigation of this range shows most public health departments are between the minimum amount spent and five million dollars, as demonstrated by the median LHD expenditure being $2,433,347. Centering this expenditure variable results in a modification in the interpretation of the influence of this variable on the likelihood of adopting target-based objectives, but should assist in controlling for large variations in the data since this is an interval level measure.

Staff Size

An organization’s number of employees is expected to influence the adoption of target-based objectives. Among respondents, the average number of LHD staff was 61 employees, with a median of 24 employees. There is quite a range between staff sizes, with the most and fewest number of employees at a LHD being separated by 522 employees. Most LHDs (84%) employed less than 100 employees. Like the organization’s expenditures, this variable has been centered to control for variation between these larger and smaller organizations.
Community-Level Independent Variables

A number of variables relating to characteristics of the community within which the LHD is located are expected to influence the adoption of target-based objectives. Among these are the:

- Jurisdiction’s population
- Jurisdiction’s citizen education level
- Jurisdiction’s form of government
- Jurisdiction’s political affiliation.

**Jurisdiction’s Population**

The mean population for LHD jurisdictions responding to this study is 145,913 citizens. The median population for communities was 49,706 residents, with the smallest community being 2,148 residents and largest being 1.75 million citizens. Of those responding, more than half (64.54%) have populations of less than 100,000, and the next largest category of population is between 100,000 and 200,000 (14.89%). Two extremes are the cause of the high average. Because of these extremes, a community’s population was centered on its mean.

**Jurisdiction’s Education Level**

A community’s education level was measured by the percentage of its population holding a bachelor’s degree or higher. The average percent of the population with a college degree among responding LHDs is less than a quarter (22.66%), and the median is slightly lower (19.70%). The range for college graduates of a community was quite large (48.8%), with the lowest rate being 8.80% and the highest being 57.60%. Of the LHDs considered, most had a resident college graduation rate of between 15% and 20%.
Jurisdiction’s Political Affiliation

Two prior studies (Mohr, 1969; Franzel, 2008) find support for the argument that a jurisdiction’s political affiliation being Democratic increases the likelihood of the adoption of new techniques in public organizations. Mohr (1969) found this to be true in public health organizations adopting management innovations, and Franzel (2008) found this to be true in local governments adopting technical innovations. This dissertation considers this factor using election data from the 2012 Presidential election, coding the community as Democratic (1) or Republican (0). A majority of the studied communities voted for Governor Romney (69.10%), rather than Barack Obama (30.9%). This single measure of political affiliation is not representative of the true political affiliation of the community because many communities may split votes between state and local Democratic elected officials and Republican officials at the federal level (and vice versa). Nonetheless, it serves as at least a single indicator of political affiliation.

Jurisdiction’s Form of Government

Many consider a council-manager form of government, with a manager for the local government appointed by local elected officials, to be characteristic of a well-run local government. Most respondents have a council-manager form of government (83.7%). This is far higher than their percentage nationwide. However, a look at the distribution of the form of government across adopters and non-adopters (from the dichotomous question on adoption from this survey) shows that more than half of managers with a council-manager form of government have adopted target-based objectives. This comparison of adopters and non-adopters of targets is shown below in Table 5-3.
Table 5-3: Comparison of Community’s Form of Government Between Adopters and Non-Adopters of Target-Based Objectives

<table>
<thead>
<tr>
<th>Adoption of Target-Based Objectives</th>
<th>Non Council-Manager Form of Government</th>
<th>Council-Manager Form of Government</th>
</tr>
</thead>
<tbody>
<tr>
<td>Non-Adopters</td>
<td>65.2%</td>
<td>33.0%</td>
</tr>
<tr>
<td>Adopters</td>
<td>34.8%</td>
<td>67.0%</td>
</tr>
</tbody>
</table>

As the table shows, if an organization is not in a jurisdiction with a council-manager form of government, the chance of adopting target-based objectives is 34.8%. In jurisdictions with a council manager form of government, the chance of adopting targets is about 67%. This is interesting as the form of government being council-manager has a large effect on the chance that managers will adopt target-based objectives. This difference of approximately 32% shows that a council-manager form of government plays an important role in determining the management approach of departments within the local government.

Further, it is quite interesting that these differences did not appear to be statistically significant in the earlier discussion comparing respondents to non-respondents. These notable differences support the argument that local agencies in local governments with a council-manager form of government more often than not use professional management tools, such as target-based objectives.

**Bivariate Pearson Correlations**

In this section, several significant relationships between independent variables will be discussed. Explanations for the likely connection between variables will be discussed as well as procedures for addressing concerns of multicollinearity, which may inflate the model predicting the extent of adoption.
Only two sets of variables are correlated to a high degree (Pearson’s correlation coefficient above .60) with statistical significance. First, two items from the NACCHO survey are significantly correlated: the number of full time employees, and the local public health department’s expenditures (Pearson’s = .720). These items would be expected to be correlated, because larger departments both employ more people and spend more money. Therefore, these two concepts do not raise significant issues of multicollinearity, and they are often used together in many studies.

Second, two scaled items from this study’s survey are highly correlated: measures of Manager’s Conflict Aversion and Perceived Employee Opinions of Target-Based Objectives. These two variables are negatively correlated (Pearson’s = -.738, p = .01). It is intuitive that these two measures are related to some degree, because Manager’s Conflict Aversion measured aversion very indirectly by asking managers whether they believe target-based objectives increase conflict in their organizations.

Next, the results of the regression equation predicting the adoption of target-based objectives are discussed.

**Analysis of Factors Using ANOVA**

In the following sections, the results of the multiple regressions for the model predicting the adoption of target-based objectives will be discussed. First, a brief discussion of the overall model will be discussed. Second, findings for specific variables are discussed.

**Analysis of Overall Adoption Model**

Overall, the model predicting the extent of adoption of target-based objectives was a moderate fitting model (R-Squared = .616), indicating a fair amount of variation in the model
is being explained by the variables included in the model. Further, the model was found to be significant overall ($p = .000$), indicating those variables in the model explain in a significant way the concept attempted to be measured.

A total of five variables were significant in the original model in predicting the extent of adoption of target-based objectives by local public health managers: two managerial variables, two organizational variables, and one community-level variable. The variables significant at the managerial level were a manager’s first time as a manager and the manager’s gender not being female. Significant predictors of adoption at the organizational level were the organization’s expenditures and the perceived level of influence employees have in setting objectives. Only one community-level variable, the jurisdiction’s community education level, was found to be significant.

Further regression analyses were conducted to explore the potential for effects if the model was trimmed, such as excluding a Manager’s Age, as it was the least significant variable ($p = .999$) in the full regression model. The revised model had acceptable overall fit (R-squared = .605) and was statistically significant ($p = .000$). Between the full model and this revised model, only one more variable (Jurisdiction’s Political Affiliation Democratic) rose to a statistically significant level. However, two variables, the Manager’s Gender being Female and the Jurisdiction’s Community Education Level, dropped to a non-significant level.

A second revised regression was run excluding the most non-significant variable from the first regression equation (Manager’s Age), and the least significant variable in the second
revised regression model, *Manager’s Years as Manager at the current LHD*. This additional regression did not affect the overall fit of the model (R-squared = .605, p = .000), and affected four independent variables: first, the *Jurisdiction’s Political Affiliation* became statistically significant; second, the *Jurisdiction’s Community Education Level* dropped to non-significance; third, the *Manager’s Gender being Female* dropped to non-significance from the original model; and fourth, *Manager’s First Time as Manager* became even more statistically significant (p < .05 to p < .01).

The coefficients and significance values for the original and revised models are presented in Table 5-4.

**Table 5-4: Analysis of Adoption of Target-Based Objectives with All Predictors**

<table>
<thead>
<tr>
<th>Independent Variable</th>
<th>Original Model R-Squared=.605</th>
<th>1st Revised Model R-Squared=.605</th>
<th>2nd Revised Model R-Squared=.605</th>
</tr>
</thead>
<tbody>
<tr>
<td>Manager's Age</td>
<td>-.00003439</td>
<td>Excluded</td>
<td>Excluded</td>
</tr>
<tr>
<td>Manager's Years as Manager</td>
<td>-.008</td>
<td>-.005</td>
<td>Excluded</td>
</tr>
<tr>
<td>Manager’s First Time Manager</td>
<td>-1.771**</td>
<td>-2.059**</td>
<td>-2.053***</td>
</tr>
<tr>
<td>Manager's Gender Female</td>
<td>-1.661**</td>
<td>-1.329*</td>
<td>-1.323</td>
</tr>
<tr>
<td>Manager's Importance of Outcomes Above Median</td>
<td>1.083</td>
<td>1.022</td>
<td>1.027</td>
</tr>
<tr>
<td>Manager’s Importance of Outputs Above Median</td>
<td>.080</td>
<td>.434</td>
<td>.444</td>
</tr>
<tr>
<td>Manager’s Local Elected Support</td>
<td>-.503</td>
<td>-.580*</td>
<td>-.579</td>
</tr>
<tr>
<td>Manager’s State Support</td>
<td>.194</td>
<td>.355</td>
<td>.353</td>
</tr>
<tr>
<td>Manager’s Education MPH</td>
<td>-.376</td>
<td>-.588</td>
<td>-.603</td>
</tr>
<tr>
<td>Manager's Level of Education</td>
<td>.595</td>
<td>.349</td>
<td>.333</td>
</tr>
<tr>
<td>Manager's Entrepreneurship</td>
<td>-.220</td>
<td>-.135</td>
<td>-.147</td>
</tr>
<tr>
<td>Manager's Conflict Aversion</td>
<td>.379</td>
<td>.245</td>
<td>.229</td>
</tr>
<tr>
<td>Organization Staff Size</td>
<td>.001</td>
<td>-.003</td>
<td>-.003</td>
</tr>
<tr>
<td>Employee Opinion of TBOs</td>
<td>.024*</td>
<td>.0258*</td>
<td>.025*</td>
</tr>
<tr>
<td>Organizational Resources</td>
<td>.000**</td>
<td>.000***</td>
<td>.000***</td>
</tr>
<tr>
<td>Organization’s Strategic Planning Connection</td>
<td>.263</td>
<td>.308</td>
<td>.308</td>
</tr>
<tr>
<td>Other Employees Influence in Setting of Objectives</td>
<td>1.952***</td>
<td>1.945***</td>
<td>1.948***</td>
</tr>
<tr>
<td>Organization’s Prior Management Approach</td>
<td>-.021</td>
<td>.011</td>
<td>.011</td>
</tr>
<tr>
<td>Jurisdiction Population</td>
<td>.000*</td>
<td>.0000</td>
<td>.000</td>
</tr>
<tr>
<td>Jurisdiction Community Education Level</td>
<td>-.097**</td>
<td>-.075*</td>
<td>-.074*</td>
</tr>
<tr>
<td>Jurisdiction Political Affiliation Democratic</td>
<td>1.137*</td>
<td>1.099**</td>
<td>1.093**</td>
</tr>
<tr>
<td>Jurisdiction Form of Government Council-Manager</td>
<td>.301</td>
<td>.959</td>
<td>.936</td>
</tr>
</tbody>
</table>

* Statistically Significant at the .10 level
**Statistically Significant at the .05 level
***Statistically Significant at the .01 level
Analysis of Managerial Factors

This section discusses the variables relating to the manager. In all, there were 10 variables relating to the manager that were expected to influence the extent to which managers have adopted target-based objectives. The coefficients and significance levels of managerial variables are shown in Table 5-5.

<table>
<thead>
<tr>
<th>Independent Variable</th>
<th>Original Model R-squared=.605</th>
<th>1st Revised Model R-Squared=.605</th>
<th>2nd Revised Model R-Squared=.605</th>
</tr>
</thead>
<tbody>
<tr>
<td>Manager's Age</td>
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<td>Excluded</td>
</tr>
<tr>
<td>Manager's First Time Manager</td>
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<td>-2.059**</td>
<td>-2.053***</td>
</tr>
<tr>
<td>Manager's Gender Female</td>
<td>-1.661**</td>
<td>-1.329* (.093)</td>
<td>-1.323 (.093)</td>
</tr>
<tr>
<td>Manager's Importance of Outcomes Above Median</td>
<td>1.083</td>
<td>1.022</td>
<td>1.027</td>
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<td>.080</td>
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<td>.444</td>
</tr>
<tr>
<td>Manager's Local Elected Support</td>
<td>-.503 (.110)</td>
<td>-.580* (.061)</td>
<td>-.579 (.061)</td>
</tr>
<tr>
<td>Manager's State Support</td>
<td>.194</td>
<td>.355</td>
<td>.353</td>
</tr>
<tr>
<td>Manager's Education MPH</td>
<td>-.376</td>
<td>-.588</td>
<td>-.603</td>
</tr>
<tr>
<td>Manager's Level of Education</td>
<td>.595</td>
<td>.349</td>
<td>.333</td>
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<td>Manager's Entrepreneurship</td>
<td>-.220</td>
<td>-.135</td>
<td>-.147</td>
</tr>
<tr>
<td>Manager's Conflict Aversion</td>
<td>.379</td>
<td>.245</td>
<td>.229</td>
</tr>
</tbody>
</table>

* Statistically Significant at the .10 level
**Statistically Significant at the .05 level
***Statistically Significant at the .01 level

At the confirmatory level (p < .05) two variables were statistically significant: a manager’s current job being the manager’s first time as a public health manager, and a manager’s gender not being female. Thus, both significant variables at the confirmatory level relate to the demographics of managers, and no variables relating to the psychology of the manager were significant. The following sections will discuss the findings from this regression in greater detail.
Analysis of Managerial Demographic Variables

Managerial demographics measures included the following items: a manager’s gender, age, years as manager, education level, and education holding a Masters of Public Health degree. Two variables relating to the demographics of the manager were found to be statistically significant predictors of the extent of adoption.

