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Cover Page Footnote

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This paper addresses an important question: what can a highly complex public health situation such as the Dallas-Fort Worth Ebola outbreak tell us about the use of discretion by executive level public administrators? The public administration literature is rich with evidence of street-level bureaucratic discretion, but has not explored executive level discretion decision making. The authors argue that in highly complex situations of uncertainty, such as in the case of the Dallas-Fort Worth regional Ebola emergency response, the executive use of discretion translates to decisions under the conditions of uncertainty. This article theorizes a logic of uncertainty when two important assumptions exist; the situation is absent a plan to guide decision making, and the decision makers lack any previous precedent with the situation. Results indicate that when survey respondents departed from their emergency management plan, and planned as the event unfolded, they were more likely to use executive discretion decision making.

On September 30, 2014, Mr. Eric Duncan, a Liberian native, tested positive for the Ebola virus at Texas Health Presbyterian Hospital in Dallas, Texas. Two subsequent diagnoses of nursing staff occurred at the same hospital during the following month (Benning, 2014). The multiple diagnoses in the Dallas-Fort Worth (DFW) area elevated the fear of a national threat as an additional health care worker was admitted for Ebola in a local New York City hospital (Neergaard & Caruso, 2014). The immediate emergency response

fell to local government officials. In the DFW area, the Dallas County judge, the elected official who presides over the county's five-member commissioners court and has administrative and budgetary authority over the county, assumed the leadership role in ongoing coordination and decision making in response to this public health crisis (70th Legislature State of Texas, 1987). This research suggests that the Ebola crisis in Dallas gave rise to the use of executive discretion by public officials operating in high levels of uncertainty. Discretion is not limited to the street-level bureaucrat making decisions on whether or not to implement the rules. Rather, in high profile and complex public health events, such as an Ebola outbreak, executive-level discretion drives and inspires the invention of new policy along the way.

Due to Ebola's 21-day incubation period, the Dallas Ebola event evolved into a regional issue not easily contained within the boundaries of a single jurisdiction. Cities and counties typically rely on localized Emergency Management Plans or Emergency Operations Plans (all-hazards plan) to guide the activation of their localized Emergency Operation Centers (EOCs), disaster declaration processes, resource management, communications, and other functions during an emergency (Webb & Chevreau, 2006). Here, a multi-level response ensued, but decision-making and leadership authority remained with Dallas county and the city of Dallas at the local level. The county did not pursue a declaration process or file an emergency declaration report (Texas Task Force on Infections Preparedness and Disease Response 2014), rather it concentrated control of decision making with local public officials. The complexity of the Dallas Ebola event, compounded with the involvement of many stakeholders, and the enormity of information from federal and state authorities, resulted in ongoing adjustments to protocols, standards, and practices as the crisis unfolded (Centers for Disease Control, 2014; McCarthy, 2014).

The literature on discretion is primarily focused on the street-level bureaucrat addressing decision making at the managerial level bounded by processes established through routine protocols. Street-level bureaucrats rely on discretion, but they still have the rules of the organization to follow. They are not necessarily inventing new decisions or public policy. Their discretionary decisions are most often bounded by statute. At the executive level, discretion as a form of decision making invents and establishes policy. In the Dallas Ebola case, having an adopted local plan for an Ebola response would have suggested formal planning and, ultimately, leadership under a unified command over a formal incident command structure (based on the National Incident Management System). On the contrary, Dallas public officials responding to Ebola lacked a formal plan. One respondent in Dallas county leadership recalled, "...I have never seen a blueprint for handling Ebola. We could not go to a shelf and pull a book off..." Relative to Dallas' situation, findings suggested communication problems and leadership challenges. Another respondent with county leadership stated, "We started with the CDC guidelines for PPE (Personal Protective Equipment)... In the first hours, we figured out they were not acceptable." Still another hospital representative remarked, "We were getting information on the fly. Protocol was changing from what the Department of State Health Services was putting out... CDC was in the hospital... protocol was being modified on the fly." "We were in the heat of battle. Sometimes you have to change. They call it an audible."¹

These comments illustrate how executive public leaders had to make decisions under the

¹ Research includes direct quotes from county and city leadership gathered during the research process.

conditions of uncertainty. The Dallas Ebola event provides an arena for examining decisions at the executive level. We argue that there is another level to discretion which we call executive discretion. Our article proceeds as follows: First, we examine the literature on decision making. We go on to explore discretion as a type of decision-making process and we differentiate between management and executive-level discretion. We argue that, while we know managers use discretion relative to Lipsky's (1980) street-level bureaucrat theory, their management-level discretion is bound by the parameters of standard operating procedures. Our research allows for discretion to also be found at the executive level due to the nature of highly complex situations. Our contribution is the evidence of executive discretion decision making occurring at the higher managerial level stimulated by complex events. Guided by these assumptions, we offer a logic of uncertainty as a context for understanding executive-level discretion when government officials are absent a plan or previous experience as a reference point to guide a response. Findings from a survey administered to emergency management and public health decision makers in the Dallas-Fort Worth metroplex provides evidence that executive discretion results when public administrators are faced with complex situations absent a plan or previous precedent. While it is not possible to show causality, we illustrate the Ebola event itself was driving the executive-level discretion.

