

**UNLOCKING A CONFIGURATIONAL PERSPECTIVE OF INSTITUTIONAL LOGICS:  
MARKET ENTRY ACTIONS BY U.S. LANDFILLS, 1970-2014**

A Dissertation

By

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## **ABSTRACT**

My dissertation addresses three overarching research questions: 1) Given the differences in institutional logics that underlie organizations that are based on a state logic or a market logic (i.e., focused on compliance with minimum regulatory requirements versus maximizing profit), why are organizations based on one logic more likely to enter a market than the other? 2) How does the hybridization of both logics influence market entry decisions? 3) How do values instantiated within the surrounding geographical community influence market entry by organizations based on one logic or the other? While much of the literature on institutional entrepreneurship has focused on market entry actions by market-logic based organizations, I develop and test theory about how state logic based organizations enter the renewable energy generation market.

In doing so, I contribute to the institutional logics literature by helping clarify the mechanisms by which a state logic influences organizational entrepreneurship. I also contribute to theory by looking at the influence of public-private partnerships, organizational size, and community-level political ideology on market entry and risk-taking. This study uses a unique dataset on over 2,400 landfills in the United States from the years between 1970 and 2014. Data have been gathered at the state, community, organization, and project level for each landfill in the population.

## **DEDICATION**

I dedicate this work to the memory of my grandparents James A. Andrus, Gayle J. Andrus, Lionel M. Tippets, and Wanda T. Tippets. I miss each of you more than words can say. I can only hope someday to become the giants that each of you were to me. I look forward to being with you again.

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## 1. INTRODUCTION

How do public sector organizations that are based on a state logic pursue entrepreneurial opportunities? Past research on institutions and entrepreneurship has typically focused on the influence of the state as a regulatory influence, showing how the state and other aspects of the institutional environment can influence entrepreneurial practices and outcomes by determining the legitimacy of organizational forms and practices, as well as by influencing the amount of resources available for new ventures (Thébaud, 2015; Tolbert, David, & Sine, 2011). This research largely views the state as an institutional- or field-level influence or logic, rather than as a key actor (e.g., Ault & Spicer, 2014). For example, one stream of research looks at how the state influences entrepreneurship via regulatory mechanisms such as tax credits and subsidies that have been shown to lower barriers to entry (Sine, Haveman, & Tolbert, 2005). This stream has found that the state influences risk-taking behaviors by organizations pursuing markets in new countries (García-Canal & Guillén, 2008). Others have shown how entrepreneurs can proactively influence regulatory policy making (Hiatt & Park, 2013), as well as how regulatory discretion allows incumbents to influence applicable regulatory policies such that new market entrants face greater barriers (Grandy, 2017).

Such a view of the state as an institutional influence on entrepreneurship is limited in that it fails to consider that the state may itself be the entrepreneur. Public sector organizations such as cities, towns, counties, and federal agencies have a

tremendous impact not only on the economy<sup>1</sup>, but are often faced with decisions of when and how to enter new markets that may allow them to better serve their constituency. State logic based organizations (SLOs) often enter new markets as they add additional services such as drinking water, sewer, recreation, mass transit, and power generation. These organizations have a fundamentally different logic underlying their values and beliefs than market logic based organizations (MLOs) (Thornton, Ocasio, & Lounsbury, 2012). The inherent differences stemming from their different logics may result in significantly different actions and outcomes by these organizations, even when faced with similar opportunities, including when and how these organizations enter new markets. Understanding the potential influences that state logics have on entrepreneurial actions and outcomes is an important step in better understanding the implications of state logics, which include public sector organizations (Boyne, 2002; Bozeman, 2013; Jourdan & Kivleniece, 2017; Kelman, 2007; Perry & Rainey, 1988). In this study, I focus on the *type* of organization because it allows for a better understanding of the underlying organizational-level logics than a focus on the organization's identity (Pahnke, Katila, & Eisenhardt, 2015).

This study draws on the institutional logics framework to develop theory on why and how SLOs enter new markets, including the degree of risk they take as they enter the market, and the ultimate survival of the venture. The logics perspective is centered on

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<sup>1</sup> According to the U.S. Bureau of Labor Statistics, there are over 22 million government employees at the local (e.g., city and county), state, and federal government levels in the U.S. (Statistics, 2017). These organizations spend an amount equal to approximately 37% of the U.S. gross domestic product (OECD, 2017).

understanding the processes and mechanisms by which organizational behavior is influenced by the underlying values and beliefs of the individuals and organization (Thornton et al., 2012). Institutional logics provide the guiding principles of society through which actors can interpret their situations and know what is appropriate behavior (Thornton, 2004: pg 70). In other words, they are “socially constructed, historical patterns of material practices, assumptions, values, beliefs, and rules by which individuals produce and reproduce their material subsistence, organize time and space, and provide meaning to their social reality” (Thornton & Ocasio, 1999: pg 804). Logics thus provide a cognitive framework that helps organizations understand which beliefs, values, goals, and behavior are legitimate and thus should receive the organization’s attention.

My dissertation addresses three overarching research questions: 1) Given the differences in institutional logics that underlie organizations that are based on a state logic or a market logic (i.e., focused on compliance with minimum regulatory requirements versus maximizing profit), why are organizations based on one logic more likely to enter a market than the other?, 2) How does the hybridization of both logics influence market entry decisions?. and 3) How do values instantiated within the surrounding geographical community influence market entry by organizations based on one logic or the other? By clarifying how market entry is influenced by public sector organizations who subscribe to a state logic, I contribute to the institutional logics literature by identifying the factors that influence when SLOs likelihood of entering a new market. At the same time, those who do enter the market are more likely to take risk

as they enter the market. While there is a significant literature on firm ownership, few have looked at how primary ownership by an SLO influences firm actions (Xia & Walker, 2015).

Ignoring the differences between SLOs and MLOs is a significant issue for several reasons. First, in many cities in the U.S., government organizations employ a large percentage of the population (Bureau, 2015). Examples of industries where SLOs are a popular alternative to MLOs include communications, drinking water and wastewater, education, electricity, transportation (e.g., roadways, subway, bus, and ferry), hospital and ambulance services, and even solid waste disposal services.

Second, the lack of distinction between SLOs and MLOs has the potential to lead to theoretical overgeneralization as well (Meyer, 1979), because the two sectors have important differences in their structure, environment, resource dependencies, and incentives (Perry & Rainey, 1988). For example, ownership rights in SLOs cannot typically be transferred between individual actors, meaning that risk from a property rights perspective is highly diffused (Alchian & Demsetz, 1972; Demsetz, 2000). Because contracts are difficult to construct, an MLO has incentives to reduce costs without concern for quality (Hart, Shleifer, & Vishny, 1997). From a public choice perspective, monopolizing a public service allows politicians and bureaucrats to extract rents and power, leading to inefficiency (Savas, 1987). There are also differences stemming from a transaction costs perspective as privatization can provide a cost savings in cases where the transaction costs (due to asset specificity or monitoring) are not overly large (Williamson, 1979). Understanding the implications of organizational-level

state vs market logics on firm outcomes such as market entry and risk-taking is therefore of significant importance. The state logic does not operate solely at the societal or community-level (Lee & Lounsbury, 2015), but is also instantiated within SLOs, who have a tremendous influence on the economy, not only through the services they provide, but also through responding to the demands of their constituencies.

In theorizing about the implications of public-private partnerships, I extend the findings of past research that suggests that logic multiplicity between public-private partnerships (PPPs) can influence organizational outcomes (Jay, 2013). By shedding light on the ways in which both state and market logics interact in a PPP to influence market entry and risk-taking, I show how the rate of market entry and risk-taking by an SLO are moderated by a partnership with an MLO. Understanding how different logics interact within a partnership allows a better understanding of how to address and manage potentially conflicting situations that are increasingly arising as organizations look for new forms in order to better address the complex environments in which they are situated (Battilana & Lee, 2014). Further, PPPs are increasingly being used by SLOs as a means to engage in projects and services that they normally would be unable to accomplish. Such partnerships provide a unique case where market logics are in essence invading SLOs. While prior work has considered how market logics can be pulled in by SLOs, the context has typically been limited to countries transitioning to a market-based economy, where the state has a great deal of control (e.g., China). By studying how market logics can influence SLOs in a mature, established market-based economy like

the United States, I help shed light on how such partnerships influence important organizational outcomes.

The third contribution of this dissertation comes through showing how political ideology at the community-level influences organizational strategies differentially depending on which whether the organization is based on a state or market logic. Linking community values to the way that logics are instantiated within organizations helps build theory on how values are internalized by organizations. This is an important extension of the existing logics literature, and is contrary to past work in neo-institutional theory (e.g., Powell & DiMaggio, 1991) and the sociology of culture (e.g., Swidler, 1986), which both focused on how values were cleansed from organizations. By theorizing and testing how community values (i.e. political ideology) are internalized to varying degrees by organizations based on different logics, I contribute to the rapidly growing literature focused on bringing values back into organizational-level studies (Almandoz, 2014; Besharov & Smith, 2014). In this dissertation, I theorize about how political ideology at the community-level is an explicit representation of the underlying values and beliefs in the community, which can directly influence organizations within those communities. While logics are the underlying values, beliefs and identity, ideologies are explicit and conscious representations of the underlying logics that connect both material and symbolic elements to social identities and positions (Delmestri, 2009). In other words, ideologies are “the institutionalized interest-laden glue justifying material practices through, and connecting them to, the symbolic constructions that make up institutional logics” (Delmestri, 2009: 117). While prior

research has often used ideology at the individual level (Almandoz, 2014), I show how ideology at the community-level can influence organizations that are particularly open to stakeholder influence, which can lead to changes in the way these organizations enter new markets. Understanding how community-level logics not only filter higher order logics (Lee & Lounsbury, 2015), but also how they interact with organizational-level logics helps to provide a deeper understanding of how heterogeneity can occur between organizations based on the same logic, as well as clarifying how such values are internalized into different organizations. Such a view of internalized values also helps us to better understand their subsequent influence on important firm outcomes.

Fourth, as concerns about climate change, employee treatment, and other critical issues continue to grow in number and seriousness, management scholars have typically assumed that MLOs should lead the way in addressing these critical environmental and social issues, while relegating the role of SLO to that of policy setting and regulatory enforcement. However, SLOs not only can be part of the issue (e.g., they can have a large carbon footprint or mistreat employees), but they can also have a profound influence on addressing these solutions. By studying the mechanisms and outcomes of market entry into renewable power generation, I shed light on the implications for SLO engagement on these issues. Furthermore, by helping to shed light on the implications of utilizing PPPs to address some of these important issues, I also help inform current and future government policies and practices aimed at promoting these partnerships.

### *Research Context*

This study uses a unique dataset consisting of over 2,400 landfills in the United States in the years from 1970 and 2014. The first of these landfills was constructed in 1909 and by 1970, 458 had been built, with the remaining landfills entering service after 1970. The first landfills to generate power from the methane released from the landfill did so in 1979. Landfill gas (LFG) is a natural byproduct of the decomposition of organic material stored in these landfills. When solid waste is first deposited in landfills, it undergoes an aerobic reaction stage where any free oxygen in the waste is taken up by bacteria. Following this stage (typically within a year), anaerobic bacteria, a type that do not require oxygen, begin to decompose the waste in a process where methane and other gases are produced. LFG is largely split between methane (~50%) and CO<sub>2</sub> (~50%), although a small percentage (less than 1%) consists of organic compounds. This gas, if not collected, is released into the atmosphere. Methane is a significant contributor to global warming, as it has an effect 25 times greater than CO<sub>2</sub>. Landfills are the third largest source of human-related methane emissions in the United States (18.2%) (EPA, 2015b). LFG also contributes to local smog and pollution, as well as creating odor problems for the surrounding area.

Not only does LFG pose a serious threat to the environment, it also represents an economic opportunity to landfill owners. LFG can be cleaned and utilized to burn power, produce heat, and can also be sold as a commodity to natural gas providers or organizations such as industrial factories who utilize the gas within their facilities. The first such landfill to capitalize on this opportunity installed a power generation unit that



burned the LFG to provide power to landfill facilities on site (EPA, 2015b). Since then, approximately 726 landfills have chosen to collect the gas and utilize it for beneficial use. Of the landfills in the sample, approximately 50% are owned by public sector organizations such as cities, local districts, or state and federal agencies such as the military(EPA, 2015b). The other 50% of the landfills are owned by private sector organizations.

The regulatory environment surrounding landfills and their emissions has in large part been shaped by the Clean Air Act, which in 1996 resulted in the United States Environmental Protection Agency (EPA) issuing the Standards of Performance for New Stationary Sources and Guidelines for Control of Existing Sources: Municipal Solid Waste Landfills (EPA Guidelines). This was a legislative action under Sections 111(b) and 111(d) of the Clean Air Act that was intended to reduce the potential of solid waste landfills to contribute significantly to air pollution levels. The EPA issued proposed guidelines for public comment and review in 1991, but the final ruling was not issued until early 1996. The guidelines established minimum performance standards to landfills designed to hold at least 2.5 million metric tons and 2.5 million cubic meters of waste, and that began construction or modification on or before May 30, 1991 and that accepted waste after November 8, 1987. Landfills built after May 30, 1991 would be required to comply with the guidelines provided they met the minimum size requirements. The main requirement in the guidelines were that landfills that met the criteria would be required to install LFG collection systems that would collect the gas and route it to “a non-

enclosed flare, an enclosed combustion device, or a treatment system that processed the collected gas prior to subsequent sale or beneficial use” (EPA, 2015a: pg. 15-16).

As stated in the EPA’s guidelines, landfills that met the criteria were forced to install a gas collection system by 2001. Once collected, the ruling allowed landfills several options to dispose of the collected gas. The first was to simply flare the gas off. The second option was to use the gas in a combustion engine (e.g., generator) that is designed to provide power and/or heat. The third option is to treat the gas to a certain quality and then sell it as a natural gas product. At the time of the ruling in 1996, there were 1,952 landfills that met the minimum size requirements (1,248 publically owned and 704 privately owned) (EPA, 2015b). Of these, 201 had chosen to go beyond the minimum requirement of flaring the gas, and had either installed a treatment system to allow them to sell the gas, or they had installed a combustion engine to generate power and/or heat (90 publically owned and 111 privately owned) (EPA, 2015b). By 2015, there were 2,338 landfills that met the minimum size requirements (1,496 publically owned and 842 privately owned), with 726 of them generating power from the collected gas (376 publically owned and 350 privately owned) (EPA, 2015b).

It is also worth noting that in the last 30 years, there has been an increasing number of regulatory incentives influencing the rate of entry into the power generation market by these landfills. For instance, the development of an energy credit market has allowed landfills to acquire additional profits through selling the renewable energy certificates to those in mandatory renewable energy markets (EPA, 2017). Such

regulatory incentives can play a strong role in promoting entrepreneurship within the power industry (Sine et al., 2005).

## 2. THEORY AND HYPOTHESES

### *Institutional Logics*

Explaining heterogeneity in entrepreneurial actions has become a focal concern for institutional theorists in recent years, especially for those interested in explaining the variations in entrepreneurial outcomes (Tolbert et al., 2011). Instead of an “iron cage” perspective that predicts homogeneity in behavior for organizations having the same form (DiMaggio & Powell, 1983), the institutional logics perspective is predicated on the assumption that social forms are influenced by logics at multiple levels, leading to variance in behavior. As such, the logics perspective is centered on understanding the processes and mechanisms by which organizational behavior is influenced by different logics. The logics perspective allows scholars the ability to consider the underlying actors and contexts in which organizations are situated in order to understand which values will be internalized by the organization (Selznick, 1957). Such a perspective allows us to better understand how organizations respond to and are influenced by the multiple logics represented by the context and actors within and around the organization. The following sections will explain in some detail about how the perspective emerged and its current theoretical principles. I will then discuss how state and market logics cause organizations to enter new markets in different ways as I develop each hypothesis.

#### **Early Foundations of the Institutional Logics Perspective**

The institutional logics perspective is a “metatheoretical framework for analyzing the interrelationships among institutions, individuals, and organizations in social systems” (Thornton et al., 2012: 2). It was developed to help scholars address questions

about how actors at both the individual and organizational-level are influenced by the institutional orders (e.g., family, religion, state, market) that surround them. The origins of this perspective arose in response to neo-institutional theory's general rejection of rationality as the basis for conformity, instead focusing on the importance of legitimacy in leading to isomorphism in organizational behavior (DiMaggio & Powell, 1983; Meyer & Rowan, 1977; Tolbert & Zucker, 1983). In other words, neo-institutional theory looks at how culture and cognition can lead to homogeneity in organizations.

The term *institutional logics* was first introduced by Alford and Friedland (1985) as they described the conflicting beliefs and practices in many institutions in the developed world. In that paper, they argued that there are three prominent institutional orders, each with different beliefs and practices that influence how individuals act: capitalism, state bureaucracy, and political democracy. Building on these early ideas, Jackall (1988), with his analysis of moral dilemmas in corporations, suggested that institutional logics described the way that the social world worked. Jackall drew upon the normative and structural concepts of neo-institutional theory to argue that actors are constrained by "rules, premiums, and sanctions" that individuals create (Jackall, 1988: 112). Later, Friedland and Alford (1991) merged previously separate perspectives of rational choice and macro structure to suggest that there are core institutional orders that provide a core logic that guides individual actors. The conceptualization of society as an interinstitutional system is the key contribution of their 1991 essay, as it allows for institutions to conflict, providing a way for heterogeneity in actor behavior. Each of these central logics (i.e., market, state, family, democracy, religion) provide both

structure and symbols that may not only conflict, but that actors can utilize and manipulate to their advantage. Thus, for Friedland and Alford (1991), institutional logics are embodied in practices that not only constrain actors, but also allow actors the agency to act and change the world around them. Such agentic actors were conspicuously missing from neo-institutional theory's model of structure and isomorphism.

This early work on institutional logics suggested that while a focus on culture and cognition was an important concern in understanding organizations, eschewing the internalization of values prevents one from understanding heterogeneity in behavior (Friedland & Alford, 1991; Haveman & Rao, 1997). Combining the ideas from both Jackall (1988) and Friedland and Alford (1991), Thornton and Ocasio (1999) suggested that institutions consisted of three complementary dimensions: structural, normative, and symbolic, allowing them to link agency and cognition with socially constructed norms and structures. As such, a prominent assumption in the institutional logics perspective is that logics embody the values, beliefs, identities, and goals of individuals and organizations (Thornton & Ocasio, 2008), and that the behavior of individuals and organizations is both enabled and constrained by these logics. As such, the institutional logics perspective helps explain how structure and norms can influence rational, cognitive actions by both individuals and organizations. Importantly, the institutional logics perspective provides a framework to describe not only how individuals and organizations are influenced by logics, but how these actors can help build and change institutional logics (Thornton, 2004).