Manager’s Gender

A manager’s gender has an effect on the decision to adopt target-based objectives. There was little evidence in the literature to support this claim, but this dissertation finds support at the confirmatory level (p = .018) that a manager being female actually decreases the extent to which target-based objectives are adopted since the coefficient was negative (b = -1.661). There does not seem to be a logical explanation for the reason female managers would adopt targets to a lesser degree.

Manager’s Years as Manager

This study predicted the years in which the respondent held the position of manager might influence the extent to which public health managers adopt target-based objectives. This did not prove to be the case, as it proved to be the second least significant variable in the original overall model (p = .851). After the revised model was run excluding a manager’s age, this was the least significant variable in the revised equation (p = .883) and through step-wise deletion, was removed in the second revision of the model in attempting to obtain a more parsimonious and well-fitting model.

The tenure of managers, measured by the number of years in the current position, is not a significant predictor of adoption. This finding runs counter to the finding of Mohr
Manager First Time as Manager

One hypothesis of this study was that a manager currently serving at a LHD in their first managerial job would be more likely to adopt target-based objectives. The data instead supported the opposite claim. Regression analyses show that managers whose first time as a manager are not at their current LHD are more likely to adopt target-based objectives ($b = -1.771$, $p = .043$).

This variable has not been examined before. Perhaps the closest variable is management tenure, which was that used by Melkers and Willoughby (2005) and Damanpour and Schneider (2009). Melkers and Willoughby find the longer managers have worked in government, the more likely they are to use performance information. Their dependent variable of the use of performance information is by no means a measure of the adoption of targets, but it is a close proxy. In their study of 25 leading innovations in U.S. local governments, Damanpour and Schneider (2009) also found a manager’s tenure (again measured in years) is a significant predictor of adoption of these innovations. Both these articles explored managers’ tenures, but neither explored it in a way to determine if these managers’ current positions were the first time they were managers.

It is not clear why earlier managerial positions might make managers more likely to adopt targets. One possible reason is that managers who move may be more ambitious, more in demand, and less parochial in their outlook. All these attributes are likely to encourage adoption of more sophisticated management tools, such as target-based objectives.
Manager’s Age

A manager’s age was not found to be a significant predictor of the extent to which a manager adopts target-based objectives, and in fact was the least significant variable in the regression equation (p = .999). This finding of non-significance confirms the findings of Damanpour and Schneider (2009). This variable was included in this dissertation because it has rarely been explored in the literature.

This age variable was the first removed from the revised regression model attempting to obtain a more parsimonious model, but its removal did not contribute to greater variation in the data being explained (since R-Squared remained the same).

Manager’s Level of Education

Contrary to this study’s hypothesis, a manager’s level of education, such as an Associate’s, Bachelors, Masters, or Doctorate degree, has no statistically significant (p = .373) influence on the extent of adoption of target-based objectives. One potential explanation is the very high number of managers who hold graduate degrees, which account for slightly more than 83% of all respondents. Descriptive statistics showed that the highest level of education for managers was as follows: Bachelor’s degree (16.70%), Masters degree (37.00%), and a Doctorate degree (46.30%).

This dissertation does not find a manager’s education level to be an important predictor of the extent to which target-based objectives are adopted. Further, it suggests that a more detailed examination of managers’ credentials (as explored in this dissertation and by Damanpour and Schneider [2009]) is a better approach than a binomial variable (full-time manager employed or not, by Brudney and Seldon [1995]), but both these lead to the same
conclusion that education does not significantly predict the extent of adoption.

Manager’s Education MPH

No earlier authors had specifically explored if the type of education (such as a Masters of Public Health degree) would influence the extent to which management tools are adopted. A manager holding a Masters of Public Health degree was expected to increase the extent of adoption of target-based objectives. Descriptive statistics showed that a surprisingly low number of managers held this degree (26.80%). This was also a non-significant variable ($p = .713$) in predicting the extent to which public health managers adopt targets.

Analysis of Managerial Psychology Variables

This section will discuss whether variables relating to the managers’ psychology predict the adoption of target-based objectives. These variables include: the importance of outcomes to the manager, the importance of outputs to the manager, the manager’s perception of support from local elected officials, perception of support from state officials, orientation toward entrepreneurship, and conflict aversion. The regression results for these variables are shown earlier in Table 4-5.

Manager’s Perception of the Importance of Outcomes

This study expected managers who place a great emphasis on organizational outcomes, when compared to their peers, to be likely to adopt target-based objectives. The regression results surprisingly do not support this argument ($p = .196$). The relationship between the importance of outcomes to a manager and the extent to which they adopt a management innovation has not been explored to a great degree. Only one author has
explicitly considered this variable as it relates to the adoption of innovations. In his discussion of procurement reform in the federal government, Kelman (2005) notes that managers who emphasize results (outcomes) more than processes (outputs) are often unsuccessful in introducing a new approach.

As noted in chapter 4, measurement concerns may mean that this finding is not totally robust. Perhaps if the survey had asked about a different set of outcome measures (rather than client satisfaction, community health status, and community teen pregnancy rate) the responses might have produced different ratings. Nonetheless, the three survey measures are reasonably representative of major health outcomes, providing some confidence in this finding.

Manager’s Perception of the Importance of Outputs

It was expected that a manager who thinks outputs are important would adopt targets to a lesser degree than managers who think outcomes are important. However, managers’ perceptions of the importance of outputs was also non-significant \( (p = .911) \)

Additional Regression Equation for Manager’s Perception that Outcomes are More Important than Outcomes

An additional linear regression was run predicting the extent of adoption of targets using a different operationalization of the output versus outcome measure. This model instead uses the differences in the total scores for outputs subtracted from the total importance of outcomes to managers, and tries to measure this “importance” Kelman (2005) discusses. If outcomes were more important (a higher total score) than outputs, the response was coded as “1,” and if not the response was coded as “0.”
This model had a moderate overall fit measure (R-Squared = .598), and was significant overall (p = .000), but did not reveal a statistically significant relationship (p = .862, \( b = .139 \)).

Manager’s Local Elected Support (i.e., local close monitoring of agency)

As discussed in Chapter 2, Mohr (1969) and Franzel (2008) suggest that a manager who perceives the support of local elected officials would be more likely to adopt target-based objectives than those managers who do not have the support of local elected officials. However, as discussed earlier, this survey’s wording could also be plausibly interpreted as showing the opposite – a lack of trust and support. A finding of significance for this variable could suggest close monitoring from local elected officials as a method to increase the extent to which targets are adopted, but the results from the regression do not support this potential relationship.

Findings from the regression equation show a non-significant (p = .110) relationship (b = -.503) between the local elected support response and a manager’s decision to adopt target-based objectives. In retrospect, close monitoring may be a sign or support or its opposite, distrust. But the variable can be used to ask a simpler question: does close monitoring of results by higher levels predict the adoption of targets? This dissertation finds that it does not.

Manager’s State Support (i.e., close monitoring)

Like the variable of a manager’s support from local elected officials, this study expected managers who perceive there to be greater concern from state health officials to be more likely to adopt target-based objectives than those who perceive less state support. As
with the local support variable, it may be safer to term it “close monitoring” rather than support.

The findings from the regression indicate a non-significant relationship, \( p = .527 \), \( b = .194 \). Close state monitoring of a local agency’s results does not predict agency adoption of target-based objectives.

*Managerial Entrepreneurship*

This study attempted to explore the influence of a manager’s orientation toward entrepreneurship within the organization on the extent of adoption of target-based objectives. Findings from the regression model do not support the expected relationship between entrepreneurship orientation and the decision to adopt target-based objectives. The data show the relationship is negative \( b = -.220 \) and non-significant \( p = .562 \). There are a few possible explanations for this finding.

This variable has been explored by many in the literature in a variety of forms, such as exploring the motivations behind adopting an innovation or the willingness of the manager to take risks. This dissertation specifically focused on the risk-taking aspect of managerial entrepreneurship, with the idea being that managers who are not afraid to take risks are more likely to adopt a particular management tool. The data does not show a statistically significant relationship between this propensity to take risks and the extent of adoption of target-based objectives. This finding counters those of Mohr (1969), Moon (1999), and Damanpour and Schneider (2009), who find risk-taking to increase the likelihood of adopting an innovation.
Mohr (1969) and Moon (1999) found there to be a significant relationship in studies on local public health agencies, while Damanpour and Schneider (2009) generalized the significance of this relationship to general public management at the local level.

This dissertation’s finding of a non-significant relationship between a manager’s entrepreneurship and the adoption of target-based objectives could be due to two reasons. First, this dissertation’s survey only asked about general risk-taking. A better measure may have asked about propensity for taking risks for administrative innovations. Second, this non-significant finding could be due to desirability bias, since few managers likely would want to respond that they are not willing to take risks.

Manager’s Conflict Orientation

This study expected a manager who is conflict averse to adopt targets to a lesser extent. Target-based objectives likely introduce conflict into organizations, as staff members are held accountable for reaching the target-based objective. For example, one would expect there to be conflict between employees and management if a particular target-based objective was not met as it likely delays achieving the related goal. The findings from this research do not find support for this argument, with a manager’s conflict aversion not being found to be a significant predictor ($p = .455$) of a manager’s decision to adopt target-based objectives ($b = .379$). One explanation for this lack of a significant finding could be the wording of the two questions that comprise the conflict aversion scale.

Although this scale demonstrated high internal consistency, the actual concept being measured may not actually be conflict aversion by the manager. One could argue the concept being measured was the manager’s opinion on the broad topic of organizational conflict
associated with target-based objectives. Future research should consider modifying this variable, perhaps by even directly asking the managers questions, drawn from validated psychology studies, about how comfortable they are with conflict.

**Summary of Analysis of Managerial Factors Results**

Of the ten managerial-level variables examined, only two variables were found to be significant predictors of the extent of adoption of target-based objectives: a manager’s current job not being the manager’s first time as a LHD manager, and a manager’s gender not being female.

As discussed earlier, there are plausible explanations for why managers with past managerial positions would be more likely to adopt targets. There do not seem to be plausible explanations for why males would be more likely to adopt targets, nor does the literature suggest any reasons.

Many variables at the managerial level were not found to be significant predictors of the extent of adoption of target-based objectives. This includes such likely candidates as the manager’s perceived importance of outcomes, education level, and close monitoring from local and state officials.

In the next section, the results of independent variables relating to the organization, the local public health department, will be discussed.

**Analysis of Organizational Factors Using ANOVA**

In this study’s model, six variables relating to characteristics of the organization were expected to influence the extent to which a local public health manager adopts target-based objectives; the organization’s staff size, the perceived opinions of employees about target-
based objectives, the organization’s financial resources, the connection between objectives and the organization’s strategic plan, the influence employees have in setting objectives, and the organization’s use of other management approaches in the past. The results of the regression model for variables relating to the organization are shown below in Table 5-3.

Table 5-6: ANOVA Results for Organizational Variables

<table>
<thead>
<tr>
<th>Independent Variable</th>
<th>Original Model R-squared=.605</th>
<th>1st Revised Model R-Squared=.605</th>
<th>2nd Revised Model R-Squared=.605</th>
</tr>
</thead>
<tbody>
<tr>
<td>Organization Staff Size</td>
<td>.001</td>
<td>-.003</td>
<td>-.003</td>
</tr>
<tr>
<td>Employee Opinion of TBOs</td>
<td>.024*</td>
<td>.0258*</td>
<td>.025*</td>
</tr>
<tr>
<td>Organizational Resources</td>
<td>.000**</td>
<td>.000***</td>
<td>.000***</td>
</tr>
<tr>
<td>Organization’s Strategic Planning Connection</td>
<td>.263</td>
<td>.308</td>
<td>.308</td>
</tr>
<tr>
<td>Other Employees Influence in Setting of Objectives</td>
<td>1.952***</td>
<td>1.945***</td>
<td>1.948***</td>
</tr>
<tr>
<td>Organization’s Prior Management Approach</td>
<td>-.021</td>
<td>.011</td>
<td>.011</td>
</tr>
</tbody>
</table>

* Statistically Significant at the .10 level  
** Statistically Significant at the .05 level  
*** Statistically Significant at the .01 level

Organization Staff Size

This study expected the number of employees at a local public health department to influence the extent of adoption of target-based objectives because larger organizations would be more professionally managed. Findings from the regression equation did not support this prediction (p = .839).

This lack of significance runs counter to the findings of a number of others who previously studied adoption (Mohr, 1969; Lindblad, 2006; Naranjo-Gil, 2009; Kim, 2010). One might argue this dissertation’s type of organizations could affect this variable of organization size, but Mohr (1969) essentially studied the same service area (public health),
Naranjo-Gil (2009) studied similar health-oriented organizations, and both found larger agencies adopt more innovations. Further, Lindblad (2006) studied organizations at the local level, although general government organizations. One explanation for this lack of a significant finding for an organization’s staff size could be that more managers from smaller local public health organizations than larger public health organizations responded to this dissertation’s survey. Thus, this variable may not show significance because these other studies likely had more responses from organizations with larger staffs.

**Employee Opinions of Target-Based Objectives**

This scaled construct attempted to measure the local public health managers’ perceptions on what employees think about target-based objectives. This study expected that if the manager thought employees held a good opinion of target-based objectives, the manager would adopt the technique to a greater extent. The data did not show support for this prediction at the confirmatory level of significance (b = .024, p = .096).