Decision Making Explained

Understanding the problem is the first important step in decision making. Two ways of examining decision making in public administration is through the lens of programmed and non-programmed decisions (Simon, 1960). Categorizing public administration decisions by these two concepts helps to differentiate an explanation of managerial and executive decision making. A programmed decision is repetitive and routine and is typically guided by roles or procedures. Programmed decisions at the management or street level are bound by certain operating parameters, such as standard operating procedures. At the executive level, programmed decisions are guided by the organization's strategic plan. With regards to our research, any response to an emergency or disaster is procedurally guided by the adopted emergency management plan, a subset of the overall strategic plan. Conversely, non-programmatic decisions are those considered unique or novel.

The public administration literature is grounded in two additional theories of decision making. First, a rational decision-making model suggests that decisions are purposive and goal oriented, sequential, analytical, and the selected alternative is based on the ability to gather all relevant information. March and Simon (1958) argued that decision makers fall short of having access to full and complete information. Their model suggested cognitive limitations of individuals to gather all information, bounded rationality (Simon, 1965), and therefore, the decision to select an alternative is based on its ability to meet a certain set of criteria. They argued for the development of rules and procedures by executives to limit value judgments in decision making at lower levels of management. If decision rules are established per individual situation, then the rules may be mechanically applied with limited reliance on value judgments (March & Simon, 1958). This argument, as explained through the logic of consequences, assumes that rational individuals make calculative decisions through a systematic analysis of costs and benefits (Frederickson, Smith, Larimer, & Licari, 2011). Conversely, Lindblom (1959) extended the development of decision-making models in public administration through the concept of incrementalism. Here, decisions made are not far from the status quo. Relative to the logic of appropriateness, decisions are guided by

history, rules, or organizational identities (Frederickson et al., 2011). Due to rational choice limitations and the cognitive limits to problem solving, policy decisions are made on the margins protecting already garnered political support (Bendor, 2015).

Discretion as a Type of Decision Making

Early research recognized that discretion was necessary relative to individual citizen need and circumstances surrounding public goods and services (Brodkin, 2012). Some scholars suggest that certain professional levels lend themselves to the use of discretion more than others (Lipsky, 1980; Plant, 2011). We traditionally think about discretion in public management from the context of the street-level bureaucrat (Frederickson et al., 2011). The action of interpretive decision making is with the lower-level staff who navigate relationships with clients of government services (Kosar, 2011). Friedrich (1935) argued that career administrators have a base of knowledge in their professional field that provides them with some discretion. He stated that public administration evolved to the point that politicians could not oversee everything. Further, he argued that discretion was best left to the administrator and not the politician. Theories of bureaucracy suggest that rules are not self-executing (Blau, 1964; Merton, 1968; Simon, 1965), and, therefore, administrators rely on the embeddedness of discretion in the rules determining the execution and implementation of policy (Hupe, 2013).

The public administrator, as Lipsky (1980) has shown, tends to invoke discretion breaking through barriers to adaptive and flexible decision making. He defined the concept of street-level bureaucracy as the discretion in decision making afforded to lower-tiered public servants, such as police or social workers, who have daily interactions with citizens in the delivery of public services. His theory of client responsiveness argued that the discretion of front-line bureaucrats is necessary because these administrators have a better sense of the needs of the citizens they serve. He suggested that the complex nature of the work results in the street-level bureaucrat's divergence from adopted policy. Further, he argued that the bureaucrat may make decisions that do not result in equal treatment of all clients due to the nature of the problem. Public administrators may invoke interpretive decision making relative to their relationship with clients.

Managers may be faced with both programmed and non-programmed decision types discussed above. The motivation of the manager to use discretion is based on their expertise and knowledge of individualized client needs and a pressure to act when discretion is programmed in the standard operating procedures. Even when management invokes the use of discretion, decisions by managers are bound by certain parameters, such as standard operating procedures.

The literature is rich with evidence of street-level discretion and behaviors of lower level policy divergence (Brodkin & Majmundar, 2010; Dias & Maynard-Moody, 2007; Lindhorst & Padgett, 2005; Meyers, Glaser, & Donald, 1998; Rosenthal & Peccei, 2006; Smith & Donovan, 2003; Tummers & Rocco, 2015; Wenger & Wilkins, 2009). The autonomy of the front-line worker and their potential affiliation with a professional association serves as an example of how a cultural identity may guide decision making relative to the logic of appropriateness presented above.

