Policy Adoption and Implementation in Local Governments: Evidence from Sustainability Policies and Practices

by

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ABSTRACT

This three-essay dissertation examines how local governments manage sustainability policies/practices and how these actions are shaped by their organizational, social, and institutional environment. The first essay uses a 2015 Local Government Sustainability Practices Survey to investigate how social media shapes government sustainability plan and how its impact differs from other participatory mechanisms such as public hearings and advisory committees. Drawing from a theoretical framework of individualism-collectivism, the second essay uses data on local governments in the U.S. and Japan to conduct a cross-national comparative analysis. The study finds that governments embedded in a more individualism-oriented culture are more likely to adopt environmental management practices when facing growing external pressures. The final essay uses contingency theory to provide a dynamic view of how sustainability policies might be effectively integrated into the government's working routines. It finds that the ways through which responsibility delegation affects policy implementation are contingent upon the government's structural and cultural arrangement. Taken together, the dissertation coincides with the growing interest among public managers and researchers in enhancing government sustainability performance and outcomes. It provides an integrated and comprehensive investigation of the organizational, social, and institutional factors that shape the development and execution of sustainability policies and practices.

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CHAPTER 1

INTRODUCTION

The concept of sustainability, which refers to the ability to meet the needs of the present without compromising the future generations' well-being (Brundtland 1987), is becoming a prevalent policy paradigm in recent years. For instance, the United Nations General Assembly has set up 17 interlinked sustainable development goals for its members (United Nations 2017), garnering worldwide political consensus on the urgent need for sustainability. The growing recognition requires public agencies, especially local authorities, to take a proactive role in envisioning, developing, and implementing relevant policies or practices (Portney 2002; Bae and Feiock 2013; Ji and Darnall 2020). As a result, an increasing number of cities and municipalities have enacted sustainability initiatives, aiming to bridge human welfare with ecological development.

The emerging sustainability movement at the local level has aroused great scholarly interest. Extant literature on this topic is diverse and cross-disciplines, from descriptive studies of the content of sustainability policies (e.g. Crocker et al. 1976; Caldwell 1990; Joseph and Taplin 2012) to exploratory research examining the preconditions and outcomes of local sustainability efforts (e.g. Sroufe 2003; Krause, Feiock and Hawkins 2016; Liao, Warner and Homsy 2020; Stritch et al. 2021). For instance, Joseph and Taplin (2012) have conducted a descriptive analysis to understand the extent to which local councils are committed to Local Agenda 21, a program that requires local authorities to work with communities to achieve a sustainability action plan. While Stritch and colleagues (2020) have explored how the pursuit of multiple sustainability objectives might affect the government's administrative efficiency.

Although prior studies have implicitly or explicitly indicated the main emphases and the potential impacts of local sustainability efforts, our understanding of the impediments faced by local authorities in introducing, envisioning, and executing sustainability policies/practices is still limited. First, the extant literature on sustainability initiatives primarily stems from the field of business administration, marketing, and production management (e.g., Henriques and Sadorsky 1999; Kassinis and Vafeas 2006). Most of them examine sustainability initiatives in private organizations from a perspective of corporate social responsibility and pay little attention to public sector organizations. Krause and colleagues (2016), for instance, mention that few studies explore the administration and management of sustainability policies in city departments and agencies. Therefore, it is unclear how sustainability initiatives should be carried out in local governments and how they might vary depending on different organizational, social, and institutional environments.

Moreover, there is a growing awareness that citizen participation is central to the conception of sustainability in many U.S. cities (Kinzer 2018; Portney 2003). For example, Kinzer (2018) suggests that participation through citizen advisory committees facilitates the implementation of urban sustainability plans. However, since these works primarily focus on traditional mechanisms of citizen participation (e.g., resident committees and public hearings), we know little about how participation through digital technologies (e.g., social media) might shape government sustainability initiatives differently. Social media varies from traditional mechanisms as it enables users to transmit a large amount of information within a short period of time through images,

audios, and videos (Driss, Mellouli and Trabelsi 2019; Ellison and Hardey 2014), altering the structure of citizen-government interactions.

Besides this, extant research on government sustainability efforts generally pays attention to public agencies in the United States. It remains unclear whether the theories and findings generated by the U.S. context can be applied to the broader international setting, such as countries in East Asia. Prior literature suggests that individuals and organizations embedded in countries with different societal cultures generally possess different values, perceptions, and beliefs (Bouckaert, Van de Walle, and Kampen 2005), which then results in different behaviors and performances. More cross-national studies are needed to include international and comparative perspectives in the development of public administration theory and practice.

Finally, recent sustainability studies advocate for more attention on how sustainability initiatives are implemented by local authorities (e.g., Krause, Feiock and Hawkins 2016; Wang et al 2012; Kinzer 2018). The lack of research on this topic limits our understanding of how local authorities might effectively enforce policies advancing sustainability objectives. For instance, should public managers delegate employees with certain authority/responsibility to spur motivation and commitment, or should they strengthen the managerial control to enhance accountability and facilitate the implementation? Failing to figure it out makes implementation continue to be a vexing problem for both practitioners and researchers in advancing sustainability development.

This dissertation finds its niche by providing a comprehensive examination of the adoption, development, and implementation of sustainability policies and practices in local governments. The dissertation contains three essays and aims to understand the

following research questions: (1) what role do the institutions and social environment play in shaping government sustainability initiatives? (2) how will the role vary across countries with different societal cultures? (3) how should public managers facilitate the implementation of sustainability initiatives?

The first essay uses a 2015 Local Government Sustainability Practices Survey to investigate how social media influences the adoption and envision of sustainability plans and how the impact differs from other participatory mechanisms (e.g., public hearings and workshops). The essay strives to understand whether social media is truly as effective as expected in enabling citizens to participate in government sustainability efforts. And if not, for what type of decision-making should governments (not) use social media? The empirical finding provides insights for public managers on how to leverage public participation in advancing a sustainability plan. It confirms the theoretical belief that strategic public participation offers support for local sustainability efforts, while refuting the stereotype that e-based participatory mechanisms always outperform traditional ones.

The second essay continues the efforts to unravel how external stakeholders (e.g., citizens) play a role in influencing government sustainability efforts. More specifically, it focuses on the aspect of environmental sustainability and examines how forces in the social environment motivate the development of environmental management practices. The study employs a theoretical framework of Individualism-Collectivism to investigate how local governments embedded in different societal cultures might respond to external pressures differently. It uses surveys of Sustainable Procurement in Local Governments from the U.S. and Japan merged with World Value Survey to understand the relationship among external pressure, societal culture, and the comprehensiveness of government

EMP. The finding suggests that the values and attitudes embedded in the society not only exert a direct influence on government environmental activities, but also shape how governments react to external demands, powers, and institutions.

While the first two essays examine either the adoption or the envision of government sustainability initiatives, the third pays attention to implementation. The study uses a contingency approach to shed light on the emerging debate over whether a strategy of responsibility delegation contributes to the implementation of sustainability policies and practices. By using this theoretical approach, the study has switched the discussion from "whether the strategy facilitates implementation" to "under what condition it facilitates and why". Drawing on a nationwide survey of over 400 cities, the essay finds that a delegation strategy might not achieve its full potential in promoting the implementation of sustainability policies/practices, unless the government structure and culture encourage employee initiatives.

The dissertation contributes to public management, public policy, and sustainability scholarship both theoretically and empirically. Theoretically, it examines how institutions and the social environment might affect the adoption and the envision of government sustainability initiatives, which public management research has rarely investigated. This study focuses on how social forces (e.g., public participation and societal culture) orient local authorities to the envision of comprehensive sustainability policies and practices. Comprehensiveness is a salient design feature of public policies and should receive more attention in future sustainability research (Ji 2016; Ferrón Vilchez, Darnall, and Aragón Correa 2017). Besides this, for that culture research is an empirically under-researched area of public administration (Berman et al. 2013), the

dissertation contributes to the scholarship by employing an individualism-collectivism framework to understand the role of societal and cultural context in shaping government environmental sustainability. It seems to be the first large-sample, cross-national comparative analysis on this topic. By using a cross-national comparative approach, this essay sheds insights on how theories and findings on environmental sustainability generated in the U.S. context can (not) be applied to other geographic settings.

Empirically, the dissertation provides implications for public managers and policymakers that aim at advancing local sustainability development. Prior studies on how public participation might affect government sustainability efforts fail to distinguish or compare different participatory mechanisms. Without a systematic understanding of this topic, it's difficult to provide empirical suggestions on how to strategically leverage public participation to envision a better sustainability plan and facilitate the subsequent implementation. Employing an inappropriate participatory mechanism might incur unwanted results such as the waste of resources, the increase of negative feelings towards governments (e.g., apathy, frustration, and hostility), and the delays or disruptions of public policies (Connor 1988; Fung 2015). Results from this study provide research-based evidence that guides public managers on how to engage citizens in different types of sustainability decision-making (e.g., policy adoption or policy design). Moreover, the research also insights for practitioners interested in facilitating the implementation of sustainability policies and practices. The dissertation takes an initial effort to bridge the inconsistent findings on how responsibility delegation might affect the implementation. The result provides policy suggestions on how to design different implementation strategies in different government structures and cultures.

Taken together, the dissertation coincides with the growing interest among public managers and researchers in enhancing government sustainability performance and outcomes. It provides an integrated and comprehensive investigation of the organizational, social, and institutional factors that shape the adoption and execution of sustainability policies and practices.

CHAPTER 2

THE ALMIGHTY SOCIAL MEDIA? HOW PARTICIPATORY MECHANISMS SHAPE LOCAL SUSTAINABILITY PLAN

Achieving a better and more sustainable future is an effort to which public agencies are inherently tied. However, dealing with sustainability affairs can be complex and challenging as it often requires reaching a balance among multiple objectives, such as stimulating economic development, protecting the natural environment, and promoting social equity (Royo, Yetano, and Acerete 2014; Stritch et al. 2020; Svara, Watt, and Takai 2015). Liao and colleagues (2020), for instance, argue that governments should not pursue environmental or economic objectives at the expense of socioeconomic-disadvantaged groups. A comprehensive sustainability plan that incorporates a variety of objectives, therefore, is critical in entailing a government's efforts in promoting ecological, human, and economic health and vitality (Liao, Warner, and Homsy 2020; Svara, Watt, and Takai 2015; Ji and Darnall 2020).

Despite the importance of sustainability plan, not all governments have adopted it or developed it in the same way. The 2015 ICMA report[1] suggests that only 31.5% of jurisdictions have indicated the adoption of a sustainability plan and there is a significant difference in the adopted plans. However, extant scholarship on government sustainability plan primarily explores how to effectively implement the plan (e.g., Ling, Hanna, and Dale 2009; Kinzer 2018) or how it affects government sustainability performance (e.g., Liao, Warner and Homsy 2020). We know little about why some

[1] https://icma.org/sites/default/files/308135_2015%20Sustainability%20Survey%20Report%20Final.pdf

public agencies have adopted an action plan that incorporates a more comprehensive set of sustainability objectives than others.

Moreover, the emerging literature on collaborative governance argues that citizens have the ultimate right to participate in government decisions that can either directly or indirectly affect their lives, such as sustainability development (Ansell and Gash 2008; Connor 1988; Glucker et al. 2013; Michels 2011; Nabatchi and Amsler 2014). The forms and processes of citizen participation are highly variable across governments, ranging from traditional approaches such as public hearings and resident committees to web-based platforms or applications like social media (Charnley and Engelbert 2005; Handley, Milam, and Howell‐Moroney 2010). In recent years, local authorities have increasingly encouraged the public to subscribe to their official social media accounts to get instant updates about local activities (e.g., school closures and road works) or provide feedback on government policies and plans (Driss, Mellouli and Trabelsi 2019; Ellison and Hardey 2014).

The prevalence of social media has attracted great academic attention. Scholars generally agree that social media will make the government more transparent, responsive, and accessible (Kim and Lee 2012; Mossbergr et al. 2013; Norris and Moon 2005). However, few studies have systematically explored how social media, as a channel of citizen participation, might shape a government's sustainability efforts differently from conventional mechanisms. We know little about (1) whether social media is truly as effective as expected in enabling citizens to participate in government sustainability efforts and (2) for what type of sustainability decision-making should governments (not) use social media rather than conventional mechanisms.

To bridge the literature gaps, this essay uses data from a 2016 national survey of the U.S. local government administrators to examine: (1) how social media shape the sustainability plan in local governments, including whether the plan is adopted and how it is envisioned; and (2) how the impact of social media differs from other conventional participatory mechanisms. This study narrows the focus to local governments for that those government agencies often have the tradition to engage citizens in the adoption, development, and implementation of public policies and programs (Newman et al. 2004; Mossberger, Wu, and Crawford 2013; Nabatchi and Amsler 2014; Royo, Yetano, and Acerete 2014).

Theory and Hypothesis

As sustainability becomes increasingly important in government agenda, a growing number of public agencies have adopted a sustainability plan to enhance the livability of the community in the present and the viability in the future (Ling, Hanna, and Dale 2009; Ji and Darnall 2020). Building upon prior studies (Liao, Warner, and Homsy 2020; Svara, Watt, and Takai 2015; Ji and Darnall 2020), this paper defines sustainability plan as a strategic plan with specific targets and benchmarks related to sustainability or similar concerns. The plan will serve as a guidance for public agencies on managing local sustainability activities and achieving multiple long-term goals (Liao, Warner, and Homsy 2020; Svara, Watt, and Takai 2015).

Extant literature suggest that, to enhance the quality and legitimacy of a sustainability plan or project, government agencies should collaborate with a broad range of stakeholders, especially citizens, in the process of developing such a plan (Ling, Hanna,

and Dale 2009; Ji, 2016). Citizens should be informed, consulted, and heard on policy issues that can affect their well-being (Glucker et al. 2013; Nabatchi and Amsler 2014). Involving citizens in the sustainability decision-making process also eases the implementation resistance, fosters a sense of community attachment, and enhances the effectiveness of sustainability governance (Ling, Hanna, and Dale 2009; Royo, Yetano, and Acerete 2014; Liao, Warner, and Homsy 2020).

Citizen participation

Citizen participation refers to a range of meanings in extant literature. Scholars often use various related terms, such as public engagement and civic involvement, interchangeably (Glucker et al. 2013; Barrett and Brunton-Smith 2014; Roberts 2004). The inconsistent and ambiguous definition of citizen participation will result in confusions and set barriers to the development of theories and best practices. Specifying "who participate" and "for what purpose" hence is important in defining the concept (Nabatchi and Amsler 2014).

Building upon prior studies (e.g., Barrett and Brunton-Smith 2014; Callahan 2007; Rowe and Frewer 2000; O'Faircheallaigh 2010; Nabatchi and Amsler 2014), this study conceptualizes citizen participation as the involvement of citizens in the planning and administrative processes of government, such as policy formulation and service deliveries, so that their inputs will be taken into considerations and can influence the decision outcome. This definition differs from political participation which includes voting or contacting elected officials as well as the concept of civic engagement which encompasses volunteer efforts and civic activism (Callahan 2007).

Traditionally, citizens will participate in government decision-making through a variety of mechanisms such as public hearings, resident committees, workshops, and community surveys. Although these mechanisms still play a dominant role in modern citizen participation (Fung 2015), social media is becoming increasingly popular due to the introduction of mobile technologies such as smartphones and tablet computers (Bertot, Jaeger, and Grimes 2010). Social media refers to a third-party platform that enables users to proactively interact with government agencies through a variety of tools such as sending private messages, publishing or forwarding posts, and leaving public comments (Gil de Zúñiga, Jung and Valenzuela 2012; Mergel and Bretschneider 2013). These platforms, such as Facebook, blogs, and the micro-blogging websites like Twitter, also allows users to transmit a large amount of information within a short period of time through images, audios, and videos.

How different participatory mechanisms affect SP adoption?

The essay argues that social media might be more effective in facilitating the adoption of sustainability plan compared to other participatory mechanisms. Prior literature suggests that government agencies have to promptly respond to the concerns of stakeholders so as to maintain its public image, citizen trust, and political or financial resources that are vital for survival (Bryson 2003; Freeman 2010; Henriques and Sadorsky 1999; Royo, Yetano, and Acerete 2014). Failure to properly address those concerns can result in a daunting array of potential risks that will adversely affect the government's credibility and viability. Therefore, when governments perceive greater

pressure from the public, they are more likely to take corresponding actions such as adopting a sustainability plan.

Extant research demonstrates that participation through conventional mechanisms is often low on the scale of influence and empowerment as it provides citizens with limited power in negotiating or communicating with government agencies (Ebdon and Franklin 2006; Fung 2015; Handley and Howell-Moroney 2010; King, Feltey and Susel 1998; Roberts 2004). For instance, scholars suggest that public hearings and meetings are primarily used to inform or persuade citizens about the already-made decisions (Irvin and Stansbury 2004; Robins, Simonsen and Feldman 2008). In these mechanisms, since most of the speaking is done by officials or invited guests, citizens rarely have the chance to participate in policy framing and developing (Robins, Simonsen and Feldman 2008; Wang 2001). They hence can barely direct the policy agenda or urge the adoption of a sustainability plan.