This variable was included in this dissertation because the literature suggests it is an important predictor of adoption. This concept of employee opinions or receptivity to innovations in employees’ organizations largely relate to their organizations’ cultures, according to a discussion of theory and discussion of practice by Sturdy (2004) and Kelman (2005), and proven statistically by Melkers and Willoughby (2005). Kelman (2005) found that employee buy-in for an initiative is essential in installing a federal procurement reform. Further, Melkers and Willoughby (2005) found that an organization with a culture that values performance management efforts is more likely to adopt such tools and techniques. This
relationship seems intuitive, but this dissertation finds employee’s opinions is not significant at the confirmatory level. Interestingly, this dissertation does find the influence of employees in setting objectives, which likely relates to including employees’ opinions of targets, to be a statistically significant predictor of the extent to which targets are adopted. Thus, this finding suggests that only the thoughts or opinions of employees might not be enough to increase the extent of adoption; actually involving employees is better.

One potential explanation for this finding of non-significance is that the survey asked managers the thoughts of their employees on target-based objectives along a number of questions, but did not directly ask the employees their opinions. For example, 72.4% of managers at least “Somewhat Agree” that they think employees perceive targets as fair, and only 29.8% of managers think employees would say the tool limits their flexibility. Thus, employees opinions as measured by this dissertation it was not a true measure of employee opinions of the tool. Kelman (2005), for example, specifically interviewed federal employees to determine their opinions on the “old” procurement system, and he argues these employees’ shared desire for reform was essential for the “new” procurement reform. Had this dissertation measured the opinions of non-management employees directly, this relationship Kelman (2005) presents may have been supported.

Organizational Resources

This study expected organizations with greater resources, measured through their budget sizes, to adopt target-based objectives to a greater extent. Findings from the regression model supported this assumption at a statistically significant level (p = .022), with
what could be considered a small effect size ($b = .0000003678$) even though the measurement unit was U.S. dollars.

Because this variable of organizational resources was centered, its interpretation is slightly different from other variables in the regression model. This is an interesting finding because there was not a finding of significance for organizations with more employees, but there was a finding for organizations with greater financial resources. Thus, through interpreting the direction of the coefficient, one could say the more funds spent by the organization, the more likely the manager is adopt target-based objectives to a greater extent. One explanation could be that managers with larger organizational budgets believe they need to use more management tools to manage their organizations.

This dissertation supports the findings of several researchers that the organization’s financial resources are an important predictor of adopting social innovations. However, most researchers used the concept of “slack financial resources” while this dissertation measured finances more directly, by the organization’s expenditures. Only one author (Lindblad, 2006) used something similar, and he found budget size did predict the use of performance measures in local economic development organizations.

Of the studies that used the financial measure of “slack resources,” the relationship is usually also significant. One exception is Brudney and Selden (1995), but many others have found them to be a significant predictor of adoption of administrative innovations in public health departments (Mohr, 1969) and in states (Berry, 1994).
Strategic Plan Connection

This study expected managers of organizations with annual objectives highly connected to their strategic plans to adopt targets to a greater degree. This prediction is based on an underlying idea behind target-based objectives, that a cascading effect takes place where more immediate objectives, such as those to be achieved within one year, are connected to longer-range goals outlined in a strategic plan, which are to be achieved in approximately three to five years. This assumption was not found to be significant (p = .206).

The lack of significance for this variable is not intuitive. One potential explanation for this lack of a connection is the relatively high number of managers who reported their organizations do not use strategic planning (N = 38), which was 27% of those included in the sample. For those who do use strategic planning, 62.5% (N = 88) reported their strategic plans are at least somewhat connected to their annual objectives, and only 8.8% (N = 12) reported their strategic plans are not connected at all, somewhat less connected, or neither connected nor disconnected. Therefore, there seems to be little variation in this independent variable, which may contribute to the lack of a significant finding.

The lack of significance could also be explained by the wording of the question on this dissertation’s survey, which seems to have confused respondents. For example, only 27% of managers selected the choice of “No Strategic Plan or Do Not Use Target-Based Objectives” and that figure should be much higher because Question 2 in the survey showed that 38.3% of managers reported they do not use target-based objectives, and undoubtedly an
Employee Influence on Setting Objectives

This study expected the level of involvement of non-management employees to increase the extent to which a manager would adopt target-based objectives to a greater extent. The idea behind this prediction is that employee involvement in setting objectives would create buy-in for employees and therefore a better-functioning management system. This success of objectives, in turn, would provide an increased incentive for managers to maintain and expand their use of target-based objectives. This variable was found to be significant at the confirmatory level ($p = .000$) in predicting a manager’s extent of adoption of target-based objectives. The large increase for this dependent variable ($b = 1.952$) indicates employee influence is highly influential in the extent to which target-based objectives are adopted.

Thus, this could tell researchers many things about the manager’s style of management. For example, by involving non-management employees, one might assume the public health manager promotes a participative work environment where employee recommendations are taken seriously and incorporated into the organization’s performance management system. Such concepts would be interesting for future research to consider.

Further, while this study considers the level of influence non-management employees on setting target-based objectives as an organizational-level variable, one could argue that it is instead a manager-level variable that reflects the manager’s psychology, as it is the manager who likely determines the influence of different levels of employees.
Many in the literature have explored the importance of employees being involved in performance management efforts. Mohr (1969) found that resistance from employees in adopting innovations in public health departments, which would suggest they were not involved in establishing objectives, was a barrier to such adoption. Kelman (2005) also argues employee involvement and buy-in for procurement reforms, such as through having them help in creating the objectives, which will eventually guide their work, greatly increases the likelihood of the reform actually being adopted.

Prior Management Approaches

This study expected an organization’s use of different management approaches in the past (e.g. Baldrige Criteria, Lean Six Sigma, etc.) to influence the extent to which a manager would adopt target-based objectives. The findings from the regression equation revealed no support for this assumption (b = -.021, p = .534).

One might have expected a significant relationship because an organization that has used one approach would be likely to adopt another one, likely because they are fostering an organizational culture of performance improvement that values the use of performance information (Sturdy, 2004; Melkers and Willoughby, 2005). One researcher (Naranjo-Gil, 2009) explored these prior management approaches as a dependent variable, but primarily found community-level factors to be important predictors of the adoption of such efforts.

Summary of Organizational Factors Results

In attempting to predict the extent to which managers decide to adopt target-based objectives, this study predicted six organizational variables would be significant predictors.
Two variables, the organization’s resources and the influence of non-management employees in establishing objectives, were found to be statistically significant predictors of the extent of adoption of target-based objectives, providing support for Hypothesis 4.

Reported in the next sections are the results of ANOVA procedures for the community level variables.

**Analysis of Community Factors Using ANOVA**

In the following sections, the results of the four community-level variables expected to influence the extent to which a local public health manager adopts target-based objectives are reported. These four variables include: the jurisdiction’s form of government, the education level of the community, the political affiliation of the jurisdiction, and the jurisdiction’s population. Only one of these variables, the community’s education level, was found to be a significant predictor. Results of these community-level variables are shown below in Table 5-7.

<table>
<thead>
<tr>
<th>Independent Variable</th>
<th>Original Model R-squared=.605</th>
<th>1st Revised Model R-Squared=.605</th>
<th>2nd Revised Model R-Squared=.605</th>
</tr>
</thead>
<tbody>
<tr>
<td>Jurisdiction Population</td>
<td>.00002717*</td>
<td>.0000</td>
<td>.000</td>
</tr>
<tr>
<td>Jurisdiction Community Education Level</td>
<td>-0.092**</td>
<td>-0.075*</td>
<td>-0.074*</td>
</tr>
<tr>
<td>Jurisdiction Political Affiliation Democratic</td>
<td>1.137*</td>
<td>1.099**</td>
<td>1.093**</td>
</tr>
<tr>
<td>Jurisdiction Form of Government Council-Manager</td>
<td>.301</td>
<td>.959</td>
<td>.936</td>
</tr>
</tbody>
</table>

* Statistically Significant at the .10 level
**Statistically Significant at the .05 level
***Statistically Significant at the .01 level
Jurisdiction’s Form of Government

This study expected jurisdictions with a council-manager form of government to be more likely to adopt target-based objectives than those with all elected officials. Appointed managers who serve as the chief administrator typically are professionally trained in public management, which often includes an important emphasis on planning and monitoring progress toward achieving results. In the regression model for this study, the council-manager form of government ($b = .301$) was not a significant predictor ($p = .834$) of the extent of adoption of target-based objectives. This is an interesting finding and one that deviates from many other studies of management tools. One possible explanation is that public health agencies are more autonomous than many other public agencies, and therefore take fewer cues from mayors or managers, but further research is needed.

Several researchers have found support for the argument that the council-manager form of government increases the likelihood that management innovations are adopted. In their study of 25 leading innovations in local governments, Damanpour and Schneider (2009) found this form of government to increase the likelihood of the adoption of the management innovations they explored. However, although many of their innovations were oriented toward management, they did not specifically explore the adoption of target-based objectives. Further, Franzel (2008) also found a reformed structure (council-manager) to be a significant predictor of local governments adopting leading innovations; however, his focus only on 100 municipalities and only three innovations somewhat limits a connection to this dissertation’s findings.
Alternatively, and supported by this dissertation, Melkers and Willoughby (2005) did not find a community’s form of government to be a significant predictor of the adoption of any of the three types of performance information use (budgetary, communication, or long-lasting) they explored in local governments. Similarly, Kwon, Berry, and Feiock (2009) found this variable is not significant in predicting the adoption of economic development plans.

**Jurisdiction’s Community Education Level**

Only two sources in the literature, Mohr (1969) and Lindblad (2008) suggested a community’s education level is an important predictor of the adoption of management techniques. It is difficult to see why a community’s education level would have a direct impact on the extent to which a management tool is adopted, but data from this dissertation supports that there is a relationship, but in the opposite way Lindblad (2008) found.

Findings from this dissertation show that as the percent of citizens in a community with at least a Bachelor’s degree increases, the extent to which managers adopt targets decreases ($b = -.092, p = .046$). However, upon model re-specification through stepwise deletion of the most non-significant variables (repeated twice), this variable became non-significant at the confirmatory level in these additional regression equations.

One potential explanation for this finding of significance is that less-educated communities might need a greater number and variety of services to be delivered to its citizens. This would likely suggest the need for a greater number of management tools, such as target-based objectives, to manage these additional services and to monitor progress.
toward achieving the goals of these organizations.

Jurisdiction’s Political Affiliation

Much like the community-level variable of a jurisdiction’s citizen education level, very few authors have explored the variable of a jurisdiction’s political affiliation. Mohr, however, found it to be significant and therefore this study predicted a jurisdiction’s political affiliation—measured through the presidential candidate for whom a majority of citizens voted in 2012—might influence the extent to which managers adopt target-based objectives.

One plausible explanation for such a relationship is that larger, more urban areas, which often are more ideologically liberal, are more prone to use advanced management systems. In this study’s original linear regression model, a jurisdiction’s political affiliation was not a significant predictor of the extent to which managers adopt targets ($b = 1.137, p = .087$).

As discussed in earlier sections regarding the stepwise deletion of the most non-significant variable repeated twice, the finding that a community’s political affiliation being Democratic rises to significance at the same time the community’s education level becomes more non-significant (from significant in the original model) is an interesting finding. For each of the two times the most non-significant variable in the regression model was removed, this variable rose to statistical significance; in the first revised model ($b = 1.099, p = .042$), and in the second revised model ($b = 1.094, p = .043$). These findings suggest that upon model respecification, managers in areas that voted for the Democrat adopted target-based objectives to a greater extent; however, the original model does not support such claims.
This variable has not been studied very often. Some authors do suggest the variable of a community’s political affiliation is a significant predictor of the adoption of social innovations (Damanpour and Schneider, 2008; Franzel, 2008). Both these authors found that more liberal-leaning organizations are more likely to adopt leading innovations. With that being said, it could be that target-based objectives are not a “leading” innovation as those that are explored by these authors.

The findings in the revised models could be the result of more liberal-leaning communities valuing a greater role of government in its citizen’s lives in areas such as public health. With this expectation of more services to be delivered, it would be expected that managers would use more management tools, such as targets, to manage this higher number of programs than in communities with fewer services offered. As a result, this suggests the academic community has neglected the potential importance of this variable in predicting adoption of this and other management techniques, which could also be explored more specifically at the community level by voter registration.

**Jurisdiction’s Population**

Often included in regression analyses as a control variable, a community’s population is expected to influence the extent to which public health managers adopt target-based objectives. Many would argue that jurisdictions with larger populations require public organizations to provide more services to more citizens, which often encourages managers to install performance management systems to monitor the performance of the many services they deliver. However, a community’s population is not a significant predictor (p = .069, b =
of the extent of adoption of target-based objectives in local public health organizations.

Many prior researchers (Mohr, 1969; Brudney and Selden, 1995; Damanpour and Schneider, 2008; Franzel, 2008), like this dissertation, have found that population is not significantly related to the adoption of a social innovation.

Others have found that population size does not matter in the adoption of management techniques; in fact, the findings from this dissertation on this variable are confirmed by the most closely related article to this dissertation (Leep et al., 2009), who used an older version (2005) of the NACCHO survey of local public health officials this dissertation used. Although Leep and her colleagues only use descriptive statistics to report the use of quality improvement efforts, they still do not find differences between jurisdictions’ sizes along two key dimensions that relate to the adoption of target-based objectives.