We argue that discretion is not limited to the street-level employee. Discretion is also elevated to the level of executive due to the statutory power legitimized in their position. We recognize that Meier and O'Toole (2006) provide evidence of political and bureaucratic discretion. However, their research conceptualizes bureaucratic discretion as decision making decentralized to the street level and operationalized as the teacher. Political discretion is

operationalized as Latino school board membership. Their evidence suggests that higher levels of Latino representation on school boards have a positive effect on Latino student test scores and participation in advanced classes. We argue that the authors evidence of executive discretion is representative of decision making in a stable, and routine environment. Further, school board environments have protocols for decision making and reference points of previous situations to guide future decision making. One could argue that their findings infer executive discretion, but even with this evidence, school board members cannot act independently of the full board. Meier et al. (2007) find evidence of a reactionary management style at the top level in environments of uncertainty, but argue that reactionary managers typically lack a strategy and rely on cues from regulators on how to set priorities. Our research further contributes to the literature on executive discretion because we offer an examination of executive-level discretion in a highly uncertain decision environment, such as the Dallas Ebola event. Executive discretion in a complex Ebola response is guided by the assumptions found in what we term a logic of uncertainty, discussed in more detail below, where decision making happens absent a plan or previous experience as a reference point to guide the response.

Executive Level Discretion through the Lens of a Highly Complex Public Health Event

Plant (2011) argues that, while career administrators have a base of knowledge to make discretionary decisions, administrative discretion is not entirely autonomous of the political official. He contends that responsibility also equates to the role of the politician as responsible to their constituency. In this Dallas Ebola event, a judge served as lead emergency manager for the county. In some situations, this authority may be delegated. Based on respondent input, the mayor of the city maintained a role as public figurehead and delegated all programmed emergency management responsibilities to the city's Director of Emergency Management. In the Dallas Ebola event, one member of city leadership indicated, "The mayor actually signs a piece of paper and makes me the EMC (emergency manager) in charge."²

The elected official is central to policy-making given the nature of their authority authorized by voters. The literature settled the debate on the role of the public manager in policy making and administration decision making (Nalbandian, 1999; O'Toole Jr, 1987; Svava, 1998; Svava, 1999; Svava, 2001). However, the elected official, by their position in the organizational chart, is the first line in all policy decisions. Most plans are not official until adoption by the governing body. Hupe and Hill (2007) argue that the policy-development process is comprised of three clusters of activity. They suggest that the policy process includes the formation of policy, the policy's institutional design, and its implementation. The authors explain that these three elements are not mutually exclusive, and the multi-dimensional structure allows for multiple opportunities for political and administrative choices. They go on to say that policy formation is continually legitimized through both the executive and administrative authority to make choices on the allocation of public resources. Here, decision-making parameters are bound to some degree by a strategic plan.

Our paper argues that the situation itself requires the executive to use discretion. The public administrator's interpretation of the issue or demand may lead to the use of discretion to be responsive (Brodkin, 2012; Jewell, 2007). Relative to our argument, the complexity of a response to the Ebola outbreak surfaced the need for interpretation of the issue and problems

² Research includes direct quotes from county and city leadership gathered during the research process.

as they were presented. Evidence suggests that professional factors influence an administrator's decisions as to their course of action in responding to complex needs and demands (Hupe, 2013). Certain organizational characteristics may allow a heroic response to occur (Maynard-Moody & Musheno, 2003). The executive discretion by county and city leadership to decide not to issue a declaration of emergency played a role in the emergency management response, coordination, and decision-making process. With regards to our research, we argue that due to the lack of a clear plan on an Ebola response, an environment of uncertainty led to executive-level discretion or on-the-fly decision making. It is also possible that the discretionary decision to not issue an emergency declaration provided more opportunity for the local executives to maintain control over what appeared to be a coordinated response (Kennedy, 2014).

Executive discretion decision making is founded in authority of the position and the situation. First, executive discretion to make decisions under the conditions of uncertainty is motivated by the need for a public figurehead in the instance of an emergency or crisis, and the high stakes pressure for the protection of the community. Second, executive decision making is motivated by the situation, such as leadership void, urgency, risk, fear, lack of protocol, or no scientific guidance. The decision-making environment presented by the Dallas Ebola event includes mixed messages on medical and safety protocols, a lack of data as reference points to guide decision making, local emergency management plans devoid of public health response plans relative to Ebola, and an overall lack of professional experience with Ebola at the local government level. Executive discretion becomes relevant in situations of high uncertainty in the public domain involving multiple actors and multiple accountability. Our argument identifies specific responsibilities for decision making at the highest level of public management in a complex public health response. Motivations for discretion may relate to the executive's authority to make a decision, and the situation itself, here, an Ebola outbreak. Further, it illustrates that executive use of discretion leads to decisions which are more likely to be decisions under the conditions of uncertainty absent a strategic or emergency plan or lack of historical precedence or experience. Executives are able to respond to motives of discretion because they have a better sense of the entirety of the organization through their authority and role and have the power to change policy to deal with uncertain situations.