In contrast, citizens will play a more active and influential role in government sustainability affairs through social media (Driss, Mellouli and Trabelsi 2019). The use of social media has transformed the traditional one-to-many communication structure to many-to-many, where citizens can proactively initiate conversations and closely collaborate with government agencies (Driss, Mellouli and Trabelsi 2019). Social media also facilitates interactions among citizens. For instance, the hash-tagging function of Twitter – where words or phrases are preceded by a # mark – creates a search index for users interested in the same topic to find others and join the ongoing conversions (Ellison and Hardey 2014). Social media, therefore, provides citizens a platform to monitor government sustainability activities and form a collective intelligence to urge

governments in taking actions (Driss, Mellouli and Trabelsi 2019). Perceiving the pressing demands from citizens, governments are more likely to adopt a sustainability plan. The essay then proposes:

H1: Compared to conventional participatory mechanism*s, social media is predicted to increase the likelihood of adopting a sustainability plan.*

How different participatory mechanisms affect SP comprehensiveness?

In addition to adoption, the study argues that how citizens participate in government decision-making likely shapes how governments develop the sustainability plan. The comprehensiveness of a sustainability plan refers to the breadth of economic, environmental, and social objectives that governments tend to achieve through the plan (Ji 2016; Ferrón Vilchez, Darnall, and Aragón Correa 2017; Liao, Warner, and Homsy 2020). The study argues that public agencies with a variety of stakeholders are more likely to develop a comprehensive government plan or project. Diversified stakeholders often place inconsistent demands and requirements on public agencies. When different interests and opinions are colliding in the decision-making process, no single rationality will dominate the formulation of sustainability plan (Ling, Hanna, and Dale 2009; O'Faircheallaigh 2010). Liao and colleagues (2020), for instance, suggest that governments who have engaged underprivileged populations in the decision-making process are more likely to incorporate social equity aspects into their sustainability planning.

Extant research indicates that citizen participation through conventional mechanisms is generally unsuitable for complex policy decisions (e.g., environmental

management and sustainability development) as it often fosters self-interested claims or poorly informed opinions (Moynihan 2003; Robins, Simonsen and Feldman 2008). Ebdon and Franklin (2006), for instance, mention that the participants of public hearings and meetings cannot fully represent the whole community as they tend to be well-educated and financially well-off. Through these mechanisms, the voices of marginalized populations might be neglected or even excluded (Fung 2015; Irvin and Stansbury 2004; Smith 2013), resulting in a sustainability plan that are unduly influenced by the most powerful or persuasive stakeholders.

In contrast, citizen participation through social media perform better in terms of the representativeness of participants and the amount of information that government agencies can gather (Driss, Mellouli and Trabelsi 2019; Ebdon and Franklin 2007; Robbins, Simonsen and Feldman 2008). The readily access of social media enables public agencies to expand the participant pool by involving previously underrepresented segments of the population (Mossberger, Wu, and Crawford 2013; Bertot, Jaeger, and Grimes 2010) and acquire a variety of ideas and insights without a laboriously search (Innes and Booher 2004; Tai, Porumbescu, and Shon 2020; Bonsón et al. 2012). A plurality of perspectives and stances enables public managers to draw on ideas that are not presented in the extant array of options, which provides them with a more accurate and comprehensive understanding of the local sustainability concerns (Edelenbos and Klijn 2006; Mossberger, Wu, and Crawford 2013). Therefore, governments using social media to involve the public are more likely to develop a comprehensive sustainability plan that accommodates different objectives and demands.

H2: Compared to conventional participatory mechanism*s, social media is predicted to increase the comprehensiveness of the adopted sustainability plan.*

Data

The study uses *2015 Local Government Sustainability Practices Survey* to examine the relationships among social media usage, public pressure, and government sustainability plan. The survey was designed to measure local sustainability actions and administered jointly by ICMA, government agencies (e.g., the U.S. Department of Agriculture), and higher education institutions such as Binghamton University and Cornell University. The survey (with an online submission option) was directly mailed to the chief administrative officers of 8,562 counties, cities, and districts in the United States. The final sample contained 1,899 responses, achieving a response rate of 22.2%. For that the function and operation of government agencies might vary significantly by tiers (e.g., counties, cities, and districts), the study primarily focuses on the responses from municipal government (n=1,450). In addition, government agencies in large municipalities might have a different view of local sustainability development, citizen participations, and stakeholder pressures from their counterparts in small cities, towns, or villages. Therefore, the study retains 470 responses from municipalities with more than 25,000 residents for the empirical analysis.

The essay has coupled the survey data with *2015 American Community Survey* (5-year estimate) published by the U.S. Census Bureau to include institutional characteristics. According *2015 American Community Survey*, there are 1,764

municipalities in the U. S. that have at least 25,000 residents. The final observations (n=470) comprise 26.6% of the sample frame.

To examine the potential selection differences between respondents and non-respondents, the study conducts mean difference analysis to compare the group of respondents (n=470) with non-respondents (n=1,294) regarding the total population (in logarithm) as well as the percentage of female-, minority-, disability-, and below poverty population. Table 1 reports the mean comparison results. The table demonstrates that the corresponding two-tailed p-value for *Minority Percentage* and *Total Population (log)* are below 0.05, suggesting that the mean differences are significantly different from 0. Taken together, sample municipalities may be more representative of medium or large municipalities and have less diversified population.

Table 1

Results of the non-response test: mean different comparison

	Respondents	Non-resp	| Mean Diff |	Std. Err.
Female Percentage	51.00	51.19	0.18	(0.12)
Minority Percentage	26.99	29.21	2.22**	(0.99)
Disability Percentage	9.19	9.49	0.30	(0.21)
Below Poverty Percentage	13.64	13.71	0.07	(0.43)
Total Population (log)	11.07	10.90	0.17***	(0.04)
Observations	470	1294		

* p<0.1, ** p<0.05, *** p<0.01

Besides this, the study conducts another analysis using a logit model to identify the potential selection differences. The model regresses all the demographic descriptors on a binary variable - whether the response is included in the sample or not. The

regression result is demonstrated in Table 2. Consistently, the result shows that cities in the sample tend to be relatively larger and less diverse.

Table 2

Results of the non-response test: logit regression model

	Coeff.	Std. Err.
Female Percentage	-0.03	(0.03)
Minority Percentage	-0.01***	(0.00)
Disability Percentage	-0.02	(0.02)
Below Poverty Percentage	0.00	(0.01)
Total Population (log)	0.35***	(0.07)
Observations	1764	

* p<0.1, ** p<0.05, *** p<0.01

Measures

Dependent variables

The study has two dependent variables. *Sustainability Plan (SP) Adoption* is coded as a binary variable measuring whether the municipality has adopted the sustainability plan. A "0" indicates either the municipality has not adopted the plan or the respondent is not aware of it.

To capture how the sustainability plan varies across government agencies, the study uses eight binary items (the Cronbach's alpha=0.63) to construct a summative index, *Sustainability Plan (SP) Comprehensiveness.* The items ask respondents whether the adopted the sustainability plan contains goals or strategies for any of the following: social equity, energy conservation, climate change, economic development, disaster mitigation, public health, community resiliency, and green energy production. Since this

survey question is only presented to respondents who indicate that their governments have adopted a sustainability plan, the total response for this variable is 204. The *SP Comprehensiveness* index ranges from 0 to 8. A higher score indicates that the government has a more comprehensive sustainability plan to address a variety of social and environmental issues.

Independent variables

The study uses five binary items to compare how *Social Media* shape the government's sustainability plan differently from four conventional participatory mechanisms: *Resident Committee, Public Hearing, Public Workshop*, and *Community Survey*. The survey asks respondents whether residents can participate in the municipal government's planning strategies for sustainability through 1) Resident committees, commissions, and/or task force; 2) Formal public hearings; 3) Public workshops or design charrettes; 4) Community surveys; and 5) Social media (e.g., Facebook, texting, blogs). "1" indicates that citizens can participate in the government's sustainability efforts through this mechanism.

Control variables

The study uses two categories of control variables. The first category relates to the characteristics of municipal governments that can affect how they administer sustainability activities. *Sustainability Budgeting,* which is a binary variable, is measured as whether the municipal government has dedicated a budget line item specifically for sustainability or environmental protection. This study also holds the current form of the

municipal government as control by including two binary items: *Mayor-Council* and *Council-Manager*[2]. The distribution of authority between the legislative and executive officials will vary across different government forms, affecting how local sustainability affairs are governed and administered.

The second category of variables measures the basic information of the communities. Extant literature suggests that population size and other demographic variables (e.g., unemployment rates and minority population) might explain why some cities demonstrate greater sustainability efforts (Portney 2002; Ji and Darnall 2020). The study includes five municipal-level variables to measure the demographic information - *Total Population (log), Female Percentage, Minority Percentage, Disability Percentage,* and *Unemployment Percentage*- to capture the difference of the potential sustainability demands and influences embedded in the community. *Female*- and *Minority-Percentage* are calculated based on the whole population within the municipality. *Disability*- and *Unemployment- Percentage* are calculated based on populations that are aged between 20-64 years. The study also includes two dummy variables[3] – *Republican* and *Democrat,* which ask respondents to indicate the majority governing body in their jurisdictions.

Besides these two categories of control variables, eight dummy region variables are also incorporated in the empirical model, which are *New England, Mid-Atlantic, East North-Central, West North-Central, South Atlantic, East South-Central, West South-Central,* and *Mountain*[4]. The study also controls for the total number of mechanisms that the government has used to engage citizens in their sustainability efforts. Four dummy

[2] Other forms of government (e.g., commission) are excluded to prevent perfect multi-collinearity.
[3] The variable *No Affiliation* is excluded to prevent perfect multi-collinearity.
[4] The variable *Pacific Coast* is excluded to prevent perfect multi-collinearity.

variables are constructed and included in the model for this purpose: *Participatory Mechanism (1 count), Participatory Mechanism (2 counts), Participatory Mechanism (3 counts), Participatory Mechanism (4 counts). Participatory Mechanism (0 count)*, which indicates no participatory mechanism is used, and *Participatory Mechanism (5 counts)*, which suggests that all participatory mechanisms are used, are not included to prevent perfect multi-collinearity.

Table 3

Descriptive statistics of all variables

Variable Name	Obs	Mean	Std. Dev.	Min	Max
Dependent Variables					
SP Adoption	472	0.43	0.50	0	1
SP Comprehensiveness	204	3.99	2.02	0	8
Independent Variables					
Social Media	472	0.35	0.48	0	1
Resident Committee	472	0.52	0.50	0	1
Public Hearing	472	0.32	0.47	0	1
Public Workshop	472	0.37	0.48	0	1
Community Survey	472	0.35	0.48	0	1
Control Variables					
Sustainability Budgeting	472	0.28	0.45	0	1
Mayor-Council	472	0.19	0.39	0	1
Council-Manager	472	0.77	0.42	0	1
Total Population (log)	472	11.07	0.78	10.14	15.18
Female Percentage	472	51.00	1.69	40.10	55.60
Minority Percentage	472	26.81	15.89	2.15	93.99
Disability Percentage	472	9.19	3.84	2.99	24.15
Unemployment Percentage	472	8.19	3.10	2.50	22.40
Republican	472	0.17	0.37	0	1
Democrat	472	0.19	0.39	0	1
New England (Region)	472	0.05	0.22	0	1
Mid-Atlantic (Region)	472	0.08	0.28	0	1
East North-Central (Region)	472	0.19	0.39	0	1
West North-Central (Region)	472	0.07	0.26	0	1

South Atlantic (Region)	472	0.17	0.38	0	1
East South-Central (Region)	472	0.03	0.18	0	1
West South-Central (Region)	472	0.08	0.27	0	1
Mountain (Region)	472	0.11	0.32	0	1
Participatory Mechanism (1 count)	472	0.19	0.39	0	1
Participatory Mechanism (2 counts)	472	0.16	0.37	0	1
Participatory Mechanism (3 counts)	472	0.16	0.37	0	1
Participatory Mechanism (4 counts)	472	0.09	0.29	0	1

Table 4

Correlation matrix of SP Adoption (N=472)

	(1)	(2)	(3)	(4)	(5)	(6)
(1) SP Adoption	1.00					
(2) Social Media	0.24	1.00				
(3) Resident Committee	0.41	0.31	1.00			
(4) Public Hearing	0.29	0.35	0.37	1.00		
(5) Public Workshop	0.29	0.31	0.30	0.42	1.00	
(6) Community Survey	0.26	0.50	0.34	0.33	0.45	1.00

Table 5

Correlation matrix of SP Comprehensiveness (N=204)

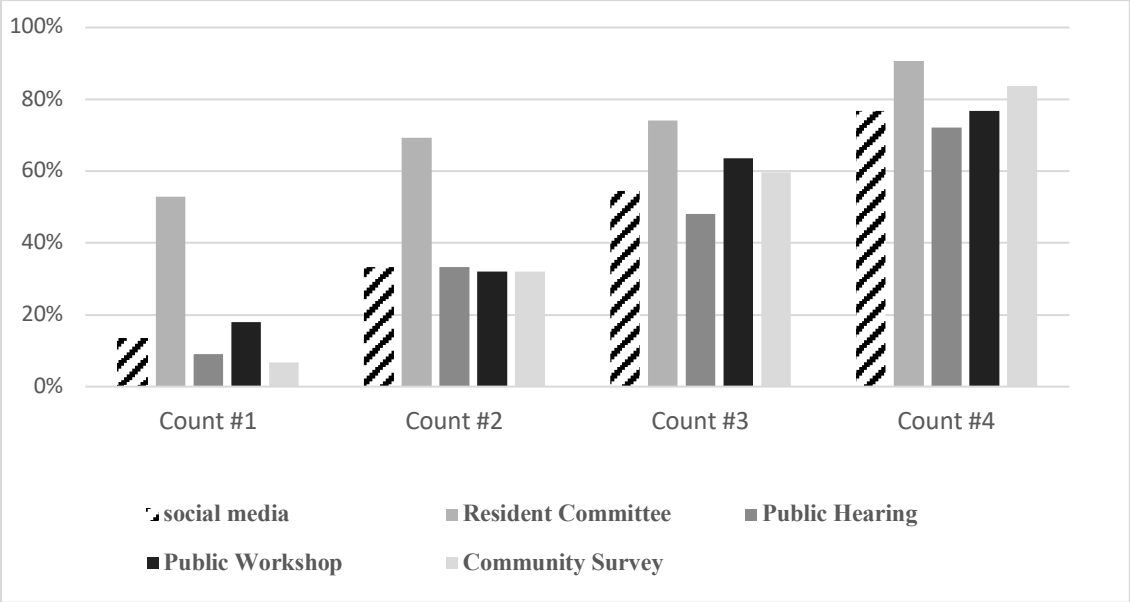
	(1)	(2)	(3)	(4)	(5)	(6)
(1) SP Compre	1.00					
(2) Social Media	0.26	1.00				
(3) Resident Committee	0.22	0.17	1.00			
(4) Public Hearing	0.11	0.27	0.17	1.00		
(5) Public Workshop	0.17	0.24	0.16	0.38	1.00	
(6) Community Survey	0.15	0.47	0.14	0.22	0.32	1.00

Table 3-5 provide a statistical summary of all variables and a correlation matrix with main variables. Figure 1. demonstrates how the distribution of different participatory

mechanisms varies by the total number of mechanisms that governments have employed. For instance, the figure shows that, for governments with only one participatory mechanism, most of them (53%) use resident committee while 13.5% governments choose social media.

Figure 1

The comparison of different participatory mechanisms



Empirical model

The study employs a logit model to examine the relationships among different participatory mechanisms and the adoption of sustainability plan. Since *SP Adoption* is a dichotomous dependent variable, the logit model is preferred over an OLS regression as it uses the log odds ratio and the iterative maximum likelihood, which is more robust (e.g.,

does not require homoscedastic errors) and serves as a better fit for the non-normally distributed dependent variable (Gourieroux and Monfort 1981).

As for *SP Comprehensiveness,* this study uses the Heckman two-step selection model to correct the issue of non-randomly selected sample as the model allows for any correlations between the unobserved terms for the dependent variable and participation in the survey. The first-stage model performs a Probit analysis with the same set of control variables; While the second-stage model uses an outcome equation, which corrects for self-selection by incorporating a transformation of the probability of adopting a sustainability plan (inverse Mills ratio) as an additional explanatory variable (Heckman, 1976). For the second-stage model, this study employs Poisson regression to estimate how different participatory mechanisms affect *SP Comprehensiveness* differently. The model is used for two reasons: (1) using OLS to estimate the expected count is likely to produce non-sensical, negative predicted values; and (2) the assumption of OLS about the variance of scores are usually difficult to satisfy in count data (Gardner, Mulvey, and Shaw 1995).

The study also measures the Variance Inflation Factor (VIF) to detect the severity of multicollinearity in both models. The highest score in either model is lower than 4.5, which is within the acceptable range proposed by prior scholars (e.g., Rogerson, 2001). The result suggests that the correlation among variables is moderate and might not be a cause of concern.

Regression results

Table 6 employs ordinary least squares model (Model 1), Probit model (Model 2) and Logit model (Model 3) to examine how social media might affect the adoption of sustainability plan differently from conventional participatory mechanisms. The essay will mainly discuss the results based on the Logit model (Model 3) as the first two models are conducted as robustness check. As Model 3 illustrates, among all five participatory mechanisms, only *Resident Committee* (β=1.10, p=.00) has a significant influence on *SP Adoption*; while the influence of *Social Media* (β=0.36, p=0.23) is not statistically significant at 10% level. The finding is consistent across all three models. Therefore, the regression results fail to provide an empirical support for H1, which expects that social media are more likely to facilitate the adoption of sustainability plan.