On the variable of a jurisdiction’s population, Melkers and Willoughby (2005) also did not find a statistically significant relationship between this variable and local general government organizations using performance information for management purposes.

However, the finding that neither a community’s population nor the organization’s number of employees are significant predictors of the extent of adoption of target-based objectives, but the organization’s financial resources is significant presents an interesting difference. It appears that size only matters when related to finances, not to individuals.
Summary of Community-Level Factors Results

In the original model, only one variable relating to the community was statistically significant, the community’s education level. Perhaps the greatest surprise was that the jurisdiction’s form of government (i.e. council-manager or not) was not a significant predictor.

Further, one would have expected the larger the jurisdiction’s population, the greater the extent that managers have adopted target-based objectives since they likely have larger budgets and are more professionally managed. Three characteristics that are usually closely related – jurisdictional size, organizational staff size, and organizational budget size—showed different relationships. Budget was significantly related to the adoption of target-based objectives, while the other two closely related factors were not.

Upon model respecification, a community’s education level became a non-significant predictor of the extent of adoption, and the jurisdiction’s political affiliation being Democratic rose to a statistically significant level. Both of these variables have rarely been included in adoption studies, and the results suggest that future research that includes these variables will be fruitful.

To summarize, Hypothesis 5, stating that community-level variables will influence the extent to which managers adopt target-based objectives, was supported. Only one variable in the original model, the community’s education level, was found to be a significant predictor of the extent to which managers adopt target-based objectives.
Conclusion of Chapter 5

The findings from the regression model attempting to predict the extent to which a manager has adopted target-based objectives confirmed some of this dissertation’s predictions, but failed to confirm others.

At the confirmatory level of significance (p < .05), five variables were found to be statistically significant predictors of the extent of adoption of target-based objectives. These factors relating to managers were a manager having held other managerial positions at other organizations, and the manager being male. At the organizational level, two variables were significant; the organization’s financial resources and the influence employees have in setting objectives. Only one variable relating to the department’s external environment, the community’s education level, was found to be statistically significant at the confirmatory level; however, this went in the opposite direction than a few previous studies had suggested, perhaps because of the unique mission of public health agencies. From the variables found to be significant, the two biggest surprises were the findings of support for a community’s education level and a manager’s gender affecting the extent to which targets are adopted.

Perhaps the most surprising findings of non-significance from the regression equation predicting the extent to which managers adopt target-based objectives were the variables of the opinions of employees about targets, and the importance of outcomes to the manager. Each of these was expected to influence the dependent variable because of findings of significance from prior researchers.

Revisions to the model in attempting to obtain the most parsimonious model revealed that the manager’s gender and the community’s education level drop to a non-significant
level, and the jurisdiction’s political affiliation being Democratic rises to a statistically significant level, and the influence of all other variables remain the same.

**Preview of Chapter 6**

Chapter 6 explores relationships between managers’ decisions to adopt target-based objectives, their perceived effectiveness of these objectives, and managers’ perceived effectiveness of their organizations.
This chapter discusses the perceived effectiveness of target-based objectives, and the hypothesized influence this management technique has on perceptions of the effectiveness of the department itself. First, descriptive statistics are used to show the managers’ perceptions of the effectiveness of target-based objectives. Second, the data is analyzed to determine whether the use of targets (or the positive perception of targets) increases managers’ perceptions of the effectiveness of their organizations.

**Descriptive Statistics and Findings for Perceived Effectiveness of Targets**

As discussed in Chapter 4, most managers believe target-based objectives to be an effective management technique. This was measured by comparing the responses through cross tabulations of target adopters and non-adopters to Question 10 on this dissertation’s survey, which specifically asked:

- “These questions are about target-based objectives. Whether or not your organization uses target-based objectives, to what extent do you agree with the following statements about the use of target-based objectives? (Reminder: Target-based objectives are written goals saying by what percent or amount a quantitative performance measure should change with a data attached. An example of a target-based objective is decreasing the number of missed patient appointments by 10 percent by March 30.):
  - Target-based objectives improve my organization’s effectiveness (LUC_Q10k).
    - Strongly Disagree [1]
    - Somewhat Disagree [2]
    - Neither Agree nor Disagree [3]
    - Somewhat Agree [4]
    - Strongly Agree [5]” (LUC_Q10).

As discussed in Chapter 4 and as shown below in Table 6-1, this ordinal level variable showed that more than 80% of managers that use targets, at least “Somewhat Agree”
that targets improve their organizations’ effectiveness. By contrast, only 40.8% of respondents that did not adopt target based objectives share this perception about the effectiveness of target-based objectives.

Table 6-1: Comparison of Respondents and Non-Respondents on Perceptions of the Effectiveness of Target-Based Objectives

<table>
<thead>
<tr>
<th>Level of Agreement with “Target-based objectives improve my organization’s effectiveness”</th>
<th>Percent of Adopters of Target-Based Objectives</th>
<th>Percent of Non-Adopters of Target-Based Objectives</th>
</tr>
</thead>
<tbody>
<tr>
<td>Strongly Disagree</td>
<td>0.0%</td>
<td>1.9%</td>
</tr>
<tr>
<td>Somewhat Disagree</td>
<td>2.3%</td>
<td>7.4%</td>
</tr>
<tr>
<td>Neither Agree nor Disagree</td>
<td>14.9%</td>
<td>50.0%</td>
</tr>
<tr>
<td>Somewhat Agree</td>
<td>41.4%</td>
<td>24.1%</td>
</tr>
<tr>
<td>Strongly Agree</td>
<td>41.4%</td>
<td>16.7%</td>
</tr>
</tbody>
</table>

These frequencies show that managers who use targets think they increase their organizations’ effectiveness, and even many managers (41%) who have not adopted targets also think they increase organizational effectiveness.

Findings for Perceived Effectiveness of Targets

Outcomes Perceived to be More Important Than Outputs

This dissertation explored whether there are differences between managers who perceive outcomes to be more important than their peers. Using Question 1 from this survey, respondents with a total score for the three output measures was subtracted from the total score of importance for the three outcome measures. Thus, this difference shows the degree to which outcomes are more important to managers than outputs. Then a dichotomous variable was created with those who think outcomes are more important than outputs. With
this, it is expected that managers who think outcomes are more important than outputs would be more likely to think targets are more effective.

This relationship is explored by focusing only on managers who have adopted targets because they are the most likely to have a valid opinion of the effectiveness of targets. With this, more than three-quarters of respondents who use targets (75.9%) think outputs are more important than outcomes (24.1%). Thus, this shows an overwhelming majority of managers think outputs are more important than outcomes; however, this could be due to the specific outcomes (community health status, client satisfaction, and community teen pregnancy rate) and outputs (number of influenza vaccinations, number of patients seen, and number of child vaccinations) included in Question 1.

An ordinal regression analysis was run to explore the influence of this variable on the perceived effectiveness of target-based objectives. The model, which includes the control of an organization’s staff size and years using targets, is not significant overall (p = .175), and does not pass the parallel lines test (p = .012). The regression results do not show a significant relationship between managers who perceive outcomes to be more important than outputs and a higher opinion of target-based objectives. (p = .406).

Individual Influence of the Importance of Outcomes and Outputs

An additional ordinal regression was run using two dichotomous variables relating to the perceptions of managers for the importance of outputs and outcomes. The model was significant and seemed to show that managers who valued outputs more were more likely to believe target-based objectives were effective; however, it did not pass the parallel lines test and therefore will not be discussed further.
Findings for Perceived Effectiveness of Targets Based on Areas Targets Are Used

This dissertation also expected the purposes for which managers find the use of targets important might influence their perceptions of the effectiveness of the tool. This was addressed by an additional ordinal regression including the following purposes for the use of target-based objectives: budgeting adjustments, budget preparation, staffing allocations, reporting requirements to higher level public health organizations, and for improving customer satisfaction. When these purposes and the control variable of the organizations’ staff size are included in an ordinal regression model predicting the perceived effectiveness of targets, the overall model is significant (p = .001), well-fitting (Deviance =1.00), and passes the parallel lines test (p = .989). Three purposes were found to be significant (reporting requirements, improving customer satisfaction, and budget adjustments), and because each purpose is on a categorical scale, the findings are discussed below respective to the significant factor level for each of these three purposes.

The regression results show that managers using targets for reporting requirements to higher-level public health organizations, improving customer satisfaction, and budget adjustments significantly predict the perceived effectiveness of target-based objectives. Because this analysis relied on ordinal regression, with ordinal items for the “importance” of each purposes for which targets are used, these findings are interpreted by their score on the scale of “Not Important at All” to “Very Important,” which also includes an option for “Don’t Use” for each specific purpose.

The first significant finding was that respondents thinking the purpose of using targets for reporting requirements are “Relatively Important” predicts the perceived effectiveness of
target-based objectives (Odds ratio = .355, p = .018). As the odds ratio indicates, this indicates that the more effective managers think targets are for reporting requirements to higher level public health organizations, the less likely they are to perceive the tool as effective. This is an intuitively plausible relationship. It suggests that managers used targets (and are probably required) to meet the needs of outsiders, rather than for internal management, and are less likely to find the tool effective.

The second significant relationship was between the importance of targets for improving customer satisfaction and the perceived effectiveness of target-based objectives. However the relatively small effect size (Odds ratio = 1.095, p = .047) suggests its practical importance is modest.

Third, both the “Don’t Use” and “Relatively Important” responses for using targets for budget adjustments were significantly related to the perceived effectiveness of target-based objectives. Oddly, managers who responded that they “Don’t Use” targets for budget adjustments were more likely to perceive targets to be an effective tool by a factor of 3 (Odds ratio = 3.011, p = .000) when compared to the reference group. On the other hand, managers who responded that they think targets are “Relatively Important” for budget adjustment also increase the likelihood that they will think targets are an effective tool by a factor of 2.777 (p = .000) given the reference category and all other variables being held constant.

The next section of this dissertation discusses the relationship between the adoption of targets and the perceived effectiveness of the organization.
Dependent Variable Descriptive Statistics of Target Adoption for Effectiveness of the Organization

In attempting to predict the *Perceived Effectiveness of the Local Health Department*, the dependent variable was discussed in Chapter 3, but is presented below again:

- To what extent do you agree with the following statement:
  My organization is a highly effective local public health department.
  - Strongly Disagree
  - Somewhat Disagree
  - Neither Agree nor Disagree
  - Somewhat Agree
  - Strongly Agree

This ordinal level item presents the need for ordinal regression to be used in this analysis, thus differing from procedures used in predicting the extent of adoption of targets. This dependent variable ranged from a score of one to five. The mean score for managers responding to this study’s survey on this variable is 4.10 and a median of 4.00, indicating most managers feel their organizations are effective.

Most managers think their organizations are highly effective as more than 80% of managers said they at least “Somewhat Agree.” The largest group of managers “somewhat agreed” that their organization is highly effective (51.1%) and the second largest group of managers “Strongly Agreed” (31.9%). Less than 1% of managers “Strongly Disagreed” that their organizations are highly effective. The percentages of target-user and non-users of targets for each response choice on the perceived effectiveness of the organization are presented in Table 6-2.
Table 6-2: Comparison of Perceptions of Organizational Effectiveness Between Users and Non-Users of Targets

<table>
<thead>
<tr>
<th>Responses to: “My organization is a highly effective local public health department.”</th>
<th>Non-Users of Targets Percentage of Respondents</th>
<th>Users of Targets Percentage of Respondents</th>
</tr>
</thead>
<tbody>
<tr>
<td>Strongly Disagree</td>
<td>0%</td>
<td>1.1%</td>
</tr>
<tr>
<td>Somewhat Disagree</td>
<td>3.7%</td>
<td>3.4%</td>
</tr>
<tr>
<td>Neither Agree nor Disagree</td>
<td>16.7%</td>
<td>10.3%</td>
</tr>
<tr>
<td>Somewhat Agree</td>
<td>44.4%</td>
<td>55.3%</td>
</tr>
<tr>
<td>Strongly Agree</td>
<td>35.2%</td>
<td>29.9%</td>
</tr>
</tbody>
</table>

As the table shows, roughly 80% of managers who do not use targets at least “Somewhat Agree” that their organizations are highly effective, which is slightly less than the percentage of users of target-based objectives (85.20%) who at least “Somewhat Agree.” On the other hand, more non-users (35.2%) “Strongly Agree” that their organizations are highly effective, compared to tool-using managers (29.9%).

As discussed in Chapter 3, effectiveness is here a self-reported measure, and objective performance measures would likely yield different results.

Implications of Using the “Effectiveness of Organization” Variable as a DV

Although the following sections will briefly explore the “perceived effectiveness of organization” as a dependent variable, the analysis is tentative and purely exploratory. It is virtually impossible to state any *a priori* expected relationships between the target-based objectives and perceived organizational effectiveness, and equally difficult to interpret any relationships that are found.

For example, organizations with clear target-based objectives may receive better objective feedback about their shortcomings. In that case a well-working management tool leads to lower perceived organizational effectiveness. Conversely, the use of target-based
objectives may give the adopting agency more confidence in its management processes, leading to higher perceived organizational effectiveness. The direction of the relationship can plausibly be interpreted in directly opposite ways, even if the tool is working well.

Further complicating any interpretation, lower perceived organizational effectiveness may lead to the adoption of remedial management tools such as target-based objectives. This reverses the causal arrow, with the “perception of effectiveness” causing the tool adoption rather than vice versa. In this case, a negative relationship between target-based objectives and perceived agency effectiveness may again be found even if the tool is improving the organization.