With regards to our research, the absence of a plan, as discussed above, presents a two-fold problem relative to existing logics on decision making, consequences, and appropriateness (See Table 1). First, with regards to the assumptions of the logic of consequences, the ability to make a cost-benefit or performance-based decision is incomplete in a rational sense due to limited available data on a local U.S. Ebola response. Second, relative to the logic of appropriateness, the presence of a first time Ebola outbreak in the United States and, more locally, Dallas, Texas, suggests an increased likelihood of the public administrator not having any previous history or experience with a public health response to this particular disease. Our argument then suggests that a third logic exists with regards to decision making in a complex situation. We propose that a logic of uncertainty becomes manifest in decision making when neither available data nor a marginal approach will suffice. Our logic of uncertainty suggests that executive discretion occurs because decision making is not bound by the rules or principles of an existing plan, and that the decision maker lacks any previous experience or history.

Table 1: Comparison of Decision Making Logics

Dimension	Logic of Consequences	Logic of Appropriateness	Logic of Uncertainty
<i>Theoretical foundation</i>	Information to consider alternatives	Information relative to status quo	Information processing not bound by the rules or principles of an existing plan
<i>Assumptions of human behavior</i>	Calculative, cost benefit	Incremental based on the knowledge of history	Limited data, no existing plan, or reference point
<i>Decision type</i>	Decision rules to limit value judgment	Decisions guided by history, rules or organizational identities	Decision making when neither available data or a marginal approach will suffice
<i>Role of public administrator</i>	Apply decision rules per individual situation	Apply decision rules relative to experience and knowledge	Invent or create policy given uncertain decision environment
<i>Value</i>	Efficiency	Effectiveness	Economy

Source: Adapted from text taken from Simon (1965), March and Simon (1958) and Lindblom (1959) with the addition of our Logic of Uncertainty

The theoretical models of consequences and appropriateness discussed above have advanced conceptually, but current public administration literature lacks empirical evidence to know exactly what decision making looks like and the theoretical consistency to know under what conditions we use different types of decision making (Bendor, 2015; Meier, 2015). Based on Simon's (1965) theory of decision making, managers and lower-level staff are bound by certain operating parameters, or rules. Our research is motivated by the question, how wide or narrow are the parameters for executives in responding to situations when no boundaries can be found. In the Dallas County Ebola event or infectious disease response, the evidence suggests the absence of an Ebola emergency response plan. Absent a plan, there is also concern relative to what the parameters should be in making a decision. Our logic of uncertainty explains and conceptualizes executive discretion in highly complex public health situations. Further, our research fills a gap in the literature by providing assumptions of executive-discretion decision making in highly complex public health situations. The complex and uncertain decision environment exists due to the fact the infectious disease was not contained within a single jurisdictional boundary, and the problem-

solving knowledge and expertise spans across levels of policy makers, management, and stakeholders.

We are aware of the scholarship that has examined decision making in emergency management crises that has veered from the pre-formed protocols of the emergency plan due to the complexity of the situation, which is also identified in the literature as improvisation (Kendra & Wachtendorf, 2007; Kreps, 1991; McEntire, 2007; Mendonca, Beroggi, & Wallace, 2001; Wachtendorf, 2004; Wachtendorf & Kendra, 2005; Webb & Chevreau, 2006). As a disaster unfolds, it may not align with a pre-planned emergency response. McEntire et al. (2013) suggest that improvisation is not a departure from the existing plan but rather represents activities that improve upon the existing plan. He goes on to argue that the word improvisation suggests that in times of uncertainty, actors in the response may make decisions different from the original plan. Reasons for improvisation include the complexity of the unfolding disaster or low levels of preparedness (Webb & Chevreau, 2006). We argue that, in the Dallas Ebola event, information processing was not bound by the rules or principles of an existing plan (Table 1). The public administrator wears multiple hats in an emergency response and uses discretion, retaining control over decision-making. Some may argue that improvisation and discretion are synonymous. We argue that there is in fact a gap in the literature where the concept of executive discretion lacks a formal plan and decisions are based on limited data, or a reference point.

Executive Discretion through Authority in an Ebola Emergency Response

Under Texas state law, the elected county judge is the appointed emergency management director during an emergency or crisis (70th Legislature State of Texas, 1987). In this case, the county and city elected leaders transition temporarily from responsibilities of day-to-day government operation assuming an appointed role leading an emergency response that typically evolves into an all-hazards collaborative model (McEntire, 2007). However, statutorily created laws and ordinances often hinder communication between levels of government. The intergovernmental context also becomes a barrier because vertical and horizontal layers complicate decision making (Agranoff & McGuire, 2001). Consistent with our argument on programmed decisions, the emergency management plan as a part of the strategic plan establishes parameters for decision making. Discretion on the part of the executive may occur because of the rigid and top-down structure inherent in bureaucracy; decisions cannot always be made jointly in a crisis. Therefore, our conjecture is that the executive will invoke executive discretion legitimized in the authority of the statutory role thus overcoming barriers in decision making allowing governments to adapt quickly in crises. The discretion used by executives under the guise of authority is more likely to lead to decisions bound by parameters of the organization's strategic plan. Executives have the leeway to invoke decisions through discretion, but decisions are less likely to be on-the-fly. **H1:** There is a relationship between having an organizational emergency management plan during a complex public health response and the likelihood of executive discretion decision making.