Table 6

Regression results of SP adoption in different models

	Model 1 (OLS)	Model 2 (Probit)	Model 3(Logit)
	SP Adoption	SP Adoption	SP Adoption
Social Media	0.06	0.21	0.36
	(0.06)	(0.17)	(0.29)
Resident Committee	0.21***	0.66***	1.10***
	(0.05)	(0.16)	(2.62)
Public Hearing	0.04	0.15	0.27
	(0.05)	(0.16)	(0.27)
Public Workshop	0.07	0.25	0.40
	(0.05)	(0.17)	(0.28)
Community Survey	0.02	0.09	0.14
	(0.06)	(0.18)	(0.32)
Sustainability Budgeting	0.28***	0.85***	1.43***
	(0.05)	(0.16)	(0.28)
Mayor-Council	0.02	0.07	0.13

	(0.08)	(0.31)	(0.54)
Council-Manager	0.04	0.18	0.25
	(0.07)	(0.29)	(0.49)
Total Population (log)	0.25	0.08	0.16
	(0.03)	(0.10)	(0.18)
Female Percentage	0.02	0.06	0.11
	(0.01)	(0.04)	(0.07)
Minority Percentage	0.00	0.00	0.00
	(0.00)	(0.01)	(0.01)
Disability Percentage	-0.01	-0.02	-0.03
	(0.01)	(0.03)	(0.04)
Unemployment Percentage	-0.00	-0.02	-0.03
	(0.01)	(0.03)	(0.06)
Republican	-0.07	-0.28	-0.48
	(0.05)	(0.19)	(0.34)
Democratic	0.02	0.08	0.17
	(0.05)	(0.19)	(0.35)
Constant	-0.88	-4.95*	-8.51*
	(0.65)	(2.52)	(4.36)
Observations	472	472	472
PM Count & Regional Dummy	Yes	Yes	Yes
Log Likelihood	—	-230.88	-230.72
Adjusted/Pseudo R-Squared	0.30	0.29	0.29

Standard errors in parentheses

* p<0.10, ** p<0.05, *** p<0.01

The study uses the Heckman selection model to estimate the impact of different participatory mechanisms on *SP Comprehensiveness*. Table 7 demonstrates the simple OLS model (Model 1), the Poisson model (Model 2), and the Heckman selection model (Model 3). The first two models only use responses that have indicated the adoption of a sustainability plan (N=204); while Model 3 uses 472 observations in total, with 268 censored and the remaining 204 as uncensored. For the Heckman model (Model 3), the first stage of the model is a selection equation with *SP Adoption* as a dependent variable; while the second-stage model uses an outcome equation with *SP Comprehensiveness* as

dependent variable. In Model 3, the estimated correlation coefficient of the error terms (Rho) in the selection and the outcome equations is -0.34. A negative Rho indicates that the observed sustainability plan tends to be relatively less comprehensive, which might result in potential selection bias. Moreover, the Likelihood-Ratio test return a p-value of 0.00, rejecting the assumption that the two equations are independent. The results demonstrate that using the Heckman two-step selection model for this study is more appropriate than a simple Poisson regression based on observed variables.

Table 7

Regression results of SP comprehensiveness in different models

	Model 1 (OLS)	Model 2 (Poisson)	Model 3 (Heckman)	
			First-Stage: SP Adoption	Second-Stage: SP Comprehen
Social Media	0.92***	0.24***	0.24	0.19**
	(0.30)	(0.07)	(0.16)	(0.10)
Resident Committee	0.36	0.11	0.77***	-0.06
	(0.31)	(0.08)	(0.19)	(0.20)
Public Hearing	-0.11	-0.03	0.15	-0.06
	(0.32)	(0.08)	(0.16)	(0.08)
Public Workshop	0.22	0.06	0.21	0.02
	(0.30)	(0.07)	(0.17)	(0.08)
Community Survey	-0.19	-0.05	0.07	0.02
	(0.30)	(0.07)	(0.17)	(0.21)
Sustainability Budgeting	0.72**	0.18***	0.85***	0.16***
	(0.29)	(0.07)	(0.16)	(0.04)
Mayor-Council	0.76	0.15	0.21	-0.20
	(0.91)	(0.22)	(0.38)	(0.03)
Council-Manager	-0.07	-0.04	0.16	-0.07
	(0.82)	(0.21)	(0.36)	(0.21)
Total Population (log)	0.64***	0.14***	0.08	0.12***
	(0.20)	(0.04)	(0.10)	(0.04)
Female Percentage	-0.03	-0.01	0.08*	-0.02

	(0.08)	(0.02)	(0.04)	(0.03)
Minority Percentage	0.06	0.00	0.00	0.00
	(0.11)	(0.00)	(0.00)	(0.00)
Disability Percentage	-0.76	-0.02	-0.16	-0.02
	(0.05)	(0.01)	(0.03)	(0.01)
Unemployment Percentage	0.02	0.01	-0.02	0.01
	(0.08)	(0.02)	(0.04)	(0.02)
Republican	0.33	0.10	-0.24	0.14
	(0.36)	(0.09)	(0.19)	(0.10)
Democratic	0.36	0.10	0.10	0.08
	(0.37)	(0.08)	(0.20)	(0.08)
Constant	-3.09	-0.18	-5.71**	1.22
	(5.15)	(1.21)	(2.71)	(1.95)
Observations	204	204		472
PM Count & Regional Dummy	Yes	Yes		Yes
Adjusted/Pseudo R-Squared	0.27	0.06		—
Rho	—	—		-0.34

Standard errors in parentheses

* p<0.10, ** p<0.05, *** p<0.01

The regression results are consistent across Model 1, Model 2, and the second-stage model of Model 3. The study will discuss the result mainly based on the Heckman selection model. The second-stage model in Model 3 suggests that, compared to conventional participatory mechanisms such as *Public Hearing* and *Community Survey*, *Social Media* is the only approach that has a significant impact (β=0.19, p=0.047) on the comprehensiveness of government sustainability plan. The result provides empirical evidence for H2, which assumes that government agencies using social media for citizen participation are more likely to develop a sustainability plan addressing a variety of environmental, economic, and social issues.

Discussion and conclusion

This study uses 2015 nationwide survey to uncover how social media, as a means of public participation, might shape the government's sustainability plan and how its impact differs from other conventional mechanisms. In line with the expectations, the result suggests that social media is the most effective mechanism in shaping the design of an adopted sustainability plan; while traditional approaches, such as public hearings and workshops, barely have an influence on how comprehensive the plan is. This echoes the assumption that social media diversifies the participation pool and facilitates information exchange, which enables government agencies to access a variety of ideas, knowledge, and insights (Mergel and Bretschneider 2013; Mossberger et al 2013; Tai, Porumbescu and Shon 2020).

Despite this, the empirical result provides contradictory evidence to the stereotype that social media is always superior to conventional mechanisms. The finding indicates that resident committee is the only mechanism that has a significant impact on the adoption of sustainability. Social media, surprisingly, fails to push governments into making such a decision. A potential explanation might be that local authorities are currently using social media as a one-way communication channel to provide updates on local events, announce government plans, and collect public opinions (Ellison and Hardey 2014). The city of Phoenix, for example, has used its social media accounts (e.g., Twitter[5] and Youtube[6]) to solicit ideas from the public to improve air quality and reduce carbon footprint; yet it barely interacts or replies to the comments from the public. The

[5] https://twitter.com/CityofPhoenixAZ/status/1286738136568139777
[6] https://www.youtube.com/watch?v=lbUQrovO9uY

passive usage of social media likely constrains the interactions between citizens and government agencies, which reduces the influence of citizens and their willingness to further participate (Kim and Lee 2012; Toots 2019).

There are several limitations of this study. First, since this study uses a cross-sectional survey with self-reported responses, there are some issues as endogeneity, common source bias, and the incapability of drawing causal inferences. Even though this study uses the Heckman selection model to reduce the potential endogeneity that might be caused by sample selection bias, it might still suffer from the endogeneity issue. For instance, it is unclear whether cities that have used social media to involved citizens are more progressive towards environmental or sustainability issues, and hence are more likely to develop a comprehensive sustainability plan. Future studies should collect longitudinal data or qualitative data to address them. Second, despite of the control variables, some variables are still missing from the empirical model, including the influences and financial support from political stakeholders. Moreover, the cities included in this study seem to have a larger population size and less diverse. Future studies might be conducted to examine how the findings from this study can be generalized to smaller cities with a more diversified population. Finally, the study only captures whether governments allow citizens to participate through social media, rather than how governments utilize this mechanism (e.g., frequency and intensity) to interact with citizens. Future studies might probe into how the extent of social media usage might affect the sustainability efforts.

Despite the limitations, the finding provides a more nuanced understanding on citizen participation by comparing social media with other mechanisms in different types

of the government's sustainability decision-making. The result suggests that which mechanism is the most effective depends on which policy outcome the government or the public want to achieve. If the purpose is to decide whether a policy should be adopted (policy adoption), resident committee might be preferred; while if the government wants to develop their sustainability policies or projects (policy design), social media seems to be a more effective means to solicit ideas on how to improve the content of a policy.

Moreover, the essay provides insights for public managers on how to promote citizen participation. The finding is consistent with extant literature on that, for complex social issues involving trade-offs among different values and interests (e.g., sustainability development), participatory mechanisms such as public hearings and workshops are less effective as they are primarily used to inform citizens about the already made decisions, placate their complaints, and manipulate their opinions (Wang 2001; Ebdon and Franklin 2006). However, the finding refutes the stereotype that all conventional mechanisms are ineffective. The result shows that participation through advisory committee facilitates the adoption of sustainability policies and plans, as long as the appointments are made in a democratic manner and the committees have clear goals (Callahan 2007; Ebdon and Franklin 2006).

Besides this, the study provides counter evidence to the prevalent assumption that e-based participatory mechanisms generally outperform conventional ones. It shows that citizen participation through social media barely influences the adoption of government sustainability plan. As a result, policy makers and public managers should be aware that social media is not a panacea for public administration. They need to understand the benefits and drawbacks of each participatory mechanism, so at to interact with citizens

through the most effective channel for different types of decision-making (e.g., policy adoption or policy design). Employing an inappropriate participatory mechanism might incur unwanted results such as the waste of resources, the increase of negative feelings towards governments (e.g., apathy, frustration, and hostility), and the delays or disruptions of public policies (Connor 1988; Fung 2015).

CHAPTER 3

ADVANCING ENVIRONMENTAL SUSTAINABILITY IN THE U.S. AND JAPAN: THE ROLE OF EXTERNAL PRESSURE AND SOCIETAL CULTURE

The eagerness of public agencies to improve their environmental sustainability performance encourages the development of environmental management practices (EMPs) in local governments. EMPs refer to various practices that infuse "green" thinking into the organizations' operational and managerial activities, such as employing internal audits on environmental performance, providing environmental training for employees, and setting environmental goals and targets (Darnall and Edwards 2006; Khanna and Anton 2002). Organizations who have adopted EMPs likely make more profits, obtain better public image, and demonstrate greater environmental sustainability performance (Klassen and McLaughlin 1996; Khanna and Anton 2002; Lozano and Vallés 2007).The growing awareness of EMPs has aroused great academic attention. Scholars employ multiple theories, such as stakeholder theory and resource-dependency theory, to unravel the drivers of an organization's environmental managerial efforts (Darnall, Henriques, and Sadorsky 2010; Theyel 2000; Sarkis, Gonzalez-Torre, and Adenso-Diaz 2010). They indicate that external stakeholders play an important role in facilitating the development of practices and strategies that advance objectives related to environmental sustainability, including conserve energies, reduce pollutions, and prevent depletion or degradation of natural resources.

However, extant literature is generally grounded in the field of business administration, marketing, and production management. Relatively few works have investigated how practices promoting environmental sustainability are adopted or utilized

in the public sector. Such an absence limits our understanding of what motivates government agencies to incorporate environmental sustainability objectives into their daily managerial and administrative activities. Moreover, prior research typically uses a monolithic approach to examine an organization's managerial practices – whether the organization has adopted certain practice or not (Kassinis and Vafeas 2006; Henriques and Sadorsky 1999). The approach fails to capture the breath or the comprehensiveness of EMP. For instance, some organizations might encompass a variety of EMPs to address their negative environment impacts; while others only adopt one or two practice(s). Recent scholars, therefore, advocate for a more nuanced examination on how the comprehensiveness of EMPs varies across different organizations (Darnall, Henriques, and Sadorsky 2010). They imply that comprehensiveness is a salient design feature of sustainability policies and practices that is worth of more academic attention (Ji 2016; Ferrón Vilchez, Darnall, and Aragón Correa 2017).

In addition, most of these studies primarily focus on the research context of the United States. We know little about whether the theories and findings generated in the U.S. governments can be applied to a broader international setting, especially to governments embedded in a different societal culture. Researchers on cross-national studies suggest that individuals and organizations within different cultures might possess different values, perceptions, and beliefs (Bouckaert, Van de Walle, and Kampen 2005). For instance, public agencies in collectivism-oriented societies likely attend more to social expectations and norms comparing to their counterparts in individualistic cultures (Gelfand and Christakopoulou 1999; Kim 1999; Triandis 2001). Societal culture, therefore, plays an important role in affecting an organization's managerial practices and

sustainability efforts. The lack of discussion on societal cultures in extant literature fails to provide a full picture on how governments integrate environmental sustainability into their routine administration, which subsquently impedes the development of relevant theories and policy implications.

To bridge the literature gaps, this essay investigates (1) how pressure from external stakeholders affects the comprehensiveness of government EMPs; (2) how societal culture influences EMP comprehensiveness; and (3) how external pressure interacts with societal culture in advancing government EMPs. Drawing from nationwide surveys of public managers from 459 U.S. cities and 860 Japanese municipalities, this study finds that government agencies likely adopted a broader range of EMPs when they are under greater external pressure, which is in line with the stakeholder theory. The essay also presents country-specific findings on how societal culture affects the breath of EMP, showing that individualism is positively (negatively) associated with EMP comprehensiveness in the U.S. (Japan). Moreover, the result also confirms the proposition that the effect of external pressure on a government's EMPs varies by the orientation of societal culture. These findings have important contributions to public management theory as it provides a greater theoretical understanding of the government's EMPs and the role of societal culture in shaping public management. By using a cross-national comparative approach, this essay sheds insights on how findings in the U.S. context can (not) be applied to other geographic settings.

External pressure

Public agencies often operate in a complex social-political system and are constrained by stakeholders with multiple or even competing interests (Ji and Darnall 2020; Gomes and Gomes 2008). A well-accepted definition of stakeholders is proposed by Freeman (1984). He proposes that stakeholders are any individual or group that can determine the organization's performances or will be affected by the achievements of goals. Realizing that not all stakeholders have the same influence on an organization's decision-making, some scholars have broadly categorized stakeholders as internal versus external (e.g., Tian, Liu and Fan 2015; Darnall et al. 2009; Kassinis & Vafeas, 2006). Vilchez and colleagues (2016), for example, suggest that external stakeholders include a range of individuals and groups who operate outside a private firm's physical boundaries, such as public interest groups, government agencies, and supply chain providers. Since this study is interested in external stakeholders of government agencies, rather than business companies, the primary focus will be applied to public interest groups and supply chain participants.

Building upon prior literature, this study defines external stakeholders as individuals or organizations from the broader social context that have the capacity to influence government environmental management activities (Kassinis and Vafeas 2006; Tian, Liu, and Fan 2015; Sarkis, Gonzalez-Torre, and Adenso-Diaz 2010), include citizens, environmental groups, vendors, and professional or business associations. The study also draws on stakeholder theory to predict how public agencies will respond to the growing environmental or sustainability demands from external stakeholders.

The stakeholder theory posits that organizations will behave in certain expected ways to address pressures from external stakeholders (Freeman 2010; J. Bryson 2003; Darnall, Henriques, and Sadorsky 2010). Failure to properly address external pressure can result in a daunting array of potential risks and problems jeopardizing the viability of governmental agencies (J. Bryson 2003; Klassen and McLaughlin 1996; Yu, Lo, and Li 2017). Therefore, this essay argues that public agencies are more likely to orient their management practices and activities towards environmental protection when perceiving growing external pressure. They will devise a growing number of EMPs to accommodate various demands, minimize negative externalities, and achieve greater environmental outcomes so as to receive financial or political support, build coalitions, and obtain electoral mandates (Ji and Darnall 2020; Khanna and Anton 2002; Tian, Liu, and Fan 2015). The study hence proposes:

H1: External pressure is positively associated with the comprehensiveness of environmental management practices (EMPs).

Societal culture

Societal culture, which is defined as the values, beliefs and assumptions that are commonly shared by people from the same community or society, often serves as a central organizing principle of how individuals and organizations behave and how they connect with others (Hofstede 1984; K. L. Newman and Nollen 2016; Berman et al. 2013; Schimmack, Oishi, and Diener 2005). Prior research identifies a variety of dimensions from which the mainstream cultures around the societies can be differentiated, including

power distance, masculinity-femininity, and individualism-collectivism (e.g., Hofstede 1984; Nisbett et al. 2001).

The individualism-collectivism (IND-COL) framework proposed by Hofstede in 1984 is a dimension of societal culture that has received most scholarly attention. The IND-COL framework regards individualism and collectivism as cultural syndromes consisting of a set of psychological and social processes (Triandis 2001; Vandello and Cohen 1999; Oyserman, Coon, and Kemmelmeier 2002; Hamamura 2012). Prior scholars generally agree that there are two dimensions of IND-COL (e.g., Triandis and Gelfand 1998; Takano and Osaka 2018; Kemmelmeier et al 2003). The horizontal dimension relates to values and attitudes of independence, such as whether the societal members consider themselves as a part of the collective or are they unique/independent from it (Triandis 2001). The vertical dimension, which emphasizes hierarchies, captures the extent to which societal members want to acquire status and accept inequity. This dimension usually indicates how the societal culture considers competition as an acceptable means of distributing limited resources and rewards (Oyserman, Coon, and Kemmelmeier 2002; Triandis 2001). For instance, Triandis and Gelfand (1998) suggest that a high extent of vertical individualism indicates that people want to become distinguished from others and will do this through individual competitions.