The only straightforward (albeit still subjective) measures of the perceived effectiveness of target-based objectives are the questions which directly ask whether targets improve organizational effectiveness. (As discussed earlier, more than 80% of using managers say they do.)

Despite all of its inescapable ambiguities, though, it is interesting to take a quick, exploratory look at how the dependent variable of perceived organizational effectiveness relates to other variables.

**Independent Variable Descriptive Statistics for Target Adoption on Effectiveness of the Organization**

This model seeks to predict if managers who adopted targets to a greater extent perceive their organizations to be more effective than managers who adopted targets to a lesser extent. This is measured through the use of the adoption model’s dependent variable, *Extent of Use of Target-Based Objectives* since it is the most comprehensive measure of
adoption. As discussed in Chapter 5, this 7-item scale has a maximum score of 15.85 with a mean of 8.39 and standard deviation of 5.57.

Additional control variables in this model are the local public health department’s staff size and form of government. Bivariate correlation procedures were conducted to ensure relationships between variables observed from other statistical procedures are not necessarily only the result of correlations. For this model, there is a correlation between an organization’s staff size and the jurisdiction’s form of government ($r = -.179$) ($p < .05$), but since this is a low correlation, and is intuitive, no additional corrective steps are necessary.

**Findings for Target Adoption on The Perceived Effectiveness of the Organization**

Using ordinal regression and the control variables discussed, the *Extent of Use of Target-Based Objectives* was regressed on the variable *Manager’s Perceived Effectiveness of the Organization*. With the continuous dependent variable measuring the extent of adoption, this model sought to see if managers who use targets more extensively are more likely to think their organizations are more effective than managers that do not extensively use targets. The overall model passes the parallel lines assumption ($p = .698$), and is a well-fitting model as the Deviance score ($p = 1.00$) and Pearson’s score ($p = .598$) are also non-significant, indicating no differences between the frequencies of the predicted and observed cells. Given the fact that the descriptive statistics presented earlier in Table 4-8 show that non-adopters and adopters both have roughly similar – and very high—opinions of their organizational effectiveness, this result is expected. Table 6-3 shows the results of the ordinal regression, where the extent of adoption of target-based objectives was not a significant predictor.
Table 6-3: Ordinal Regression Results for the Effects of the Adoption of Targets on Perceived Organizational Effectiveness

<table>
<thead>
<tr>
<th>Independent Variable</th>
<th>Odds Ratio</th>
</tr>
</thead>
<tbody>
<tr>
<td>Extent of Adoption of Target-Based Objectives</td>
<td>1.02</td>
</tr>
<tr>
<td>Staff Size</td>
<td>1.00</td>
</tr>
<tr>
<td>Form of Government not Council-Manager</td>
<td>0.94</td>
</tr>
</tbody>
</table>

* Statistically Significant at the .10 level
**Statistically Significant at the .05 level
***Statistically Significant at the .01 level

Independent Variable Descriptive Statistics for the Perceived Effectiveness of Targets on the Perceived Effectiveness of the Organization

The primary independent variable for this model is the perceived effectiveness of target-based objectives from managers that use them. This was measured by a response to this dissertation’s survey to the following item:

- “These questions are about target-based objectives. Whether or not your organization uses target-based objectives, to what extent do you agree with the following statements about the use of target-based objectives? (Reminder: Target-based objectives are written goals saying by what percent or amount a quantitative performance measure should change with a data attached. An example of a target-based objective is decreasing the number of missed patient appointments by 10 percent by March 30.):
  - Target-based objectives improve my organization’s effectiveness” (LUC_Q10k).
    - Strongly Disagree
    - Somewhat Disagree
    - Neither Agree nor Disagree
    - Somewhat Agree
    - Strongly Agree” (LUC_Q10k).

As discussed in Chapter 4, more than three quarters of local public health managers (82.8%) think targets increase the effectiveness of their organizations.

Control variables in this model include: the local public health department’s staff size, form of government, and years the organization has used target-based objectives.
Dependent Variable Descriptive Statistics for the Perceived Effectiveness of Targets on the Perceived Effectiveness of the Organization

Since this model focuses exclusively on the perceived effectiveness of targets of those who have used targets, this model only investigated those respondents who responded “Yes” to the dichotomous question (Question number 2) on the use of target-based objectives. Their perceived effectiveness of targets is therefore the independent variable, and the dependent variable is measured through Question 16 as shown below:

- To what extent do you agree with the following statement:
  My organization is a highly effective local public health department.
  - Strongly Disagree
  - Somewhat Disagree
  - Neither Agree nor Disagree
  - Somewhat Agree
  - Strongly Agree

None of the four variables in this model are correlated to any degree, which suggests further analysis, including ordinal regression, can be conducted. The results are shown in Table 6-4.

Table 6-4: Ordinal Regression Results for the Perceived Usefulness of Targets on the Perceived Effectiveness of the Organization

<table>
<thead>
<tr>
<th>Independent Variable</th>
<th>Odds Ratio</th>
</tr>
</thead>
<tbody>
<tr>
<td>Perceived Effectives of Targets Very Important=2 (Somewhat Disagree)</td>
<td>.340</td>
</tr>
<tr>
<td>Perceived Effectives of Targets Very Important=3 (Neither Agree nor Disagree)</td>
<td>.056</td>
</tr>
<tr>
<td>Perceived Effectives of Targets Very Important=4 (Somewhat Agree)</td>
<td>.399</td>
</tr>
<tr>
<td>Years Using Target-Based Objectives</td>
<td>5.809</td>
</tr>
<tr>
<td>Staff Size</td>
<td>5.809</td>
</tr>
<tr>
<td>Form of Government not Council-Manager</td>
<td>.170</td>
</tr>
</tbody>
</table>

* Statistically Significant at the .10 level
**Statistically Significant at the .05 level
***Statistically Significant at the .01 level
As can be seen, no variables are statistically significant. As noted earlier, this may reflect the fact target-based objectives are not improving the organization as much as hoped. However, it is equally plausible that the target-based objectives are working well in improving the organization, and that managers who regularly receive objective performance data, such as that produced by the use of targets, are more likely to rate themselves accurately, and less likely to convince themselves that their organizations are “highly effective” when they actually are not.

**Effect of Feedback on Targets on Perceived Effectiveness of the Organization**

One might expect the feedback provided by users of targets to be a predictor of the perceived effectiveness of a manager’s organization. For this reason, this regression only considered users of targets. This model included two items from this dissertation’s survey relating to feedback on targets (Questions 5b and 6b) with control variables (jurisdiction’s form of government organization staff size, and years using targets.

Discussing progress on the target of the number of influenza vaccinations (an output-oriented measure) was shown to be significantly related to perceived organizational effectiveness when such discussions were between employees and the manager: weekly (odds ratio = 1.618, p = .018), monthly (odds ratio = 1.727, p = .007), quarterly (odds ratio = 1.635, p = .013), and semi-annually (odds ratio = 1.213, p = .122). Further, this was a significant model (p = .017), but failed Pearson’s test (p = .000), but still passed the Test of Parallel Lines (p = 1.000).
When discussions relating to outcomes were explored, the model was not significant overall (p = .147), failed Pearson’s test (p = .000), but passed the Test of Parallel Lines (p = .766).

Table 6-5: Influence of Discussions with Employees Regarding Outputs and Outcomes on Perceived Organizational Effectiveness

<table>
<thead>
<tr>
<th>Frequency of Discussions</th>
<th>Outputs (Influenza Vaccinations) Odds Ratio</th>
<th>Outcomes (Client Satisfaction) Odds Ratio</th>
</tr>
</thead>
<tbody>
<tr>
<td>Weekly</td>
<td>1.618***</td>
<td>1.67</td>
</tr>
<tr>
<td>Monthly</td>
<td>1.727***</td>
<td>1.058</td>
</tr>
<tr>
<td>Quarterly</td>
<td>1.635*</td>
<td>.947</td>
</tr>
<tr>
<td>Semi-Annually</td>
<td>1.213</td>
<td>.252</td>
</tr>
</tbody>
</table>

* Statistically Significant at the .10 level  
**Statistically Significant at the .05 level  
***Statistically Significant at the .01 level

Each of these odds ratios relating to outputs (the number of influenza vaccinations) was in the expected direction, with the highest influence on the perceived effectiveness of the organization seen from progress being discussed monthly, followed by weekly, then quarterly. Thus, this supports the idea that the more frequently progress on targets relating to outputs are discussed, the more managers think their organizations are effective. However, the goodness of fit measures for this overall model suggests further model re-specification is necessary. This finding supports the literature’s discussion on the importance of feedback as a component of goal setting by showing it increases managers’ perceived effectiveness of their local health departments.

Further, the overall model for discussions held on the outcome measure of customer satisfaction was not significant. This finding is in keeping with a number of findings,
discussed in earlier chapters, that outputs play a larger role than outcomes for many managers using target-based objectives.

It appears that no researchers have specifically examined the frequency by which managers discuss progress toward achieving organizational objectives with goals. With this, there is a contribution from this dissertation regarding feedback on objectives.

This research contributes to the literature by exploring the frequency of feedback on specific types of organizational objectives, both output and outcome-oriented. It was found that the frequency of such discussions matters for output-oriented measures, but not for outcome measures. The findings from earlier researchers suggests discussions are important, but this dissertation showed the frequency of these discussions are important if an organization wants to be certain it achieves the desired objectives, as a result of monitoring progress and providing early feedback on output-oriented measures.

The next section discusses the influence of the importance managers attach to outcomes on their perceptions of the effectiveness of their organizations.

**Effect of the Importance of Outcomes on Perceived Effectiveness of the Organization**

Another expected relationship this dissertation explored was between the perceived effectiveness of the local public health department and the importance of outcomes to the manager. Two ordinal regression equations were run to measure this concept; once including the importance of both outputs and outcomes, and the other exploring how much more important outcomes are than outputs to managers.

The first regression included two independent variables of interest to this concept. First, the dichotomous variable discussed earlier for the importance of outputs for each
manager when compared to the median importance among all managers. The first dichotomous variable is for managers who reported higher levels of importance for more of the three output measures (number of influenza vaccinations, number of patients seen, and number of child vaccinations) than the median total of importance for all managers. Managers above this median were coded as “1” and those below were coded as “0.” This procedure was repeated for managers perceived importance of outcomes, which resulted in an additional dichotomous variable.

These two dichotomous variables were regressed on the *Perceived Effectiveness of the Organization* along with two control variables (staff size and years using target-based objectives), and the model statistics showed an overall significant model (p = .021), that passed Pearson’s goodness of fit test (p = .128), and passed the Parallel Lines Test (p = .205). The odds ratio for the importance of outputs being “0” was .819 (p = .235), and for outcomes being “0” the odds ratio was .2383 (p = .020).

When interpreted from the reference group of “1,” or outcomes being more important to particular managers when compared to all managers, this ordinal regression equation showed that managers who do not think outcomes are as important as their peers are less likely to perceive their organizations to be effective by a factor of .2383.

The second ordinal regression equation considered the influence of the importance of outcomes relative to outputs. This dichotomous variable, along with the controls of the organization’s staff size and years using target-based objectives, were regressed on the perceived effectiveness of the organization. This model was not significant overall (p = .360), but passed Pearson’s test (p = .644), and the Test of Parallel Lines (p = .181). The
results of this ordinal regression showed that managers thinking outcomes are not more
important than outputs (the “0s” since outcomes greater than outputs was the reference
group) was not a significant predictor of managers’ perceptions of the effectiveness of their
organizations (Odds ratio = 3.474, p = .936).

Taken together, these results suggest that outcome-oriented managers may be
somewhat more likely to perceive their organization as effective, but the lack of a
 corresponding (mirrored) finding for outputs, and the dependent variable interpretation
problems discussed earlier all suggest caution in drawing any confident conclusions.

**Conclusion of Chapter 6**

Of those managers that use target-base objectives, more than 80% perceive them to be
an effective technique to increase the performance of their organizations. Managers are more
likely to perceive target-based objectives as effective when they are primarily used for their
own management purposes rather than to meet required outside reporting requirements.

“Perceived effectiveness of the organization” was used as a dependent variable in a
series of exploratory analyses. There was no statistically significant relationship between the
extent of adoption of target-based objectives and the perceived effectiveness of the
organization, nor between the perceived effectiveness of targets and the perceived
effectiveness of the organization. However, there were some relationships between
perceived effectiveness and both the frequency of feedback about outputs and the valuing of
outcomes. Uncertainty about the possibilities of perceptual error, about the possibilities of
modeling success as either a rise or fall in (incorrectly perceived) effectiveness, and even
about the causal direction of the adoption/perception relationships, makes these specific
findings interesting but difficult to interpret.

**Preview of Chapter 7**

Chapter 7 will connect the literature, methodology, and findings to summarize the significance and contribution of this research to the literature. It will also discuss the limitations of this study and directions for future research on target-based objectives.
CHAPTER 7: CONCLUSION

This dissertation has explored one specific management technique, target-based objectives, in U.S. local public health departments. Target-based objectives are a means by which managers set a direction for their agency and monitor progress toward achieving organizational results. As discussed in Chapter 1, target-based objectives are the most important aspect of results-based management. They are also the aspect with the most extensive empirical evidence of efficacy.

Summary of Findings
This study had three primary goals. First, to determine how many public health agencies use targets, how they set them, and how they use them. Second, and most important, to explain why public health managers adopt or fail to adopt target-based objectives. Third, and less important, to explore managers’ perceptions of the effectiveness of target-based objectives, and to examine how the effectiveness of this management technique relate to managers’ perceptions of their organizations’ effectiveness.