Executive Discretion through the Situation in an Ebola Emergency Response

Relative to emergency response by local government officials, local administrators must enact a state-mandated "All Hazards Plan." The concept of Hupe and Hill (2007) is applicable here in that the policies of the plan are determined at a state level, a higher level from actual on-the-ground execution. There are uncertainties in carrying out the policies, which ultimately leads to reliance on discretion (Lipsky, 1980). However, the complexity of the

problem, such as responding to an Ebola outbreak, does not fall neatly into one jurisdictional boundary and may be further complicated when the infectious disease response is not clearly articulated in a pre-existing plan. The situation may surface issues of uncertainty, risk, or fear. With the case of the Ebola emergency response in Dallas, there was no precedent in which those in charge of the response could base their decisions. An individual becomes in charge through their legitimized role of authority. In a crisis or disaster, the discretion of the executive public administrator is the key in how the response develops while the crisis unfolds. The administrator relies on discretion to make decisions in the face of uncertainty.

Relative to our research interests, in a complex emergency and rarity of events, such as an Ebola outbreak, there is no real likelihood that the city was able to pre-plan before the first case was diagnosed. The challenge for the DFW area and administrative leadership was that the Ebola emergency was unique and unanticipated. Consistent with Drabek's (2001) research, the city leadership likely resorted to what he termed improvisation. He found administrative leadership used authority inherent in the position to control issues related to coordination among collaborative stakeholders. However, he also showed evidence that the situation led to what he argued as improvisation, or, for our purposes, executive discretion. He found evidence of National Guard officers making autonomous decisions on who can and cannot return to a disaster site. His term improvisation suggests that, in times of uncertainty, the official makes decisions different from the original plan. Reasons for improvisation include the complexity of the unfolding disaster or low levels of preparedness (Webb & Chevreau, 2006).

The DFW emergency management plans suggest leaders were well prepared in emergency management disasters, but had little pre-planning in the event of Ebola (Texas Task Force on Infectious Preparedness Disease and Response, 2014). Consistent with public administration literature and the state emergency management plan, we suggest that the county judge assumed the role of appointed emergency manager. An emergent collaborative evolved, including multiple counties, the hospital that received the first case, fire, police, and rescue, as well as non-traditional parties, such as decontamination companies, medical associations, and churches. Therefore, the judge used discretion to overcome barriers in decision making among members of this emergent collaborative, retaining control of decisions and outcomes. We argue that certain situational factors in the Dallas Ebola event surfaced the use of discretion which ultimately resulted in executive discretion.

H2: There is a relationship between an organization departing from their existing emergency management plan during a complex public health response and the likelihood of executive-discretion decision making.

H3: There is a relationship between the extent an organization planned for a complex public health response and the likelihood of executive-discretion decision making.

H4: There is a relationship between organizational limits in expertise during a complex public health response and the likelihood of executive-discretion decision making.

H5: There is a relationship between an identifiable lead during a complex public health response and the likelihood of executive-discretion decision making.

H6: There is a relationship between the public fear during a complex public health response and the likelihood of executive-discretion decision making.

Methods

The study relies on a quantitative analysis from a survey of 200 emergency managers and public health officials in Dallas-Fort Worth, and the public administration literature on decision making and discretion. Survey data was collected in the summer of 2015. The purposive sample used in our study was selected based on the invitation individuals on our list received to participate in the North Texas Council of Governments' (NCTCOG) Ebola After Action Review meeting on January 15, 2015. Individuals included on this NTCOG's meeting list represented over 50 local agencies within the Dallas-Fort Worth region, including city and county governments, as well as the following cooperating state and regional agencies: Texas Department of State Health Services (DSHS); the North Central Texas Trauma Regional Advisory Council (NCTTRAC); and the Texas Division of Emergency Management (TDEM). Individuals were asked to participate in this meeting because of their position in the highest level of management and the direct role they played in the Ebola emergency response or their role as an emergency manager, public administrator, first responder, police and fire, emergency medical technician, hospital administrator, or public health official in the region.