While the IND-COL framework originates from the field of cross-cultural psychology (Triandis 2001; Yuki 2003), it has gradually been applied to organizational studies in recent years. For instance, some researchers have employed the framework to explain the behavioral differences across organizations embedded in different societal cultures (e.g., Moorman and Blakely 1995; Gelfand, Erez, and Aycan 2007). This study

also employs the IND-COL framework to predict how societal culture orienting individualism/collectivism affects government managerial practices and activities.

The essay posits that, governments in a more collectivistic culture tends to adopt various environmental management practices. The public administration style in collectivistic society is heavily duty-based and focus more on social responsibilities and obligations. Public agencies in this culture often shape their behaviors on the basis of social norms and strive to achieve socially desired outcomes(Berman et al. 2003; Earley 1985; Moorman and Blakely 1995; Wagner III 1995), such as preventing environmental pollution and natural resources degradation. In contrast, governments in individualistic cultures might prioritize interests and rights over duties (Earley 1985; Triandis 2001; Newman and Nollen 2016). It is less likely that they will perceive environmental protection as an indispensable part of their obligations or responsibilities. As a result, government agencies in individualistic-oriented cultures will put less efforts in infusing environmental concerns into their operational and managerial practices. The study then proposes the second hypothesis:

H2: An individualistic societal culture is negatively associated with the comprehensiveness of environmental management practices (EMPs).

External pressure & societal culture

The study also presumes that, since governments embedded in different societal cultures likely prioritize different values and have different perceptions about stakeholders, how they respond to external pressure might vary significantly.

The essential attribute of collectivism lies in interdependence, social embeddedness, and communal benefits (Oyserman, Coon, and Kemmelmeier 2002; Yuki 2003; Gelfand, Erez, and Aycan 2007). Public agencies in this culture likely hold the belief that stakeholders are an indispensable part of the community of interest. They will attach greater importance to stakeholder relationships and be more cautious to external demands and expectations (Berman et al 2003; Brewer and Chen 2007; Triandis 2001; Hamamura 2012). As a result, governments in a collectivistic society will proactively adopt a growing number of environmental management practices to a role that can induce a harmonious relationship with external stakeholders and initiate a cycle of reciprocity.

On the contrary, governments within an individualistic society likely give priority to independent, impermanent, and less intensive relationships with stakeholders (Gelfand, Erez, and Aycan 2007; Hamamura 2012; Yuki 2003). They will pay less attention to relationship management and be less conscious of external pressure. Besides this, the value orientation in individualistic societies reflects a condition in which personal interests are emphasized over collective benefits (Triandis 2001; Gelfand, Erez, and Aycan 2007; Hamamura 2012). Local governments might resist to conform to external pressure if the requirements raised by stakeholders are in contradictory with their own interests or goals (Wagner III 1995; Oyserman, Coon, and Kemmelmeier 2002; Yuki 2003). They hence will be reluctant to adopt a variety of environmental management practices. The essay hypothesizes:

H3: In the presence of an individualistic societal culture, external pressure is positively related with the comprehensiveness of environmental management practices (EMPs).

The societal culture of the U.S. and Japan

Cross-culture research generally agrees that the societal culture in most industrialized Western countries are individualistic-oriented, favoring independent judgements, personal gains, and uniqueness (e.g., Moorman and Blakely 1995; Wagner III 1995; Brewer and Chen 2007). The United States, for example, is considered as a prototypic representative of individualistic society. The beginning of the "American Dream" can be traced to the Founding Fathers when declaring the independence from England. They suggest that people inherently possess the rights to life, liberty, and the pursuit of happiness (Oyserman, Coon, and Kemmelmeier 2002). After that, social movements and civic emancipation have reinforced these values by putting more emphases on personal freedom, individual rights, equal opportunities, and self-actualization (Oyserman, Coon, and Kemmelmeier 2002; Wagner III 1995). Individualism hence is considered as an integral part of the American history and culture.

By contrast, literature indicates that countries in East Asia largely represent collectivistic cultures and Japan is a typical example (e.g., Takano and Osaka 2002; Yuki 2003; Hamamura 2012) The roots of collectivism in Japan primarily stem from Confucianism and Shintoism, and to a lesser extent from Buddhism (Berman et al. 2003; Hamamura 2012; An and Tang 2020). Since the Meiji Restoration in 1868, the Japanese government started to modernize itself by learning from the Western while still inculcating the Japanese esprit de corps. This has been achieved largely by cultivating a culture that demands loyalty to the emperor as a divine being with comprehensive ruling power (Akizuki 2017; Sakamoto 2019). However, with the promulgation of the new Constitution in 1947 and several institutional reforms thereafter, the government system

in Japan has shifted unified and centralized to increasingly democratic and decentralized (Sakamoto 2010). Japan's current government system has been regarded as centralized when compared to individualistic countries (e.g., the U.S. and the Netherlands) while relatively decentralized among collectivistic countries (An and Tang 2020; Kemmelmeier et al 2003; Takano and Osaka 2018).

Data collection

The study pools two original surveys, *Sustainable Procurement in U.S. Cities* and *Sustainable Procurement in Japanese cities*, with a secondary survey, *World Value Survey (WVS) Wave 7.* The sustainable procurement surveys aim to understand the successes and limitations of environmental sustainability in local governments; while the *World Value Surveys (WVS)* focus on exploring social values and beliefs of people in different countries as well as how these perceptions might affect the society and the economy. The *WVS* were widely employed and recommended by researchers who conducted comparative analysis or investigated societal cultures (Bouckaert, Van de Walle, and Kampen 2005; Berman et al. 2013)

The survey of sustainable procurement in local government

The survey of *Sustainable Procurement in U.S. Cities* was co-sponsored by International City/County Management Association (ICMA) and financed by a grant from the V.K. Rasmussen Foundation. It is consisted of 37 questions addressing city-level environmental sustainability policies/practices, department-level policies/practices, department structure and culture, and professional/personal information. Before sending

out the survey, a focus group was conducted with 14 employees, including department directors and purchasing officers from the City of Phoenix, to gain a better understanding about sustainable procurement activities in government agencies.

The final survey of *Sustainable Procurement in U.S. Cities* was administered in January 2017 to 1,825 directors of finance, environmental, and public works departments from a random sample of 791 U.S. cities with 25,000 residents or more. The final sample consists of 616 city directors from 459 cities, with the response rates of 33.8% (individual level) and 61.2% (city level). The survey was then merged with American Census Survey to include city-level demographic variables. Non-response bias tests compared the data obtained from these 459 cities with the data from the U.S. Census Bureau in 2014 on all local governments (1,674) with 25,000 residents or more. The tests demonstrated no significant statistical differences at the city level regarding population, median family income, and race.

The survey of *Sustainable Procurement in Japanese Municipalities* replicated the survey instruments of *Sustainable Procurement in U.S. Cities* and was administered in 860 Japanese municipalities with over 25,000 residents. Two waves of focus group were conducted to ensure the clarity of translation and the quality of the survey. The final survey was administered in September 2017 to 2,578 municipal directors of finance, municipal engineering, solid waste, or environmental compliance department. The final sample includes 1,504 responses from 860 municipalities, with 58.2 percent response rate at the individual level and 90.5 percent response rate at the municipality level. Consistent with the U.S. study, the research team merged the survey with the 2015 Japan Census to collect demographic information.

The world value survey

The *WVS Wave 7* was administered to over 49 countries/territories from early-2017 to mid-2020. A social scientist working in the academic institution served as a Principal Investigator in each country, responsible for conducting the survey in accordance with the fixed rules and procedures. Internal consistency checks were also made between the sampling design and the outcome and rigorous data cleaning procedures were followed at the WVS data archive (Haerpfer et al 2020).

In the U.S., the *WVS* was funded by National Science Foundation and administered by the University of Chicago, NORC Amerispeak to a sample of 5,375 adults in 2017. The sample was selected at the first stage by using sampling strata based on age, race/ethnicity, education, and gender (Haerpfer et al 2020). The size of the selected sample per sampling stratum was determined by the population distribution for each stratum. In the second stage, initially sampled but nonresponding housing units were subsampled for a nonresponse follow-up (NRFU). Adjustments were made to account for unknow eligibility and nonresponding after NRFU. In total, the research team collected 2,596 responses with a completion rate of 48.3%.

In Japan, the *WVS* was administered by Doshisha University and Dentsu Institute to 2,400 adults from July to August in 2019. The research team selected the sampling points by stratified random sampling, where households were selected by residential map database (Haerpfer et al 2020). The gender and age quota controls were applied when selecting individuals to take part in the research. The final sample had 1,353 responses with a response rate of 56.4%. Researchers then compared the survey data with the

Japanese census data and applied weights to adjust for the differences of sex and age (Haerpfer et al 2020).

In this study, since the measures of *WVS* were originally at the individual-level, the essay averaged the responses within the same state/prefecture to obtain aggregated measures at the state/prefecture level. Aggregating self-reported individual responses is the most common and popular approach used to compute societal culture (Berman et al. 2013), which enables scholars to probe into the prevailing culture shared by societal members using individual-level data (Oyserman, Coon, and Kemmelmeier 2002; Schwartz 2014). After aggregating the *WVS* to the state/prefecture level, the study merged it with the sustainable procurement surveys. The final dataset includes 2,089 observations, with 607 from the U.S. and 1,482 from Japan.

Measures

Dependent variable

EMP comprehensiveness is measured by the quantity of adopted environmental management practices (Darnall, Henriques, and Sadorsky 2008; Khanna and Anton 2002). The study constructs a summative index with five binary items (the Cronbach's alpha=0.82) from the survey of sustainable procurement. These items ask respondents whether their agencies have implemented the following management practices: "tracking of spending on environmental sustainability activities", "setting goals and targets for environmental performance", "environmental training for all city employees", "internal audits of environmental performance", "publication of an environmental report". For each item, "1" suggests that the respondent's department has implemented such practice;

while response of "0" indicates that either the department has not adopted this practice or the respondent is no aware of it. The *EMP Comprehensiveness* index ranges from 0 to 5.

Independent variables

The first independent variable is *External Pressure*, which refers to the extent to which top management perceives the demands and expectations from external stakeholders for better environmental performance and consequences (Yu, Lo, and Li 2017). The study uses four survey items to measure *External Pressure*. The items ask respondents how they perceive the influence of "citizens", "vendors", "business associations", and "environmental groups or organizations" in promoting their agencies' environmental sustainability activities. Each item ranges from 1 (=not influential) to 5 (=very influential), with a Cronbach's alpha of 0.88 in the U.S. survey and 0.82 in Japan. The study uses Principal Component Factor (PCF) to create *External Pressure.* PCF is used instead of factor analysis as it seeks the fewest factors that can summarize the information contained by a set of variables. In both surveys, the four items are loaded on a single factor with an eigenvalue over 1. Table 3.1 demonstrates the factor loadings for each survey item.

Table 3.1

Factor loadings of survey items of external pressure

	U.S.	Japan	Full
Citizens	0.81	0.70	0.72
Vendors	0.87	0.83	0.78
Business Associations	0.90	0.88	0.85
Environmental Groups/orgs	0.85	0.83	0.90

Explained Variance	0.74	0.66	0.85
Observation	512	1,207	1,719

As for IND-COL, there is no single standard or the most common measure used by scholars to capture this construct. Early studies primarily rely on the ratings provided by Hofstede in 1980, which might not fully capture the multi-dimensional nature of IND-COL culture. Realizing the limitation of this approach, recent scholars have used a variety of survey items related to values and attitudes of independence and competition to measure IND-COL. For instance, Brewer and Chen (2007) ask respondents to what extent do they agree that "one should live one's life independent of others as much as possible; other scholars (e.g., Yuki 2003; Hamamura 2012) ask respondents how close they relate themselves to the group/society/nation. While for competition, some scholars ask respondents how they agree that "competition between employees is accepted" (e.g., Robert and Wasti 2002; Cho & Faerman 2010), "competition is the law of nature" (Wagner 1995), and "Winning is everything" (Triandis and Gelfland 1998).

Building upon prior studies, this essay uses three survey items from *World Value Survey* to construct two variables, *Independence* and *Competition*, to represent the two dimensions of IND-COL. The first cultural concept is *Independence* captures how individuals are connected with their communities and the society. The variable is built by averaging two survey items with the Cronbach's alpha of 0.85. The two items ask respondents how close they feel to the city/town and the state/prefecture, and are measured by 4-point Likert-scale, ranging from 1 (=very close) to 4 (=not at all close). Since individualism emphases on independence and loose connections, a higher score indicates the societal culture within the state/prefecture is more oriented to individualism.

Another dimension of IND-COL is captured by *Competition*, which is measured by asking respondents to provide a score between 1 to 10. A score of 1 indicates that "competition is harmful"; while 10 suggests that "competition is good". For that individualism advocates more personal efforts and the achievement on merit, a higher score suggests a more individualistic culture. Oppositely, a lower score represents a collectivistic-oriented culture that values common goods and in-group harmony.

Control variables

The study includes a variety of variables to control for the characteristics of government agencies (e.g., culture, structure, and resource capacity), the dynamics with internal stakeholders, and the demographic composition of the local community.

The first set of control variables relates to government characteristics. *Environmental Committee* is a dummy variable, asking respondents whether their governments have a citywide environmental sustainability committee. Responses of "1" suggests the existence of a committee while "0" indicates that the city has not formed such a committee or the respondent is not aware of it. *Innovative Culture* and *Organizational Rules* are captured by asking respondents, from 1(=strongly disagree) to 5 (=strongly agree), how do they agree that the government "is a dynamic and entrepreneurial place" and "has too many rules and procedures". For that the survey primarily focuses on the government's procurement activities, this study uses the government's procurement structure to approximate the general administrative structure. The survey measures *Organizational Structure* by asking respondents to what extent they agree that the finance department in their governments conducts all purchasing. The

responses range from 1(=strongly disagree) to 5 (=strongly agree). A high score indicates that the decision-making authority is concentrated in a special unit, which fits Hage and Aiken's (1967) definition of centralization. The survey captures *Human Resource* by asking respondents to what extent do human resources either constrain or facilitate the government's capacity to promote environmentally sustainability. The answers range from 1 (=strongly constrains) to 5 (=strongly facilitates). Local governments with more human resources likely have a better capacity to implement more EMPs.

Another category of control variables captures how governments are influenced by and interact with internal stakeholders. *Internal Pressure* is an average index with four survey items (the Cronbach's alpha=0.83). The survey items ask respondents how influential the following stakeholders are: city executive (manage or mayor), city council, other departments, and city employees. The answers range from 1 (=not influential) to 5 (=very influential). *Relationship with Council Members* is measured by asking respondents how frequently they interact with city's council members. The answers range from 1 (=very infrequently) to 5 (=very frequently).

The study also includes a set of variables to control for the demographic differences across cities and towns. *Total Population (log)* is the logarithm of the number of total populations within the city/town. *Unemployment Rate* measures the proportion of the unemployment population to the total labor force. *Median Age* captures the median age among the city's entire population.

Descriptive Statistics

Table 3.2 describes the basic features of all variables in the split and full samples. As shown in the table, the comprehensiveness of EMP, the extent of external pressure, and the value orientation of societal culture vary significantly between the U.S. and Japan. Japanese governments tend to have a more comprehensive set of EMPs and face more pressures from external stakeholders when compared with their U.S. counterparts. While the societal culture in the U.S. tends to speak highly of personal independence and competitions. This evidence echoes the conventional assumption that the U.S. societal culture is predominately individualistic while the culture in Japan tends to reflect a more collectivist culture.