## **Guiding Principles of the Logics Perspective**

As a result of the work described above, as well as other work done in the last 15 years, the institutional logics perspective has matured from a nascent theoretical perspective to a vibrant and flourishing field of study. Presently, there are eight interinstitutional orders that are most often discussed in the literature, although others may exist (Thornton et al., 2012): Market, Corporate, State, Professions, Family, Religion, Democracy, and Community. Each of these has a coherent set of attributes that make it apparent which logic is operating within an organization. Each order has different theoretical and practical implications for how individuals and organizations behave, as they are distinct in the way they influence the symbols and material practices instantiated by these actors.

At the present time, there are three principles relevant to this dissertation that also help form the foundation for the institutional logics perspective (Thornton et al., 2012). First, the interrelationship between agency and structure is a critical assumption of the logics perspective. As a result of neo-institutionalists long-standing emphasis of isomorphism and homogeneity as a source of legitimacy (DiMaggio & Powell, 1983; Meyer & Rowan, 1977), scholars using a logics approach have tended to focus instead on how practices can vary among organizations (heterogeneity). However, it is important to consider that sources of both homogeneity and heterogeneity can coexist in organizations as a result of both structural constraints and underlying values and beliefs that represent the logics viewed as salient within and around the organization. This perspective of partial autonomy from structure has allowed concepts such as

“institutional entrepreneur” to be theorized and developed (Lounsbury & Glynn, 2001). Further, an interinstitutional system that has partial autonomy allows actors to draw upon various components of their surrounding culture and apply those pieces to their situation as needed (Swidler, 1986). Thus, while the logics perspective integrates both cognition and structure, it perhaps more importantly allows for action to be rational or irrational depending on the surrounding institutional orders (Thornton et al., 2012).

A second key principle of the institutional logics perspective is that institutions consist of both material and symbolic elements (Friedland & Alford, 1991). Such a principle is a key differentiator between early neo-institutional theory (i.e., Meyer & Rowan, 1977) and the logics perspective. Material elements can include practices, structure, and rules. Symbolic elements provide ideation and meaning to actors, and each may be supported or influenced by the other (Thornton et al., 2012). For example, the market is at times assumed to be independent of culture (i.e., is able to operate in similar ways across contexts), which allows for efficient economic transactions. However, the market is certainly influenced by the culture and beliefs in which it is embedded, leading to significant differences in practices among organizations. Thus, the logics perspective allows researchers to distinguish and draw on both material and symbolic elements in order to better understand the mechanisms at work in their studies.

A third important principle is that institutions exist at multiple levels, with actors being present in each level (i.e., societal, field, organization, community, and individual). As a result, researchers must consider how actors and situations may change when influenced by different levels (e.g., community versus societal), resulting in a



potential for cross-level interaction effects (Thornton et al., 2012). Working across-levels will allow researchers to not only see how actors and situations change, but also better see and understand mechanisms influenced by the contradictory nature of institutional logics. For example, Lounsbury (2007) illustrates how organizations in the same industry institutionalized different logics (trustee versus professional) depending on their geographical location. Thus, logics can conflict not only within levels, but between levels. However, such cross-level interactions are rarely studied (see Lee & Lounsbury, 2015 for a notable exception).

### *Organization Type*

Building on Pahnke et al. (2015), which assumed that organization type or structure is a better measure of organizational-level logics, this dissertation looks at how the type of organization helps provide a clearer understanding of how and why SLOs enter the market for renewable power and how much risk they will take upon market entry. Both state and market logics are significant institutional orders that significantly influence an organization's structure, practices, identity and values (Albert & Whetten, 1985; Glynn & Abzug, 2002). Each order provides a frame of reference that conditions actors' sensemaking (Thornton et al., 2012), which can result in different rates of entry and risk-taking for each type of organization. However, the management literature to date has typically focused primarily on MLOs. In those instances where researchers have considered SLOs, they have often focused on contexts such as state owned enterprises (SOE's) (Goldeng, Grünfeld, & Benito, 2008; Ralston, Terpstra-Tong, Terpstra, Wang, & Egri, 2006; Xu, Lu, & Gu, 2014) or non-profits (e.g., some hospitals) (Burgess &

Wilson, 1996) as forms of organizations that have significant stakeholders or values that may not be profit-based. Importantly, this literature has also typically focused on countries making a transition to some form of capitalism, such as in China (Xia & Walker, 2015).

It is important to note that in making the argument that there are important differences between SLOs and MLOs that subsequently influence their likelihood of market entry, I am primarily focusing on SLOs and MLOs that are funded through similar market mechanisms such as market sales or user fees, thus increasing their autonomy from control mechanisms such as dependence on a few large government contracts. Such a focus reduces the concern of comparing organizations whose differences may be due more to variations in autonomy from control (e.g., high dependence on government grants or contracts) than ownership type (Perry & Rainey, 1988). Such a focus also reduces concerns about differences due solely to publicness (Bozeman, 2013), as the publicness of both types of organizations is likely to be similar. The discussion below will look at the influence of an organizational logics on an organization's decision to enter a new market and how much risk to take as it enters the market. I then look at hybrid organizations in the form of public-private partnerships (PPP) and the subsequent implications of hybrid logics on these same outcomes. Further, I also look at how organizational size and community-level values influence the propensity of SLOs to enter a market.

## **State versus Market Logic**

In studying the effects of state and market level logics on organizational action, it is important to consider how each logic would influence the symbols and practices within an organization, and at various levels above and below the organization. This is because logics become apparent as one studies the material practices and symbols of the organization, which are reflected in an organization's basis of norms, basis of strategy, and the basis of attention. Each of these dimensions represent a coherent configuration of attributes that influence how organizations "perceive, pay attention to, evaluate, and respond to environmental stimuli" (Almandoz, 2014: 443). An organization's basis of norms provides the rules by which an organization defines its members, where it obtains legitimacy, and from where it gets its authority (Thornton et al., 2012). The basis of strategy adhered to by the organization is dependent on the type of organization, as well as its strengths and weaknesses (Glynn, 2008; Pahnke et al., 2015). Last, an organization's basis of attention is based on salient stakeholders, measures of success, and the feedback mechanisms through which the organization receives input on its status (Ocasio, 2011).

The subsequent practices, processes, and goals of the organization stemming from these dimensions are very different for SLOs as compared to MLOs. Table 1 shows the relevant attributes for each logic and how that logic influences the organization. This table provides a concise overview of how each institutional order is distinguished from the other by looking at relevant attributes of each logic.

**Table 1** Comparison of State and Market Logics

<b>Attributes</b>	<b>State Logic</b>	<b>Market Logic</b>
<i>Sources of Identity</i>	Public Servant “Commons” Steward	Business Owner Entrepreneur
<i>Sources of Legitimacy</i>	Voter Mandate	Market Value
<i>Sources of Authority</i>	Elected Boards & Councils Bureaucratic Efficacy Citizen Electorate	Professional Managers Market Efficacy Owners & Shareholders
<i>Sources of Income</i>	Citizen Taxation Tax Revenue Redistribution	Product & Service Contracts Business Diversification
<i>Sources of Capital</i>	Government Grants Government Loans Municipal Bonds Commercial Lenders	Commercial Lenders Retained Earnings Government Grants
<i>Organizational Form</i>	Government Bureaucracy	Unitary or Multi-Divisional
<i>Salient Stakeholders</i>	Elected Politicians Citizenry	Owners & Shareholders Customers
<i>Decision Making Mechanisms</i>	Technical Analysis Public Meetings Bureaucratic Staff Vote by Elected Officials	Financial Analysis Private Meetings Managerial Staff Executive Decision
<i>Risk Profile</i>	Loose Coupling of Staff & Project Performance	Tight Coupling of Management & Project Performance
<i>Feedback Mechanisms</i>	Elections	Profit Margins
<i>Success Measures</i>	Regulatory Compliance Winning Elections	Increase in Profit Winning Contracts

In terms of identity, SLOs are formed and operate on the premise that these organizations are there to serve the public and that the organization serves as “stewards of the common,” preserving and protecting what is best for the general public. Often, these organizations are established as a means of providing public services that may be

unprofitable or expensive, or where competition would be problematic. As a result, SLOs are often tasked with the responsibility of providing public services such as transportation, drinking water, or solid waste disposal to people within a geographical jurisdiction, obtaining their authority through a legislative action. MLOs on the other hand, are established to accomplish the goals of an individual or small group of business owners. As a result, the identity of MLOs can vary significantly depending on these owners. While it is possible that an MLO might see itself as a steward of the common, it is much more likely that the organization will be seen as a way for owners to generate revenue for the benefit of the owners, since MLOs are established and operated via elements of a market logic (Thornton et al., 2012). Such a focus on financial profit as the identity of the firm will likely lead the organization to be more adept at pursuing competitive advantage, entering new markets, and cost reduction through increased efficiency. In the context of SLOs, this means that the core identity of an SLO is tied to providing a public service that may include access to such utilities as drinking water, electricity and waste disposal services for residential, commercial, and industrial members within the jurisdiction of the organization.

Closely tied to the organization's identity is the manner in which they obtain legitimacy and authority. SLOs gain their legitimacy as the result of democratic approval of their constituents, as well as through compliance with regulatory standards. Democratic approval occurs either through election of the organization's leaders, or through the selection and hiring of the organization's leaders by elected officials. The key point here is that the legitimacy of an SLOs is tightly coupled to the approval not

only of their constituents, but also to compliance with regulatory standards. MLOs on the other hand, gain their legitimacy with shareholders predominantly through market performance. With regard to the authority that the organization has to act, SLOs gain their authority from a legislative action, as the founding charter of the organization has to be approved by a higher legislative body. For example, in order for a town or city to be formally chartered, the state legislature has to approve the formation of the organization. As part of this process, the new SLO is required to have a specific organizational structure that includes a council or board with elected or appointed members that governs a bureaucratic staff. The organization is also given specific requirements on how it operates in order to ensure that the organization's actions are transparent to the electorate body to which it provides services. An MLO has no such formally charter or structure and can operate as it best sees fit, which is typically done by professional managers hired to oversee and protect the interest of the organization's owners. Decisions are governed less by legislative mandate and more by the pursuit of economic profits. Structurally, these organizations are also typically less bureaucratic and hierarchical than an SLO because an MLO is primarily focused on efficiency. For instance, decisions can be made in a relatively short amount of time since an MLO does not have the same formal procedures and transparency requirements that an SLO does.

As a result of the differences in the sources of identity, legitimacy, and authority for each type of organization, an organization's symbols, practices, and values will be influenced in different ways that will impact whether the organization enters a new market. For an SLO, these include: (1) political ambiguity, which occurs as the result of

formal decision-making practices and greater attention to a diverse group of stakeholders, (2) measures of success that largely focus on regulatory compliance and quality of service, and (3) formalized decision-making processes that require additional time and effort from the organization's employees. Each of these factors influences the likelihood that an SLO will enter a new market.

*Political Ambiguity:* In the U.S., SLOs are typically based on a hierarchical bureaucracy that obtains its authority through a democratic process (e.g., mayor and city council at the municipality level or regional representatives at the county, state, and federal level). Typically, these organizations are overseen by a political body such as a council or board that is directly elected or appointed by elected officials and given administrative control over the organization (Milakovich & Gordon, 2013). This is true whether the SLO's sole task is to operate a school district, a water system, or a landfill, which is often done through a special service district (e.g., a school district), or if disposal services are just one of many services (e.g., transportation, water, and/or electricity) provided by a organization. As a result of this hierarchical structure that is governed by an elected body, SLOs are more likely to be impacted by the logics of the community they reside in because they pay greater attention to the stakeholders within that community. Stakeholders are typically defined as "any group or individual who can affect or is affected by the achievement of an organization's purpose" (Freeman, 1984: 53). In this context, the primary stakeholders are the individuals and organizations that reside and operate within the regulatory boundaries of the organization. The increased attention to stakeholders by SLOs is due primarily to two factors. First, stakeholder

theory predicts that stakeholders become salient to organizations because of exogenous influences such as regulatory measures (Kacperczyk, 2009) or the ability of certain stakeholders to control important resources (Pfeffer & Salancik, 1978). Because of the democratic origins of the leadership, these organizations are “open systems” that are more likely to be influenced by a wider variety of stakeholders (residents, consumer groups, taxpayers, local businesses) (Boyne, 2002; Perry & Rainey, 1988). In other words, because of the statutory open meeting requirements of these organizations and the political body that leads the organization, stakeholders have a greater opportunity to influence these organizations. The second reason that SLO’s will be more likely to be influenced is because the employees of the SLO often live within these communities and thus are influenced either by subscribing to these logics themselves (Almandoz, 2014) or by being more cognizant of what logics are important (Crilly & Sloan, 2012).

The main way in which stakeholders for an SLO are given an active voice in the organization is their ability to attend and participate in open meetings held by the organization. Because states in the U.S. require that actions voted on by the political body governing the SLO are presented to the public in open meetings, stakeholders are given the opportunity to attend and give their opinions in these meetings prior to a vote by the body (For example, the state of New York requires at least 72 hours public notice prior to prescheduled open meetings: Government, 2017). Similarly, agendas and minutes for these meetings are public information, and are typically posted online by the organization or a local media outlet (Government, 2017), making it relatively easy for interested members of the community to determine if the SLO is pursuing activities that



align with their personal interests. These norms in the organization, which stem from legislative action, result in greater visibility and opportunities for participation and contestation by concerned stakeholders such as citizens, activist groups and even the media (Chen & Bozeman, 2012).

Beyond the structural implications from their legislative origins, SLOs obtain their identity from their citizens, which are able to influence the organization's goals, activities, and values through acting as owners via lobbying the elected officials (Nutt & Backoff, 1993). However, in the absence of a large consensus within the organization's constituents, there is often political ambiguity about what the identity of the organization should be. Thus, the leaders of the organization, who are elected or appointed to represent the public, will have greater difficulty not only understanding what the public wants, but also in coming to a consensus about what that actually means. Many communities do not have a high degree of political consensus and so there is often confusion and conflict about what identity the organization should have (Chen & Bozeman, 2012).

Furthermore, for many SLOs, there are a high number of stakeholders that may seek to guide or influence the organization's decisions. For example, Humboldt County in the northwestern portion of the state of California (population of approximately 135,000) held a series of public engagement meetings over the course of three years in which more than 450 stakeholders were consulted as the county developed a new economic development strategy. These stakeholders ranged from local and state elected officials, tribal leaders, education professionals, clergy, business owners, and various

community members (Institute of Local Government, 2012). While not all SLOs seek to involve that many stakeholders directly, the reality is that these organizations have a large number of stakeholders that impose multiple goals on them (Boyne, 2002). As the number of salient stakeholders increases, so does the prospect of conflicting goals between stakeholders (Stahl & Mosher, 1971). The varied nature and demands of stakeholders often leads to political ambiguity for both elected officials and the SLO's staff, who are unable to clearly determine what the public wants (Nutt & Backoff, 1993; Rufín & Rivera-Santos, 2012).

In contrast, MLO's have a much smaller number of stakeholders, even in the case of publically listed organizations, where the number of salient shareholders is often significantly less than 100. For an MLO, decisions as to what strategies the organization should pursue are largely under the direct and total control of the CEO and perhaps a few other senior managers and directors. Such a limited number of stakeholders that can have an influence results in greatly reduced political ambiguity for the MLO, making it relatively easy for the management to determine what course of action they should pursue. Thus, as a result of the increased political ambiguity for SLOs, they are less likely than MLOs to enter a market.

*Measures of Success:* While SLOs face greater ambiguity from their stakeholders about whether they should pursue a venture that is different from their core mission, they have much less ambiguity about what measures of success are. For SLOs, measures of success largely consist of conformity with higher authority such as state and federal regulations (Meyer, 1979). This focus on compliance with regulatory requirements

results in less ambiguity about what the organizations should do, since regulatory requirements for these organizations are typically well established and highly visible, making them the de facto standard of performance for people within the organization. This focus on regulatory compliance by SLOs is in sharp contrast with MLOs, which have as their measure of success the amount of profit they generate.

Further, these regulatory measures provide little managerial discretion in SLOs for typical workplace characteristics such as performance rewards and human resources (e.g., firing, hiring, and promotion). For example, “public employees enjoy greater job security because the procedures for taking greater punitive actions are so complex and time consuming that few people choose to pursue them” (Baldwin, 1987: 183). Combined with the large numbers of stakeholders and associated political ambiguity resulting from periodic elections that often interrupt the SLO’s plans, it becomes difficult for these organizations to develop and measure performance beyond what is required from a statutory perspective, leading to cautiousness and low innovation among employees (Rainey, 1989). SLO employees are also more likely to view innovation (i.e., proposing new ideas or heading unique projects) as extra-role behavior that they should be compensated for, which SLOs typically do not provide (Bysted & Jespersen, 2014). Further, SLOs are resistant to change and delegation of authority (Warwick, Meade, & Reed, 1975). MLOs on the other hand, are more likely to reward employees for innovation and other creative behaviors if those efforts lead to greater profit for the organization. This leads to greater innovation and creativity from employees seeking to improve the financial performance of the organization (Rainey, 1989). As a result, when

there is an opportunity for-profit, employees and owners are more willing to consider the ideas, even if the ideas or projects are not central to their core business.

*Formal Decision-Making Processes:* A third characteristic of SLOs that makes market entry less likely than for MLOs is the formalized procedures for decision-making. The more formal procedures include the need to get approval from a political body in a public meeting for any significant action or expenditure (Government, 2017). Where MLOs are typically able to make decisions quickly, SLOs have to follow specific processes and structures that require a great deal of time and effort (Milakovich & Gordon, 2013). Generally, projects such as a renewable power generation facility are conceptualized by a staff member, elected official, technical consultant, or even a member of the general public. Upon conceptualization, there is an internal review of the project by staff and officials. After that, the project is included in the capital facilities plan, which should be reviewed annually by both internal and external stakeholders and then voted on in a public session by the political body. At some point after the plan is approved, authorization is given by the political body to authorize the hiring of a professional service firm to plan, design and at some later point to provide design contract documents. Prior to obtaining bids (i.e., proposals) from contractors that provide a cost to build the project, the political body again provides approval of the specifications and design documents and authorizes their representatives to receive bids from general contracting firms. Upon completion of the bidding process, the political body again is required to approve the bids and award the project to the winning contractor, at which point construction can actually begin. Along the way, the political

body can halt the project at any point prior to construction contract documents being executed (City of Sea Isle, 2017). The overall process from preliminary planning, design and bidding, and then obtaining approval to construct the project often takes multiple years, depending on the complexity of the problem. This can threaten the ultimate success of the project should the political landscape change.