As shown below in Table 7-1, and discussed briefly in the following sections, this dissertation found support for all but two hypotheses (Hypotheses 3 and 7).
Table 7-1: Summary of Findings for Research Questions and Hypotheses

<table>
<thead>
<tr>
<th>Research Question Number</th>
<th>Research Question</th>
<th>Hypothesis Number</th>
<th>Hypothesis</th>
<th>Hypothesis Supported</th>
<th>Relevant Findings of Significance</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>To what extent are target-based objectives used in public health agencies?</td>
<td>1</td>
<td>More than half of all public health departments will use target-based objectives.</td>
<td>Supported</td>
<td>61.70% of all public health managers use target-based objectives.</td>
</tr>
<tr>
<td>2</td>
<td>Why do some public health organizations adopt performance management tools, such as target-based objectives?</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>2.1</td>
<td>Do manager-level variables contribute to the adoption of performance management tools, such as target-based objectives?</td>
<td>2</td>
<td>Factors relating to the demographics of public health managers will influence their decisions to adopt target-based objectives.</td>
<td>Supported</td>
<td>Manager’s First Time as Manager</td>
</tr>
<tr>
<td>2.1</td>
<td>Do manager-level variables contribute to the adoption of performance management tools, such as target-based objectives?</td>
<td>3</td>
<td>Factors relating to the psychology of public health managers influence their decisions to adopt target-based objectives.</td>
<td>Not Supported</td>
<td>Manager’s Gender Female</td>
</tr>
<tr>
<td>2.2</td>
<td>Do organization-level variables contribute to the adoption of performance management tools, such as target-based objectives?</td>
<td>4</td>
<td>An organization’s size and resources influence managers’ decisions to adopt target-based objectives.</td>
<td>Supported</td>
<td>Organization’s Financial Resources</td>
</tr>
<tr>
<td>2.3</td>
<td>Do community-level variables contribute to the adoption of performance management tools, such as target-based objectives?</td>
<td>5</td>
<td>Community-level variables influence managers’ decision to adopt target-based objectives.</td>
<td>Supported</td>
<td>Organization’s Involvement of Employees in Establishing Objectives</td>
</tr>
<tr>
<td>3</td>
<td>Are target-based objectives perceived as effective by public health managers?</td>
<td>6</td>
<td>Public health managers who adopt target-based objectives are more likely to perceive target-based objectives as effective than managers who do not adopt target-based objectives.</td>
<td>Supported</td>
<td>82.8% of target-users say the tool is effective and 40.8% of non-adopters think the tool is effective</td>
</tr>
<tr>
<td>4</td>
<td>Do public health managers perceive their organizations to be effective?</td>
<td>7</td>
<td>Public health managers who perceive target-based objectives to be effective will perceive their organizations to be more effective.</td>
<td>Not Supported</td>
<td></td>
</tr>
</tbody>
</table>

Summary of Findings for Target Adoption Findings

Hypothesis 1 is supported because a majority of public health managers—in fact, 61.7%—use target-based objectives.
This dissertation also explored why managers adopt or do not targets. This study found that the extent of adoption was predicted by some managerial demographic variables (manager’s first time as a manager and a manager’s gender), supporting Hypothesis 2.

Hypothesis 3 predicted variables relating to a manager’s psychology (especially risk aversion and, measured separately, risk taking) to be important predictors of the extent to which managers adopt targets, but the regression results did not find any variables to be significant predictors.

Some organizational factors (financial resources and the influence of employees in setting objectives) were significant predictors of the extent of tool adoption, supporting Hypothesis 4. Two (surprising) non-significant predictors at the confirmatory level were the department employees’ opinions of targets and the number of employees.

One community factor was significant (community education level), partially supporting Hypothesis 5.

**Summary of Findings for Perceived Effectiveness of Targets**

Supporting Hypothesis 6, 82.8% of managers who use targets at least somewhat agree that target-based objectives increase their organizations’ effectiveness, a solid endorsement.

Perhaps most surprisingly, 40.8% of managers who do not use targets nonetheless believe they increase organizational effectiveness. This seems to indicate that even many non-users have been influenced by the emphasis on target efficacy that currently pervades management training, professional journals, and other information sources. It also suggests that target use, already high, is likely to increase further in the future, because even many non-users see its value.
When looking at the perceived importance of outcomes, 87% of managers who think outcomes are more important than outputs at least “Somewhat Agree” that target-based objectives are an effective management tool, compared to 81.9% of managers who think outputs are more important.

Also, managers who use targets for purposes relating to internal management, such as adjusting their organization’s budgets and allocating staff, are more likely to perceive target-based objectives to be an effective management tool. This dissertation has also shown the variety of reasons for which managers adopt targets. They seem to adopt them more, and think the tool is more important, for output-oriented purposes relating more to internal management (budget adjustments, staffing allocations) rather than for outcomes (such as improving customer satisfaction).

Further, for establishing targets, this dissertation showed that more then three-quarters of managers who use targets (81.2%) think employees are at least moderately influential in establishing organizational objectives. Thus, this supports the findings of earlier researchers (Kelman, 2005) about the importance of managers creating buy-in by involving employees in their performance management systems. Feedback meetings are also a form of employee involvement, and the survey indicated that the majority of managers meet at relatively short time-intervals—quarterly or more often.

**Summary of Findings for Relationship of Targets to Organizational Effectiveness**

The perceived effectiveness of targets was not significantly related to the perceived effectiveness of the agency. Therefore, support was not found for Hypothesis 7. This finding seems counter-intuitive, as it is well documented in the literature that performance
management systems, with the primary component of targets, are consistently found to increase a number of measures of organizational performance.

One reason for this finding may be the dissertation’s single measure of perceived effectiveness. Retrospectively, a better measure of effectiveness might have combined multiple survey items. It would be yet better, although extremely difficult, to replace the perceptual measure of effectiveness with an objective measure of organizational performance.

A second explanation for the non-finding could be that managers who are using targets are not utilizing the tool to its fullest extent by including milestones. As discussed earlier, some managers (16.1%) never include milestones, and others only occasionally do. However, it is encouraging that 45.9% of public health managers using targets at least “Usually” include milestones. The lack of a relationship between tool effectiveness and organizational effectiveness, then, could be affected by the failure of some managers to implement the tool in a way that reaps its fullest potential. (Matsui et al., 1983).

A final reason for the lack of a relationship is the difficulty in establishing a single hypothesized relationship. It is possible, for example, that a well-working target-based objective system may provide useful information that shows managers their organization is not as highly effective as they had believed. Or it is possible that a perception that the organization is not highly effective will cause an organization to start using targets, reversing the causal arrow.

There were some less global predictors of perceived organizational effectiveness, however. For example, perceived organizational effectiveness was higher for managers who
value outcomes over outputs. In addition, managers who used targets for more practical matters – like budget adjustments – and who frequently reviewed outputs (but not outcomes) viewed their agency as more effective. At the same time, those who think targets are most important for the difficult-to-affect customer satisfaction were less likely to view their organization’s effectiveness as high.

**Contribution to the Literature**

The findings from this study contribute to the academic literature on target-based objectives and organizational effectiveness. While a great deal of research has explored the effectiveness of target-based objectives, no research has explored the reasons a manager adopts (or fails to adopt) this particular management tool.

**Contribution to the Adoption Literature**

Several adoption variables for which this dissertation finds support are not explored extensively in the literature. Just as interestingly, several variables that many researchers find to be significant predictors of adoption (organization size, form of government, etc.) are not found to be statistically significant in this dissertation.

This dissertation found five variables to be significant predictors of adoption: the manager’s professional experience, the manager’s gender, the organization’s financial resources, the level of involvement of employees in establishing objectives, and the community’s education level.

The significance of an organization’s size of budget was an expected finding because the literature consistently suggests that larger organizations are more likely to adopt new techniques. Larger organizations have both more capabilities – staff, time, and money – for
establishing more sophisticated management approaches, and they also need more sophisticated management tools in order to run their complicated organizations. However, the lack of significance of the other size variable in this study, number of staff, was unusual.

The significance of gender was unexpected and not reflected in the literature. It may be a statistical anomaly, but it should be further explored in future studies.

The finding that the involvement of employees in establishing objectives would increase the extent to which targets are adopted confirms a frequently asserted maxim – involve employees – but it is noteworthy nonetheless because the relationship is usually captured through qualitative case studies rather than quantitative measures, and it has never been specifically shown for this management tool.

The data showed that first-time managers adopt targets to a lesser degree than managers who have worked as a manager in other public health organizations. One potential explanation is that managers who move are managers with greater ambition and broader perspectives. They would be more likely, then, to be more professional and to adopt evidence-based tools such as targets. This finding was not previously established in the literature because the variable was rarely tested.

The final significant predictor of adoption was a community’s education level. As the education level increases, the extent to which managers adopt targets decreases. One explanation for this is that lower-educated communities need more services from the local public health department because of a lack of health insurance coverage or perhaps access to medical facilities. Of the few researchers who have found this to be a significant relationship, many have found a community’s education level to increase, not decrease, the
extent to which a management tool is adopted.

One plausible hypothesis, worth further research, is that higher community education levels encourage new management tools for agencies serving the middle class, like road agencies or schools, because these communities are more demanding in these areas. At the same time lower community education may encourage new management tools for public health agencies and other social services agencies because these communities have greater demands in those areas.

**Non-Statistically Significant Variables From This Dissertation**

This dissertation’s findings do not support all the variables the literature suggests to be important predictors of adoption. These findings of non-significance are just as important to discuss as those that are significant because they could reveal differences in adoption factors among the levels (federal, state, and local) and types of organizations (public health organizations, economic development organizations, etc.).

Findings from this dissertation did not support many variables the literature suggests are important predictors of the adoption of social innovations. These include the following:

- Years as Manager.
- Manager’s Age.
- Manager’s Support from Local Elected Officials.
- Manager’s Support from State Public Health Officials.
- Manager’s Level of Education.
- Manager Holding a Masters of Public Health Degree.
- Manager’s Importance of Outcomes.
- Manager’s Importance of Outputs.
- Manager’s Entrepreneurship.
- Manager’s Conflict Aversion.
- Organization’s Staff Size.
- Employee’s Opinions of Target-Based Objectives.
Based on the literature, and as discussed in Chapter 5, perhaps the most surprising non-significant predictors of the extent of adoption of target-based objectives were employees’ opinions of targets and the community’s form of government.

**Contribution to the Management Literature**

This dissertation provides a number of contributions to the management literature, particularly in finding that a majority of managers use target-based objectives and most managers who use the tool find it effective. Further, this dissertation contributes to the literature by showing variation in the purposes for which managers use targets, variation in the purposes for which they find targets most useful, and the effect of the tool on the perception of an organization’s effectiveness.

Management researchers may also be interested in many of this dissertation’s findings on the methods by which targets are used. The literature suggests feedback is an essential component of fully realizing the benefits of target-based objectives (Erez, 1977; Strang, Lawrence, and Fowler, 1978; Bandura and Cervone, 1983; Locke and Latham, 1990), and findings from this dissertation show that the frequency of such feedback among those surveyed varies depending on the type of measure, with feedback on output-oriented measures occurring more often than for outcome-oriented measures.
Further, no prior researchers have examined in a systematic fashion the purposes for which managers are using target-based objectives, and how these uses may influence the perceived effectiveness of the tool. This dissertation found that managers perceive purposes relating to internal management, such as managers adjusting their budgets based on data from progress toward objectives, to be the most important reasons to use targets. Even more interesting, managers who use targets for such purposes often hold higher opinions about the effectiveness of target-based objectives.

In addition, no prior study has explored the frequency by which managers discuss progress toward achieving organizational objectives. The results show that a manager who discusses outputs quarterly is the most significant predictor of perceived organizational effectiveness (p = .006) as well as the frequency with the greatest effect size measure (Odds ratio = 1.823). Further, the second most important frequency by which managers discuss progress on output-oriented objectives with employees is monthly (Odds ratio = 1.740, p = .016). Thus, the effect sizes and levels of significance for monthly and quarterly discussions on progress toward objectives are greater than for discussions with a longer time interval that was significant (and annually).

**Contribution to Practitioners**

This dissertation sought to fill a gap in the practitioner literature by providing information to practicing local public health managers on the extent to which targets are used as well as the perceived efficacy of this tool. The results show practicing managers that most (61.7%) of their peer managers are using target-based objectives and that a very high percentage of those who use them think it is an effective management tool (82.8%).
No prior study has explored the specific reasons a local public health department might use this management tool. Data from this dissertation show that managers utilize target-based objectives for budget preparation, budget adjustments, allocating staff, and reporting requirements to higher-level public health organizations, but find them most effective for adjusting and preparing their budgets as well as allocating staff. Managers might be interested in knowing that their peers also found one outcome measure, improving client satisfaction, to be a significant predictor of the perception of the effectiveness of target-based objectives.

Results from the adoption model might (discouragingly) tell managers that three of the five variables found to be significant predictors of the extent of adoption are beyond their control—their gender, their organization’s financial resources, and their community’s education level. On the other hand, the other two factors should be of interest to managers. The fact that managers with broader job experience are more inclined to adopt target-based objectives is useful evidence that the more experienced managers see the value of targets, Finally, one particular variable within a manager’s control, and demonstrated to be a significant factor in increasing both the extent of objective use and the perceived effectiveness of objectives, is that of allowing employees to influence the establishment of such objectives.

Study Limitations

Like much social science research, this study has limitations. Chief among these limitations are the age of available data, potential biases in question wording, and potential
response bias. Attempts were made to control each of these threats to validity, as discussed in earlier chapters, but still some limitations remain for the generalization of this research.