Table 3.2 also indicates significant cross-country differences regarding the characteristics of governments and the community context. The table shows that U.S. governments face less internal pressures, interact more frequently with city council members, and possess fewer human resources in addressing environmental issues. In contrast, Japanese governments are more "mechanistic" as they are bounded by stricter rules and a less innovative culture. Moreover, cities in Japan are relatively larger and have a lower proportion of unemployed populations. Table 3.3 demonstrates the correlation matrix in the full sample

Table 3.2

Descriptive statistics of all variables

	U.S.			Japan			Full		
	Obs	Mean	SD	Obs	Mean	SD	Obs	Mean	SD
Dependent Variables									

EMP Compre	607	0.9	1.4	1,482	2.4	2.1	2,089	1.9	2.0
Independent Variables									
External Pressure	512	2.6	1.0	1,216	3.3	0.8	1,728	3.1	0.9
Independence	607	2.2	0.1	1,482	1.8	0.2	2,089	1.9	0.2
Competition	607	7.8	0.3	1,482	6.3	0.6	2,089	6.7	0.8
Control Variables									
Env Committee	607	0.3	0.4	1,482	0.5	0.5	2,089	0.5	0.5
Innovative Culture	593	3.9	0.8	1,422	3.6	0.7	2,015	3.7	0.7
Org Rules	593	2.6	0.9	1,399	3.1	0.8	1,995	3.0	0.9
Org Structure	589	2.0	1.1	1,456	2.0	0.8	2,045	2.0	0.9
Internal Pressure	559	3.5	1.3	1,337	4.1	1.0	1,896	3.9	1.0
Relation w/t CM	597	3.3	1.2	1,380	2.1	0.9	1,977	2.4	1.2
Human Resources	526	2.9	0.8	1,209	3.6	0.7	1,735	3.4	0.8
Total Pop (log)	607	11.1	0.8	1,482	11.3	0.9	2,089	11.2	0.9
Unemp Rate	607	8.2	3.0	1,482	4.2	1.0	2,089	5.4	2.5
Median Age	607	35.5	5.1	1,482	48.8	7.6	2,089	44.9	7.6

Table 3.3

Correlation matrix of variables in the full sample (N=1,427)

	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)	(11)	(12)	(13)	(14)
(1) EMP Comp	1.00													
(2) External Pressure	0.25	1.00												
(3) Independence	-0.29	-0.25	1.00											
(4) Competition	-0.27	-0.27	0.50	1.00										
(5) Env Committee	0.48	0.24	-0.21	-0.18	1.00									
(6) Innovative Culture	0.10	0.11	0.07	0.12	0.06	1.00								
(7) Org Rules	0.11	0.11	-0.19	-0.22	0.07	-0.07	1.00							
(8) Org Structure	0.01	0.03	0.00	0.01	0.01	0.01	0.06	1.00						
(9) Internal Pressure	0.23	0.59	-0.19	-0.24	0.23	0.05	0.03	0.01	1.00					
(10) Relation w/t CM	-0.15	-0.14	0.36	0.41	-0.14	0.21	-0.07	0.05	-0.13	1.00				
(11) Human Resources	0.28	0.28	-0.26	-0.30	0.18	0.10	0.09	0.00	-0.15	0.20	1.00			
(12) Total Pop (log)	0.38	0.12	-0.08	-0.05	0.25	0.09	0.09	0.04	-0.09	0.11	0.14	1.00		
(13) Unemp Rate	-0.32	-0.25	0.50	0.55	-0.23	0.04	-0.16	0.06	0.31	-0.23	-0.30	-0.04	1.00	
(14) Median Age	0.18	0.27	-0.58	-0.65	0.16	-0.13	0.20	0.00	-0.39	0.22	0.28	-0.08	-0.59	1.00

Empirical model

The study uses a negative binomial model to estimate how external pressure and societal culture interactively affect the comprehensiveness of EMP in local governments. The unit of analysis is at the agency/department level. The negative binomial model is selected for two reasons. First, the linear regression might produce a negative predicted value of dependent variable, which tends to be theoretically impossible. The negative binomial hence is more appropriate as it can accommodate discrete distribution and is limited to non-negative values.

Moreover, the negative binomial model fits better than Poisson model for that the distribution of *EMP Comprehensiveness* is over-dispersed, in both the U.S. and Japanese samples. The likelihood ratio tests for over-dispersion in the U.S.- and Japan-only models return a chi-squared value of 61.14 (p=0.000) and 3.24 (p=0.036) respectively, suggesting that the negative binomial model is more appropriate. Additionally, comparing to Poisson model, the negative binomial one has a higher score of log pseudolikelihood and lower scores of Akaike's Information Criterion (AIC) and Bayesian Information Criterion (BIC), indicating less information loss and higher model quality.

Table 3.4

Negative binomial regression results

	Model 1 (U.S.)	Model 2 (Japan)
	EMP Comp	EMP Comp
External Pressure (EP)	-2.77**	-0.18
	(1.38)	(0.48)
Independence	1.89	-1.15**
	(2.35)	(0.53)

Competition	-1.37**	0.15
	(0.68)	(0.19)
EP * Independence	-0.85	0.30**
	(0.72)	(0.15)
EP * Competition	0.62***	-0.06
	(0.22)	(0.05)
Environmental Committee	0.89***	0.62***
	(0.13)	(0.06)
Innovative Culture	0.22***	0.04
	(0.07)	(0.03)
Organizational Rules	0.01	0.01
	(0.08)	(0.03)
Organizational Structure	0.05	0.02
	(0.06)	(0.02)
Internal Pressure	0.11	0.03
	(0.08)	(0.03)
Relation w/t CM	0.00	0.05**
	(0.05)	(0.02)
Human Resources	0.14*	0.04
	(0.08)	(0.03)
Total Population (log)	0.16**	0.20***
	(0.08)	(0.02)
Unemployment Rate	-0.04	-0.07***
	(0.02)	(0.03)
Median Age	0.00	-0.03***
	(0.01)	(0.01)
Constant	2.37	0.78
	(4.28)	(1.76)
Observations	452	975
Log Pseudolikelihood	-561	-1847
Pseudo R-Squared	0.09	0.09

Standard errors in parentheses

* p<0.10, ** p<0.05, *** p<0.01

Table 3.4 demonstrates the multivariate analyses of the relationships among external pressure, societal culture, and EMP comprehensiveness. Model 1 and Model 2 show analyses with the U.S. and Japanese sample respectively. For both models, the standard errors are estimated using the Huber-White sandwich estimators to address

potential issues such as the heteroscedasticity. Additionally, the study employs fixed effects to control for omitted or unobserved variations across different departments. The study also conducts collinearity diagnostics using variance inflation factor (VIF) to see whether the predictors are significantly correlated. The VIF shows that, except for independent variables and their interaction terms, all other variables are within the acceptable range (below 2.4). This essay will first focus on the U.S.-only model (Model 1) and then discuss the Japan-only one (Model 2).

The U.S. sample

Model 1 in Table 3.4 presents the regression result using the U.S. sample. The table shows that the coefficients of *External Pressure* (b=-2.77, p=0.044)*, Competition* (b=-1.37, p=0.044), and their interaction term (b=0.61, p=0.005) are all significant at 5% level. For that the coefficients of *Independence* and its interaction term are not statistically significant, the study will focus on the interpretation of *Competition* when discussing Hypothesis 2 and 3.

The first hypothesis expects a positive relationship between external pressure and EMP comprehensiveness. To better understand this result, the study uses the coefficients in Model 1 to estimate the values of *EMP Comprehensiveness* by holding all other variables at the sample mean. The predicted *EMP Comprehensiveness* are plotted in Figure 3.1, showing that governments under greater external pressure are more likely to develop a comprehensive set of EMPs. Moreover, the joint test on *External Pressure* and its interaction terms returns a p-value of 0.011, suggesting that the total effect of *External Pressure* is statistically significant. Hypothesis 1 hence is supported.

Figure 3.1

The effect of external pressure (EP) in the U.S. sample (N=452)

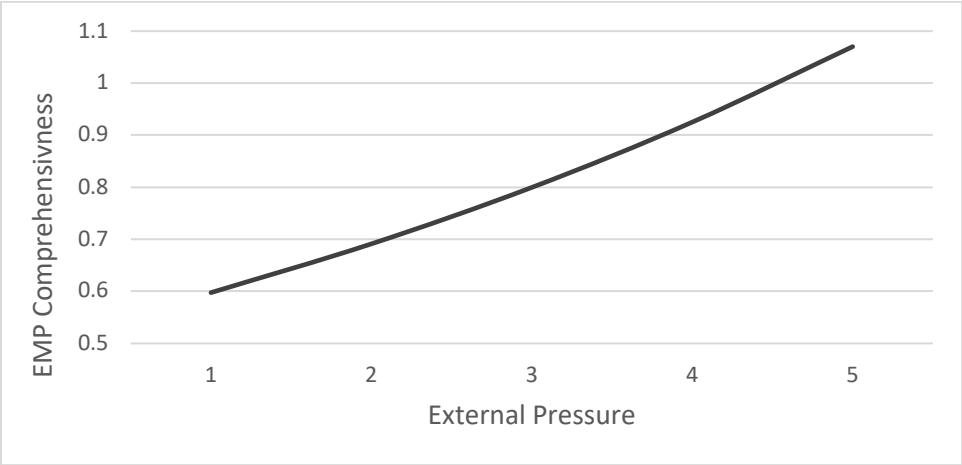
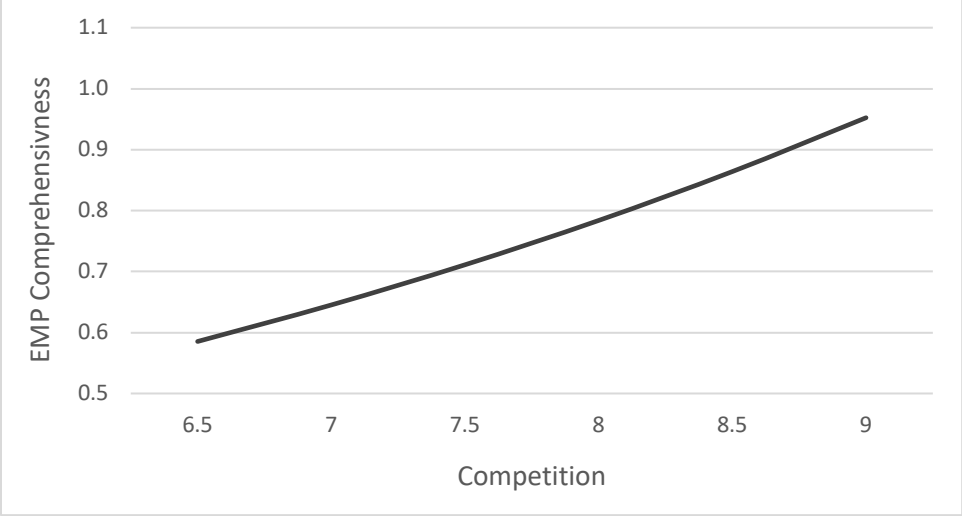


Figure 3.2

The effect of competition in the U.S. sample (N=452)

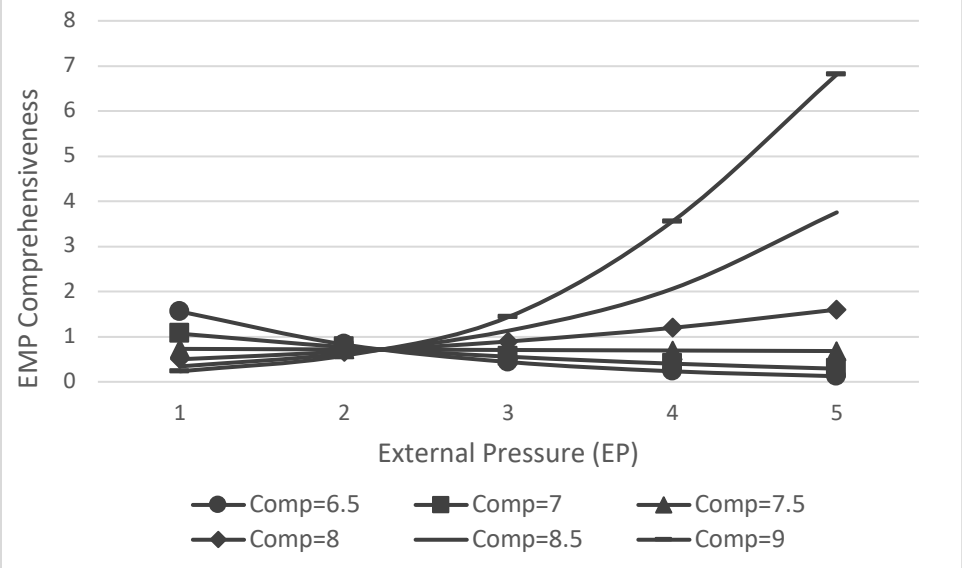


The second hypothesis assumes a negative relationship between individualism and the comprehensiveness of EMP. The study uses the same approach in Figure 3.1 to

estimate and plot the relationship between *Competition* and *EMP Comprehensiveness*. For that *Competition* ranges from 6.8 to 9 in the U.S. samples, the study mainly estimates *EMP Comprehensiveness* when *Competition* varies from 6.5 to 9. Figure 3.2 shows that governments in a more competition-oriented society are more likely to have a comprehensive set of EMPs. The joint test confirms the significance of this relationship (p=0.000). These results indicate that Hypothesis 2 is not empirically supported in the U.S. sample.

Figure 3.3

The effect of EP and competition in the U.S. sample (N=452)



Hypothesis 3 posits that the influence of external pressure on the government's EMP comprehensiveness is conditioned on the societal culture. The study draws Figure 3.3 to provide a more accurate view of how *External Pressure* affects *EMP Comprehensiveness* when *Competition* varies. The figure shows that, when *Competition*

is relatively low (< 6), the increase of *External Pressure* will result in less comprehensive EMPs. However, when *Competition* scores higher, the relationship becomes positive. The positive relationship will become more salient as *Competition* increases. The joint test confirms the significance of the interaction effect between *External Pressure* and *Competition*. Therefore, Hypothesis 3 is contradicted.

The Japan sample

Model 2 in Table 3.4 illustrates the regression result with respondents in Japan only. The result suggests that Hypothesis 1 is not empirically supported as the main effect of *External Pressure* has a p-value larger than 0.10. As shown in the table, only the coefficients of *Independence* (b=-1.15, p=0.028) and its interaction term (b=0.30, p=0.048) are statistically significant. Due to the insignificance of *Competition,* the study mainly interprets the result of *Independence* when discussing Hypothesis 2 and 3. The study uses the same technique to draw the total effect of *Independence* in Figure 3.4 and its interaction effect in Figure 3.5.

Figure 3.4 demonstrates a negative relationship between *Independence* and *EMP Comprehensiveness,* which is in line with Hypothesis 2. Figure 3.5 indicates a consistent pattern with Figure 3.3 (the U.S. sample): the relationship between *External Pressure* and *EMP Comprehensiveness* is negative when *Independence* scores low (<1.5); while this relationship becomes increasingly positive as *Independence* grows. Therefore, the empirical result with Japanese respondents provides partial support for Hypothesis 2 and contradicts Hypothesis 3.

Figure 3.4

The effect of independence in the Japanese sample (N=975)

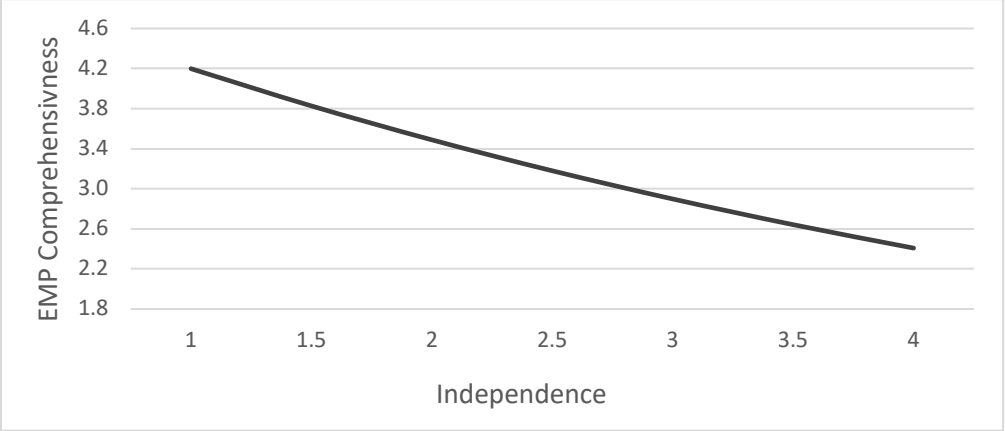
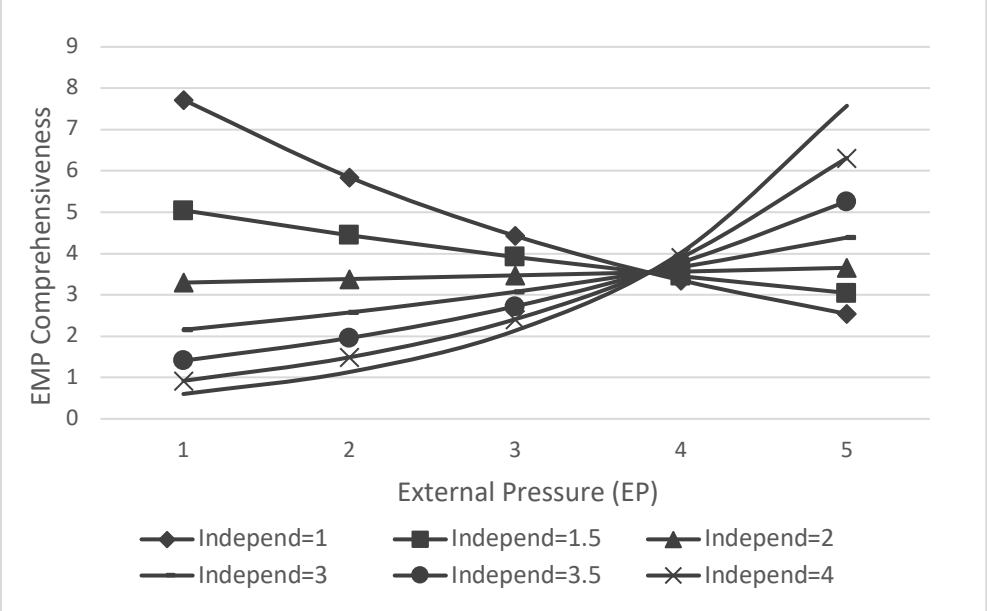


Figure 3.5

The effect of EP and independence in the Japanese sample (N=975)



Discussion and conclusion

Using nationwide data from public managers in the U.S. and Japan, this essay explores how external stakeholder pressure and societal culture might affect the government's environmental management practices separately and interactively. In general, the empirical findings are in line with the stakeholder theory, supporting the proposition that governments will put more efforts in developing a variety of EMPs so as to satisfy the stakeholder's demands, avoid potential punishments (e.g., budget cutting or the loss of political support), and ensure their longevity (Freeman 2010; J. Bryson 2003; Darnall, Henriques, and Sadorsky 2010).