These due process requirements for these organizations take a great deal of staff time and energy, and result in a decreased likelihood of market entry for SLOs as compared to MLOs, which do not have the same formalized decision-making processes. Rather, decision-making for these organizations is much more likely to include less formalized meeting requirements, where the CEO or perhaps the local manager can make the decision on his or her own, without having to present all of the information to salient stakeholders. This allows decisions to be made in a relatively short amount of time since they do not have to go through a staff review followed by one or more public meetings. Senior managers or owners can also approve ideas and actions without going through time-intensive procedures that are required for SLOs. Such informal decision-making procedures for MLOs allows for greater flexibility and speed in pursuing market opportunities than their SLOs counterparts (Schaeffer & Loveridge, 2002).

As a result of the state logic held by SLOs that leads to greater political ambiguity or uncertainty as a result of increased numbers of stakeholders, along with a relatively greater focus on statutory requirements as the measures of success for the organization, and a significantly more cumbersome formal decision-making process, SLOs will be less likely to enter new markets than MLOs.

*Hypothesis 1: SLOs are less likely than MLOs to enter a new market.*

## **Risk-Taking**

While there are various ways of defining risk, including risk preferences, behaviors and actions, and firm outcomes, in this study, I define risk-taking as a firm strategy that involves a specific activity taken by an organization which has the potential of increasing risk to the firm (Bromiley, Rau, & Zhang, 2016). In defining risk this way, I am suggesting that organization can choose to take a risk simply by entering a new market. However, the magnitude of that risk can vary significantly depending on *how* the organization enters the market. In this context, risk-taking activity is related to how much of an investment the organization makes to install the power generation equipment, compared to the predicted methane output of the landfill. In other words, risk refers to *ex ante* as opposed to *ex post* risk.

A consideration of how an organization enters the market is an important one for any context, but especially so for the context of landfills, as the decision to utilize the methane for power generation can expose the organization to a significant risk. The quantity and quality of the produced gas can vary unexpectedly and significantly, depending on the type of waste stored, the climate the landfill is located in, and how the gas is collected. Additionally, measurement equipment and estimation techniques can be faulty, resulting in significant errors in the amount of gas estimated. For instance, a landfill in the southwest U.S. recently installed power generation facilities to utilize the amount of gas that had been measured on an annual basis. However, within a year of installing the facility, the project had to be shut down as the methane production had

dropped to almost zero as the result of a serious drought. Additionally, in the years after initially entering the market, landfills often increase their capacity by installing additional capacity, or they may mothball one or more of their generators to reduce production capacity. This usually occurs when methane production is not what it was expected to be. Some landfills may even exit the power generation market altogether.

As a result of this substantial risk, those landfills that do enter the market may approach market entry in a variety of ways. While some enter it conservatively by installing a limited number of generators that utilize only a fraction of the potential capacity based on expected methane output from the landfill, others install equipment to utilize all of the predicted methane output. For example, if a landfill produces enough methane to produce 1 megawatt of power (MW), one landfill may actually install enough equipment to generate 0.5 MW of power, which is half of what could be generated if more generators were installed. Another landfill with the same potential to generate 1 MW of power may choose to install enough generators to produce 1 MW of power, thus taking advantage of the full opportunity (for a relevant example, see Bharathan, 2011).

Importantly, landfills pursuing these projects typically install multiple generators independently of whether they are trying to utilize the full amount of estimated methane (EPA, 2016), which is done for a number of reasons. The first is that installing the project in stages allows the landfill to continue producing power, even if a unit breaks down or needs to be pulled out of service for routine maintenance. The second reason is that the quantity of emitted gas is not consistent over time, nor is it easy to quantify prior

to the project. Installing a single generator will likely result in the generator running at a reduced level, resulting in reduced efficiency and overall life of the equipment. Installing multiple units allows the operator to run most of the generators at full capacity, with the potential of increasing/decreasing units as the quantity/quality of gas varies. The third reason is related to the emitted gas. Because the emitted gas can vary significantly in both quantity and quality over the months and years that follow the project, organizations can enter the market by installing one or more small generating systems that use only a portion of the expected gas. This allows the organization to pilot the system, giving it the ability to test both the system's technical ability and methane capacity without expending a larger amount of capital to install the equipment necessary to generate the full amount of potential power.

To summarize, the measure of risk in this dissertation is related to whether the organization installs all of the equipment that it needs to capture and convert the methane to energy, or whether it installs only a portion of the equipment, resulting in a limited capacity to generate methane that reduces the organization's potential risk exposure.

#### *State Logic Organizations*

While SLOs will be less likely to enter the market due to the material and symbolic elements stemming from their organizational logic, those same characteristics will make them more likely to take risk as they enter the market. While the technology to capture and utilize the methane gas for power has been widely available for over fifty years, these projects still have some significant risks to them, some of which were



described above. Other risks originate from both administrative and functional issues that can arise not only during the planning and construction phase, but also when the project itself outperforms expectations. Potential risks for these projects include technical issues such as lower than expected methane quantity and quality, financial risks (e.g., downturn in the economy, decreased prices in traditional power sources), stakeholder risks (activists, lawsuits from a nearby resident, etc.), political risks (e.g., a change in political body or voter opinion), or the acquisition of the organization by another firm. Risk-taking by these organizations is influenced by their structure and decision-making processes, financing strategy, and reduced liability for individuals within the organization, which all occur as the result of the state logic that the organization is based on.

*Formal Structure and Decision-Making Processes:* The first way in which a SLO is more likely to take risk comes as a result of its structure and decision-making process, which are much more formal in nature than those of MLOs. As discussed above, SLOs have a structure and decision-making process that are to a large degree mandated by legislative authority. The bureaucratic structure of SLOs results in lower managerial autonomy and greater effort to get projects approved due to the additional rules and red tape that are present in the organization (Boyne, 2002). Consequently, as projects proceed through the approval process, managers and other proponents of the project are more likely to try and get approval to build and operate the full capacity facility, which would prevent them from having to go through success planning, design, and construction phases, all of which are more difficult and time intensive for an SLO. The

decision-making practices of MLOs are much less formal, allowing these organizations to make decisions more quickly. Such an informal process that is not subject to extensive bureaucracy and regulatory limitations makes it easy for the organization and its staff to repeat the process, making it more likely that it will be willing to pursue the project in a number of stages or steps, as future projects can be planned and built with relatively less red tape and effort by those who are responsible to manage the project approval and construction process. As a result SLOs are more likely than MLOs to take risk as they enter the market.

Another reason by which the structure and decision-making process can lead to increased risk-taking is the lengthy approval process. As mentioned previously, SLO organizations are focused on compliance with regulatory statutes, making them more likely to utilize professional experts who can help ensure that the project will be successful. These professionals include a variety of engineers (e.g., electrical, civil, and mechanical), finance officers, and legal counsel (DiNapoli, 2009), all of whom study the project from multiple perspectives and provide guidance and counsel on how the project should be designed and implemented. While this process is expensive and lengthy, it results in greater confidence that the project will comply with regulations and will adequately perform in a way that will be acceptable to the many stakeholders of the organizations. As a result, the SLO will be more likely to take risk as it will have more fully vetted the opportunity. While MLOs typically utilize the same types of professionals, the focus of the organization is on making profit. Since MLOs do not have the same regulatory requirements that govern their decision-making process, they will be

more likely to rely on fewer decision-makers, who will be incentivized to push for increased speed and efficiency in designing and implementing the project. This can lead to fewer challenges to the project, as well as effectively reducing the time spent by professionals who are designing and building the project. As a result, MLOs will be less sure that their information is correct, leading them to be more cautious as they enter a new market.

*Financing Strategy:* Another way in which SLOs are more likely to take risk upon market entry is because of their financing strategy, which includes both their sources of income and their ability to finance the projects through external sources of funding. SLOs are authorized to obtain their income through the taxation of individuals and organizations in their service area (e.g., such as a property or sales tax). This ability comes from the legislative mandates of the organization, and provides them coercive power to raise taxes to fund approved projects (Stahl & Mosher, 1971).

Other sources of income include disposal and tipping fees (revenue collected when customers bring solid waste individually for disposal), special assessments, impact fees (collected when homes or buildings are built in the service area), state and federal grants and loans (e.g., Community Development Block Grant or a state revolving loan fund), and commercial funds in the form of long term loans or debt obligation such as a “revenue bond” (Government, 2016). However, as part of the financing process, the SLO’s governing body would have to go through the lengthy and difficult approval process outlined above. If significant revenue is needed, it may even need to hold a public vote to gain approval for the increase. Since these SLOs have the authority to tax

or otherwise charge a fee to all entities within their jurisdiction, their income base is very stable.

Should revenues fail to cover expenses, nearly all of these organizations are actually legally obligated to balance their budgets (NLC, 2017), resulting in a need to either reduce expenditures or to raise taxes or fees. This stability in their income stream results in organizations being less concerned about financial insolvency should the ventures fail. In other words, the relationship between risk-taking and firm survival for these organizations is loosely coupled, resulting in SLOs being more likely to take risk upon market entry. In contrast, MLOs cannot tax their customers, and are limited to customer fees for their source of income, making their revenue stream less stable. Should they increase fees too much, they can lose customers, resulting in decreased revenue and endangering their survival, making SLOs more likely than MLOs to take risk during market entry.

A second component of an SLO's financing strategy that leads to increased risk-taking is that SLOs have access to financing options that are unavailable to MLOs. For instance, there are a variety of state and federal grant programs that would offer assistance for eligible organizations. Programs such as those offered by the US Department of Agriculture's Rural Development Loan and Grant program or the Community Development Block Grant program administered by the US Department of Housing and Urban Development provide relatively easy access to grants and low cost loans that can be used for improvement projects such as renewable energy. Often, SLOs also have access to grants or low-interest rate loans from state and non-profit programs.

Further, they can often obtain low rate commercial loans from commercial lenders, as these types of organizations have a lower risk of bankruptcy than MLOs. While there have been some high profile bankruptcy filings by SLOs, the fact is that in 2012, there were over 89,000 local SLOs in the US (Bureau, 2012). Of those, only 13 filed for bankruptcy (Reserve, 2014), a default rate that is approximately an order of magnitude below that for loans to MLOs, which have had a default rate ranging from just under 1% to more than 6% in the last 30 years (System, 2017). This increased rate of bankruptcy makes it more difficult for MLOs to obtain financing for projects since MLOs often are a bigger risk for the financing institution than an SLO. Further, they cannot simply raise fees to pay for a project as they are subject to a competitive market where customers may go elsewhere. The ability to get cheaper financing coupled with a typically stable income source makes it more likely that SLOs will take greater risk during market entry than MLOs.

*Reduced Liability:* From an incentives standpoint, the same red tape and rules that make it more difficult for SLOs to enter the market also make it more likely that they take risk once they do decide to enter the market. For instance, both the staff and the political governing body in these organizations are protected from any liability under various federal and/or state tort laws. While SLO officers and employees do not typically have sovereign immunity, they are still protected by a variety of limitations and exceptions, especially while acting within the scope of their authority or in the course of their duties (NCSL, 2017; Orlando, 2011). These projects are usually justified using a lengthy political process designed to be completely transparent in nature, resulting in

greater effort to gain approval for a project. This process typically relies heavily on the analysis and recommendations given by technical experts such as professional engineers who have studied the matter, which has the effect of increasing the chances of success while decreasing the chance of the organization, the staff or the political governing body being held liable for a project that fails to meet expectations. Further, SLO employees are typically more difficult to fire because the organization is required to adhere to complex and time-consuming procedures (Baldwin, 1987). As a result, staff who recommend and pursue these projects are protected from many of the negative repercussions that an MLO employee is subjected to, leading to a greater propensity for risk-taking by the SLO. Both MLO employees and the organization itself lack the protection given SLOs by these same regulatory measures, and it is easier to dismiss or fire MLO employees. In the MLO, an employee who pursues a project that does not result in profits for the organization can easily be fired, since the focus for the organization is on profitability and efficiency. The increased liability at both the individual and organizational-level means that MLOs will be less likely to take risk as they enter the market.

*Hypothesis 2: SLOs will take more risk than MLOs as they enter a new market.*

### *Public-Private Partnerships*

While logics are theoretically distinct (e.g., state, market, church, family, professions), individuals and organizations are often exposed to multiple institutional logics (Friedland & Alford, 1991) at various levels (i.e., societal, field, community, organization). Research in this area has looked at how logics multiplicity influences

hybrid organizations (Battilana & Dorado, 2010; Pache & Santos, 2013), which are defined as organizations that “instantiate the values and practices associated with multiple distinct field- or societal-level logics” (Battilana, Besharov, & Mitzinneck, In Press). Logic multiplicity within organizations has been studied in a variety of contexts such as microfinance (Battilana, Sengul, Pache, & Model, 2015), tech firms (Powell & Sandholtz, 2012; Wry, Lounsbury, & Jennings, 2013), social enterprises (Tracey, Phillips, & Jarvis, 2011), banks (Almandoz, 2014), utilities (Jay, 2013), and manufacturing firms (Greenwood, Díaz, Li, & Lorente, 2010).

Since the logics perspective allows for logics to exist at multiple levels, such as the organization, community and societal, it addresses organizations that span the public and private sectors, such as in the case of a public/private partnership (PPP) (Tracey et al., 2011). Such combinations of “core elements” (Hannan & Freeman, 1984), which refer to identities, forms, values, beliefs and other aspects of organizations, can violate and even alter institutionalized norms about what is appropriate for an organization (Tracey et al., 2011). From a logics perspective, hybrid organizations mix values and practices that are normally associated with more than one field or societal logic (Battilana & Dorado, 2010; Jay, 2013). However, in the case of PPPs, these organizations span different organizational-level logics, which are persistent over time in the partnership (Smets, Jarzabkowski, Burke, & Spee, 2015).

In the United States, and many other areas of the world, PPPs typically consist of a partnership between SLOs and MLOs to provide or improve an existing public good or service, such as improved transportation, water and sanitation, municipal solid waste

collection and disposal, and energy production and development. Partnerships such as a PPP allows the combination of skill and resources from both sectors as well as allowing participating organizations to share risk. The World Bank Group defines PPPs as a “long-term contract between a private party and a public sector entity, for providing a public asset or service, in which the private party bears significant risk and management responsibility and remuneration is linked to performance” (2017).

PPPs are increasingly utilized as an important tool to address a variety of social and economic issues in every part of the world. For instance, the US 2018 proposed budget seeks to expand the use of PPPs for space exploration, traffic control, veteran affairs, and drinking water systems (2017). PPPs are now used in more than 134 countries and represent approximately 15-20% of infrastructure investment across the world (Apfalter, 2017). Many governments are turning to this type of organizational form as a valuable option to address infrastructure needs (e.g., repair and replacement, new capital projects) as SLOs are increasingly unable to obtain funding from federal and state sources that were the traditional vehicles for these projects. In other words, SLOs are increasingly faced with resource constraints and changing stakeholder opinion, forcing these organizations to increasingly consider alternative mechanisms to meet the needs of their constituents (Galaskiewicz, Bielefeld, & Dowell, 2006).

PPPs have typically been evaluated from theoretical perspectives such as transaction cost economics and agency theory using arguments such as efficiency or the costs of opportunism (Rangan, Samii, & Van Wassenhove, 2006; Rufin & Rivera-Santos, 2012). However, these perspectives focus largely on various types of control



mechanisms, such as formal or informal contracts, equity, or interpersonal constructs such as trust (Rufín & Rivera-Santos, 2012), which are typically associated with a market logic (i.e., cost efficiency) or family logic (i.e., relational). These perspectives thus fail to consider how institutional mechanisms such as regulatory requirements and access to financing, which stem from an organization's logic (i.e., market vs state), influence PPP outcomes.

Because PPPs include a contractual relationship between SLOs and MLOs, each of which incorporates distinct logics (state and market), there are significant concerns of conflict stemming from values, practices, and goals that may not align (Besharov & Smith, 2014). This can lead to organizational-level issues such as mission drift (Ebrahim, Battilana, & Mair, 2014), which can result in decreased organizational effectiveness (Jay, 2013; Zhao & Grimes, 2016). The combination of logics can also make it difficult for members of the organization to understand or agree on issues, which can lead to conflict. Such conflict is especially likely where there are multiple groups or a structural separation between logics (Almandoz, 2014), such as in the case of PPPs. At the individual level, members of the organization may experience inner conflict as they try to determine what the appropriate course of action is when there are two conflicting logics (Smets et al., 2015).

However, in some cases, the elements from each logic may lead to cohesion between the organizations and the parties within them, leading to beneficial outcomes such as greater innovation (Jay, 2013) or increased efficiency (McPherson & Sauder, 2013). Such benefits can occur as existing norms, values or practices are challenged by

the incoming logic (Dalpiaz, Rindova, & Ravasi, 2016), allowing individuals and groups to pursue new ideas or to do their work in ways which they were previously not allowed (Jarzabkowski, Smets, Bednarek, Burke, & Spee, 2013; McPherson & Sauder, 2013).

### **PPPs and Market Entry**

While the literature has found that hybrid organizations face significant challenges and opportunities in allowing multiple logics to exist within the organization, PPPs present a specific case of hybrid organizations that influence the relationship between SLOs and market entry for several reasons. First, the different logics of the partners in terms of values, goals, and practices leads to increased uncertainty in the partnership (Parkhe, 1991), resulting in a greater reliance on formal means of governance. Many regulatory and non-profit organizations recommend that PPPs should be governed by well-defined contracts that are established through a competitive bid for services (Engel, Fischer, & Galetovic, 2011; Sabol & Puentes, 2014; 2017). Past research has suggested that contracts become more complex as the activities and parties to the contract have more occasions for opportunism (Hart, 1995). Further, best practice guides suggest that the SLOs set quantifiable, specific goals for the project that are based on sound economic, financial, technological principles and meet the needs of key stakeholders for the organization (Sabol & Puentes, 2014). In essence, increased uncertainty between partners will lead to a more specific and detailed scope being defined in the contract (Rufín & Rivera-Santos, 2012). Both of these mechanisms help reduce goal ambiguity for the partnership by specifying in contract form clear expectations and performance awards for the partnership. For example, in establishing a

partnership, both organizations are forced to consider and commit to the upfront and long-term costs (i.e., whole-of-life) for the agreement. This increases the likelihood that both organizations will carefully evaluate the requirements of the project. It also allows the SLO to transfer at least some of the risk to the MLO, while giving the MLO the opportunity to profit from the transaction in a way that increases the quality or quantity of the service provided by the SLO (World Bank Group, 2017). The additional goal clarity achieved through these efforts allows the partnership to focus its efforts on contract compliance, meaning that both organizations are more likely to follow through with the contractual obligations. Since both organizations are legally liable for contract compliance once the contract is executed, there is little opportunity for political, administrative and stakeholder challenges to arise. Such clarity in the contractually specified goals for the partnership result in the SLO becoming more likely to enter the market when the SLO takes on an MLO partner.