The Web-based questionnaire addressing the potential respondent's perception about planning, decision making, leadership, coordination, and the media's role was distributed to all individuals listed on the NCTCOG list. The intent of the survey was to examine the perceptions of emergency management and public health professionals relative to their response to this particular Ebola outbreak event in the Dallas-Fort Worth region. It is typical for executive-level public officials to devolve their power or share it with the highest-ranked emergency or public health managers in an emergency response. Our research relies on the highest-level manager in the Dallas Ebola event as a proxy for executive leadership. The survey addressed individual perceptions of community preparedness for an infectious disease outbreak, coordination between the emergency management and public health profession, information sharing, leadership, limitations in expertise, and executive-discretion decision making. Individuals were self-selected because they chose to attend the NCTCOG Ebola After Action Event. The response rate was 52 percent, and the final data set comprised 105 cases with a final analysis of 85 individuals for whom we have complete data.

Dependent Variable

The survey respondents were asked to indicate the extent to which they agreed decisions they made involved decisions under the conditions of uncertainty, or on-the-fly decision making, regarding their organization's Ebola response. Our survey asked respondents to consider quick decision making conceptually as on-the-fly decision making because of its colloquial nature. On-the-fly decision making served as a proxy for executive-discretion decision making in our survey. Our variable was operationally defined as *Executive Discretion Decisions*. The dichotomous variable measured as 1=Agree decisions were made on-the-fly (including strongly agree and agree responses) and 0 = Otherwise was transformed from the original ordinal variable based on a 1-5 Likert scale. The executive can use discretion, absent of a clear plan in an unconventional crisis.

Explanatory Variables

Our research relied on five main predictors for executive discretion in decisions under the conditions of uncertainty. For the independent variables, the survey asked respondents for knowledge relevant to certain organizational elements that may have occurred during the Ebola emergency response. Multiple predictor variables were identified to test the model of

executive discretion. First, we argue that the jurisdiction's emergency management plan should have established the decision rules (see Simon (1965)) to guide response and, therefore, limit the need for executive discretion. The concept of decision rules is operationalized as a measure of the extent to which the respondent agrees their organization had an EM plan prior to the Ebola event, *Organizational EM Plan*. Second, we then argue that a highly complex event, such as the Ebola crisis, lends itself to a situation of uncertainty. Following the argument of Maynard-Moody and Musheno (2003), in a highly complex and uncertain situation, public servants may break from decision protocols to meet their personal needs. We operationalize conditions of uncertainty through 5 variables, (1) a measure of the extent to which the respondent agrees their organization departed from their EM plan, *Departed from EM Plan* (2) a measure of the extent to which the respondent agrees the organization planned as the event unfolded, *Planned as the Event Unfolded* (3) a measure of the extent to which the respondent agrees there was an identifiable lead in the event, *Identifiable Lead in Event* (4) a measure of the extent to which the respondent agrees their organization faced limitations in expertise relative to an Ebola emergency response, *Limited Expertise* and (5) a measure of the extent to which the respondent agrees that public fear had an impact on their response, *Public Fear Drove Response*. The variables presented above are measured as ordinal variables with a five-point Likert scale from strongly disagree to strongly agree.

Control Variables

Our model included two control variables, *Hours Worked on Ebola Response* and *Gender*. The measure for *Hours Worked on Ebola Response* is a categorical variable which is measured as hours worked on the Ebola emergency response during the normal workday. The variable is coded as an ordinal variable 1=worked 1-3 hours, 2=worked 4-8 hours, and 3=worked over 8 hours. The variable for *Gender* is measured as a dichotomous variable with 1=male and 0=female. Gender is included to determine if certain characteristics are relevant to discretion (Sowa & Selden, 2003), here, decisions under the conditions of uncertainty, or executive decision making.

Findings and Discussion

Table 2 includes the mean, standard deviation, and range for the main variables included in the analysis. On average, respondents are more likely to indicate that they relied on executive discretion in decisions under the conditions of uncertainty as the Ebola event unfolded. As illustrated, the mean for making executive-discretion decisions is 0.543. On average, respondents were more likely to indicate having an emergency management plan prior to the Ebola response event with a mean of 3.822. More respondents were likely to indicate they agree they planned as the event unfolded than those who indicated departing from their adopted emergency management plan. On average, respondents were less likely to agree there was an identifiable lead agency for the Ebola response with a mean of 2.851. Overall, respondents were more likely to indicate that they experienced both limitations with expertise during the Ebola response, and that public fear was a major factor driving their response. On average, respondents indicated working more than 4 hours during the normal work on the Ebola response. Finally, respondents were likely to be male, as indicated by a mean of 0.667.