The essay also provides some country-specific findings on societal culture. The result suggests that different countries might emphasize different dimensions of IND-COL. In the U.S., it is the perception of competition, rather than independence, that shapes the ways through which governments react to external stakeholder pressures and develop their EMP. This finding is consistent with the common view that competition is a strong feature of the U.S. culture (Berman et al. 2013; Triandis 2001). In contrast, the dimension of independence has a salient influence on the government's environmental management in Japan. This also echoes the perception that interpersonal relatedness is deeply ingrained in East Asian culture, especially for countries that are historically affected by Confucianism and Shintoism (Oyserman, Coon, and Kemmelmeier 2002; Brewer and Chen 2007; Berman et al. 2013).

Moreover, the result with Japanese respondents indicates that an independent culture is negatively associated with the comprehensiveness of EMP, supporting the assumption that public agencies embedded in individualistic culture pay less attention to

social duties and responsibilities (Triandis 2001; Oyserman, Coon, and Kemmelmeier 2002). However, the analysis of the U.S. sample provides contradictory evidence, suggesting that the government will adopt a growing number of EMPs when the societal culture favoring competitions. A potential explanation is that a healthy competitive culture might motivate government agencies to proactively improve their environmental performance, which serves as a driving force for more comprehensive EMPs.

Surprisingly, the empirical evidence across all models contradicts the third hypothesis. The reason might be that, since individualism values self-actualization and achievement, public agencies in this culture will place a heavy emphasis on seeking, obtaining, and managing resources required for their survival and success (Earley 1985; Moorman and Blakely 1995; Wagner III 1995). They hence will take greater trouble to addressing the external concerns and demands so as to ensure the resources and support from stakeholders. In other words, they are more likely to take initiative actions in devising comprehensive EMPs when feeling greater external stakeholder pressures on environmental protection and management.

There are, of course, some limitations associated with this study. First, despite that several design strategies have been applied – e.g., intermixing survey items, using pre-tested scales, protecting anonymity -, self-reported cross-sectional survey data might still suffer from endogeneity, common source bias, and the incapability of drawing causal inferences. Future studies should collect longitudinal data to address these issues. Second, even though the study includes three categories of control variables (e.g., organizational characteristics and community context) and adds department fixed effect, the empirical models inevitably miss some variables such as political ideologies and structures. For

instance, although the government system of Japan is similar to the U.S. in some aspects (e.g., both are composed of legislative, executive, and judicial branches), it is considered as a unitary state rather than a federal system. The federation in the U.S. allows local authorities to have greater flexibility and independence, while Japanese government system tends to be more top-down and hierarchical (Akizuki, 2017; An and Tang 2020). Prior studies indicate that national culture plays a critical role in shaping government structure. For instance, Shan and colleagues (2011) suggest that individualistic societies tend to be more bottom-up as they focus on individual rights and freedom while emphasize limited governments; while collectivistic societies assume that individuals should bind and obligate mutually, which provides governments greater authority and responsibility. Recent research on COVID-19 also demonstrates that governments in collectivistic countries (e.g., China and Japan) are more likely to centralize the decision-making authority and use a top-down approach (e.g., An and Tang 2020; Yan et al. 2020). Despite this, it will be better if future studies can collect information on how government system varies across different countries and hold it as control.

Moreover, prior scholars (e.g., Randall, Huo and Pawelk, 1993) suggest that cross-cultural research might suffer from issues related to response bias. For instance, Kim and Kim (2013) indicates that, compared to individualistic countries (the United States and the Netherlands), respondents in collectivistic countries (Japan and Korea) are more vulnerable of social desirability bias when answering survey items of public service motivation. Despite that social desirability bias might not be a significant concern when conducting a digital (no in-person contact) and anonymous survey with less sensitive topics (Kim and Kim 2013), this study admits the potentially of social desirability bias

and other issues it might bring, such as endogeneity. Besides this, different cultures might also result in different sample selections. For instance, the U.S. World Value Survey has 48.3% response rate while the Japan survey receives a rate of 56.4%. Although the non-response bias tests in both surveys demonstrate that there are no significant differences in terms of gender, race, education background, age and other demographics, this study acknowledges the potential bias it might incur. Finally, for that Individualism /collectivism is a broad concept that has been defined differently by different scholars in different fields, the measurement in this study might not fully capture its richness. Future studies should collect additional data to measure other dimensions of individualism/collectivism, such as whether people are willing to sacrifice their own interests for the communal benefits.

Despite the limitations, the study has important implications for public management theory and practice. First, current literature on EMP primarily examines how these practices are developed in the private sector and pays little attention to how stakeholders might affect the comprehensiveness of EMP. This essay contributes to the literature by demonstrating that the pressure from stakeholders has a far-reaching influence on government environmental management, as it not only affects the adoption of a certain EMP, but also the comprehensiveness of EMPs.

Moreover, for that culture research is an empirically under-researched area of public administration (Berman et al. 2013), this essay contributes to the scholarship by integrating the stakeholder theory with the individualism-collectivism framework to provide a broad theoretical understanding of the role of societal culture in public management practices. It finds that the values and attitudes embedded in the society not

only exerts a direct influence on government environmental activities, but also shapes how governments react to external demands, powers, and institutions. In addition, despite this study mainly focuses on environmental management, the results might be applied to other areas of public administration, such as technology or human resource management. The finding opens up a fruitful aspect for future studies seeking to understand the internal working of public agencies.

Finally, despite that comparative method is considered as essential in generating reliable administrative knowledge (Fitzpatrick et al. 2011; Jreisat 2005), relatively few research has employed this lens to examine environmental management in local governments. This study bridges the gap by exploring how relationships among external stakeholder pressure, societal culture, and the government's EMPs differ between the U.S. and Japan, due to some unobserved political and economic factors. It seems to be the first large-sample, cross-national comparative analysis on this topic. The finding demonstrates that theories, practices, and solutions of public management generated in one country might not be applied directly to others. Public directors hence should be careful when learn from the best practice or exemplar cases. They must consider the broad societal and cultural context in which these practices are introduced and implemented, in order to predict the potential outcomes and effects (Fitzpatrick et al. 2011; Kim 1999).

CHAPTER 4

THE IMPACT OF RESPONSIBILITY DELEGATION ON SUSTAINABILITY IMPLEMENTATION: A CONTINGENCY APPROACH

The concept of sustainability has permeated the agendas of governments and public communities in recent years, due to the increased awareness of sustainability issues as well as the significant impacts of government activities on both the environment and the society. Despite that the notion of sustainability has aroused great academic attention in recent years, extant research provides little guidance on sustainability implementation (Kinzer 2018), making it continue to be a vexing issue for academic scholars, public managers, and citizens alike (Liao, Warner, & Homsy, 2019; Walker and Andrews 2015; Hsueh et al. 2020). Sustainability implementation refers to the execution of public policies and practices that advance sustainability objectives such as promoting economy, reducing social inequity, and preserving natural resources.

The lack of empirical evidence on sustainability implementation makes it unclear on how government agencies, and those who run them, can effectively improve sustainability implementation (Kinzer 2018). For instance, an emerging debate on this topic lies in whether delegating certain authorities and responsibilities to employees helps to move from an adopted sustainability policy into action. On one hand, centralizing the decision-making discretion and responsibility at the manager-level can strengthen managerial supervision (Van Meter and Horn 1975; Hu et al. 2012) and prevent employees from selectively ignoring the implementation activities that are inconsistent with their benefits (Klein & Knight, 2005; Venkatesh, Bala, & Sambamurthy, 1975), which subsequently facilitates sustainability implementation. On the other, delegating

responsibility to employees can be considered as a means of empowerment, suggesting that high- or mid-level managers will share, assign or transfer the responsibility to employees (Hempel, Zhang, and Han 2012). The delegation strategy might increase employees' willingness to embrace the new sustainability policy and accept it as an integral part of their working routines (Hupe and Hill 2007; Khan and Khandaker 2016; Farooqi and Forbes 2020).

The aforementioned discussion requires public management scholars to further delve into how to facilitate sustainability implementation: centralizing the responsibility at the manager-level or delegating it to employees? Drawing from a contingency approach, this essay drafts an initial effort to answer this question. The contingency theory embodies a simple but significant underlying assumption of "fit", assuming that the successful pursuit of a managerial strategy depends on how the strategy fits with the local context (Andrews et al., 2009; Miles et al., 1978; Lee & Kim, 2012). The theory has been proposed and extensively tested in the field of marketing, organizational behaviors, and strategic management (e.g., Cresswell & Sheikh, 2013; Mitchell, 2019; Schoonhoven, 1981; Tosi & Slocum, 1984). Despite of its profound impact throughout management literature, the contingency approach has rarely been incorporated into the discussion of sustainability implementation.

The essay proposes that the ways through which responsibility delegation can affect sustainability implementation will be contingent upon governmental structure and culture. Using a nationwide U.S. survey collected in 2017, the study takes the implementation of sustainable procurement policy (SPP) as an empirical example to articulate and explore: 1) what kind of governmental arrangements might reinforce

(hinder) the impact of responsibility delegation on sustainability implementation; and 2) why these arrangements serve as a fit (or not). By using the contingency approach, the study has switched the discussion from "whether the delegation strategy facilitates the implementation" to "when the strategy is conducive and why".

The research suggests that a delegation strategy might not achieve its full potential unless the government structure and culture encourage employee initiatives. The findings will contribute to extant scholarship by simplifying the complex mechanism of sustainability implementation and enabling more nuanced and precise predictions on implementation effectiveness. Moreover, the results can provide insights for public managers on how to adopt or develop a managerial strategy of sustainability development that coincides with the government's internal arrangement.

Sustainability implementation

The implementation of sustainability policies and practices is highly complex and challenging as it requires an integrated and balanced way to achieve social, environmental, and financial objectives simultaneously (Liao, Warner, & Homsy, 2019; Stritch et al., 2020). The process often involves simultaneous adaptations and interactions among the sustainability policy, the agencies, and individuals who actually deal with the policy (Smith 1973; Chaudoir, Dugan, and Barr 2013). For instance, while sustainability policies are implemented, tasks might be reassigned, resources might be reallocated, and powers might be redistributed. The difficulty of sustainability implementation incurs great inconsistencies in determining what constitutes implementation effectiveness.

Some research conceives an effective implementation as the improvement of organization performance or the achievement of policy objectives (e.g., Inman & Jeffrey, 2003; Mazmanian & Sabatier, 1989). However, recent literature generally considers effective implementation as the sustained incorporation or stabilization of an innovation - policy or otherwise- into the organization's ongoing work activities (Bretschneider & Parker, 2016; Fidler & Johnson, 1984; Greenhalgh et al., 2004; Moseley & Charnley, 2014). The essay uses this perspective to define an effective implementation as when a government has successfully assimilated the sustainability policy into its regular functions and operations. The definition indicates that the government has either modified existing- or established new- managerial standards, working routines, and decision-making criteria so as to accommodate the sustainability requirements and objectives (Hsueh et al. 2020; Leonard-Barton 2011).

The impact of responsibility delegation: A contingency approach

The notion of responsibility delegation has become increasingly popular in the literature of policy implementation and public management (e.g., Farooqi & Forbes, 2020; Hupe & Hill, 2007; Lipsky, 2010; Mischen 2007). Responsibility delegation in this study refers to a strategy by which high- or mid-level managers will share, assign or transfer the responsibility of sustainability implementation to employees (Hempel, Zhang, and Han 2012). Prior studies suggest that responsibility delegation likely paves the way for policy implementation. When employees are delegated with work-related authorities and responsibilities, they might possess a sense of ownership and will better appreciate the necessity and merits of implementation activities (Farooqi & Forbes, 2020; Lipsky, 2010;

Menon, 2001). However, this strategy is not flawless. For example, employees might be reluctant to implement the policy (practice) for fear that it will threaten their job security or induce additional workloads (Venkatesh, Bala, and Sambamurthy 1975; Klein and Knight 2005). The strategy might also incur other problems such as the ambiguity of accountability and the lack of managerial control (Van Meter and Horn 1975; Grover and Goslar 1993; Greenhalgh et al. 2004).

This study takes an initial effort to bridge the inconsistent findings on responsibility delegation by leveraging a contingency perspective. This perspective is positioned between two opposite standpoints which suggest either the existence of universal principles of organization and management or the uniqueness of each organization in each situation (Tosi & Slocum, 1984; Zeithaml, Varadarajan, & Zeithaml, 1988). The contingency theory underlies that performance is a consequence of the fit between several determinants, such as strategy, structure, and culture (Park, Lee, & Kim, 2016; Tosi & Slocum, 1984; Walker & Andrews, 2015). No simple nor single managerial strategy can fit all conditions (Andrews et al., 2009; Zeithaml et al., 1988). As a result, it is reasonable to assume that the impact of responsibility delegation is contingent on its fit with the government's internal arrangement.

Yet what kind of governmental arrangement might fit the delegation strategy and why it fits remain unresolved. Failure to provide a plausible explanation of fit might result in ambiguous and confusing implications (Schoonhoven, 1981; Tosi & Slocum, 1984; Van de Ven, Ganco, & Hinings, 2013). The essay, therefore, strives to articulate the mechanism of fit. When employees are responsible for sustainability implementation, they have to take initiative to solve the problems and launch the changes since the

process requires consistent adaptations and modifications (Moseley and Charnley 2014; Leonard-Barton 2011; Hsueh et al. 2020). As a result, the study proposes that the government's internal arrangement might be a fitting environment to responsibility delegation if it promotes employee initiative and proactivity.

The structural and cultural arrangement

There exists a considerable agreement in public management literature that structure and culture are essential dimensions of the government's internal arrangement as they have provided a foundation for achieving managerial strategies (e.g., Andrews et al., 2009; Greenhalgh et al., 2004; Mitchell, 2019; Zeithaml et al., 1988). Andrews and colleagues (2009), for instance, have examined the combined effect of organizational strategy and centralization on public service performance. Therefore, this essay will primarily focus on how governmental structure and culture serve as the context of responsibility delegation.

An appropriate organizational structure can generate system stability and institutional support for implementation actions and activities. Prior research stands by the choice of formalization as an important structural arrangement that shapes managerial performances (Welch and Pandey 2008a; Bretschneider and Parker 2016; Bozeman and Scott 1996; Kaufmann and Feeney 2012). Formalization indicates the extent to which government agencies use managerial or administrative rules, regulations and procedures to prescribe behaviors and structure organizational activities (Hage and Aiken 1967; Williamson 2011; Welch and Pandey 2008b). As government agencies often operate in a complex social-political system, they will selectively maintain certain bureaucratic

elements as a way to cope with external turbulences and uncertainties (Bozeman & Scott, 1996). They hence will be more formalized than their private counterparts due to the requirements of political authority and accountability.

Organizational culture is also central to the performance of managerial strategies, given that different cultures likely cultivate different attitudes, values, and tacit preferences about what kind of behaviors will be supported, expected and reinforced (Hu et al., 2012; Klein and Knight, 2005; Moon and Bretschneider, 2002; Park et al., 2016). Openness to innovation captures an important dimension of organizational culture. The concept implies the extent to which government agencies are engaged in promoting innovative ideas and behaviors (Laursen & Salter, 2006; Love, Roper, & Vahter, 2014; Murray et al., 2016). A high degree of openness encourages the recurring patterns of innovative behaviors and voluntary changes.

In summary, this study investigates how formalization and openness to innovation determines the impact of responsibility delegation on sustainability implementation.

Formalization

This essay proposes that a highly formalized structure might impair the performance of responsibility delegation. Prior studies suggest that sustainability implementation is a dynamic and complicated process, during which changes might happen at all (e.g., normative, strategic, and operative) levels (Jorge et al., 2015; Sukitsch, Engert, & Baumgartner, 2015). However, a formalized structure often incurs substantial barriers to reforms or changes as it requires employees to behave based on strict routines, regulations, and procedures (Kaufmann and Feeney 2012; Bozeman and Scott 1996;

Bretschneider and Parker 2016). The delegated employees are likely to possess a sense of powerlessness, loss of autonomy, and self-estrangement (Neely and Hii 1998; Cresswell and Sheikh 2013; Smollan 2016). When the feelings grow strong, they might adopt a defensive stance to implementing the sustainability policy (Van Meter and Horn 1975; Neely and Hii 1998; Hempel, Zhang, and Han 2012).

In contrast, responsibility delegation might be an effective strategy when the government's structure is relatively informalized. This structure provides employees with certain flexibility in configuring tasks and allocating resources to support essential implementation activities such as sustainability training and internal auditing (Epstein and Buhovac, 2010; Hempel et al., 2012; Kaufmann, Borry, and DeHart-Davis, 2019). It also grants employees with greater autonomy and authority to make value assessment and trade-offs among different objectives, which are critical to the implementation of sustainability policies (Liao, Warner, & Homsy, 2019; Stritch at al., 2020). Employees under this circumstance might feel intrinsically motivated and committed to implementing the sustainability policy (Hempel et al., 2012; Yang and Choi, 2009). Taken together, formalization misfits the strategy of responsibility delegation as it restrains the initiatives of employees. The essay then proposes:

H1a: The strategy of responsibility delegation is negatively associated with sustainability implementation in government agencies with a more formalized structure.

H1b: The strategy of responsibility delegation is positively associated with sustainability implementation in government agencies with a more informalized structure.