Another way in which PPPs would increase the likelihood of market entry by an SLO is expanded access to financing (World Bank Group, 2017). Funding for SLOs can become politically or even statutorily impossible in some cases. The use of a private sector partner allows SLOs to pursue projects, even when budgets are restricted due to shortfalls, or in those times when the political body is favorable to the project but will not approve it due to concerns about raising fees or exposing the organization to undue risk (Engel et al., 2011). PPPs in this context generally involve little to no cash outflow by the SLO partner, as the MLO partner is required to fund the project initially and maintain it for a specified period of time in return for the rights to revenues from the

project, which provides the MLO the opportunity to recoup its investment over time (World Bank Group, 2017). While the financing available to the MLO partner is likely to be more expensive than that available to the SLO, the MLO is going to be more focused on profit, and will thus be able to gain enough in efficiency with the partnership to outweigh this additional cost.

The third way in which a PPP leads to increase likelihood of market entry by an SLO is due to the increased attention on profit by the partnership. As SLOs enter into these partnerships, it will likely consider not only what it would cost the MLO to complete and operate the project, but also what the financial implications are for the MLO. Doing so helps the SLO prevent undue forfeiture of gains that normally are captured by the MLO. This increased focus on profit by the SLO also helps reduce goal ambiguity (Engel et al., 2011), as the reliance on formal contracts will likely result in defined tasks, goals and responsibilities for each party to the contract. The MLO will also be more likely to challenge the existing norms and practices in a search for greater profit, which will not only result in greater efficiency, but can also lead to greater innovation by members of both organizations as they seek to combine practices and symbols based on both state and a market logics (Jay, 2013). For PPPs, this means that there will be a greater willingness to pursue non-traditional activities or markets that can help both organizations achieve the goals inherent in each logic. Often, PPPs are based on the assumption that the MLO can recapture its investment in as little as 5 years (EPA, 2016), which is often well within the timeframe of the contract. Thus, as a result of decreased goal ambiguity, greater access to financing, and an increased focus on profit,

an SLO that partners with an MLO will be more likely to enter the new market than an SLO that doesn't partner with an MLO.

*Hypothesis 3: The relationship between SLOs and market entry will be positively moderated by a partnership with an MLO such that the likelihood of market entry will be increased when an SLO partners with an MLO.*

### **PPPs and Risk-taking**

PPPs are also likely to influence the relationship between SLOs and risk-taking, as MLOs have different decision-making processes, tighter coupling of management and risk-taking, and a greater focus on profit and associated financial statements. As has been mentioned, the decision-making process for MLOs is more efficient and less time intensive than for SLOs, making it easier for MLOs to go through the approval process. When an SLO partners with an MLO for management of a facility or project, the decision-making process is simplified as the MLO can make decisions about which opportunities to pursue more quickly than an SLO can by itself. Part of the reason for this increase in decision-making efficiency is the reliance on formal contracts as a means of governing the relationship. Such contracts provide enough clarity in goals for the organization that MLOs are given greater decision-making responsibilities as long as those decisions are related to the goals in the contract. Thus, PPPs allow MLO partners to handle at least part of the decision-making process, making it more streamlined and efficient, with greater goal clarity. This in turn leads to a greater willingness to repeat the process, making it more likely that PPPs will take less risk as they enter a market.

A second reason for less risk-taking by PPPs is a tighter coupling between managers and risk-taking. As was discussed previously, the staff in an SLO is relatively

decoupled from risk should they push the SLO to pursue new opportunities. As a result, the staff is less likely to be fired or face negative consequences, leading to increased risk-taking. However, when the SLO partners with an MLO, not only does the MLO assume at least part of the risk of pursuing new opportunities, but the managers of the MLO are more tightly coupled to organizational outcomes. Should MLO managers pursue an opportunity that does not provide the profit margins sought by the MLO, the managers are more likely to experience negative repercussions from the failure, making them less likely to take large amounts of risk (Beatty & Zajac, 1994; Jensen & Meckling, 1976). Rather, these managers will be more likely to take small amounts of risk as they first enter a new market, expanding on the investment over time as uncertainty about the opportunity is decreased over time.

A third reason that PPPs will be less likely to take risk as they enter a new market is because of their sources of income. Even though SLOs can face public criticism for seeking additional fees or taxes to cover expenses should an opportunity not work out, the public outcry is likely to be increased when the SLO has an MLO managing the organization. This stems from common, potentially misplaced perceptions that the MLO is simply seeking to increase its profit margins. This increased mistrust of MLO intentions is not limited to the general public, but can also arise among the leaders of an SLO, who are ultimately responsible to act in the public's best interest. As a result, there are likely to be significant contractual restrictions placed on when and how fees can be increased by the MLO. Such formal contractual mechanisms are used to check potential self-interested behavior by the MLO, making it more difficult for MLOs to increase fees

should pursuit of the new market entry not provide the expected return. Thus, I hypothesize that when an SLO partners with an MLO, they will become less likely that SLOs will take risk as they enter a new market.

*Hypothesis 4: The relationship between SLOs and risk-taking will be negatively moderated by a partnership with an MLO such that the level of risk-taking will be lower when an SLO partners with an MLO.*

### *Organizational Size*

As organizations grow in size, they accumulate knowledge and other resources that influence an SLO's propensity to both enter a new market and take risk. With increased size, the staff employed by these organizations become more specialized due to the often narrow scope of their position. As staff become more specialized, the goal ambiguity in their role is reduced, allowing them to better identify opportunities that are related to their expertise (Nutt & Backoff, 1993). They are thus more willing and able to put forth the effort and time effort needed to get the projects through the planning and approval process. As they become more specialized, they are also better able to monitor their environment to identify potential opportunities, as well as being more capable of pursuing the opportunity. This is also true for technical and legal consultants that the organization hires. Typically, as SLOs grow, the capital projects they embark on become larger and more complex due to the need to serve a larger number of constituents (Masson & LeSage, 1994). As a result, larger SLOs are more likely to hire more specialized consultants that work with a greater number of organizations over a large geographical area, such as a large region of the US, or even internationally. These consultants provide the organization with knowledge and expertise that local consultants

or staff may not be able to provide in order to design and construct the large projects required by these organizations.

Another way in which greater organizational size increases an SLO's likelihood of market entry is the increase in knowledge, assets and resources that provide larger organizations with a greater ability and willingness to finance projects. Larger SLOs are more likely to have a greater number of ongoing large projects, making it more likely that the entire organization will be more willing to take on another project, as the organization and the people within it have greater knowledge and experience. As a result, the staff, management, and political leaders are more familiar with the decision-making processes, making it easier for them to navigate the formal decision-making processes. Furthermore, larger SLOs are more likely to have greater access to capital and financing than smaller SLOs do, making it easier to secure necessary funding for these projects as they have a greater revenue base and ability to finance projects. In summary, as SLOs grow, they have more focused resources, knowledge, and access to external information that will result in these organizations being more willing to enter new markets than smaller SLOs.

*Hypothesis 5: Organizational size will moderate the relationship between SLOs and market entry such that larger organizational size will be associated with greater likelihood of SLO market entry.*

### **Organization Size and Risk-taking**

Organizational size also has implications for the amount of risk-taking that SLOs engage in. As these organizations increase in size, their increased ability to fund and finance projects will increase their willingness pursue a new project, as it is easier to



gain the necessary funds. Smaller organizations do not have the same access to capital or other types of financing, resulting in a decreased likelihood of taking larger amounts of risk as they invest in a new market. Part of a larger organization's increased willingness to fund or finance new projects comes from a greater ability to hire more specialized personnel. Such expertise allows the organization to more quickly and accurately identify and evaluate the opportunity. The greater expertise that these organizations have access to includes the retaining of financial and technical consultants that a smaller organization may not be able to afford. This specialized knowledge and staff give the organization greater confidence that the project will work as intended.

Another reason that organizational size will influence an SLO's risk-taking is related to the SLO's experience and knowledge of handling large capital projects. As organizations grow in size, they will be more likely to have past and ongoing projects that have provided the organization with the experience and willingness to take on another project. As an SLO grows in size, it is more likely to see pursuit of the opportunity as just another project rather than as a large undertaking that may pose significant political and technical risk for the organization and its constituents. For example, the Bureau of Sanitation in City of Los Angeles Public Works department has a FY2018 budget of over \$272 million dollars, which is less than 3% of the city's \$9.29 billion dollar budget (Los Angeles, 2017). The Sanitation Bureau handles not only solid waste disposal for city residents, but also manages the sewer treatment and collection system, along with the city's watershed protection program. It recently completed an anaerobic gas digester project that cost in excess of \$200 million and has several other

large capital projects in process of design and construction (Committee, 2014). Smaller SLOs are less likely to have the experience with large projects, leading to an increased aversion to risk for smaller SLOs.

Additionally, as SLOs grow in size, the elected political body, whose time and resources are limited, is not able to be as involved in the management of the organization. As a result, managers and lower level staff are given greater responsibility to pursue opportunities and make decisions. Since these larger organizations have greater access to both technical and financial resources, both the staff and the consultants they hire become more specialized and have greater experience in understanding both the risks and benefits of the project. Thus, when a decision to pursue the opportunity is made by an SLO to enter a market, the SLO will be more willing to pursue the full potential of the opportunity.

*Hypothesis 6: Organizational size will positively moderate the likelihood of risk-taking by SLOs such that larger organizational size will be associated with greater risk-taking by SLOs.*

#### *Community Values*

The answer to the question of why there is heterogeneity between organizational actions is not solely answered by a discussion of organizational logics instantiated through organizational type. A significant body of research has shown that the values and beliefs of the individuals within the organization can have an influence on the organizations actions and performance, utilizing such theoretical perspectives as the upper-echelons perspective (Hambrick & Mason, 1984), the behavior theory of the firm (Cyert & March, 1963), and institutional theory (Meyer & Rowan, 1977). Much of this

work has looked at how the underlying values, beliefs and knowledge of the firm's leaders influence the firm, such as the CEO (Boivie, Lange, McDonald, & Westphal, 2011; Chin, Hambrick, & Trevino, 2013; Gupta, Briscoe, & Hambrick, 2017), directors (Almandoz & Tilcsik, 2015; Gupta & Wowak, 2017), owners (Almandoz, 2012), and other senior managers (Christensen, Dhaliwal, Boivie, & Graffin, 2014).

While this work and the theories utilized are extremely important in helping us understand that individuals can and do influence important organizational actions and outcomes, another body of work has begun to look at the community-level of analysis. The idea that values and beliefs at the community-level can have an important influence on organizational decision-making is not new as early institutional theory was based on the premise that local sources of culture and values are important for predicting organizational behavior (Selznick, 1949; Zald, 1970). However, neo-institutional theory developed in the 70's and 80's had a geographically independent focus on institutional field or societal level effects (Powell & DiMaggio, 1991). In the last 20 years, research has begun to look at the community-level of analysis, acknowledging that geography does have an important influence on how individuals and organizations are influenced by field and societal level institutions. For example, there has been a recent surge of work on the importance of community-level effects that has spanned several theoretical areas such as the behavioral theory of the firm (O'Brien & David, 2014), stakeholder theory (Argandoña, 1998), organizational identity (Hsu & Hannan, 2005; Marquis, Glynn, & Davis, 2007), and institutional logics (Lee & Lounsbury, 2015).

The recognition that organizations are also influenced by beliefs and values of the community in which the organization is embedded is a foundational aspect of the institutional logics perspective (Thornton et al., 2012). Recognizing that logics can exist and interact at different levels of analysis has been a recent focus of research based on the common question of how logics at multiple levels influence organizations. Work in this field suggests that logics exist at the individual (Almandoz, 2012), organizational (Battilana & Dorado, 2010), community (Marquis & Battilana, 2009), and organizational field-levels of analysis (Thornton & Ocasio, 1999). Nascent research has begun to look at the manner in which logics at different levels interact to influence organizational decision-making. One such study looked at how logics at the community-level can filter higher-level logics, leading to variation in environmental performance (Lee & Lounsbury, 2015).

The influence of local communities on organizations has been linked to competitive markets (Lounsbury, 2007), corporate social responsibility (Marquis et al., 2007), entrepreneurship (Kwon, Heflin, & Ruef, 2013), the labor market for executives (Yonker, 2017), and the way that organizations respond to higher level logics (Lee & Lounsbury, 2015). These communities embody “local understandings, norms, and rules that can serve as touchstones for legitimizing” organizational behavior by providing local actors with a framework that they can draw on to make sense of their situation (Marquis et al., 2007: 927). The idea that communities contain localized information about legitimacy models is not new and can be found in work by Weber (1922) and Selznick (1949). Organizations that reside within these communities are subject to the

regulative, normative and cognitive forces specific to that community. In the case of SLOs, community values, identities, and goals are reflected within the general population living within the community the organization represents.

Past definitions of community have included from an institutional order or logic (Thornton et al., 2012), collective groups of like-minded individuals (Faraj & Johnson, 2011), geographically bounded entities (Kwon et al., 2013; Marquis, Davis, & Glynn, 2013), and even a level of analysis (Lee & Lounsbury, 2015). Despite these differences in conceptualizations, communities are essentially a form of collective and economic action (O'Mahony & Lakhani, 2011) that through various processes and mechanisms such as social movements, group polarization, and shared identity, have the ability to drive heterogeneity in organizational behavior and outcomes.

For this dissertation, I view a community as a geographically bounded political entity such as a town, city, special service district, or a county. Such a focus on geographic boundaries allows me to utilize the community as “a local level of analysis corresponding to the populations, organizations, and markets, located in a geographic territory and sharing, as a result of their common location, elements of local culture, norms, identity, and laws” (Marquis & Battilana, 2009: pg. 286). Defining community as a level of analysis that reflects the underlying beliefs and values of the constituents within its boundary provides a framework that allows me to link the values of the community with the values of the organization, through illustrating how SLOs are more susceptible to internalization of community values through the influence of the organization’s leaders and employees.

## **Political Ideology**

Logics are associated with the material practices and symbolic constructions of the actors in the community (Friedland & Alford, 1991). As such, the underlying values, identity, and activities of individuals and organizations within a community may be represented by political ideologies that are a collective reflection of the perceptions of the individuals and organizations that reside within the boundaries of the community. Prior management research has looked at how the political ideologies of firms and their leaders influence risk-taking (Christensen et al., 2014), corporate social responsibility (Briscoe, Chin, & Hambrick, 2014; Chin et al., 2013; Gupta et al., 2017), executive compensation (Chin & Semadeni, 2017; Gupta & Wowak, 2017), and even corporate misconduct and litigation (Hutton, Jiang, & Kumar, 2015). Yet management research has rarely looked at how the political ideologies of the surrounding community in which the organization is embedded influences firm actions and outcomes (a notable exception is Pe'er & Gottschalg, 2011). This is especially surprising given the substantial literature that looks at how other institutional aspects of the community influence firms (e.g., Bansal, 2005; Bertrand & Mullainathan, 2003; Lounsbury, 2007; Marquis & Battilana, 2009; Marquis et al., 2007; McVeigh & Sobolewski, 2007). Additionally, researchers have yet to develop theory about how community-level logics are internalized into organizations, leading to heterogeneity in organizational behavior even when firms are embedded in the same higher level logics.

While there are a variety of definitions for ideology, most suggest that ideology is a collection of beliefs about what the proper order of society is, and how it can be

achieved (Jost, Federico, & Napier, 2009). Inherent within this definition is the role of social groups, which as a collective provide a framework for individuals and organizations to help them both interpret their environment and know how to act (Denzau & North, 1994; Gupta et al., 2017; Jost et al., 2009). Thus, ideology is shared, it helps actors to interpret their social world, and it provides guidelines for action. Although ideologies have at times been applied to broad cultural perspectives, it is important to realize that doing so results in an apolitical approach that normalizes and neutralizes ideology (Beyer, Dunbar, & Meyer, 1988; Meyer, Sahlin, Ventresca, & Walgenbach, 2009). Rather, ideology at lower levels is related to political contests for power between social groups, and as such is based on conflict at both the level of the underlying values and ideas as well as at the group level (Mutch, 2009).

Drawing on the theoretical model proposed by Jost, Glaser, Kruglanski, and Sulloway (2003), which views ideology as motivated social cognition, these differences in ideological perspectives between individuals can be explained by factors that come both from within the person, as well as exist in the individual's social environment. Thus, ideology is influenced both by characteristics of the individuals themselves (i.e., psychological and physiological) (Jost, Banaji, & Nosek, 2004; Tomkins, 1963), as well as the culture that the individuals are embedded in (Jost et al., 2009). These individual characteristics have been shown to be heritable, present during early childhood, and relatively stable in individuals over their lifespan (Alford, Funk, & Hibbing, 2005; Block & Block, 2006).

While a focus on political ideology may seem at first to be theoretically and methodologically unconnected to organizational action, there are several reasons why the political ideology of constituents is applicable for predicting the strategic actions of SLOs. First, ideological self-placement was found to be a strong predictor of voting intentions in the time period from 1974 to 2004, meaning that people who identify with a particular party are much more likely to vote for candidates from that party (Jost, 2006). As a result, both the party of the elected official and the voting patterns of the general public are an indication of at least some of the underlying values and identities of the populace that are stakeholders for the organization. Second, some scholars have suggested that Americans in general are not “well-informed about politics, do not hold many of their views very strongly, and are not ideological” (Fiorina, Abrams, & Pope, 2006: 19). However, research has shown that over the last 40 years, there has been a substantial polarization of both the political elites (e.g., officeholders, candidates, and activists) and the general public as Democratic party members have been moving farther to the left and Republican party members have been moving to the right (Abramowitz & Saunders, 2008; Hetherington, 2001). Both points suggest that there is a strong tie between political ideology and the way that people vote on issues such as the environment, the economy, and many other political arenas governed by elected officials.

### *Internalization of Values*

Ideology at the community-level, which represents the values and beliefs of its members, can be internalized and adopted into organizations through two related



mechanisms: motivated cognition and logic of appropriateness. Motivated cognition is similar to the idea of “elective affinity” used by Max Weber’s analysis of how people adopt ideas, and conversely, how ideas adopt people (Gerth & Mills, 1970). To clarify, motivated cognition allows individuals to choose what values and ideas that they accept through forces that may not be visible to them. However, it also allows for values to, in effect, “choose” individuals or groups. As individuals make decisions, they engage in cognitive processes that allow them to justify making decisions that align with their personal values, even when they are acting on behalf of others, such as in a managerial capacity (Gupta et al., 2017; Jost et al., 2009). In the context of entrepreneurship, as managers of organizations make decisions on what opportunities to pursue, the personal values of the manager will likely influence what the manager decides to do.