Table 2: Descriptive Statistics for Ebola Survey Responses from Emergency Management and Public Health Professionals, Dallas-Fort Worth Metroplex

Variables	Mean	St Deviation	Min	Max
Executive Discretion as Event Unfolded	.543	.501	0	1
EM Plan	3.822	1.041	1	5
Departed from EM Plan	3.1477	1.119	1	5
Planned as Event Unfolded	4.037	.911	1	5
Identifiable Lead	2.851	1.388	1	5
Limitations in Expertise	3.296	1.229	1	5
Public Fear	4.025	1.049	1	5
Hours Worked on Ebola Response	2.493	.769	1	3
Gender	.667	.476	0	1

Our first hypothesis argues that respondents indicating they had adopted emergency management plans prior to the Ebola event decreases the likelihood they will indicate they made decisions using executive discretion during the Dallas Ebola emergency response. The results of our logistic regression (Table 3) do not support our prediction. The lack of statistical support suggests that having an emergency management plan is irrelevant to executive-discretion decision making in a complex case, such as an Ebola emergency response. Importantly, an informal review of emergency management plans for cities located in the Dallas-Fort Worth Metroplex revealed a lack of a public health component and no Ebola response protocols. This evidence suggests a disconnect between the use of an emergency management plan to guide a complex public health response, such as an Ebola emergency event.

Our second hypothesis suggests that, when respondents indicated they departed from their emergency management plan during the Ebola response, it increased the likelihood of also indicating decisions were made using executive discretion during the Ebola response. The findings in Table 3 support our hypothesis. On average, holding all else equal, a one-unit increase (scale 1-5) in the respondent indicating they departed from their emergency management plan during the Ebola response had a positive and significant relationship with the likelihood they would indicate they made decisions using executive discretion throughout the Ebola event ($\beta=0.910$, $\rho<0.05$). The predicted probabilities of departing from their adopted emergency management plan and making executive-discretion decisions increased from 71%, 86%, 93%, 97%, and 98% (scale 1-5) respectively when compared to not making executive-discretion decisions. We provide evidence that in highly complex situations, such as an emergency Ebola response, executive administrators are more likely engaged in non-programmed decisions due to the environment of uncertainty.

One respondent from city leadership shared the insight, “Then there was Bentley the dog (the pet of the first Dallas nurse infected with Ebola). We got implicit direction that you are not going to get rid of the dog. There was no playbook.” The same respondent also recalled, “There were things, the permits we needed to haul away medical waste...not having guidance, we just chopped everything up, and it all became medical waste.” In the same regard, another respondent from county leadership said, “We had not factored in that there

would be waste. That you would need DOT permits to move the waste...there was no CDC permit or Dallas County permit to burn the waste.”

Table 3: Logistic Regression on the use of Executive Discretion Decision Making

	Coefficient Estimates	S.E.	Exp(B)
EM Plan	-.0431	.293	.958
Departed from EM Plan	.910**	.352	2.485
Planned as Event Unfolded	0.939*	.398	2.558
Identifiable Lead	.247	.231	1.281
Limits in Expertise	.229	.282	1.258
Public Fear	-.029	.313	.971
Hours Worked	.786*	.396	2.200
Gender (Male)	-.048	.648	.953
Constant	-9.416	3.518	.000
Pseudo R ²	.383		
-2 Log Likelihood	75.914		
Model χ^2	21.884		
% Correctly Predicted	68.50%		
* $p < .05$, ** $p < .01$, *** $p < .001$			
N=85			

Not surprisingly, given the aforementioned quotes from response officials indicating on-the-fly decision making due to the absence of a plan, no precedence with Ebola response, and no scientific guidance, many survey respondents expressed their actions to plan as the event unfolded. The third hypothesis of this research suggested that the more respondents agree they planned as the event unfolded increases the likelihood that survey respondents would also indicate they made decisions under the conditions of uncertainty, or used executive discretion, throughout the Ebola emergency response. The findings in Table 3 indicate that on average, holding all else equal, a one-unit increase in respondents indicating they planned as the event unfolded has a positive and significant effect on the likelihood decisions were made using executive discretion during the Ebola response ($\beta=0.939$, $p<0.05$). Given a situation without precedent, a plan, or scientific guidance, executive discretion is invoked, and decisions are more likely to be made quickly under circumstances of uncertainty.

We found no evidence to support our fourth hypothesis that a respondent's perception that they agreed they faced limitations with internal expertise relative to their Ebola response resulted in executive-discretion decisions, although our results yield the expected outcome. The predicted probability of using executive discretion increases 56%, 61%, 66%, 71%, 76% relative to a one-unit increase in agreeing that your organization faced limitations in Ebola expertise in the emergency response.

Further, we found no evidence to support our fifth hypothesis that having an identifiable lead would affect executive-discretion decision making. Similar to Sowa and Seldon (2003), an increase in another's leadership authority would limit the respondent's perception of the

amount of discretion they could exert relative to this issue. Here, the presence of leadership did not make a difference in decision-making outcomes, and the probability increased only slightly by 20% from 56% to 76% given each unit increase they agreed a leader for the event existed (scale 1-5).