One limitation is the date of the data. The NACCHO survey was administered in 2010, and therefore several variables (i.e. organization’s prior performance management system, manager’s gender, etc.) are several years old. Further, electoral data is from 2012, and measures political affiliation simply by the presidential candidate receiving a majority of the jurisdiction’s votes, thus making it an incomplete proxy, at best, for the political affiliation of the community.

A second limitation is the wording of questions in this study’s survey. While attempts were made to control for this through the use of pilot groups before the survey was administered nation-wide, in retrospect it is clear that some questions could have been improved. Several questions, such as the ones gauging a manager’s orientation toward avoiding conflict or taking risks within the organization, were not worded clearly and may have yielded significantly different results with different wording.

An additional survey concern is the potential for social desirability bias, by which respondents answer in a manner they perceive to be preferred by the researcher or by society. This may have led managers to report they were using this particular management technique when they were not. This study attempted to control for this by measuring adoption of targets using multiple indicators, but further research should consider additional methods to attempt to control for this potential for response bias.

Third, there is also a possible selection bias because managers who have adopted targets are more likely to be interested in completing a survey about targets. Although the
comparison of respondents and non-respondents did not indicate statistically significant differences, the possibility of self-selection bias cannot be ruled out.

A fourth limitation of this study is the sample size. Within the NACCHO survey, only Module 1 participants were included (N=480) because only Module 1 questions were of interest to this study. Thus, the sample size was somewhat small to begin, and of the 480, only 141 respondents provided usable responses. 141 is a somewhat small number, especially when there are many variables coupled with a lack of variation on some variables. Further, when respondents were asked to evaluate their own systems, only the 87 adopters of targets were considered for a number of relationships explored, further reducing the sample size.

A final limitation of the generalizability of this study is that it has explored only one type of public organization, and at one level of government. This study intentionally focused on local public health departments because many studies in public administration typically focus on state-level public health organizations. Thus, this research attempted to fill the gap in the literature; however, the generalizability of the findings from this research could be considered to be limited to only U.S. local public health departments. It is possible that managers of other public organizations and at other levels of government hold other opinions about target-based objectives, and adopt target-based objectives for different reasons.

**Directions for Future Research**

This study has highlighted avenues for future research in public management. First, future research should further explore the relationship between a manager’s psychology and the decision to adopt management techniques. Measurement issues in this study’s survey
likely contributed to the lack of significant findings for some variables relating to a manager’s psychology, such as the manager’s conflict aversion or entrepreneurship. The area remains ripe for investigation, nonetheless.

This study could also be broadened in various ways. For example, it would be interesting to determine whether agencies that primarily serve the middle class have the same target adoption and target use patterns as public health agencies.

Additional measures of outputs and outcomes should be included in future research, because the three outputs and three outcomes used in this study, while representative, were just a portion of the measures tracked by some health agencies.

Future adoption studies should also seek to corroborate variables reported by the manager that relate to the manager’s employees. For example, this study found employee influence in setting objectives to be a significant predictor of adoption. Future studies may wish to measure employee’s thoughts about management techniques directly.

Finally, as earlier noted, it would be useful to tie tool use to objective measures of public health agency performance/effectiveness. This would be very difficult because such measures are not consistently gathered even on an agency-by-agency basis, and they would have to be substantially adjusted to account for differences in agency size, clientele demographics, and other aspects. The optimal performance measures would be (adjusted) longitudinal effectiveness measures, which would allow researchers to determine the impact of different uses of targets over time.

Although this study only explored the perceived effectiveness of these tools, these findings have indicated that target-based objectives, the motor of performance management
systems, are used widely in public health agencies, influence many organizational decisions, and are perceived to substantially increase organizational performance. Further studies, especially with objective measures of performance, would be welcome additions to this still-developing research area.
REFERENCES


Walker, M. (1929). Rating cities according to the services which their citizens are getting. The American City, 41, 130-134.


Appendix A: Dissertation’s Primary Survey

U.S. Local Health Department Performance Management Survey

1. Introduction

This survey is for a top executive or manager, such as a public health director, of your local health department.

All organizations track some performance measures (such as the number of patients treated). Some organizations combine these performance measures with target-based objectives. An example of a target-based objective would be to say an organization will: “increase the number of patients seen per month by 5 percent by January 1.”

This survey will ask if you currently use target-based objectives. Whether you use target-based objectives or not, the survey will also ask if you believe they can be useful in managing organizations such as yours.

1. Whether your organization uses target-based objectives or not, which of the following do you track quantitatively? If you track them, how important are they to your organization? If your organization has no such quantitative measure, please select Don’t Track.
U.S. Local Health Department Performance Management Survey

2. This question relates to target-based objectives. Target-based objectives are written goals stating by what percent or amount a quantitative performance measure should change with a date attached. For example, aiming for a 10 percent decrease in the number of missed maternity care appointments by July 10.

Using the example above, target-based objectives typically have the following three characteristics: a measure for what is being tracked (missed maternity care appointments), a target (10% decrease), and a date of completion (July 10).

With target-based objectives being defined as having these three criteria (a measure, a target, and a date of completion), does your organization regularly set specific numerical target-based objectives in at least one service area?

☐ Yes
U.S. Local Health Department Performance Management Survey

2. Other Target-Based Objectives

3. Your "yes" response to question 2 indicates that your organization sometimes uses target-based objectives that include targets and dates. Some target-based objectives also include one more component: interim measures of progress toward the objective, called milestones. For example, if one of our objectives for the year is to decrease missed maternity care appointments by 15% by June 30th, a milestone -- an interim measure of progress -- might be "decrease them by 10% by March 1."

Does your organization use such written interim targets (milestones) along with your annual target-based objectives?

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U.S. Local Health Department Performance Management Survey

3. Target-Based Objectives

Whether your organization does not use target-based objectives or uses them with three components or four components, the remaining questions relate to those with the following three components: a measure, a target, and a date of completion.

4. How important are target-based objectives to you personally in each of these areas (If you do not use target-based objectives in a particular area, please select “Not Used”).

○

5. If your organization uses target-based objectives for tracking the number of influenza vaccinations, how often do you:

6. If your organization uses target-based objectives in measuring client satisfaction, how often do you:
Appendix A Continued

U.S. Local Health Department Performance Management Survey

7. Different members of your organization have different influences on target-based objectives. Please indicate how much influence each of the following have on setting target-based objectives:

Not Influential at All

☐ ☐

8. Many organizations use information from measures they track (for example, the number of influenza vaccinations) to help make decisions. How important is using target-based objectives to you for the following uses:

☐ ☐

9. To what extent do the goals in your strategic plan (long range plans) connect to your annual goals?
10. These questions are about target-based objectives. Whether or not your organization uses target-based objectives, to what extent do you agree with the following statements about the use of target-based objectives? (Reminder: Target-based objectives are written goals saying by what percent or amount a quantitative performance measure should change with a date attached. An example of a target-based objective is decreasing the number of missed patient appointments by 10 percent by March 30.)
Appendix A Continued

**U.S. Local Health Department Performance Management Survey**

11. To what extent do you agree with the following statement about the use of target-based objectives? If you do not use target-based objectives, please select “Don't Use.”

   - Strongly Disagree

12. My position in the local health department is:

   - [ ]
   - [ ] Administrative Staff

13. To what extent do you agree with the following statements:

14. Using the drop-down menu below, how long have you worked in the current LHD?

15. Using the drop-down menu below, how long has your organization used target-based objectives?
16. To what extent do you agree with the following statement: My organization is a highly effective local public health department.

   Strongly Agree

17. To what extent do you agree with the following statement: Top management in this organization is not afraid to take risks.

   or

   Disagree
Dear Sir or Madam,

My name is Brent Lucas, and I am a doctoral student at North Carolina State University. As part of the requirements for my degree, I am conducting research on public health departments throughout the US. This research seeks to understand why public health officials use a specific type of management tool, and their opinions on its effectiveness. The findings from this survey will inform public health management practice throughout the US by showing current trends and manager’s opinions on the effectiveness of this tool.

As part of this research, I am asking public health officials throughout the US to complete a brief web-based survey through Survey Monkey. Your responses to this survey will be combined with 2010 NACCHO Profile Study. The survey should take less than 15 minutes to complete, and all information will remain confidential. After data collection is completed, neither you nor your responses will be identifiable, and all results will be reported in aggregate form.

Attached below is a copy of the Informed Consent form for participation in this research. This form details the purpose of this research, outlines your rights as a participant in this study, outlines any foreseeable risks from participation, and contains information on the approval of this study from my University’s Institutional Review Board.

By clicking the link below, you acknowledge you have received and read the attached Informed Consent information and grant the researcher permission to be included in this study:

(surveymonkey link)

I greatly appreciate your consideration in completing this brief survey. If at any time you have questions or concerns about this study, please feel free to contact me at balucas@ncsu.edu.

Thank you again, and Best,

Brent A. Lucas
Dr. Student
North Carolina State University
balucas@ncsu.edu
Appendix B Continued

North Carolina State University
INFORMED CONSENT FORM for RESEARCH
This form is valid from January 11, 2013 through January 11, 2014
Factors Affecting the Adoption of Target-Based Objectives in US Local Public Health Departments

Principal Investigator: Brent A. Lucas
Faculty Sponsor: James E. Swett, Ph.D.

What are some general things you should know about research studies?
You are being asked to take part in a research study. Your participation in this study is voluntary. You have the right to be a part of this study, to choose not to participate or to stop participating at any time without penalty. The purpose of research studies is to gain a better understanding of a certain topic or issue. You are not guaranteed any personal benefits from being in a study. Research studies also may pose risks to those that participate. In this consent form you will find specific details about the research in which you are being asked to participate. If you do not understand something in this form it is your right to ask the researcher for clarification or more information. A copy of this consent form will be provided to you. If at any time you have questions about your participation, do not hesitate to contact the researcher(s) named above.

What is the purpose of this study?
The purpose of this study is to understand the factors facilitating the adoption of a particular management tool, target-based objectives, in local public health organizations. This study will explore why public health managers adopt target-based objectives and seek to understand managers’ opinions of the effectiveness of this tool. This research is important to public administration and public health as it seeks to understand practices in public health management that managers may or may not deem to be effective, which can inform public health practice.

What will happen if you take part in the study?
If you agree to participate in this study, you will be asked to complete a short, online survey about your agency’s use of target-based objectives. Information from this survey will then be matched up with data from your department’s responses to the 2010 National Association of County and City Health Officials (NACCHO) Profile Study.

Risks
The only foreseeable risk would be identification of the responses of participants by the researcher. No identifiable information from this research will be shared with anyone, and no one will have access to files besides the researcher. Your email address will be deleted from the file as soon as the data is collected, thus removing all risk of identification of responses.

Benefits
This research will inform public health research and practice on the use of specific management tools and techniques, and explore managerial perceptions about the usefulness of such techniques in managing their organizations. Results of this research, including the doctoral dissertation, will produce data on trends on the use of this management tool, and how managers think it is affecting their organizations. Thus, this research will inform managers of public health department’s use of and perceived usefulness of a specific management tool.

Confidentiality
The information in this study will be held confidential to the fullest extent allowed by law. After data collection is completed, the 2010 NACCHO survey data, responses, and data from this survey will be merged, and all identifiable information removed. Data will be stored securely in password protected Microsoft Excel files on an encrypted password protected jump drive. No identifiable information will be contained in these files after data collection and merging is complete. No reference will be made in oral or written reports which could link you to the study.

Compensation
You will not receive anything for participating.

What if you have questions about this study?
If you have questions at any time about the study or the procedures, you may contact the researcher, Brent Lucas, at balucas@nccsu.edu, or (919) 598-6087.

What if you have questions about your rights as a research participant?
If you feel you have not been treated according to the descriptions in this form, or your rights as a participant in research have been violated during the course of this project, you may contact Deb Paxton, Regulatory Compliance Administrator, Box 7514, NCSU Campus (919/515-4514).
Appendix B Continued

Consent To Participate
If you have read and understand the above information, and agree to participate in this study with the understanding that you may choose not to participate or to stop participating at any time without penalty or loss of benefits to which you are otherwise entitled, then click on the link in this email to go to the brief, on-line survey.
Appendix C: NCSU Institutional Review Board Approval

From: Deb Paxton, IRB Administrator
North Carolina State University
Institutional Review Board

Date: January 11, 2013

Title: Factors Affecting the Adoption of Target-Based Objectives in US Local Public Health Departments

IRB#: 3005

Dear Brent Lucas,

The project listed above has been reviewed by the NC State Institutional Review Board for the Use of Human Subjects in Research, and is approved for one year. This protocol will expire on January 09, 2014 and will need continuing review before that date.

NOTE:

1. You must use the attached consent forms which have the approval and expiration dates of your study.

2. This board complies with requirements found in Title 45 part 46 of The Code of Federal Regulations. For NCSU the Assurance Number is: FWA00003429.

3. Any changes to the protocol and supporting documents must be submitted and approved by the IRB prior to implementation.

4. If any unanticipated problems occur, they must be reported to the IRB office within 5 business days by completing and submitting the unanticipated problem form on the IRB website.

5. Your approval for this study lasts for one year from the review date. If your study extends beyond that time, including data analysis, you must obtain continuing review from the IRB.