While motivated cognition describes how personal values influence decisions, logic of appropriateness describes how the individuals within that organization try to interpret what the prevailing values of the organization are, and then adjust their decisions to try and follow the collective priorities of the organization (March & Olsen, 2004). Thus, even if the personal values of the individual may not align with the values of the organization, the individual will likely act in ways that are in alignment with the organization’s values (Ocasio, 1999). For SLOs which are led by a political party, the values of the community are instantiated not only through employees that live within the community, but also through the leaders of the organization, who are part of the political elite of the community. These leaders, along with other elected officials (Converse, 2000), party leaders (Layman & Carsey, 2002), and the media (Zaller, 1992), both lead

and control the political discourse in the community and the organization. As such, these leaders have significant incentive to align the values of the organization with those of the community in which the organization is embedded. Since SLOs are led by the political elites, and have as their primary stakeholders the constituents within their boundaries, the effects of political ideology are expected to influence these organizations' values and subsequent actions more than for MLOs. MLOs are not as likely to respond to or allow community values to be internalized within the organization due to their differences in mission (e.g., profit driven) and leadership structure.

#### *Political Ideology and Market Entry*

In the United States, along with much of the western world, political ideology has become increasingly defined as a contest between liberal and conservative values. While a single left-right dimension of political ideology may seem overly simplistic, research has shown it to be a robust way of understanding individuals values and beliefs (Adorno, Frenkel-Brunswik, Levinson, & Stanford, 1950; Poole & Rosenthal, 1984). A substantial body of research has linked this ideological debate between liberal and conservative to two interrelated topics: change versus tradition, and equality versus inequality (e.g., Conover & Feldman, 1981; Erikson & Tedin, 2015; Jost, Fitzsimons, & Kay, 2004; Lakoff, 2010; Scheffler, 2010; Wilson & Patterson, 1968). With respect to political philosophy conservatism is known as a positional ideology in that it is a reaction to challenges to traditions, institutions and authority (Muller, 2001). Within the framework of moral foundations theory, which characterizes people and ideologies along five distinct dimensions (i.e., Harm/Care, Fairness/Reciprocity, Ingroup/Loyalty,

Authority/Respect, and Purity/Sanctity), liberals tend to rate highly on the Harm/Care and Fairness/Reciprocity dimensions, leading them to focus on promoting actions that include individual choice (as opposed to abiding by existing institutions), promoting equality and poverty alleviation (Haidt, Graham, & Joseph, 2009). Conservatives on the other hand, have less variation between the five dimensions, so that none of the dimensions dominate the others. This results in conservatives being more likely to balance supporting individual liberty with defending traditional institutions and authority (Graham, Haidt, & Nosek, 2009).

Over time, political ideology in the United States has come to be synonymous with the Democratic and Republican parties (Jost, 2006). The Democratic Party has typically been associated with liberals, who focus on issues of social, economic and political equality, which has often led to their push for change from traditional arrangements (Jost, Basevich, Dickson, & Noorbaloochi, 2015). Such an openness to change, along with a willingness to challenge existing hierarchies and authority structures result in SLOs in Democratic-led areas to be more willing to enter new markets. Furthermore, SLOs in Democratic areas will likely have greater awareness and motivation for social equality which will result in the organizations being more supportive of pro-environmental actions, even if it increases the scope of existing public sector entities or significant change for the organization (Gupta et al., 2017; Shipan & Lowry, 2001). As a result, SLOs in Democratic areas will be more likely to enter new markets when there is an opportunity to protect the environment.

On the other side of the ideological divide is conservatism, which in the United States is predominantly represented by the Republican Party (Jost et al., 2009; Layman, Carsey, & Horowitz, 2006). Previous hypotheses have suggested that SLOs will be less likely than MLOs to enter new markets. However, when these organizations are located in Republican dominated communities, then they will become even more unlikely to enter the market. As mentioned, resistance to change and a tendency to accept inequality have also long been core traits of conservative ideologies, such as those espoused by the Republican party (Rossiter, 1968). Members of this party tend to be less open to new experiences (Carney, Jost, Gosling, & Potter, 2008), more conscientious about duty and order (Jost et al., 2003), in addition to being more focused on managing uncertainty and risks in their environment (Carney et al., 2008; Christensen et al., 2014). These conservative traits lead to a tendency to rationalize and defend existing institutions such as religion, marriage, or government, particularly when they promote hierarchical authority (Muller, 2001). Republicans also are more likely to focus on abiding by the current rules and norms instantiated within the dominant institutions (Maccoby, 1972). As a result, Republican-led SLOs are also more likely to view entering a new market as a significant departure from the organization's current scope of services (Fromm, 2013).

Additionally, a lack of emphasis on social and environmental equality makes it more likely that environmentally friendly pursuits or reforms by SLOs will be resisted by Republicans (Dunlap, Xiao, & McCright, 2001; Shipan & Lowry, 2001). Such a resistance to pro-social or pro-environmental actions by Republicans occurs for three primary reasons: (1) conservative leaders are responsive to the interests of business and

industry, which may incur an additional cost as a result of the organization's action that could increase the taxes or fees charged by the organization, (2) environmentally friendly actions would lead to an increase in scope of services provided by a public sector organization, and (3) these actions require pursuing a new market that is a change from the status quo (Dunlap, 1975). Such resistance is particularly salient for SLOs, which as a result of the political leadership, increased number of community stakeholders, and a focus on compliance with regulatory standards, are more likely to be influenced by these values. As SLOs proceed through their formal decision-making processes, which offers both leaders and stakeholders significant opportunities to oppose projects, those organizations located in areas with Republican values will be less likely to approve the project.

This ideology-based reluctance by political elites to increase uncertainty for the organization, enlarge government, and/or support environmentally favorable actions means that SLOs in Republican-led areas are less likely to pursue new market opportunities, particularly if those opportunities provide environmental benefits.

*Hypothesis 7: Republican ideology will moderate the relationship between SLOs and market entry such that SLOs located in communities with Republican ideology will be even less likely to enter a new market than MLOs.*

#### *Political Ideology and Risk-taking*

SLOs are also less likely to take risk during market entry when they are in Republican-led areas. Research has found that political conservatism reflects a core psychological trait that seeks to reduce uncertainty and minimize threats (Haidt et al., 2009). This is an individual level need that is supported by a large body of evidence, and

helps to explain why Republicans are more likely to resist change and support existing traditions and institutions (Conover & Feldman, 1981; Jost et al., 2003). People who are conservative are more likely to fear losses, ambiguity, and uncertainty, while placing greater emphasis on financial security (Jost et al., 2015). As a result, SLOs that are in Republican-led areas are more likely to have a lower risk tolerance than SLOs in Democratic led areas. Consistent with this argument, recent research on political ideology and risk has found the Republican managers are more likely to avoid tax fraud (Christensen et al., 2014) and be more conservative in the way that they pursue innovation (Hutton et al., 2015). Further, Republican-led organizations are more likely to be careful, practical, and methodical in their approach to market entry (Block & Block, 2006; Fromm, 2013). Thus, despite the increased time and effort required to make decisions to enter markets, SLOs in Republican-dominated areas that do enter the market will be less likely to take risk because risk-taking can endanger the organization's financial and social positions should the project fail.

While SLOs in Republican-led areas are likely to have leaders that are responsive to the political ideologies of the electorate, the effect of conservative values is not limited to only the leaders of the organization. As mentioned before, the logic of appropriateness suggests that as leaders of the organization establish the organizations values through emphasizing specific agendas, allocating financial resources, and setting specific policies and guidelines, members of the organization will be more likely to respond and act on those values even if they do not internalize them (Van Maanen & Schein, 1979). Thus, even if employees do not identify with conservative values, they

are more likely to being risk averse in their work. Such an aversion to risk at all levels of the organization is likely to result in SLOs becoming less willing to take risk as they enter a new market when they are located in a Republican-led area.

*Hypothesis 8: Republican ideology will moderate the relationship between SLOs and risk-taking such that SLOs located in communities with Republican ideology will take even less risk as they enter new markets.*

### *Political Power Asymmetry and Market Entry*

Within the concept and definition of ideology is an inherent political power struggle between two parties or groups. However, independent of *what* party dominates the ideological underpinnings of the community is the level of power asymmetry between constituents. Considering the extent to which a single party holds a political majority in the community provides a better understanding of the degree to which there is asymmetry in power, as any group that holds a significant level of power can enact changes and decisions more easily than when there is a low level of power asymmetry.

In communities where there exists a large majority of the population that identifies with the values espoused by a particular party (high power asymmetry), there is less ambiguity for individuals and organizations about what is acceptable behavior to the community. High power asymmetry means that one of the political parties has a dominant presence (i.e., large amount of power) in the community. As I previously discussed, SLOs are more likely to be influenced by the values in the community, as these organizations are not only led by political leaders, but there are multiple structural mechanisms to allow for stakeholders in the community to have input into organizational decisions. As a result, the existence of a dominant political party in the community

provides a greater degree of goal and role clarity for the leaders of the organization (Pandey & Wright, 2006), as there is less conflict about what the values and beliefs in the community are. As discussed above, the dominance of either party in a community can lead to greater alignment in goals and activities by the organization with the underlying values of either the Democratic or Republican party depending on which party the political leaders identify with.

However, in areas where there is a greater degree of contestation (low power asymmetry), both the leaders and employees of SLOs are more likely to have interactions with stakeholders who hold fundamentally different views of what is appropriate for the organization to do (Rogers & Molnar, 1976). These interactions can create significant ambiguity about what the goals and actions of the organization should be. Further, since neither party holds a clear majority, the political body overseeing these organizations (e.g., city council, board) is less likely to have a party with enough political power to make decisions that officials from the other party are ideologically opposed to. In other words, the formal decision-making process that SLOs have makes it more difficult for decisions to be approved when there is significant disagreement within the leadership. Both of these factors increase the likelihood that SLOs in areas with low power asymmetry will have a harder time getting the market entry decision approved by their leaders.

Additionally, most terms for these officials are two years, which in areas with highly contested political seats may lead to frequent changes in leaders and subsequent organizational policies within the decision-making cycle of these projects. Such changes



can lead to delays or even termination of the proposed projects, again extending the likelihood that the project fails to be approved during the decision-making process. These changes in leadership can also lead staff members to become less willing to champion a project, knowing that even while they have the support of the current leadership group, the leadership will likely change significantly in terms of values during the next election cycle. Thus, while SLOs are typically slower to make decisions and are less likely to pursue new market opportunities, they become even less likely to enter the renewable power generation market when there is a high degree of power asymmetry between parties. MLOs on the other hand, are not as susceptible to influence by community values, as the leadership positions are not political in nature, nor are they subject to approval by community stakeholders. As a result, the degree of political power asymmetry is not likely to influence MLOs in the same way that SLOs are.

*Hypothesis 9: Political power asymmetry will moderate the relationship between SLOs and market entry such that SLOs in communities with low political power asymmetry will be even less likely than MLOs to enter new markets.*

#### *Political Power Asymmetry and Risk-taking*

While low levels of political power asymmetry can lead to decreased market entry by SLOs, high levels of political power asymmetry in the community are expected to be associated with higher risk-taking as SLOs enter new markets. Social psychology research on group decision-making provides some insights into why this might be the case. This research suggests that there are inherent individual and group level biases within the leadership that can increase the amount of risk-taking by an organization

(Baron & Kerr, 2003). SLOs located in communities with high power asymmetry are more likely to increase their risk-taking behaviors for several reasons.

First, these organizations are more likely to experience group polarization (Isenberg, 1986; Moscovici & Zavalloni, 1969) when there is a high majority of a single party. Group polarization is the tendency of a group meeting to amplify members' pre-meeting positions (Zhu, 2013). Group polarization occurs in part because group members are more confident in expressing arguments that support their pre-meeting positions, as opposed to expressing arguments that are counter to their positions (Vohs, Baumeister, & Ciarocco, 2005).

Group polarization is also more likely to occur in organizations with a controlling political party because individuals tend to avoid challenging the prevailing position as there may be social risks in doing so (Moscovici & Doise, 1994). For SLOs, the leadership structure does not place the final decision-making authority in the hands of a single person, as is often the case within MLOs. At a minimum, there is a group or quorum of at least five people that vote on each action taken by the organization. This vote takes place during a meeting open to members of the community, who also have the opportunity to share their opinions on the proposed action prior to the vote by the governing body. Consequently, SLOs, who must go through this formal feedback and voting process several times before the project is completed, are much more likely to be susceptible to group polarization biases. As a result, communities that have a high power asymmetry (i.e., large majority of one party), are more likely to experience group polarization, which can lead to increased risk-taking.

The second reason that SLOs are more likely to increase in risk-taking when there is high power asymmetry is due to a greater tendency to engage in groupthink (Janis, 1972). Research on groupthink suggests that when there is a large majority of a political party in a decision-making body, the group is more likely to engage in groupthink (i.e., conformity to group values and ethics) when members are part of a highly cohesive group (Baron & Kerr, 2003). Again, since SLOs are led by a political body that is required to review and vote on each major decision by the organization, these organizations are particularly susceptible to groupthink biases. Political bodies that have a high majority of members of the same political party (high power asymmetry) are more likely to support one another's position (Hetherington, 2001), which limits the amount of conflict and debate that occurs during the public decision-making process.

Thus, when a decision has been made to enter a new market, members of the controlling party are more likely to support the project as it is more likely to align with the underlying values and identities of the group (Fiorina & Abrams, 2008). For SLOs located in communities with high political power asymmetry, the group decision-making biases of group polarization and groupthink will lead to a greater amount of risk-taking by SLOs.

*Hypothesis 10: Political power asymmetry will moderate the relationship between SLOs and risk-taking such that SLOs in communities with low power asymmetry will engage in a lower-level of risk as they enter a new market.*

### 3. METHODS

I test my hypotheses on the population of landfills in the U.S. falling under the US Environmental Protection Agency's (EPA) 1996 methane reduction rule developed under the authority of the Clean Air Act. This includes any landfill in the U.S. with a design capacity of at least 2.5 million metric tons and at least 2.5 million cubic meters of waste in place. Data for the population were gathered from 1970-2014 and were obtained from a variety of sources. Data on landfills and their power-generating activities were primarily gathered from the EPA and the US Federal Energy Regulatory Commission (FERC). Voting data were gathered from the U.S. Library of Congress.

The environmental voting records of U.S. Congressional members were gathered at the Congressional district level using data from the League of Conservation Voters. The pro-business voting records of U.S. Congressional members were gathered at the Congressional district level using data from the United States Chamber of Commerce. Additional data on PPPs was hand collected from organizations websites, news stories, and personal communication with staff in the organizations. Data for the control variables such as population and per capita income were gathered from the U.S. Census Bureau. Information on retail energy pricing and estimated capital costs as well as operating and maintenance (O&M) costs were obtained from the US Energy Information Agency (EIA). Landfills with missing data were removed from the dataset, resulting in a final sample of 1,899 landfills with 694 (37%) actually entering the renewable energy market.

## *Data*

### **Dependent Variables**

*Market Entry* – As discussed earlier, the dependent variable *market entry* is a dichotomous variable coded as 1 if the landfill entered the market for renewable power generation in a given year, zero otherwise. Data for this variable were obtained from the EPA's Landfill Methane Outreach Program (LMOP) database, which includes such information as the date the landfill opened, its design and current capacity, methane estimates, and data on when and how they collect the gas and produce renewable energy. It is important to note that landfills may undertake several renewable energy projects, which are typically expansions using the same technology and consist of adding additional generation units. In cases where the landfill had multiple projects, I coded the landfill as entering the market in the first year that they generated any power using methane (i.e., first year of methane generation).

*Risk at Market Entry (Total capacity installed divided by the total potential power generation capacity)* – The dependent variable *risk* is the percent of actual generation capacity installed, compared to the total potential capacity available based on the predicted or measured methane output from the landfill. Data for this variable was generated from the EPA's Landfill Methane Outreach Program (LMOP) database using the amount of gas utilized in the initial project. This variable was calculated as a continuous variable and ranges from 0 to 100, where 0 indicates that the firm took no risk, and 100 indicates that the organization utilized all of the produced methane in the initial project.

## **Independent Variables**

*Organization Logic* – The type of organization logic is determined using the type of organization that owns the landfill. Organizations that were government in nature (e.g., special service district, municipal, county, or state), were labeled as a state logic organization. Organizations that were businesses (e.g., privately owned or corporations), were labeled as a market logic organization. The *organization logic* variable is dichotomous and was assigned a 1 if the owner of the landfill is a state logic based organization (SLO). Landfills owned by a market logic based organization (MLO) were given a 0 for this variable.

## **Moderator Variables**

*PPP* – The variable *PPP* was measured from the EPA LMOP dataset and is a 1 if a public sector organization is the owner of the landfill and a private sector organization is managing the landfill, 0 otherwise. This variable indicates that the public sector owner does not manage the landfill and has contracted it out to a private sector party. It should be noted that I focus on SLO-owned landfills that are operated and managed by an MLO because there are only three landfills in the population that are owned by an MLO and managed by an SLO. Data were structured to reflect the year that the organization entered into a PPP. For example, if a landfill entered the market for renewable power in 1980, but did not enter into a PPP until 1984, then this variable was given a value of 0 in any year as the PPP was not in place when the SLO entered the market. However, if the PPP was established in 1976, then this variable was given a value of 1 in the years from 1976 to 1984, as the PPP was in effect in the year the SLO entered the market. In order

to verify that landfills were indeed part of a PPP, each landfill was contacted via phone or email in January and February of 2018. This process resulted in 97 landfills being labeled as a PPP. In short, *PPP* was given a value of 1 if the landfill was part of a PPP, and 0 if the landfill was not part of a PPP.

*Size* – The variable, organizational *size*, is a measure of the total design volume of the landfill in cubic feet. It is calculated using the design area and estimated depth provided by the permits submitted to the EPA and stored in the LMOP database. While it does not provide a dynamic measure of landfill size, it does provide significant insight into the overall design size and capacity of the organization. When a landfill is designed and built, the size is based upon current and projected demands. Logically, the bigger the design capacity of the landfill, the larger the associated capacity of the organization to build, maintain and operate it. This variable was log transformed to help the distribution be more symmetrical.

*Political Ideology* – The variable, *political ideology*, is dichotomous and is coded as 1 if the Congressional member elected to the United States House of Representatives from that district in each Congressional term was a Republican party member. The variable was given a value of 0 if the member is a member of the Democratic party. For example, if the Congressional member was a Republican during the 113<sup>th</sup> U.S. Congress, the variable was given the value of 1 during the years of 2013 and 2014. While past research has used a state-level measure that is an estimated score based on ideological voting records (Sine & Lee, 2009), I use a local Congressional district level measure,

allowing for a greater representation of community ideological preferences of constituents within that district.