Openness to innovation

This study expects a culture encouraging innovation as a fitting context to responsibility delegation. Extant literature suggests that the outcome of sustainability implementation can be difficult to predict and manage as the process often requires numerous trials and errors (Epstein and Buhovac, 2010). Public agencies, who are open to innovations, might not punish employees for well-intentioned risk-taking but reward them for experimenting new implementation activities or sustainability strategies (Laursen & Salter, 2006; Murray et al., 2016). Employees embedded in this culture likely regard failures as a part of the process and perceive greater psychological safety to make mistakes (Edmondson, 1999; Love et al., 2014; Yang and Choi, 2009). The innovation culture hence provides a conducive environment for responsibility delegation as it encourages employees to generate new ideas and behaviors that are essential to sustainability implementation.

In contrast, responsibility delegation might be an "unwise" strategy when the organizational culture discourages innovations. This culture can stifle employees' creativity and has a low tolerance on implementation failures (Damanpour 1991; Crossan and Hulland 2002). Public officials, who are often risk-averse, will be reluctant to generate new insights or actively search for innovative solutions to sustainability issues, for the fear of punishments on unsuccessful attempts (Hempel et al., 2012; Yang & Choi, 2009). They might also possess negative attitudes toward the behavioral or structural changes incurred by sustainability policies. These resistances and avoidances likely delay or impede the implementation process. In summary, government agencies can better

assimilate the sustainability policy into their managerial and operational activities when responsibility delegation pairs with a culture of openness to innovation:

H2a: The strategy of responsibility delegation is positively associated with policy and practice implementation in government agencies with a more open culture to innovations.

H2b: The strategy of responsibility delegation is negatively associated with policy and practice implementation in government agencies with a less open culture to innovations.

The empirical case of sustainable procurement policy (SPP)

In the United States, state and local government agencies spend billions of dollars annually procuring commodities and professional services, which accounts to approximately 23% of the national GDP (Thai & Grimm, 2000). Public procurement is a process of acquiring goods and services that are essential to fulfilling the organization's missions. It is also a complex decision-based process governed by a series of goals promoting social objectives such as economic development, social equity and environmental sustainability (Stritch et al. 2020; Coggburn 2004). Since these goals likely conflict with one another, government agencies often suffer from accommodating new policy or practice with extant working activities. Uncertainties, conflicts and resistances will likely be salient in the process of implementation, making it a representative case to elucidate policy and practice implementation in a local setting.

Taken together, public procurement provides a rich context to examine how sustainability policy will be incorporated into the government's day-to-day managerial functions and operations. This study hence uses sustainable procurement policy (SPP) as the empirical case to examine how the fit between responsibility delegation and

governmental arrangement can either facilitate or inhibit the implementation. A city's SPP might include formal policies like executive orders and administrative directives, as well as informal practices initiated by employees. The implementation of SPP is a process whereby government agencies incorporate sustainability into their purchasing standard, routines and decision-making criteria so as to reduce the adverse environmental impacts.

Data

The essay uses the nationwide survey of *Sustainable Procurement in U.S. Cities*, which was administered to 1,825 department directors from a random sample of 791 U.S. cities with 25,000 residents or more. The survey included directors of finance, environment and public works departments to seek perspectives from individuals who were either knowledgeable about the procurement process, were affected significantly by procurement activities, or had detailed information about the city's environmental management processes. Before sending out the survey, a focus group was conducted with 14 employees, including department directors and purchasing officers from the City of Phoenix, to gain a better understanding about sustainable procurement activities in government agencies. Feedback on the draft survey was solicited from 31 stakeholders working in city government, county government, U.S Environmental Protection Agency, ICMA, SPLC, U.S. General Services Administration, environmental consulting and academia. Minor revisions were made to the survey before the launching of the final version.

The final survey was distributed online in January 2017 for over eight weeks. Department directors received an initial letter informing them of the survey and then an email containing the link to a Qualtrics-based survey. Non-respondents received up to four email reminders, two postcard reminders, and two phone call reminders. 585 directors have completed the survey. After adding the 31 completed during the pre-test, the final sample consisted of 616 responses out of 1,825 with a response rate of 33.8 percent. Among these responses, 48.2 percent were finance directors, 15.3 percent were environmental managers, and 36.5 percent were public works directors. The study matches the data with the *American Community Survey* published by Census Bureau to include city-level demographic variables. Non-response bias tests demonstrated no significant statistical differences at the city level regarding population, median family income, and race.

Measures

Dependent variable

The essay uses three aspects to capture the effectiveness of sustainability implementation: technical specification, procurement concerns, and decision-making criteria. Technical specification refers to a set of documented requirements, duties, and procedures that must be satisfied prior to purchase (Pugh et al., 1963). Procurement concerns indicate the routines by which government purchasers undertake certain activities (Pentland & Rueter, 1994). Decision-making criteria represent factors considered in the purchasing decision. Balancing multiple criteria increases tension with the purchasing process as it requires purchasers to make trade-offs (Leonard-Barton,

1988). Operationalizing implementation effectiveness on these aspects is conceptually consistent with the assumption that the process of sustainability implementation proceeds as the government agencies assimilate the sustainability policy or practice into their working routines and managerial activities (Hsueh et al., 2020; Leonard-Barton, 2011).

This study uses a linear composite index designed by Hsueh and colleagues (2020) to measure how the sustainability policy is implemented. Hsueh's index is consisted of 16 survey items with a Cronbach's alpha of 0.96, including one item for technical specification, eight items for procurement concerns, and seven items for procurement decision-making criteria. The 16 items are assessed with a 5-point Likert scale ranging from "not important (1)" to "very important (5)". The index sums each item score over 16 items and then divides the total score by the total number of survey items. A higher score indicates that the government has effectively accommodate its procurement standards, routines, and decision-making criteria to the sustainable procurement policies or practices. The study duplicates their approach to create *Implementation Index.* Table 4.1 reports the summary statistics of 16 survey items and results of the composite index.

Non-response bias typically arises within survey data when some items are missing or are coded as "Don't Know." As can be seen from Table 4.1, when constructing *Implementation Index,* responses are dropped if there is a missing value or a "Don't Know" response for any of the 16 items. Hence the number of total observations then decreases from 616 to 349, indicating the potentiality of non-response bias. To further examine the issue of non-response bias, the essay replicates the diagnostic tests conducted by Hsueh and colleagues (2020). The first analysis regresses a set of variables, including department type, city size, city wealth and demographic diversity, on whether

the observation contained any "Don't Know" responses. The second analysis uses the negative binomial model to examine the count of “Don’t Know” with the same set of independent variables. Table 4.2 demonstrates that the only salient source of non-response bias lies in the type of department. Public works directors generally have fewer “Don’t Know” than the financial and environmental counterparts. To adjust the bias, we have added the department fixed effect in the empirical model. Further analyses comparing the results of the public works department with the combination of finance and environmental departments also indicate the internal consistency and reliability of *Implementation Index*.

Table 4.1

Summary statistics of SPP implementation index

Variables	N	Mean	SD	Min	Max
Technical Specifications					
Importance of…					
Technical specifications in managing sustainability concerns	514	2.72	1.27	1.00	5.00
Procurement Concerns					
Importance of environmental concerns in purchases for…					
Chemical products	527	3.42	1.30	1.00	5.00
Road construction	505	3.13	1.31	1.00	5.00
General construction services	515	3.03	1.28	1.00	5.00
Electrical products	501	3.05	1.27	1.00	5.00
IT hardware and services	498	2.91	1.25	1.00	5.00
Professional services	525	2.69	1.31	1.00	5.00
Transportation/fuel	522	3.11	1.31	1.00	5.00
Woods and paper products	526	3.00	1.25	1.00	5.00
Procurement Criteria					
*Importance of…**					
GHG reductions in purchasing criteria	488	2.00	1.13	1.00	5.00
Environmental impact in purchasing criteria	522	2.51	1.28	1.00	5.00
Environmental sustainability of the products offered	561	2.73	1.22	1.00	5.00
Disposal costs in purchasing decisions	562	3.07	1.21	1.00	5.00

Reducing packaging waste in purchasing decisions	562	2.47	1.22	1.00	5.00
Recyclability or reuse in purchasing decisions	569	2.96	1.21	1.00	5.00
Reducing GHG impacts in purchasing decisions	545	2.55	1.25	1.00	5.00
Implementation Index	349	2.83	0.99	1.00	5.00

Table 4.2

Regression results of potential non-response selection

	Model 1[1]	**se[2]**	**Model 2[1]**	**se[2]**
Department				
Finance	-0.16	0.25	-0.02	0.19
Public Works	-0.52**	0.26	-0.79***	0.22
Total Population	0.00	0.00	0.00	0.00
Median Family Income	0.00	0.00	0.00	0.00
Unemployment	-0.01	0.04	0.04	0.03
Families in Poverty	0.01	0.03	0.02	0.03
Number of Black Residents	0.00	0.00	0.00	0.00
Constant	-0.58	0.69	-0.24	0.63
lnalpha constant			1.28***	0.09
N	577		577	

* p<0.1, ** p<0.05, *** p<0.01
[1] Model 1 is an OLS regression on the incidences of non-response. Model 2 is a negative binominal model on the number of "Don't Know" responses.
[2] Robust standard errors.

Independent variables

The strategy of responsibility delegation indicates that high- or mid-level managers might share, assign, or transfer the implementation responsibility to staff employees who actually utilize or deal with the policy. The survey asks respondents, considering environmental sustainability policies and practices in their departments, to what extent do they agree with the statements: “top managers are responsible for the implementation”, “mid-level managers are responsible for the implementation” and “staff employees are responsible for the implementation”. The survey also notes in the section

that “there are no right or wrong answers to these items”. To avoid collinearity, this study only uses the survey item related to “staff employees” to measure *Responsibility Delegation*. The item ranges from “strongly disagree (1)” to “strongly agree (5).” A higher score indicates that employees take greater responsibility of SPP implementation.

Formalization refers to a system of rules, regulations and procedures that might prescribe or constrain members’ behaviors. Prior literature uses a variety of measures to operationalize this concept. Some work uses observational measures such as the count or the length of organizational rules (e.g., Williamson, 2011; Zmud, 1982). However, most studies rely on perceptual measures. An important dimension of these measures is the respondent’s perception of rule intensity (Kaufmann, Borry, and DeHart-Davis 2019; Welch and Pandey 2008a). Kaufman and colleagues (2019), for example, asks respondents to indicate whether their organization has “no rules”, “few rules”, “some rules”, “many rules” or “all rules”. Another dimension of perceptual measures relates to the latitude of behaviors that is tolerated from standards (Hage and Aiken 1967; Hall, Johnson, and Haas 1967; Pandey and Scott 2002). This dimension implies how rules are employed.

Drawing from prior studies, this essay uses perceptual measures to build *Formalization* variable. The study averages two survey items to construct an index. The first item relates to the extent of written rules. It asks respondents how they agree that their department “has too many rules and procedures”. The second item reflects how rules can prescribe employee behaviors. It asks whether employees in the respondent’s department “are constantly being checked on for rule violations”. The answers range from “strongly disagree (1)” to “strongly agree (5)”. The Cronbach’s alpha is 0.6, which

is relatively low comparing to the common practice considering 0.7 as a sufficient indication of reliability. Yet the threshold of 0.7 is usually used for three-item index. The Cronbach's alpha for two-item measures might result in a relative moderate score (Cronbach 1951) and underestimate true reliability (Eisinga, Grotenhuis, and Pelzer 2013). Moreover, some literature has suggested that 0.6 might be considered as an "acceptable" score (Gallais, Gagnon, Forgues, Côté, & Laberge, 2017; Taber, 2018). The increase of the averaged index suggests that respondents perceive their workplace as more formalized.

Openness to Innovation is measured as a composite index with four survey items (The Cronbach's alpha is 0.84) based on a 5-point Likert scale ranging from "strongly disagree (1)" to "strongly agree (5)." The items are "this department has a strong commitment to innovation," "we reward employees who develop innovative solutions," "this department is a dynamic and entrepreneurial place," and "most employees in this department are not afraid to take risks." The index captures whether the government has a culture encouraging its employees to be innovative and bear risks.

Control variables

The study includes three categories of control variables. The first category relates to top management, including sustainability behaviors and the education background of public managers. The characteristics of public managers are vital in promoting the implementation of new policies or practices (Damanpour, 1991; Hu et al., 2012; Moon & Bretschneiber, 2002). To measure *Sustainability Behaviors*, the study creates an average index by using six survey items (The Cronbach's alpha is 0.82). These items ask the

frequency of environmental sustainability behaviors in the manager's personal time, including "recycle solid waste at home," "conserve energy at home," "purchase environmentally friendly products," "compost food waste," and "donate either time or money to an environmental organization". To encourage "honest" answers, the survey specifies that "there are no right or wrong answers". *Education Background* is measured by the highest level of the respondent's educational obtainment. The variable ranges from "High school (1)" to "Graduate degree (6)". A higher score indicates a stronger education background. *Job Tenure* is a numerical variable. It is measured by the number of years that a respondent has worked in their current position. A longer duration might provide public managers greater knowledge of how to effectively manage the implementation of governmental policies and practices (Damanpour, 1991).

Another category is the characteristics of government agencies like organizational structure and financial resources. Prior studies suggest that the prerequisite to effective policy implementation is adequate administrative resources and capacities (Greenhalgh et al. 2004; Van Meter and Horn 1975). *Procurement Structure* is captured by asking respondents how they agree that "individual departments did all of their own purchasing." The answers range from "strongly disagree (1)" to "strongly agree (5)". *Financial Resource* is a 5-point Likert scale item ranging from "strongly constraints (1)" to "strongly facilitates (5)". The survey asks respondents to what extent do financial resources constrain or facilitate their department's ability to implement environmentally sustainable purchasing. The study also includes the *SPP Adoption* variable. *SPP Adoption* is coded as the dummy variable by asking respondents whether their city has formally implemented the policies related to environmentally sustainable purchasing. A "0"

indicates either the city has not implemented the policy, or the respondent is not aware of it. This variable denotes the extent that government agencies are aware of and support sustainable procurement.

The last category of control variables includes the forces from the broader sociocultural context or community. Government agencies have to implement policies under substantial political and socioeconomic challenges (Khan and Khandaker 2016; Henriques and Sadorsky 1999). *Environmental Groups Impact* measures how influential external environmental groups or organizations are in promoting environmental sustainability policies and practices. The responses range from "not influential (1)" to "very influential (5)". Moreover, the study includes three city level variables - *Population (log), Percent Unemployment* and *Percent Black* - to control for the potential demands and influences embedded in the community. *Population (log)* refers to the total population of the city and is coded in the logarithm form. Table 4.3 provides a statistical summary and Table 4.4 shows the correlation matrix.

Table 4.3

Descriptive statistics (N=282)

Variable Name	Mean	Std. Dev.	Min	Max
Dependent Variables				
Implementation Index	2.84	0.98	1.00	4.94
Independent Variables				
Responsibility Delegation	2.81	1.03	1.00	5.00
Formalization	2.52	0.81	1.00	5.00
Openness to Innovation	3.56	0.75	1.00	5.00
Control Variables: Top Management				
Sustainability Behaviors	3.37	0.72	1.33	5.00
Education Background	4.80	1.13	1.00	6.00

Job Tenure	6.47	6.10	0.00	33.00
Control Variables: Org Characteristics				
Procurement Structure	3.54	1.05	1.00	5.00
Financial Resource	2.80	1.27	1.00	5.00
SPP Adoption	0.29	0.45	0.00	1.00
Control Variables: Community Context				
Environmental Groups Impact	2.64	1.22	1.00	5.00
Population (log)	11.09	0.81	10.06	14.75
Percent Unemployment	0.08	0.03	0.02	0.19
Percent Black	0.12	0.14	0.00	0.77

Table 4.4

Correlation matrix (N=282)

	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)	(11)	(12)	(13)
(1) Responsibility Delegation	1.00												
(2) Formalization	-0.04	1.00											
(3) Openness to Innovation	-0.08	-0.08	1.00										
(4) Sustainability Behaviors	-0.26	0.11	0.03	1.00									
(5) Education Background	-0.11	-0.06	0.14	0.10	1.00								
(6) Job Tenure	0.07	-0.06	0.03	-0.06	-0.17	1.00							
(7) Procurement Structure	-0.10	0.01	0.10	0.06	-0.12	0.08	1.00						
(8) Financial Resource	-0.12	-0.10	0.08	0.09	-0.21	0.13	0.17	1.00					
(9) SPP Adoption	-0.21	-0.06	0.01	0.13	-0.03	0.12	0.09	0.04	1.00				
(10) Environmental Groups Impact	-0.38	0.11	0.20	0.26	0.02	-0.06	0.10	0.13	0.16	1.00			
(11) Population (log)	-0.07	0.05	0.05	0.02	0.08	-0.05	-0.11	-0.12	0.21	-0.01	1.00		
(12) Percent Unemployment	0.00	0.04	-0.14	0.00	0.16	-0.10	-0.06	-0.03	0.00	0.00	0.12	1.00	
(13) Percent Black	-0.01	0.02	-0.06	-0.04	-0.01	-0.09	-0.03	0.06	0.01	0.03	0.13	0.41	1.00

Empirical model

The study employs a linear regression model to test how the impact of responsibility delegation on sustainability implementation is contingent upon the structural (formalization) and cultural (openness to innovation) arrangements of government agencies. The department fixed effect is included to absorb unobservable variations across financial, environmental and public works departments. Table 4.5 presents the results of different models. Model 1 provides the simplest form, including only main independent variables – *Responsibility Delegation, Formalization,* and *Openness to Innovation.* Model 2 adds the control variables and the department fixed effect. Model 3 is the full model with interaction terms. The study will discuss the regression result based on Model 3.