Sincerely,

Deb Paxton
NC State IRB
Appendix C Continued

North Carolina State University  
Institutional Review Board for the Use of Human Subjects in Research  
SUBMISSION FOR NEW STUDIES

GENERAL INFORMATION

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<tr>
<td>2. Title of Project:</td>
<td>Factors Affecting the Adoption of Target-Based Objectives in US Local Public Health Departments</td>
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<tr>
<td>3. Principal Investigator:</td>
<td>Brent A. Lucas</td>
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<tr>
<td>4. Department:</td>
<td>Public Administration</td>
</tr>
<tr>
<td>5. Campus Box Number:</td>
<td>B102</td>
</tr>
<tr>
<td>6. Email:</td>
<td><a href="mailto:babacas@ncsu.edu">babacas@ncsu.edu</a></td>
</tr>
<tr>
<td>7. Phone Number:</td>
<td>919-869-0407</td>
</tr>
<tr>
<td>8. Fax Number:</td>
<td>919-515-7313</td>
</tr>
<tr>
<td>9. Faculty Sponsor Name and Email Address if Student Submission:</td>
<td>James E. Swiss, Ph.D., <a href="mailto:swiss@ncsu.edu">swiss@ncsu.edu</a></td>
</tr>
<tr>
<td>10. Source of Funding? (required information):</td>
<td>N/A</td>
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<tr>
<td>11. Is this research receiving federal funding?:</td>
<td>No</td>
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<td>12. If externally funded, include sponsor name and university account number:</td>
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<td>Student: Undergraduate; Masters; or PhD</td>
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As the principal investigator, my signature testifies that I have read and understood the University Policy and Procedures for the use of Human Subjects in Research. I assure the Committee that all procedures performed under this project will be conducted exactly as outlined in the Proposal Narrative and that any modification to this protocol will be submitted to the Committee in the form of an amendment for its approval prior to implementation.

Principal Investigator:

Brent A. Lucas

*(typed/printed name) (signature) (date)

As the faculty sponsor, my signature testifies that I have reviewed this application thoroughly and will oversee the research in its entirety. I hereby acknowledge my role as the principal investigator of record.

Faculty Sponsor:

James E. Swiss

*(typed/printed name) (signature) (date)

*Electronic submissions to the IRB are considered signed via an electronic signature. For student submissions, this means that the faculty sponsor has reviewed the proposal prior to it being submitted and is copied on the submission.

Please complete this application and email as an attachment to debra.paxton@ncsu.edu or send by mail to: Institutional Review Board, Box 7514, NCSU Campus (Administrative Services III). Please include consent forms and other study documents with your application and submit as one document.

****************************************************************************************************************

For SPARC offices use only  
Reviewer Decision (Expedited or Exempt Review)  
☐ Exempt  ☐ Approved  ☐ Approved pending modifications  ☐ Table

Expedited Review Category: ☐ 1 ☐ 2 ☐ 3 ☐ 4 ☐ 5 ☐ 6 ☐ 7 ☐ 8a ☐ 8b ☐ 8c ☐ 9

Reviewer Name  Signature  Date
Appendix C Continued

North Carolina State University
Institutional Review Board for the Use of Human Subjects in Research
GUIDELINES FOR A PROPOSAL NARRATIVE

In your narrative, address each of the topics outlined below. Every application for IRB review must contain a proposal narrative, and failure to follow these directions will result in delays in reviewing/processing the protocol.

A. INTRODUCTION

1. Briefly describe in lay language the purpose of the proposed research and why it is important.

This project is for the requirements for the completion of a Ph.D. in public administration. This study will explore the use of a specific tool in public health management, specifically target-based objectives. Target-based objectives are a method many researchers consider to be effective in improving organizational performance, and help organization members monitor their progress toward achieving goals. This study will focus on the use and opinions of target-based objectives in U.S. local public health departments. This study will use two primary sources of data. First, the researcher will obtain a secondary survey dataset from the National Association of County and City Health Officials (NACCHO). This survey was conducted in 2010 and surveyed all appointed public health leaders across the US. The NACCHO survey is attached. The NACCHO survey is conducted at regular cycles, and asks respondents about current trends within their local public health departments. A second survey will be conducted in the spring of 2015 by the researcher. This online survey is also attached. This survey asks respondents about their use and opinions of target-based objectives in managing their organizations. This survey helps the researcher address primary questions behind the project. Key questions to be addressed in this research include: To what extent are target-based objectives used in local public health departments, what factors facilitate the adoption of target-based objectives, what are managers’ opinions of target-based objectives, and do managers perceive target-based objectives to be effective.

2. If student research, indicate whether for a course, thesis, dissertation, or independent research.

Dissertation.

B. SUBJECT POPULATION

1. How many subjects will be involved in the research?

The NACCHO survey has two modules in which participants participated. This research is primarily concerned with those who participated in Module 1, which explored the use of performance information in the local public health department. The NACCHO survey used stratified random sampling for each module, which resulted in 441 local public health departments participating in Module 1. These public health departments were stratified by community population to obtain a representative sample of each category of population. The only inclusion criteria for the researcher’s survey is participating in Module 1 on the NACCHO survey

2. Describe how subjects will be recruited. Please provide the IRB with any recruitment materials that will be used.

For the NACCHO survey, the association will be contacted for permission to obtain the restricted version of the 2010 dataset. The organization requires an application for the dataset, which the researcher will complete, agreeing to the confidentiality of responses in the dataset.

For the researcher’s online survey, potential respondents will be contacted via e-mail. The e-mail addresses of each potential respondent (each public health manager for those in Module 1 from the NACCHO survey) will be found through an online search for the specific local public health department. This dataset only contains the local health department’s information, not the information about the specific participant; the researcher will locate the department official (participant) and obtain only his/her email address from an internet search. First, potential respondents will be notified via email of the upcoming study through an e-mail invitation to participate. This email is attached, and will note this study comply with NCSU IRB guidelines, has received IRB approval, and that their responses will be kept confidential. This email also briefly describes the study.

After this email is sent, respondents will be sent another email with a link to participate in the online survey (attached). Again, participants will be notified that their responses are confidential, the purposes of the study, and the approval of NCSU’s IRB. Within this email will be the informed consent form (attached), noting that by clicking the link to the survey, respondents will be granting consent to participate in the study. Then, after the respondent clicks the unique web link, respondents will be presented with the researcher’s survey (attached) administered via
Appendix C Continued

3. List specific eligibility requirements for subjects (or describe screening procedures), including those criteria that would exclude otherwise acceptable subjects.
   The only eligibility requirement is that the respondent works in the local public health department.

4. Explain any sampling procedure that might exclude specific populations.
   Only those agencies included in the previous NACCHO survey will be included.

5. Disclose any relationship between researcher and subjects - such as, teacher/student, employer/employee.
   No relationship.

6. Check any vulnerable populations included in study:
   - minors (under age 18) - if so, have you included a form on the consent form for the parent/guardian signature
   - fetuses
   - pregnant women
   - persons with mental, psychiatric or emotional disabilities
   - persons with physical disabilities
   - economically or educationally disadvantaged
   - prisoners
   - elderly
   - students from a class taught by principal investigator
   - other vulnerable population

7. If any of the above are used, state the necessity for doing so. Please indicate the approximate age range of the minors to be involved.
   N/A

C. PROCEDURES TO BE FOLLOWED

1. In lay language, describe completely all procedures to be followed during the course of the experimentation. Provide sufficient detail so that the Committee is able to assess potential risks to human subjects. In order for the IRB to completely understand the experience of the subjects in your project, please provide a detailed outline of everything subjects will experience as a result of participating in your project. Please be specific and include information on all aspects of the research, through subject recruitment and ending when the subject's role in the project is complete. All descriptions should include the informed consent process, interactions between the subjects and the researcher, and any tasks, tests, etc. that involve subjects. If the project involves more than one group of subjects (e.g., teachers and students, employees and supervisors), please make sure to provide descriptions for each subject group.
   First, the NACCHO dataset will be obtained from the NACCHO via their application process and aggregating to the confidentiality of the data. Second, the researcher will obtain all addresses for the current top executive of each local public health department that participated in the Module of interest in the NACCHO survey. These email addresses will be entered in an unencrypted Microsoft Excel document containing responses from the NACCHO survey. This Microsoft Office document will be password protected and encrypted, and only the researcher will have the password, and it will be stored on the researcher's jumpdrive, which is also password protected, and only the researcher has the password. When the jumpdrive is not in use, it will remain in the researcher's home in a locked safe, to which only he has a key. Third, respondents will be notified via email of the upcoming survey. They will receive and how the study complies with NCSU IRB guidelines, which will be followed in 2 days with another email with a web link to the survey. In this second email, respondents will be provided informed consent information in the email, including information about the merging of the NACCHO survey data with the data generated from this survey, and will note that by clicking the link that they are granting consent to participate in the
Appendix C Continued

The only interaction between the researcher and participants will be through the online e-mail and survey. Potential respondents will be sent an e-mail invitation to participate in the study, which will not include their name. This email will note the study is approved by NCSP’s IRB, and a brief description of the survey they will be receiving in 2 days. The second interaction between respondents will be an email containing the informed consent information (attached), and a unique web link for the internet survey (printed version attached). The data will be downloaded to the researcher’s personal password protected jumpdrive into a password protected Microsoft Excel document. Then, both the physical addresses and e-mail addresses will be removed from the password protected file. Thus, there is no longer any identifiable information of respondents in the dataset. The researcher will conduct analyses using the dataset in SPSS, and upon completion, the file will be deleted permanently from the researcher’s jumpdrive.

2. How much time will be required of each subject?

15 to 20 minutes.

B. POTENTIAL RISKS

1. State the potential risks (psychological, social, physical, financial, legal or other) connected with the proposed procedures and explain the steps taken to minimize these risks.

There are no foreseeable risks as any identifiers for respondents will be removed.

2. Will there be a request for information that subjects might consider to be personal or sensitive (e.g. private behavior, economic status, sexual issues, religious beliefs, or other matters that might impair the privacy of their personal or family life)?

The information requested from this survey is about public health department personnel acting in an official capacity. Though unlikely, some may consider information about their organization’s performance to be personal or sensitive or affect their self-esteem.

3. If yes, please describe and explain the steps taken to minimize these risks.

Respondents will be assured through the Consent form that information will only be reported in the aggregate and of the data security mechanisms in place to ensure they cannot be identified.

4. Could any of the study procedures produce stress or anxiety, or be considered offensive, threatening, or degrading? If yes, please describe why they are important and what arrangements have been made for handling an emotional reaction from the subject.

No.

4. How will data be recorded and stored?

All data files will be encrypted and password protected, stored on a jumpdrive that is also password protected and stored in the researcher’s home safe, to which only he has a key. The only identifiable information contained in the MACCHIO dataset is the local public health department’s address. The only identifiable information contained in the researcher’s dataset is the respondent’s email address. Each respondent will be assigned a unique ID number in order for the two datasets to be linked and combined. Respondents will not know their ID number. Once the researcher’s survey closes on SurveyMonkey, the researcher will download the data into a Microsoft Excel spreadsheet and make it password protected, and the researcher will not share this password with anyone. Thus, once this dataset is downloaded, the two forms of identifiable information—the participant’s address and e-mail address—will be deleted from the encrypted password protected file. Therefore, ensuring participant anonymity of responses. At the suggestion of IRB personnel, further the unique identifier will be removed from the file.

3. How will identifiers be used in study notes and other materials?

No identifiers will be used beyond the removal of the unique identifiers, once these are removed.

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Appendix C Continued

b. How will reports will be written, in aggregate terms, or will individual responses be described?
This dissertation will only be written in aggregate terms.

5. If audio or video recordings are collected, will you retain or destroy the recordings? How will recordings be stored during the project and after, as per your destruction_retention plans?
N/A

6. Is there any deception of the human subjects involved in this study? If yes, please describe why it is necessary and describe the debriefing procedures that have been arranged.
No.

E. POTENTIAL BENEFITS
This does not include any form of compensation for participation.
1. What, if any, direct benefit is to be gained by the subject? If no direct benefit is expected, but indirect benefit may be expected (knowledge may be gained that could help others), please explain.
Increased knowledge about the specifics of a management tool and the literature suggests improves organizational effectiveness.

F. COMPENSATION
Please keep in mind that the logistics of providing compensation to your subjects (e.g., if your business office requires names of subject who receive compensation) may compromise anonymity or complicate confidentiality protections. If, while arranging for subject compensation, you must make changes to the anonymity or confidentiality provisions for your research, you must contact the IRB office prior to implementing those changes.

1. Describe compensation
No compensation will be provided.

2. Explain compensation provisions if the subject withdraws prior to completion of the study.
N/A

3. If class credit will be given, list the amount and alternative ways to earn the same amount of credit.
N/A

G. COLLABORATORS
1. If you anticipate that additional investigators (other than those named on Cover Page) may be involved in this research, list them here indicating their institution, department and phone number.
No.

2. Will anyone besides the PI or the research team have access to the data (including completed surveys) from the moment they are collected until they are destroyed.
No.

H. CONFLICT OF INTEREST
1. Do you have a significant financial interest or other conflict of interest in the sponsor of this project? No
2. Does your current conflicts of interest management plan include this relationship and is it being properly followed? N/A

I. ADDITIONAL INFORMATION
1. If a questionnaire, survey or interview instrument is to be used, attach a copy to this proposal.
2. Attach a copy of the informed consent form to this proposal.

3. Please provide any additional materials that may aid the IRB in making its decision.

J. **HUMAN SUBJECT ETHICS TRAINING**

*Please consider taking the [Collaborative Institutional Training Initiative (CITI)](#), a free, comprehensive ethics training program for researchers conducting research with human subjects. Just click on the underlined link.*