*Political Power Asymmetry* – The variable, *power asymmetry*, is a continuous variable from 0 to 100 that reflects the amount of political conflict or disagreement in a given area. In areas where one party controls a large majority of the vote, then the amount of political *power asymmetry* is low. The variable is constructed by taking the absolute value of the difference in voting percentage between Republican and Democratic candidates. Voting percentage is the percent of the total vote that is given to each party. For example, if the percent of total votes that goes to the Republican party is 90, and the percent of the vote that goes to the Democratic candidate is 10, then the *power asymmetry* variable is 80. If the percent of the total vote for a Republican candidate is 45 and the percent of vote that goes to Democratic candidates is 55, then the *power asymmetry* variable is 10. If this variable is close to 0, then in these districts, there is a low amount of power asymmetry as the vote is split between ideological parties, leading to greater ambiguity and conflict for the organization. This variable only looks at the magnitude of asymmetry, not at the direction, as the mechanisms hypothesized did not rely on a particular ideology.

### **Control Variables**

*Nearby Landfills:* In order to capture the influence that the cultural cognitive environment has on a landfill's decisions to enter the market, I calculated how many other landfills in the state were generating power for each year in the study. While it may seem that aggregating this on a state level would be less representative than doing it



based on geographic distance, it is important to remember that landfills are regulated by the state in which they reside. While the EPA does have authority to regulate all landfills, the EPA authorizes each state to provide the regulatory compliance oversight, leading to significant state level influences on landfills. Additionally, such a state level influence leads to the formation of industry association chapters being organized utilizing state lines, instead of solely by geographic distance. Consequently, it is expected that having landfills within the same state would have a greater effect than having a landfill in relatively close proximity (<150 miles) that is located in another state.

*Payback:* The variable used to represent the economic opportunity is *payback*, and is the expected time in years for a landfill to recoup its costs should it engage in power generation. The methodology includes calculating the expected generation capacity and the associated capital and operations and maintenance (O&M) costs for each type of technology, as well as the average retail price at which the utility would be able to sell the power. The expected power generation capacity was calculated using information in the LMOP database, which includes information on the megawatt capacity on existing installations. Where that was not reported, the generation capacity was estimated using several other variables in the database. The first variables used were those that indicated how much methane the landfill was generation such as the total gas flared or gathered in the collection system. However, as some landfills also lacked this information, the amount of solid waste present (in tons) in each facility was used to estimate the expected methane output, which was then converted to a power output.

The estimated capital and O&M costs were obtained from an EIA report on power generation that included costs for generating power at landfills (United States Energy Information Administration, 2013). While there are many types of technologies that could be used to generate power, the most common ones in use include the internal combustion engine (large and small), microturbine, and gas turbine. While there may be differences between those categories, the costs are similar enough that the EIA groups them within the above categories together for preliminary cost estimating purposes. The cost estimates provided by the EIA are based on the generation capacity of the plant, allowing for costs to be scaled according to size. As the construction costs in this report were finalized in 2012, I adjusted the prices for each year in the study using the Engineering News Record Construction Cost Index (CCI). The CCI is widely used in the construction industry as a measure of the average change in the cost of building and construction projects and are based off of a 20-city national average of construction materials and labor costs. It has been collected since 1913, allowing me to adjust the 2012 costs in the EIA report to better represent expected construction costs for each year in the study. One disadvantage of the index is that it does not allow for comparison of costs between geographic locations. However, the EIA 2013 report also provided cost estimates for facilities in each state, allowing for a direct comparison of how these costs varied between states. This was used to adjust the cost estimates of landfills within states to better reflect regional variations in construction material and labor costs, as well as variations in land and permitting expenses.

The average retail price of electricity was obtained from EIA form 861, which provides annual prices for electricity in several sectors for each state. It is recognized that when a landfill generates power, they are generally not able to sell that power at full commercial value as the incumbent power distributor and generator incur costs regardless of who generates the power. Thus, it was assumed that the retail price that the landfills would be able to sell the power at would be equal to the industrial price, which over the study period has been 62% of the average residential retail price and 71% of the average commercial price available to consumers. This is a conservative estimate as the industrial price has typically been significantly lower than commercial and residential prices.

Using this information together, the total capital and annual O&M costs for each landfill were calculated, as well as the expected annual revenue. This was then used to calculate the average payback period in years. Consequently, larger values of *payback* result in decreased economic opportunity as it takes longer to recover the initial investment in the proposed landfill renewable energy project.

*Population:* The variable, *population*, was obtained from the U.S. Census Bureau and is the total population at the county level (in millions) for each observation period. This variable is log transformed.

*Per Capita Income:* The relative prosperity of each constituency using the *per capita income* provided by the U.S. Bureau of Economic Analysis. This variable is the average income per person in the county in thousands of dollars.

## *Analysis*

I utilize two different methods of analysis in this study, as each dependent variable (i.e., market entry and risk-taking) is specified by different models. Table 2 shows summary statistics and the correlation table for each of the variables in the model. There are a few variables that have values that are concerning. For example, *PPP* has a mean of 0.03, which is due to the low number of landfills that are part of a PPP. This may present a problem for some analytical techniques, and should be considered in selecting a particular method. There are also some high correlations between control variables (e.g., *per capita income* and  $EPAleg96 = 0.750$ ), although the variance inflation factors (VIFs) are all under 3, indicating that multicollinearity is not an issue.

### **Market Entry – Survival Analysis**

As market entry is an event, and I am interested in looking at the hazard of each landfill experience the event, I utilize survival analysis to analyze these models. For simplicity, I first begin by using the Cox proportional hazards approach (Cox, 1972), which assumes that the hazard ratio (i.e., the probability that an organization experiences the event of interest) is constant over time. This model is often called a partial or semi-parametric model. It should be noted that each landfill has a well-defined beginning point, as well as a defined ending point. As a result, with regard to censored data, the data in this population are right censored, meaning that for some landfills, they did not experience the event during the period of study from 1970-2014 (Hosmer, Lemeshow, & May, 2011).

**Table 2** Summary statistics and correlation table

	Mean	S.D.	Min.	Max.	(1)	(2)	(3)	(4)
(1) Logic	0.66	0.47	0	1.00	1.00			
(2) PPP	0.03	0.16	0	1.00	0.072*	1.000		
(3) Size	13.64	3.83	4.79	23.29	-0.048*	-0.010*	1.000	
(4) Republican	0.54	0.50	0	1.00	0.007	0.020*	-0.017*	1.000
(5) Power Asymmetry	64.43	26.43	0	100.00	-0.006	0.002	0.008*	0.034*
(6) Population (log)	4.62	1.53	-0.38	9.22	-0.070*	0.054*	0.141*	-0.037*
(7) State	29.21	15.79	1.00	56.00	0.018*	-0.052*	-0.031*	-0.071*
(8) Per Capita Income (000's)	20.85	11.26	2.13	125.30	0.008	0.102*	-0.001	0.135*
(9) Nearby Generation	8.40	15.09	0	87.00	-0.003	0.098*	-0.007	0.092*
(10) Payback (Years)	3.77	1.37	0.85	9.82	0.107*	-0.040*	-0.149*	0.090*
(11) EPA Legis 96	0.46	0.50	0	1.00	0.010*	0.081*	-0.047	0.168*

Correlations with an \* are significant at  $p < 0.05$

**Table 2 Continued**

	(5)	(6)	(7)	(8)	(9)	(10)	(11)
(1) Logic							
(2) PPP							
(3) Size							
(4) Republican							
(5) Power Asymmetry	1.000						
(6) Population (log)	-0.014*	1.000					
(7) State	-0.066*	-0.251*	1.000				
(8) Per Capita Income (000's)	0.018*	0.144*	-0.029*	1.000			
(9) Nearby Generation	0.006	0.268*	-0.252*	0.431*	1.000		
(10) Payback (Years)	0.034*	-0.398*	0.322*	0.263*	-0.087*	1.000	
(11) EPA Legis 96	0.013*	-0.058*	0.019*	0.753*	0.390*	0.455*	1.000

An important consideration in specifying a hazards model is the choice of origin for the starting of time. In the context of landfills, the origin of time is not clear as landfills are constructed and enter service at different times. Importantly, none of the landfills in the population entered the market for renewable power until at least 1979. For those landfills built after that point, I set the starting time as the year the landfill was built. For landfills built prior to 1979, I considered what variables or factors would influence the decision to enter the power generation market. Theoretically, the hazard of landfills entering the market for renewable power is not thought to vary strongly based on variables such as age, size (since all landfills in the sample are above a certain threshold), or other typical variables. However, from a historical point of view, the environmental movement that occurred in the United States in the 1960s and 1970s led to the passage of two significant acts of legislation that helped shape the federal government's role in protecting the environment. Both the Clean Air Act (1970) and the Clean Water Act (1972) established the basic structure for regulation of discharged pollution into the nation's air and water resources.

As a result of this paradigm shift in the way the nation viewed the environment, the starting time for the analysis is set at 1970 for the 458 landfills in the population that began service prior to 1970 (208 of these entered the power generation market at a later date). As a result, it was felt that setting the starting time as 1970 allows these important historical conditions to have an equal effect on sample members (Allison, 2014). The remaining landfills in the sample have their starting time set as the year that they were built.

One of the assumptions of the proportional hazards model is that the hazards function is continuous, meaning that there are no tied survival times. Tied events, or “ties,” means that more than one observation or site experiences the event of interest in the same time period (Stata, 2017). As a result, the partial likelihood estimation method must be adjusted to account for the fact that time is not continuous. The Breslow approximation method, which is commonly used, becomes inaccurate if the number of events occurring relative to the number of sites at risk becomes large (typically 15% or more) (Farewel & Prentice, 1980). In those cases, the Efron method provides a better approximation, even though it is more computationally intensive (Allison, 2014). In order to account for the fact that my data has ties, where two or more landfills can experience the event during the same year, I looked at the percentage of how many ties occur in contrast with the number at risk. No year in the population had more than 6% of the sample experience the event, so it was felt that the Breslow approximation, which is the default in Stata, was appropriate.

#### *Proportional Hazards Assumption*

In using the Cox method for survival models, a primary assumption is that the hazard ratio (HR) is constant over time. This is known as the proportional hazards assumption, and means that each explanatory variable influences the hazard in a constant manner at each point in time. While some authors suggest that the use of a Cox model is still a satisfactory approximation even when this assumption is violated (Allison, 2014; Hosmer et al., 2011), I test this assumption to see if there is an interaction between time and a variable of interest. One common method is to calculate the Schoenfeld residuals,



which Stata calculates for each event and for each explanatory variable (Allison, 2014). For those variables whose hazards are proportional, the Schoenfeld residuals should be uncorrelated with any function of time. In Stata, these residuals are calculated using the option *schoenfeld(sch\*) scaledsch(sca\*)* with the *stcox* command, and the test of the proportionality of the model is performed afterward with the command *stphtest, log detail*. The results of the Schoenfeld residual test show that the test is not significant for our main predictor variable, where the residual is 0.4386, suggesting that the proportional hazards assumption has not been violated (Hosmer et al., 2011). Another way is to look at the plot of the scaled Schoenfeld residuals for each type of logic over time, which is shown in Figure 1. In this figure, a predominantly horizontal line indicates that the proportional hazards assumption is generally not being violated by the overall model (i.e., it is not variable specific). Again, due to the fact that the Cox method is so robust, I use it for my analysis.

### *Empirical Model*

Our theoretical model includes the primary relationship between the logics of an organization and their likelihood of entering a new market. It also includes several potential moderators or “effect modifiers” of the relationship that I test in later models. This base model has a log-hazard function in the form of:

$$g(t, x, a, b, \beta) = \ln[h_0(t)] + x\beta_1(t) + a\beta_2 + b\beta_3 + \epsilon$$

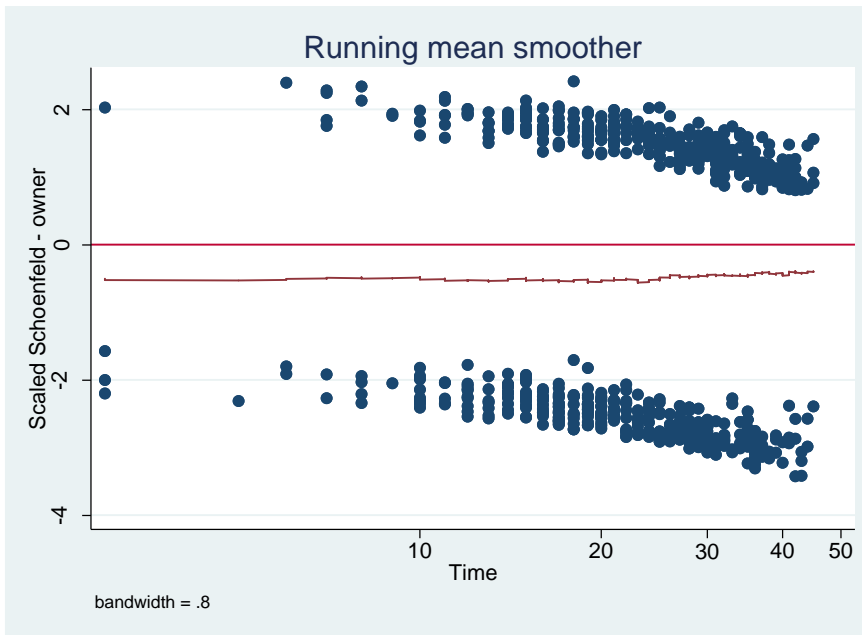
where  $t$  represents time in years, the primary risk factor is represented by  $x$ , which can vary with time  $t$ , as well as control variables that are represented by  $a$  and  $b$ , and each  $\beta$  is the estimated adjustor or effect.  $\epsilon$  is the error term for the model. Models with control

variables only, as well as with independent variables were run in Stata. I then ran a separate model with each interaction, as well as a final model with all interaction terms as a rough form of robustness test for the results. The interaction models have a log-hazard function of:

$$g(t, x, y, a, b, \beta) = \ln[h_0(t)] + x\beta_1(t) + y\beta_2 + xy\beta_3(t) + a\beta_4 + \epsilon$$

where  $y$  is the potential moderating variable and  $xy$  is the interaction term.

**Figure 1** Schoenfeld residual plot for the *Logic* variable



### **Risk-taking – Bayesian Linear Regression**

Models with the dependent variable of risk-taking were run using a Bayesian linear regression approach. Bayesian inference has significantly improved over the last 50 years, while becoming practical for researchers to use in the last 10-15 years due to

advances in computers and software that allow for estimation of models that do not have direct mathematical solution. Bayesian inference estimates model parameters using only data that is actually observed and allows for prior information that the researcher has to be used to influence the final estimation. An important difference between Bayesian and null hypothesis significant testing (NHST) inference approaches is in their use of probability for making inferences. Bayesian inference provides the researcher with the direct probability of parameters, hypotheses, models, or other events of interest (Gelman et al., 2013; Kaplan, 2014; Kruschke, Aguinis, & Joo, 2012), because it generates posterior distributions for unknown parameters.

For the models with the *Risk* dependent variable, there is no prior information about the risk-taking propensity of state logic based organizations, so I use an uninformative prior for each parameter in the regression. An uninformative prior allows the data in hand to dominate the prior distributions, meaning that the estimation results will be similar to the results given using an ordinary linear regression method. Should informative priors have been available (based on past information and studies), then the prior would have a larger effect on the posterior distributions, leading to results that could vary substantially from OLS or other NHST methods.

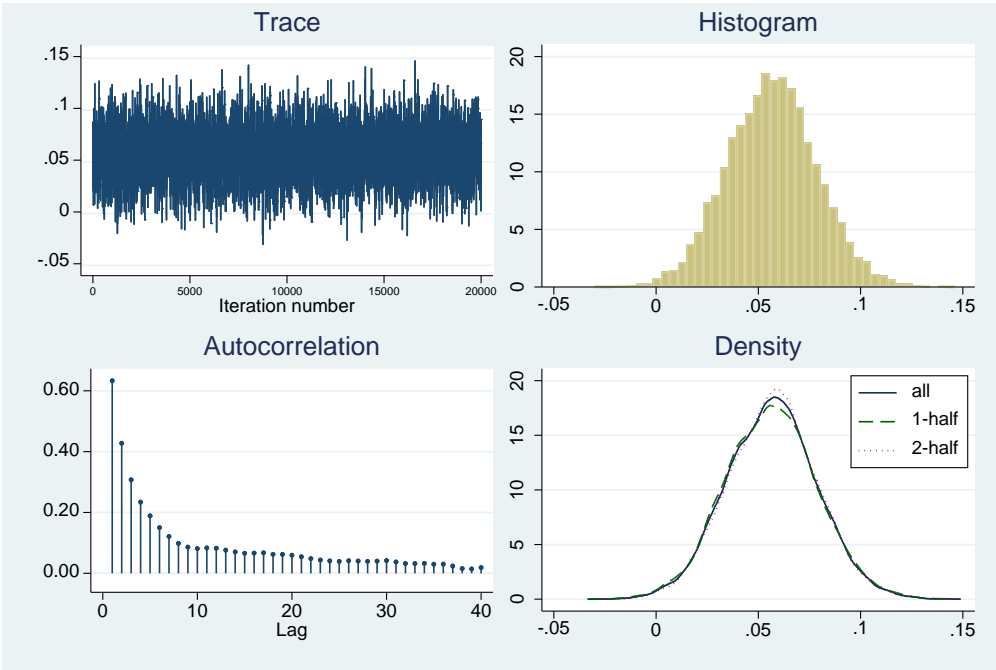
For the models in this dissertation, parameters in each model were assigned prior distributions with a normal distribution (mean of 0 and a variance of 10,000). For the error term, I use an inverse gamma distribution with a shape of 0.01 and a scale of 0.01. A burn-in period of 10,000 was selected, with an additional 40,000 iterations using a Monte Carlo Markov Chains (MCMC) approximation method that derives posterior

probability distributions for each parameter in the model (Stata v.15 was used for all models). It should also be noted that VIFs for these models did not exceed 2.1 for any variable. Additionally, the Bayesian approach used for the analysis does not assume a normal error term as ordinary linear regression does. While each of the prior assigned to these variables were normal distributions, the priors are extremely uninformative (i.e., shape is very flat), so the models should be unaffected by the selection of a normally distributed prior for any variable, regardless of its actual distribution.