Interestingly, our outcome for public fear, our sixth hypothesis, did not result in the expected outcome. We posited that public fear would result in a greater likelihood that respondents would make decisions using executive discretion. The probability actually decreases from 49% to 46% with each unit increase (scale 1-5) of agreement that public fear was a major factor driving their response. Regarding fear, one quote from county leadership indicated, “We had to have that trust. We made that decision that night. It’s like any high-level decision. There is a no-go decision when you are dealing with a disease that could kill scores of people.” Similarly, a city leader mentioned, “We asked the Red Cross to just go to Olive Garden and get food for the family. We even put a table outside, so you don’t have to do anything. You don’t have to go anywhere close. The sheriff set up their command 300 yards away, and they said we are not getting anywhere near there.” A respondent from city leadership indicated,

“We (elected officials) moved them out to this encampment with houses. When we figured it out, I turned to a fire department employee or city employee and asked them to go pick them up. They asked if they needed HAZMAT suits. I told them no, just go pick them up and move them. They were nervous about that. They all have families, spouses, and kids. There is a lot of misinformation.”

City leadership mitigated public fear through policy reacting to the first responders.

Relative to our control variables, only hours worked had a positive and significant effect on the likelihood that respondents would indicate they used executive-discretion decision making ($\beta=0.939$, $p<0.05$). The probability of respondents indicating decisions were made through executive discretion during the Ebola response increased from 69%, 83%, and 91% respective of each unit increase in hours worked on Ebola during a normal work day (scale 1-3) holding all else equal. Again, similar to Sowa and Seldon (2003) findings that certain roles with power and authority tend to allow for more front-line use of discretion, we argue that the amount of time an individual works over an eight-hour work day may serve as a proxy for being in an executive-level role. Further, we argue working longer than an eight-hour day suggests a salaried employee, likely positioned higher on the organizational chart.

The findings provide evidence to advance what we know about bureaucratic discretion from the front-line street-level bureaucrat to the executive-level leadership. We know that executive discretion already exists within authority of the position or role. The findings presented here speak to another area where executive discretion may exist within the nature of the situation. It finds that executives have a better sense of the entirety of an organization and have the power to make policy changes. Based on our logic of uncertainty, decision making without a plan or previous precedent requires executive discretion to be present. Decision makers are absent any history, rules, or constructs to guide behavior, such as in March and Olsen’s (1995) argument for a logic of appropriateness. Moreover, absent a plan or data, decision makers are unable to calculate the consequences of their actions, barring them from a logic of consequences. Thus, our logic of uncertainty assumes a decision-making environment that is one-dimensional, blocking the executive from considering other courses of action resulting in executive-discretion decision making.

The logic of uncertainty assumes there is no established plan or relevant precedent with the situation, thus preventing the ability to interpret based on learned behavior or previous experiences. For instance, one city leader indicated, "...at some point we thought the CDC was actually going to come in and really take the lead and tell us what to do...the cavalry didn't come. One expert came for a few days, then left and never came back." The uncertainty of some situations at times causes a rethinking of how decisions are normally made under the best of circumstances. When decisions are unclear, we tend to look outside the organization in hopes that the "cavalry" will come with some optimal solution to our decision problem. In the case of the Ebola outbreak, the local executive decision makers expected that cavalry to be the Centers for Disease Control and Prevention (CDC), the State of Texas, or some other organization. However, in retrospect, it can clearly be seen that a solution to their problem could have been found within their own organization. A hospital respondent recalled, "Our infectious prevention specialists knew this frontward and backward." In other words, the cavalry was already there – it was just being deployed incorrectly and given a minor role in finding workable solutions to uncharted territory.

Conclusion

Fundamentally, our research examines the prevalence of executive discretion in highly complex situations. The discretionary decision making identified in the street-level bureaucracy literature is still bound by the rules and protocols of the organization and is not necessarily creating new public policy. Discretion is not limited to decisions of whether or not to implement the rules. We find evidence that in the highly complex Dallas Ebola event, executive-level discretion inspired the invention of new policy as the event unfolded. Examples of invented policy include addressing the disposal of the waste, waste transport and transfer, feeding those in quarantine, dealing with the potential of infected pets, creating and modifying new PPE protocols, and reacting to the unresponsive first responders.

We argue executives are more likely to use executive discretion to make decisions in environments of uncertainty because they have a better sense of the organization and have the power to make policy changes. We contribute to the literature by providing a model for examining executive discretion in a complex situation. Considering the existing assumptions for decision making supporting a logic of consequences and a logic of appropriateness, the paper argues a logic of uncertainty when decision making occurs without the guidance of a plan, data, or previous precedence. Our research findings provide important insight on discretionary decision making at the executive level. Executive-discretion decision making was influenced by the situation when a plan to respond did not exist.

Due to the limitations of our sample size, our research faces limitations. Although we are unable to show causality, we illustrate the use of executive discretion by public officials in highly complex public health events. We recognize these findings preclude our ability to generalize beyond the Dallas-Fort Worth metroplex Ebola emergency event. Our findings, however, illustrate the value of understanding executive discretion. The study presents a model for the logic of uncertainty, where our Ebola response research is one example.

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