Since MCMC involves numerous iterations, convergence and autocorrelation are potentially significant issues for Bayesian models using this type of estimation method. In order to reduce the amount of auto-correlation across lags of the iteration process, a thinning step of ten was used. In order to verify that the process produced posterior distributions that were well behaved, several model diagnostics were checked. Typically, there are four main diagnostics that are reviewed. Figure 2 shows an example for the variable *Logic* in the base model with *Risk* as the dependent variable. In the top left corner, a trace plot looks at how stable the iterations for the coefficient's posterior distribution are. Convergence around a value is a sign of a stable analysis. In this case, there does not appear to be too much to worry about as the MCMC process seems fairly stable in estimating the model. On the bottom left corner of Figure 2 is the plot of autocorrelation across lags. As the MCMC process proceeds, the autocorrelation should ideally reduce to near 0, or at least below 0.1. With the thinning step that I specified (10), the autocorrelation does not appear to be a problem. The next two diagnostics include looking at the posterior distribution itself. The top right plot in Figure 2 shows a

histogram of the posterior distribution for the *Logic* parameter, while the bottom right plot shows the smoothed density distribution. The histogram is unimodal and appears to be close to symmetrical about the mode. The density function is quite smooth, and shows that there were not any major changes in the distribution as the estimation progressed, which would have suggested that the model did not have enough time to converge. Over all, the diagnostics appear to show a well-behaved estimation process, meaning that the estimated posterior distributions are valid.

**Figure 2** – Bayesian model diagnostic plot for the *Logic* parameter in model 7



## 4. RESULTS

Models 1 to 6 have as their dependent variable *Entry*, while Models 7 through 12 use *Risk* as the dependent variable. As a result, hypotheses for models with *Entry* as the dependent variable are reported first, meaning that the hypotheses will be reported out of order. Means are reported for all posterior distributions. Results for Models 1-6 are presented in Table 3. Model 1 provides baseline results for Hypothesis 1, including all control variables. Models 2, 3, 4 and 5 provide the results for each proposed moderator (i.e., *PPP*, *Size*, *Republican*, and *Power Asymmetry*) with *Entry* as the dependent variable. Model 6 includes all interactions simultaneously for the *Entry* dependent variable, allowing us to see how the results vary when including all the proposed interactions in the model. Since these models look at the likelihood of *Entry*, results include hazard ratios (*HR*), *p* values, and confidence intervals (*CI*).

For the lower-order effect of *Logic* on *Risk*, which was analyzed in Model 1 (see Table 3), results indicate that the relationship between *Logic* and *Entry* is negative and significant [*HR*=0.659, *p*<0.01, *CI*=(0.566, 0.767)], supporting Hypothesis 1 that SLOs will be less likely to enter the market for renewable power generation than MLOs. In fact, SLOs are 34% less likely to enter the market than MLOs over the course of the study period.

Model 2 in Table 3 looks at the interaction of *PPPs* with *Logic* and how that influences *Entry*. That relationship is not significant [*HR*=1.470, *p*>0.10, *CI*=(0.563, 3.840)]. Because interactions between two dichotomous variables can present challenges (Darlington & Hayes, 2016), I examined a two-group analysis as well. This analysis

**Table 3 – Cox Model Results for Models 1-6 (Entry as the DV)**

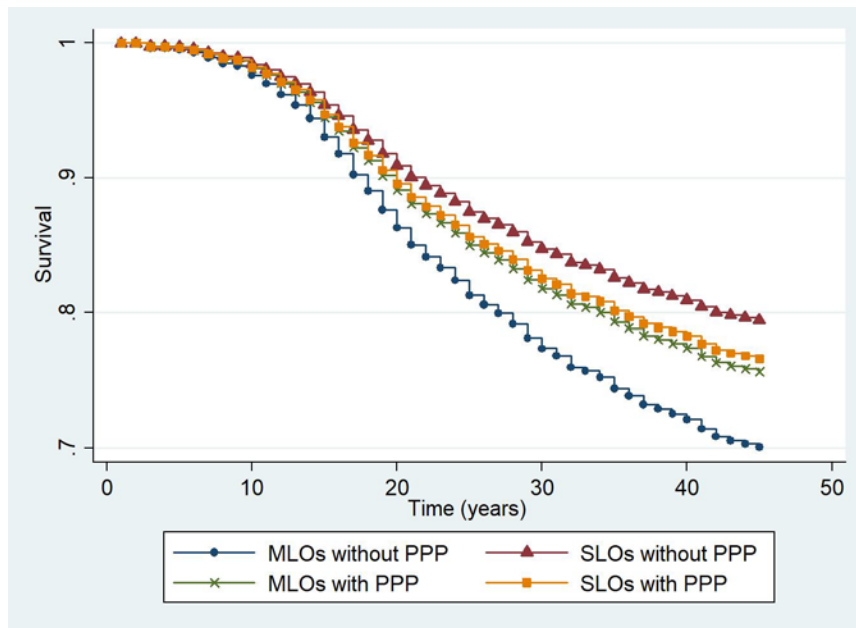
VARIABLES	(1)	(2)	(3)	(4)	(5)	(6)
	Entry	Entry	Entry	Entry	Entry	Entry
<i>Logic</i>	0.659*** (0.051)	0.648*** (0.052)	0.306*** (0.090)	0.579*** (0.070)	0.600** (0.137)	0.279*** (0.108)
<i>PPP</i>		0.786 (0.355)				0.901 (0.455)
<i>Size (log)</i>			1.001 (0.015)			1.003 (0.015)
<i>Republican</i>				1.107 (0.123)		1.068 (0.123)
<i>Power Asymmetry</i>					1.007*** (0.002)	1.007*** (0.002)
<i>PPPXLogic</i>		1.470 (0.720)				1.312 (0.711)
<i>SizeXLogic</i>			1.053*** (0.020)			1.048** (0.020)
<i>RepublicanXLogic</i>				1.234 (0.194)		1.224 (0.196)
<i>Power AsymmetryXLogic</i>					1.001 (0.003)	1.000 (0.003)
<i>Population (log)</i>	1.235 (0.036)	1.238 (0.036)	1.237 (0.037)	1.239 (0.036)	1.246 (0.036)	1.251 (0.037)
<i>State</i>	1.020 (0.003)	1.020 (0.003)	1.020 (0.003)	1.020 (0.003)	1.021 (0.003)	1.021 (0.003)
<i>Percapita Income (log)</i>	1.031 (0.004)	1.031 (0.004)	1.029 (0.005)	1.032 (0.004)	1.032 (0.004)	1.029 (0.005)
<i>Nearby Generation</i>	1.003 (0.002)	1.003 (0.002)	1.003 (0.002)	1.002 (0.002)	1.003 (0.002)	1.002 (0.002)
<i>Payback</i>	0.602 (0.024)	0.605 (0.024)	0.611 (0.025)	0.594 (0.024)	0.597 (0.023)	0.603 (0.025)
<i>EPA Legis. 96</i>	3.660 (0.485)	3.628 (0.481)	3.811 (0.510)	3.619 (0.480)	3.637 (0.481)	3.729 (0.500)
Observations	60,698	60,698	57,471	60,698	60,686	57,459
Number of firms	1,899	1,899	1787	1,899	1,899	1,787

Standard errors in parentheses

\*\*\* p&lt;0.01, \*\* p&lt;0.05, \* p&lt;0.1

supports the finding that the interaction is not significant with *Entry*. Figure 3 shows the survival curves<sup>2</sup> for each of the four scenarios in the interaction's 2X2 table (i.e., MLO and no PPP, MLO and PPP, SLO and no PPP, and SLO and PPP). From this plot, it appears that the presence of a *PPP* does not appear to influence the relationship between *Logic* and *Entry* in a meaningful way, as PPPs do not seem to significantly change the association between *Logic* and *Entry*, particularly for SLOs. Thus, Hypothesis 3 is not supported.

**Figure 3** Survival curve for the interaction between *Logic* and *PPP*



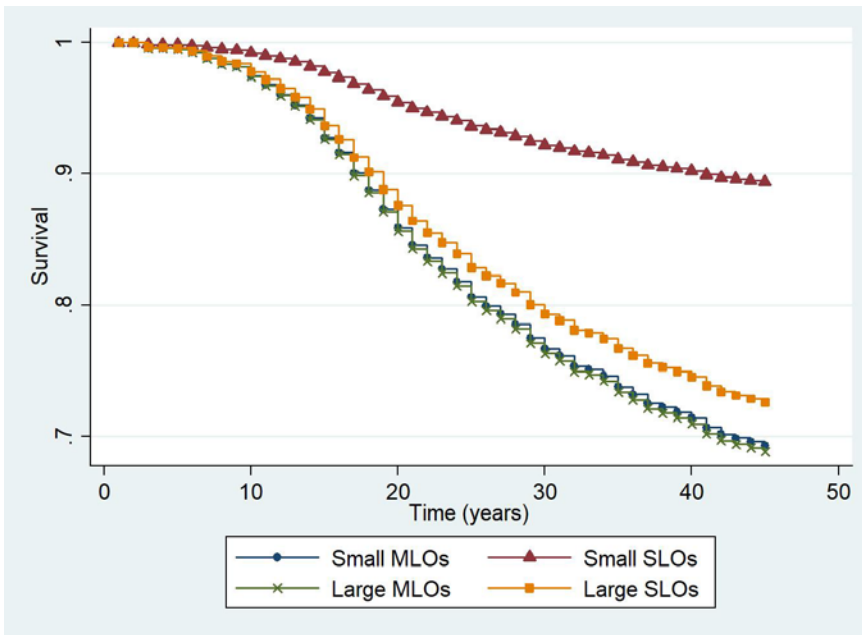
<sup>2</sup> Survival functions, which are shown in Figures 3-6, show the probability of survival beyond time  $t$ . They are distinct from hazard functions, which show the instantaneous probability that the actor of interest will experience the hazard or event at a particular time  $t$ . Survival plots are derived directly from hazard functions.



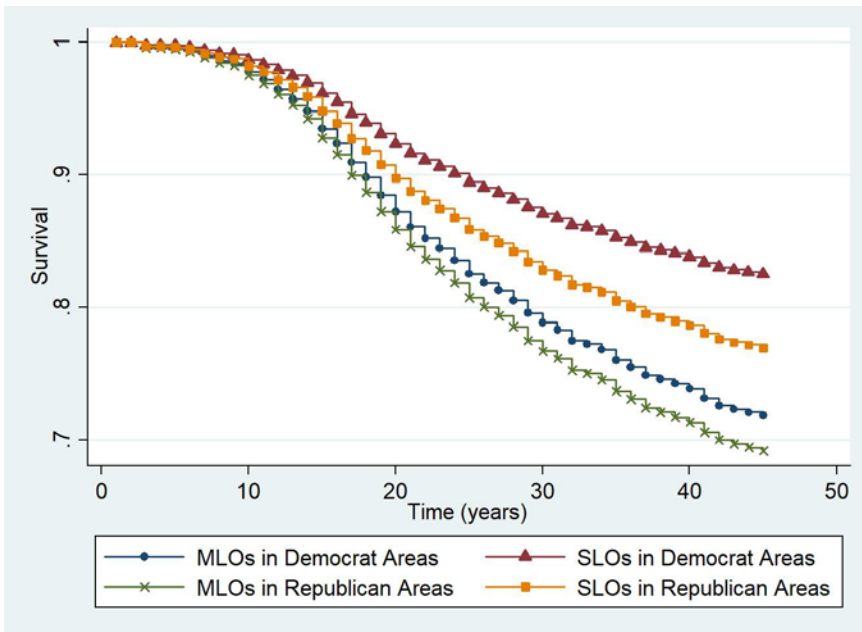
Model 3 in Table 3 looks at how *Size* moderates the relationship between *Logic* and *Entry*. The results show that the interaction is significant and positive, indicating that as *Size* increases, organizations with a state logic become more likely to enter a new market [ $HR=1.052, p<0.01, CI=(1.013, 1.094)$ ]. Figure 4 shows that for MLOs, *Size* has little impact on the likelihood of *Entry*. However, *Size* has a tremendous influence on the relationship between SLOs and market entry, resulting in a 5% increase in the hazard of entry for each log unit increase in *Size*. As a result, I conclude that Hypothesis 5 is supported.

The interaction between *Logic* and *Republican* in Model 4 (Table 3) does not appear to be a significant predictor of *Entry*, suggesting that Hypothesis 7 is not supported. While the relationship appears to be positive [ $HR=1.234, p>0.10, CI=(0.907$  to  $1.680)$ ], the interaction is not significant. However, as previously mentioned, interactions between two dichotomous variables can lead to difficulties in estimation. A two-group analysis of the interaction (Darlington & Hayes, 2016) provides a clearer understanding of how the moderator changes the main effect, which can be seen in Figure 5. For the sample with only MLOs, political ideology does not have a significant relationship with market entry [ $HR= 1.049, p>0.10, CI=(0.841, 1.309)$ ]. However, for the group of SLOs, political ideology does significantly predict market entry [ $HR=1.394, p<0.01, CI=(1.116, 1.741)$ ], indicating that SLOs based in areas led by Republican party leaders are almost 40% more likely to experience an entry event than SLOs based in Democratic led areas. Figure 5 shows the survival curves for each case. Thus, there is some evidence that Hypothesis 7 is supported.

**Figure 4** Survival curve for the interaction between *Logic* and *Size*



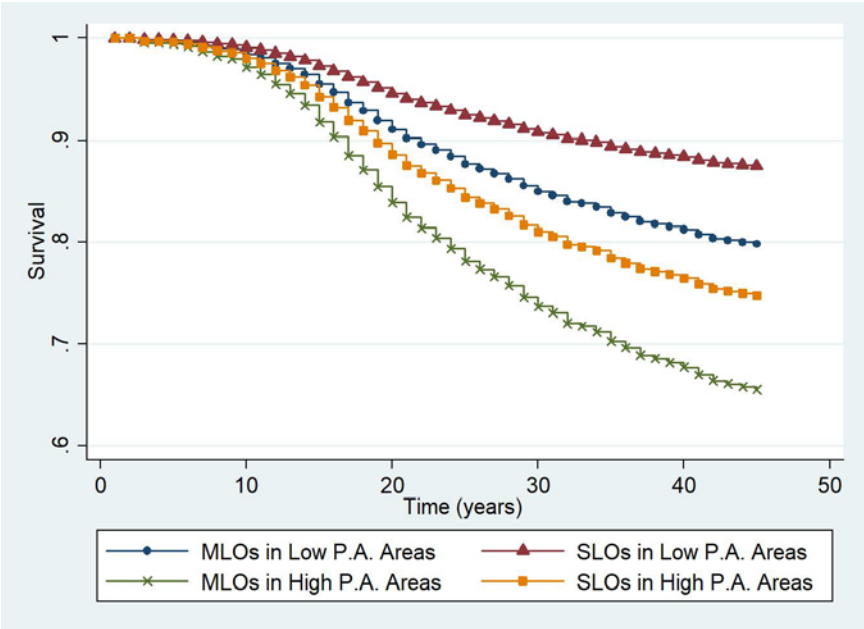
**Figure 5** Survival curve for the interaction between *Logic* and *Political Ideology*



Model 5, which includes the interaction of *Power Asymmetry* and *Logic*, was positive but not significant [ $HR=1.001, p>0.10, CI=(0.995, 1.008)$ ]. The results indicate that Hypothesis 9 is not supported. Figure 6 shows this more clearly, where although *Logic* affects an organization's *Entry*, *Power Asymmetry* does not appear to change the relationship between *Logic* and *Entry*.

Model 6 in Table 3 includes all interactions and control variables. Although my hypotheses are intended to be tested independently of each other, Model 6 provides a robustness test to determine whether the posited effects that are significant remain significant in a simultaneous test. Results are consistent with the other models, where the interaction of *Logic* and *Size* is still supported [ $HR=1.048, p<.05, CI=(1.008, 1.089)$ ].

**Figure 6** Survival curve for the interaction between *Logic* and *Power Asymmetry* (P.A.)



Models 7-12 have as their dependent variable the amount of *Risk* that these organizations take as they enter the market. These models are summarized in Tables 4 (Models 7-9) and 5 (Models 10-12). As mentioned, these models use a Bayesian linear regression approach and include only landfills that actually enter the market. The results of the Bayesian model do not include p values and confidence intervals. Rather they provide posterior distributions that provide full inferences about the parameters of interest. These distributions are based almost completely on the data actually observed due to the lack of strong prior information. While Bayesian inference focuses on both estimation and testing, I first examine the means of the posterior distributions to estimate effect sizes, and the *95% highest posterior density interval* (HDI) for additional estimation and reporting purposes. HDI's are different in theory and interpretation from confidence intervals in NHST, as HDIs actually provide the 95% probability that the true parameter value falls within the range given by the HDI (Gelman et al., 2013).

Model 7 in Table 4 is the base model with *Logic* as the effect of interest along with all control variables. I find that *Logic* is a meaningful predictor of *Risk* [*HDI*=(0.021, 0.105) with a mean of 0.062]. This suggests that SLOs who enter the market on average install six percent more capacity than MLOs, holding other variables constant. Further I am 95% confident that the true effect size falls somewhere in the interval from 0.021 to 0.105. This suggests support for Hypothesis 2.

The interaction of *PPPs* and *Logic* (shown in Model 8, Table 4) is positive but the 95% HDI includes 0 [*HDI*=( $-0.338$ , 0.255) with mean of 0.175]. As a result, I

conclude that I cannot accept Hypothesis 7. A two group analysis verifies that the interaction does not appear to be significant.

For Model 9 (see Table 4), the interaction of *Size* and *Logic* could be 0 as the 95% HDI includes 0, [ $HDI=(-0.016, 0.004)$ ] with a mean effect of -0.006]. While the 95% HDI is close to excluding 0, a simultaneous test of all interactions (Model 12, Table 5), indicates a negative posterior moderating relationship for *Size* and *Logic*. Once again, the posterior mean is essentially 0 and the HDI is largely restricted to 0. As a result, the evidence indicates no support for Hypothesis 6.

The results of Model 10 in Table 5 indicates that the interaction of *Republican* and *Logic* is not meaningful as the 95% HDI again includes 0 [ $HDI=(-0.107, 0.067)$ ] with mean -0.021]. Thus, the posterior evidence does not support Hypothesis 8.

**Table 4** Bayesian linear regression results for Models 7 and 8 (*Risk* as the DV)

VARIABLES	(7)			(8)		
	Mean	<i>Risk</i> 95% HDI		Mean	<i>Risk</i> 95% HDI	
<i>Logic</i>	<b>0.064</b>	<b>0.021</b>	<b>0.105</b>	<b>0.062</b>	<b>0.018</b>	<b>0.107</b>
<i>PPP</i>				-0.025	-0.266	0.281
<i>Size (log)</i>						
<i>Republican</i>						
<i>Power Asymmetry</i>						
<i>PPPXLogic</i>				0.018	-0.338	0.255
<i>SizeXLogic</i>						
<i>RepublicanXLogic</i>						
<i>Power AsymmetryXLogic</i>						
<i>Population (log)</i>	<b>-0.018</b>	<b>-0.0345</b>	<b>-0.003</b>	-0.016	-0.033	0.000
<i>State</i>	0.000	-0.001	0.002	0.000	-0.001	0.002
<i>Percapita Income (log)</i>	<b>0.005</b>	<b>0.002</b>	<b>0.008</b>	<b>0.005</b>	<b>0.002</b>	<b>0.008</b>
<i>Nearby Generation</i>	<b>-0.002</b>	<b>-0.003</b>	<b>-0.001</b>	<b>-0.002</b>	<b>-0.003</b>	<b>-0.001</b>
<i>Payback</i>	<b>-0.052</b>	<b>-0.074</b>	<b>-0.032</b>	<b>-0.056</b>	<b>-0.074</b>	<b>-0.035</b>
<i>EPA Legis. 96</i>	<b>-0.080</b>	<b>-0.146</b>	<b>-0.005</b>	-0.056	-0.133	0.022
<i>Constant</i>	0.967	0.842	1.106	0.959	0.832	1.092
Observations		677			677	

Credible Parameter Estimates in **Bold** (HDI does not include 0)

Bayesian estimation does not provide an R-squared value, so it is not reported.

These models include only firms that actually entered the market.

**Table 5** Bayesian linear regression results for Models 9 and 10 (*Risk* as the DV)

VARIABLES	(9)			(10)		
	Mean	<i>Risk</i> 95% HDI		Mean	<i>Risk</i> 95% HDI	
<i>Logic</i>	<b>0.148</b>	<b>0.015</b>	<b>0.296</b>	<b>0.069</b>	<b>0.008</b>	<b>0.135</b>
<i>PPP</i>						
<i>Size (log)</i>	0.004	-0.004	0.012			
<i>Republican</i>				0.017	-0.045	0.080
<i>Power Asymmetry</i>						
<i>PPPXLogic</i>						
<i>SizeXLogic</i>	-0.006	-0.016	0.004			
<i>RepublicanXLogic</i>				-0.022	-0.107	0.067
<i>Power AsymmetryXLogic</i>						
<i>Population (log)</i>	-0.014	-0.031	0.003	<b>-0.014</b>	<b>-0.027</b>	<b>-0.001</b>
<i>State</i>	0.000	-0.001	0.002	0.000	-0.001	0.002
<i>Percapita Income (log)</i>	<b>0.005</b>	<b>0.001</b>	<b>0.008</b>	<b>0.005</b>	<b>0.002</b>	<b>0.008</b>
<i>Nearby Generation</i>	<b>-0.002</b>	<b>-0.003</b>	<b>-0.001</b>	-0.002	-0.003	0.000
<i>Payback</i>	<b>-0.050</b>	<b>-0.070</b>	<b>-0.031</b>	<b>-0.054</b>	<b>-0.072</b>	<b>-0.035</b>
<i>EPA Legis. 96</i>	-0.053	-0.130	0.025	-0.053	-0.124	0.018
<i>Constant</i>	0.867	0.688	1.042	0.929	0.832	1.031
Observations		654			677	

Credible Parameter Estimates in **Bold** (HDI does not include 0)

Bayesian estimation does not provide an R-squared value, so it is not reported.

These models include only firms that actually entered the market.

The last interaction looks at how *Power Asymmetry* moderates the relationship between *Logic* and *Risk* (Model 11 in Table 6). This results of this model indicate that *Power Asymmetry* does not positively moderate the relationship [ $HDI=(0.000, 0.002)$  with mean of 0.001]. I thus conclude that Hypothesis 10 is not supported.

### *Bayesian Model Testing*

An important thing to remember is that using a Bayesian approach allows us to truly accept a hypothesis based on our actual data, the prior distribution, and the 95% HDI from the posterior distribution. This is a very different conclusion than what we can say with an NHST approach, where we are unable to truly accept a hypothesis as we are only able to say that we don't have enough evidence to reject it (Kruschke et al., 2012; Wagenmakers, Lee, Lodewyckx, & Iverson, 2008).

While there are a variety of ways in Bayesian inference to formally test whether a hypothesis is supported, including Bayesian inference criteria (BIC) and regions of practical equivalence (ROPEs) (Kruschke, 2014), I use Bayes Factors (BF) to test hypotheses with *Risk* as the dependent variable. BFs are often the preferred method of model selection in Bayesian inference as it takes into account information about the priors specified in each model. BFs are calculated using the ratio of the marginal likelihoods between the two models being compared (Jeffreys, 1961). For each of the Bayesian models estimated here, I compare that model to a "base" model that does not include the parameter of interest. As a result, I can see if the model with the parameter of interest is better than the base model. I report the logarithm of each BF, meaning that



**Table 6** Bayesian linear regression results for Models 11 and 12 (*Risk* as the DV)

VARIABLES	(11)			(12)		
	Mean	<i>Risk</i>		Mean	<i>Risk</i>	
		95% HDI			95% HDI	
<i>Logic</i>	<b>-0.102</b>	<b>-0.180</b>	<b>-0.014</b>	<b>0.103</b>	<b>0.073</b>	<b>0.133</b>
<i>PPP</i>				-0.003	-0.026	0.021
<i>Size (log)</i>				0.004	-0.002	0.010
<i>Republican</i>				0.025	-0.029	0.081
<i>Power Asymmetry</i>	<b>-0.001</b>	<b>-0.002</b>	<b>-0.000</b>	-0.001	-0.002	0.000
<i>PPPXLogic</i>				0.000	-0.018	0.019
<i>SizeXLogic</i>				<b>-0.007</b>	<b>-0.013</b>	<b>-0.001</b>
<i>RepublicanXLogic</i>				-0.029	-0.077	0.020
<i>Power AsymmetryXLogic</i>	0.001	<b>0.000</b>	<b>0.002</b>	0.001	-0.001	0.003
<i>Population (log)</i>	<b>-0.017</b>	<b>-0.031</b>	<b>-0.001</b>	<b>-0.013</b>	<b>-0.026</b>	<b>-0.001</b>
<i>State</i>	0.000	-0.001	0.002	0.000	-0.001	0.002
<i>Percapita Income (log)</i>	<b>0.005</b>	<b>0.002</b>	<b>0.008</b>	<b>0.004</b>	<b>0.002</b>	<b>0.007</b>
<i>Nearby Generation</i>	-0.002	-0.003	0.000	<b>-0.002</b>	<b>-0.003</b>	<b>-0.001</b>
<i>Payback</i>	<b>-0.054</b>	<b>-0.073</b>	<b>-0.036</b>	<b>-0.050</b>	<b>-0.070</b>	<b>-0.030</b>
<i>EPA Legis. 96</i>	-0.061	-0.136	0.014	<b>-0.047</b>	<b>-0.108</b>	<b>-0.017</b>
<i>Constant</i>	1.067	1.001	1.130	0.954	0.859	1.038
Observations		677			654	

Credible Parameter Estimates in Bold (HDI does not include 0)

Bayesian estimation does not provide an R-squared value, so it is not reported.

These models include only firms that actually entered the market.

models with a positive BF are better than the base model, and models with a negative BF are worse (i.e. not accepted) than the base model.

The one hypothesis with *Risk* as the dependent variable that has support is Hypothesis 2, which says that SLOs will be more likely to take risk upon market entry than MLOs will be. The BF for this hypothesis is -5.84, which indicates that the model with *Logic* is worse than the base model with control variables only. This means that I cannot accept Hypothesis 2.

## 5. DISCUSSION AND CONCLUSION

The central research question addressed in this dissertation is *How do public sector organizations that are based on a state logic pursue entrepreneurial opportunities?* This dissertation has looked at market entry and risk-taking by landfill organizations as they enter the renewable energy market by using methane gas produced by the solid waste to generate power or heat. Hypotheses have focused on the type of organizational logic (i.e., state or market), the presence of PPPs, the size of the organization, and the underlying political ideology of the surrounding community. Results show that the type of logic underlying an organization (i.e., SLO vs MLO) has a consistent and important effect on the likelihood of market entry, with several important moderators of this relationship, including organizational size and political power asymmetry. In other words, SLOs behave very differently than MLOs in pursuing new opportunities.

I find that several organizational-level characteristics have an important influence on entrepreneurial behavior. First, I find that SLOs, with their greater focus on regulatory compliance (as opposed to profit), are significantly less likely to enter a new market (~30-60%) than MLOs are (Hypothesis 1). This suggests that the underlying beliefs, practices and processes instantiated within an organization that has a state logic makes entrepreneurial behavior less likely than in an organization with a market logic. While the hypotheses on organizational size were originally thought to be of less importance than the other moderators, due to preconceived expectations that it may not be a strong moderator, the results for Hypothesis 5 show that these effects are actually

quite strong for market entry. What is perhaps most significant about these findings is that they suggest that SLOs that are larger in size tend to start acting more like an MLO, in that they become more likely to enter the market. In other words, large SLOs may adopt beliefs and practices that lead them to behave like an MLO.

For hypotheses related to the community influences on organizational entrepreneurship, the results are more mixed. I find that the presence of Republican leaders in a community does moderate the relationship between logic and market entry. SLOs in Republican-led communities are 22% more likely to enter the market than SLOs in Democratic areas (Hypothesis 7). What this means is that the values in the community can have an important impact on driving entrepreneurship behavior, particularly for SLOs. In other words, Republican party leadership is associated with SLOs acting more like MLOs in terms of their willingness to pursue new market opportunities.

These findings have important implications for institutional theory, in that they establish that differences in organizational-level logics leads to varied levels of entrepreneurial actions. Past literature has considered how partner-level (Pahnke et al., 2015), individual-level (Almandoz, 2014), community-level (Lee & Lounsbury, 2015; Marquis & Lounsbury, 2007), as well as higher level logics can influence organizational outcomes. Yet we know little about how differences in logics at the organizational-level can lead to different outcomes, particularly entrepreneurship. Extending the logics literature in this way helps us better understand how the state logic is not just a field or societal level influence, but that it operates at the organizational-level in important ways

that have gone unconsidered by past literature. This dissertation shows that organizations that are based on a state logic have different values and practices that make them less likely to engage in new market opportunities. Taking a configurational perspective thus allows me to shed light on how these differences between SLOs and MLOs influences market entry by these organizations (Perry & Rainey, 1988), as well as how important organization and community-level characteristics and values influence their behavior.

My dissertation also contributes to the growing literature on how political ideology influences firm outcomes. Prior literature has typically focused on how the ideology of the CEO (Boivie et al., 2011), directors (Almandoz & Tilcsik, 2015; Gupta & Wowak, 2017), and other senior managers (Christensen et al., 2014) influences important firm outcomes. However, to date, this work has failed to consider that the mechanisms through which community values such as the prevailing political ideology can be internalized by the organization, which then ultimately influence individual and firm behavior. The idea that logics and values at the community-level also influence firm entrepreneurial actions also has important implications for institutional theory, which has long acknowledged the ability of community values to influence organizations (Selznick, 1949). This dissertation contributes to this important and growing literature, particularly to the institutional logics perspective, as we currently know very little about how values and logics at the community-level can interact with logics at the organizational or individual-level to influence actors behavior. What work has been done has focused on higher order logics (e.g., field or societal), rather than on the actors themselves (i.e., individuals or organizations). Understanding how values and logics at the community-

level interact with lower-order values and logics helps explain what heterogeneity within organizations exists even when an organization is embedded in the same higher order logics.

Another contribution that this dissertation makes theoretically is highlighting the important role that size can have in changing the way that an organization behaves. However, while prior literature has typically assumed that size influences all types of organizations in the same way (for a review, see Josefy, Kuban, Ireland, & Hitt, 2015), this findings presented here show a very different story that is quite surprising: New market entry for organizations with a market logic seemed to be unaffected by the size of the organization. However, for organizations based on a state logic, size had a much larger impact. This suggests that increased size may lead some types of organizations to change practices and values, and perhaps ultimately leading to a change in organizational logic. Theoretically, organizational size may be a proxy for available resources, which would also suggest that available resources impacts organizations differentially depending on which types of logic the organization is based on. This idea is a substantial contribution to the institutional logics literature, which has yet to consider that resource availability may change which values and beliefs are selected from an actor's environment for internalization.

**Managerial Implications** – The study findings also have important implications for managers and policy makers. First, as policy makers make decisions about how to help address significant societal problems, they should carefully consider which types of organizations are best suited to meet social needs. While SLOs do have some significant

advantages in being able to address these needs, it is important to consider that policies which are designed to help and encourage these types of organizations should also consider ways in which policies might be used to help increase the likelihood of participation by SLOs, particularly those that may be currently operating in different areas. Because SLOs have such a large presence in the world, their participation in addressing societal issues such as climate change, infrastructure, poverty, nutrition and sanitation may significantly enhance the world's progress in helping to remedy these important challenges.

Second, policy makers and managers should be aware that the increased levels of risk-taking by these organizations may have unintended negative consequences that threaten the success of these ventures. Because we currently know very little about the long term success rate of SLOs as compared to MLOs, managers should carefully consider whether the increased risk-taking is both necessary and justified. A third and important implication for managers and policy makers is that greater attention should be given to helping smaller organizations based on a state logic be more active in engaging in new ventures. A surprising finding of this dissertation was that large and small MLOs have similar likelihoods of entering a new market. However, while large SLOs resemble MLOs in their likelihood of entry, small SLOs are much less likely to enter a new market. As much of the U.S. is supported by public sector SLOs, policies that increase the engagement of smaller SLOs may not only provide an important economic return for these organizations, but may also help them better be able to respond to the values and demands of their constituency. A fourth managerial implication for policy makers is that

community values can influence state logic organizations in important ways. Thus, regulations and policy should provide consideration for the underlying values surrounding these organizations, including how they may promote or limit an SLOs entrepreneurial behavior with regards to entering a new market.

**Future Research** – There are a number of opportunities for future research that would greatly enhance our knowledge of institutional logics, especially in terms of organizational and community-level logics. First, the results of my analysis suggested that community-level logics may not have as strong of an effect on organizational behavior as I previously assumed. In other words, the findings indicate that organizational logics interact with communities values, helping researchers better understand how external values can be internalized within organizations and individuals (Almandoz, 2014). Political ideology, including the level of conflict between ideologies, can and does influence organizational behavior in important ways (Delmestri, 2009). Future work should continue to explore how additional community logics such as religion or family influence both individuals and organizations (i.e.,take a multi-level approach). Such approaches would help us better understand which logics influence a variety of individual and firm-level outcomes of interest.

Second, a promising theoretical area that remains under-explored in the institutional logics perspective is how logics become established and then fall away from prominence. In other words, we know little about how logics become instantiated within individuals and organizations, nor do we know if or how these logics can change over time. The institutional logics literature has long recognized that institutions are



historically contingent, meaning that their influence varies over time (Friedland & Alford, 1991; Marquis & Lee, 2013; Thornton, 2001). The importance of institutional orders and their influence with relation to other institutional orders thus is expected to vary. One possible focus of this research could build on the theoretical foundation of focus of attention (Ocasio, 2011). In other words, how do logics change or evolve over time as organizational and individual attention shifts as the result of changes in social views and perceptions.

Third, there is a significant literature on logic multiplicity or logics hybridization. To date, however, there is little information about how logics interact or are interpreted by organizations participating within a PPP, and how PPPs influence entrepreneurial behavior. While this study found no appreciable influence on market entry behavior for PPPs, the sample size was limited to less than 90 of the SLOs out of the nearly 2,400 participating in a formal PPP. Thus, future research should look at contexts where greater numbers are PPPs are available, which would increase statistical power. Another possible avenue for future research regarding PPPs is to take a qualitative or case study approach to build theory. Such approaches would likely greatly increase our understanding of how PPPs, which include formalized contractual agreements to govern behavior, can not only influence entrepreneurship outcomes, but other firm and individual-level outcomes of interest, such as firm performance, innovation, and organizational identification.

For instance, while PPP's did not appear to significantly moderate the relationship between organization logic and entry or risk-taking, additional exploratory

analyses indicated that the presence of a PPP does moderate the relationship between the time to recoup investment (i.e., payback period) and market entry. This finding suggests that organizations participating in PPP may become more focused on profit-based opportunities than those not participating in a PPP. The implication of this may be that the process of designing and writing a formal contractual partnership agreement, as well as the subsequent management practices involved with administering the agreement, help market and state logic based organizations better focus on profit based activities that are related to their agreed-upon strategy identified in their agreement.

Another opportunity for future research would be to further investigate the findings of this dissertation, which suggest that size moderates that relationship between organization logic and market entry behavior. One possible explanation not explored here that would provide theoretical nuance to the current literature would look at how the availability of resources influences what logics are instantiated within organizations and individuals. Currently, research looking at organizational logics has assumed that any resource necessary to implement an organization's preferred logic is already available to the organization. Future research should build on the findings of my dissertation by looking at how the actual extent and variety of resources possessed by an organization impact the logics, including the subsequent practices and beliefs, are internalized by a firm.

Another opportunity for further research would be to investigate first-order effects of the moderators proposed in this study on the same dependent variables. For example, first-order models that included all first-order independent variables (i.e., *PPP*,

*Size, Republican, and Power Asymmetry*) were run for both dependent variables. The model with *Entry* as the dependent variable showed that even though these variables did not moderate the relationship between *Logic* and *Risk*, all but *PPP* had a significant first order effect ( $p < 0.05$ ), suggesting that constructs such as *power asymmetry* may operate independently of organizational-level logics. In other words, this indicates that there may not be any boundary conditions on some of these relationships.

Finally, the finding that organizations in Democrat-led communities are less likely than organizations in Republican-led communities to enter the market for renewable power is somewhat surprising. In contexts where there is a real opportunity to not only generate a profit, but also to achieve substantial reductions in pollution (i.e., environmental benefits), one may expect that areas that vote Democratic would become more likely to enter the market. One possible explanation that was not considered in this dissertation is that there may be differential effects based on the economic prosperity of the community (although exploratory models confirm this explanation). Communities with higher incomes will likely be able to focus on protecting the environment through projects such as renewable energy generation more than areas that are dealing with pressing societal issues such as high poverty or lack of infrastructure. Future work should consider how differences in socio-economic resources at the community-level interact with other community-level factors such as political ideology to influence organizational-level outcomes such as new market entry and risk-taking.

This dissertation has explored the influence that a state logic has at the organizational-level, with a focus on how it influences entrepreneurial actions during

market entry. I find that organizations based on a state logic are less likely to enter a market, but that they take more risk when they do enter the market. Further, I find that there are several organizational and community-level moderators of this relationship that help extend the institutional logics perspective by showing how the values in the external community can be internalized within the organization. Further, I show how organizational characteristics such as size can lead organizations to behave in ways that are similar to organizations based on a different logic.

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