Table 4.5

Regression results of SPP implementation

	Model 1	Model 2	Model 3
	Imp Index	Imp Index	Imp Index
Responsibility Delegation	-0.35***	-0.13***	-0.29
	(0.05)	(0.05)	(0.19)
Formalization	0.06	0.04	0.37**
	(0.06)	(0.05)	(0.14)
Openness to Innovation	0.38***	0.26***	-0.05
	(0.06)	(0.06)	(0.14)
Responsibility Delegation * Formalization			-0.11**
			(0.04)
Responsibility Delegation * Openness to Innovation			0.12***
			(0.05)
Attitudes towards Sustainability		0.24***	0.24***
		(0.07)	(0.07)
Education Background		-0.09**	-0.09**
		(0.04)	(0.04)
Job Tenure		0.00	0.00

		(0.01)	(0.01)
Procurement Structure		-0.03	-0.04
		(0.04)	(0.04)
Financial Resource		0.10***	0.10***
		(0.03)	(0.03)
SPP Adoption		0.30***	0.28***
		(0.10)	(0.10)
Environmental Groups Impact		0.35***	0.35***
		(0.04)	(0.04)
Population (log)		-0.02	-0.03
		(0.05)	(0.05)
Percent Unemployment		-0.28	-0.11
		(1.50)	(1.46)
Percent Black		0.54*	0.64**
		(0.30)	(0.28)
Constant	2.34***	0.73	1.23
	(0.33)	(0.72)	(0.82)
Observations	325	282	282
Adjusted R-squared	0.24	0.51	0.53
Fixed Effects	No	Yes	Yes

Standard errors in parentheses

** p<0.10, ** p<0.05, *** p<0.01

The adjusted R-square in Model 3 is 0.53 with the degree of freedom of 264. The study conducts the normality test to examine both the skewness and Kurtosis of the residual. The test returns a p-value larger than 0.1, indicating that we cannot reject the hypothesis that the residual is normally distributed. The study also tests the sample mean to see whether there are significant differences between the observations included in the empirical model and the observations that have been dropped due to missing values. The results indicate that the mean differences of all variables are not significant (p-value is greater than 0.1). Moreover, to check the severity of multicollinearity, a test relates to the variance inflation factor is conducted on both Model 2 and 3. In Model 2, the scores for all variables are within the acceptable range (below 1.5), suggesting that predictors are

not correlated. As for the third model, all other variables have scores below 1.5 except for independent variables and their interaction terms.

Regression results

The first two hypotheses propose a misfit between responsibility delegation and formalization. Table 4.5 shows that the interaction term of *Formalization* has a negative coefficient with a p-value less than 0.05. A joint test on the coefficients associated with *Responsibility Delegation* (-0.29), *Formalization* (0.37), and their interaction term (-0.11) returns a p-value of 0.000, suggesting the contingent effect of *Responsibility Delegation* on *Implementation Index.*

Figure 4.1

The interaction effect of formalization (N=282)

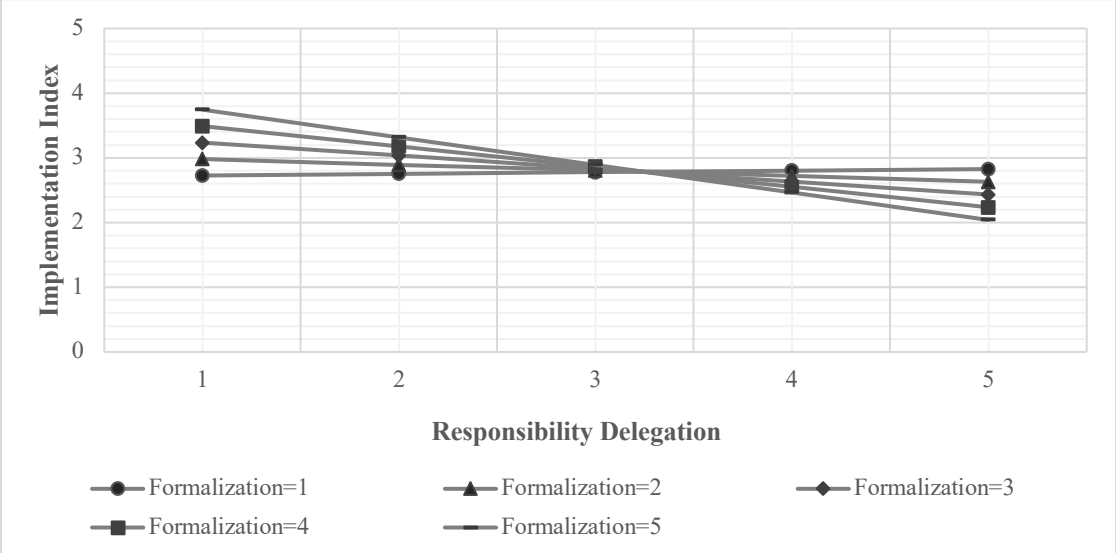


Figure 4.1 presents a more accurate view of how the impact of *Responsibility Delegation* varies at different levels of *Formalization*. The study uses all estimated

coefficients from the full model (Model 3) in Table 4.5 to calculate *Implementation Index* by holding all other variables at their sample means. The outcomes are simulated based on the main effects of *Responsibility Delegation, Formalization* and their interaction term. The figure shows that delegating responsibility to employees might slightly facilitates sustainability implementation when *Formalization* is at its lowest level (=1). It also shows that the initial positive impact of *Responsibility Delegation* turns into negative along with the growth of *Formalization.* Given together, the results imply that the impact of responsibility delegation will vary by the degree of formalization, proving empirical support for Hypothesis 1a and 1b.

Hypothesis 2a and 2b posit that a culture of openness to innovation might serve as a fit to responsibility delegation. The coefficient of its interaction term is positive and has a p-value less than 0.01. A similar joint test on the coefficients of *Responsibility Delegation* (-0.29), *Openness to Innovation* (-0.05), and their interaction term (0.121) returns a p-value of 0.00.

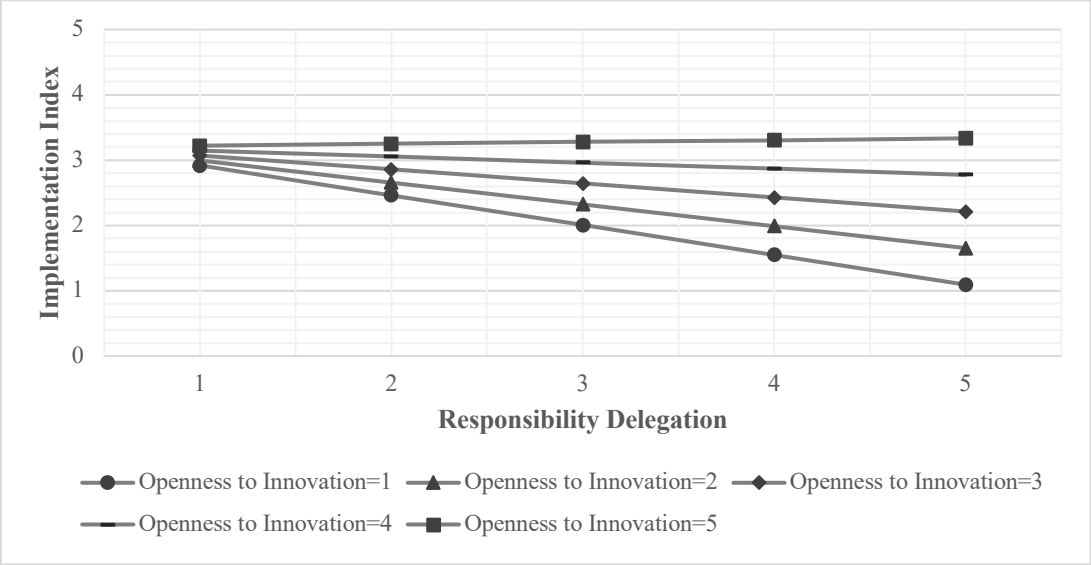
Figure 4.2 provides a similar analysis as done in Figure 4.1 to simulate all possible results of *Implementation Index*. The figure demonstrates that when *Openness to Innovation* is high enough (=5), the strategy of responsibility delegation facilitates the implementation of sustainability policies and practices. Otherwise, the relationship might become negative. The negative effect will grow in magnitude as *Openness to Innovation* decreases from 4 to 1. The results provide empirical support for Hypothesis 2a and 2b.

Moreover, the coefficient of *Responsibility Delegation* is significant in Model 2 (b=-0.13, p=0.004) while turns into insignificant in Model 3 (b-0.29, p=0.123). The results imply that simplifying the relationship between *Responsibility Delegation* and

Implementation Index as direct and linear might bias the estimates. Therefore, Model 2 might be mis-specified as the main effect of *Responsibility Delegation* in Model 3 is not independent of the interactions. Model 3, in contrast, can better explain the relationships among *Responsibility Delegation, Formalization, Openness to Innovation,* and *Implementation Index*.

Figure 4.2

The interaction effect of openness to innovation (N=282)



Discussion and conclusion

This essay explores the contingent impact of responsibility delegation on the implementation of sustainability policy. The empirical findings support the proposition that formalization is a misfit for responsibility delegation. A highly formalized structure likely constrains employees' initiative as well as suppresses their flexibility, which then incurs a feeling of powerlessness and self-estrangement (Neely & Hill, 1998; Cresswella

& Sheikh, 2013). These feelings will set barriers to sustainability implementation. In contrast, an informalized structure serves as a supporting environment for the delegation strategy. The structure provides employees with greater flexibility in tailoring the sustainability policy to accommodate local demands (Welch & Pandey, 2008).

Moreover, the results indicate that a culture promoting innovations might be a fitting condition to responsibility delegation. This culture encourages employees to learn, experiment, and bear the risks of sustainability implementation (Klein & Knight, 2000; Murray et al., 2016; Park et al., 2016). Otherwise, employees might be reluctant to take the lead in exploring new ideas or initiating changes, for the fear of serious punishments on unsuccessful attempts. Therefore, delegating responsibilities to employees will be more effective in facilitating the implementation of sustainability policies if the government's culture welcomes innovations.

Besides this, there are some interesting results with regards to control variables. The study finds that the implementation of sustainable procurement policy (SPP) might be more effective if the manager have a strong education background or frequently demonstrate sustainability behaviors in his/her personal time. It is reasonable to assume that managers with such characteristics are more likely to appreciate the merits of SPP and provide support for implementation. Prior studies indicate that employees are highly aware of the attitudes and behaviors of people in authority (May and Winter 2009; Moseley and Charnley 2014; Hu et al. 2012). When employees perceive the support from top management, they tend to be more committed to implementation activities (May and Winter 2009; Moseley and Charnley 2014).

The results also suggest that the formal adoption of SPP likely enhances implementation effectiveness. The adoption can signal employees the importance and legitimacy of sustainable procurement (Greenhalgh et al., 2004). As a result, employees will perceive the implementation as less uncertain or risky and hence be more willing to integrate the new policy or practice into their ongoing activities (Damanpour 1991). Additionally, consistent with prior studies (Greenhalgh et al. 2004; Moon and Bretschneiber 2002), the results indicate that the government's financial capacity might facilitate the implementation.

Finally, the findings demonstrate that the influence of environment groups or organizations might facilitate sustainability implementation. As the stakeholder theory suggests, government agencies will behave in certain expected ways to maintain political capital, secure financial resources, and avoid regulatory threats (Freeman 2010; Henriques and Sadorsky 1999). Environmental groups embedded in the community are typically considered as an important stakeholder (Henriques and Sadorsky 1999). Government agencies might be more committed to the implementation of SPP if they perceive greater influences from them.

Limitation

Before discussing broader theoretical and managerial implications, some limitations are worth noting. First, the survey asks respondents to indicate the extent to which they consider specific knowable items as important to their procurement activities or they agree with the statements associated with their departmental structure and culture. The using of self-reported survey could lead to common source bias (CSB) problems,

especially when the independent and dependent variables are perception- or attitude-based (Meier and O'toole 2013; Favero and Bullock 2015). However, variables in this study might be less vulnerable to the CSB problem as the survey has provided respondents an option of "Don't Know". Hence only respondents who felt confident in their answers are included in the empirical model.

Another problem relates to omitted variables. Despite that the study includes three categories of control variables (top management, organizational characteristics and community context) and adds department fixed effect to the empirical model, it inevitably misses some variables. For example, variables related to the characteristics of employees, such as their attitudes towards sustainability, are not incorporated in the model. Further investigations might consider including these variables.

The third issue is associated with the measure of formalization. While formalization and red tape were not seen as conceptually distinct in prior studies, recent literature suggests that the "tone" of formalization should be neutral rather than negative (Kaufmann, Borry, and DeHart-Davis 2019; Kaufmann and Feeney 2012; Bozeman and Scott 1996). However, the implementation index in this study might cast a negative light on formalization. Future studies would benefit from using a more robust and reliable measurement to operationalize formalization.

Finally, given the cross-sectional design of the survey data, this study fails to capture a full picture of sustainability implementation. For that sustainability policies often have a long-term objectives (Liao, Warner, and Homsy 2019), the implementation tends to be a continuous process which involves various cycles of iteration as individual, organizational and social dimensions gradually adapt (or not) over time (DeLeon and

DeLeon 2002; Moseley and Charnley 2014; Spillane, Reiser, and Reimer 2002). Therefore, the contingent impact of responsibility delegation on sustainability implementation might change as the process unfolds. Future studies might use longitudinal data in exploring how responsibility delegation affects implementation over an extended period of time.

Theoretical and practical implication

In spite of the limitations, the study has important implications for public management theory and practice, especially how government agencies might enhance their sustainability performance. First, the study sheds lights on the emerging debate over the impact of responsibility delegation on sustainability implementation. Recent movements, such as new public management, often emphasizes on the importance of delegating authority, discretion, and responsibility to public servants as a means of enhancing public services and governmental performance (Vigoda 2003; J. M. Bryson, Crosby, and Bloomberg 2014; Farooqi and Forbes 2020). Yet, a modified view, given support here, is that the delegation strategy might be a wise choice only when it fits the internal arrangements. The essay also strives to explain the mechanism of fit. It proposes that the government's structure and culture will provide a fitting environment to responsibility delegation if they encourage employee initiative and proactivity.

Besides this, whereas much of prior research has focused on the implementation of sustainability policies within a hierarchical political system of inter-related national or sub-national governments, intra-governmental implementation also merits the attention (Ji 2016; Hsueh et al. 2020). This essay uses data from public managers of finance,

environment, and public works department to implement sustainability within the government agencies. Third, the study extends the stream of research in implementation by providing a more complex and nuanced mechanism of sustainability implementation. Prior studies tend to access how the government's structural and cultural arrangements affect the implementation in an isolated fashion by focusing on a single type of determinant at a time (e.g., Bretschneider an Parker, 2016; Epstein and Buhovac, 2010; Greenhalgh et al., 2004; Klein and Knight, 2005). The study establishes an interactive path between implementation strategy and the government's internal arrangement to predict the outcome of sustainability implementation.

Finally, the study identifies what kind of governmental arrangement might (not) be congruent with responsibility delegation. The finding can be extended beyond the sustainability context as it provides practical suggestions for public managers on how to design different strategies in different government structures and cultures. The empirical results support the proposition that a delegation strategy will reach its full potential when the government's internal arrangement encourages employee initiative. The finding opens up an aspect for fruitful future research in public management seeking to explain the impact of managerial strategies on the government's sustainability performance.

CHAPTER 5

DISCUSSION AND IMPLICATIONS

This research examines how sustainability policies and practices are developed, adopted, and implemented in local governments. It investigates the research questions of (1) how institutions and social environment influence government sustainability initiatives; (2) how the influence varies across countries with different histories and societal cultures; and (3) how sustainability policies can be effectively implemented in public agencies with different internal arrangements. My finding indicates that social forces, such as pressure from external stakeholders and societal cultures, are related to local governments' decisions to adopt or envision sustainability initiatives. It also demonstrates that the influence of social forces on government sustainability decisions differs from the U.S. to Japan, confirming the assumption that theories, practices, and solutions of public management generated in one country might not be applied directly to others. Finally, the results support the importance of the fit between implementation strategies and the government's arrangement, which subsequently affects how sustainability initiatives might be enacted or enforced.

My first essay uses a 2015 nationwide survey on local government sustainability practices to investigate how social media shape the government sustainability plan and how it differs from conventional participatory mechanisms. The essay finds that social media outperforms conventional approaches in some aspects but not all of them. For instance, although citizen participation through social media is effective in urging public agencies to develop a comprehensive plan, it barely affects whether the government will adopt a sustainability plan. Other mechanisms, such as resident committees, might be

more effective in pushing governments to adopt such a plan. Therefore, policymakers and public managers should strategically choose different participatory mechanisms for different types of sustainability decision-making, so as to effectively gather information, enhance public trust, and improve their sustainability outcome and performance.

Building upon the first essay, the second integrates the theoretical framework of Individualism-Collectivism with stakeholder theory to examine how external pressure might affect the government's environmental sustainability efforts and how this effect differs across societies with different cultures. The result suggests that the values and attitudes embedded in the society not only have a direct influence on government environmental management practices, but also shape how governments react to external demands, powers, and institutions. For instance, the result supports the assumption that Japanese public agencies embedded in a collective culture pay more attention to social duties and responsibilities; while a societal culture favouring competition might motivate governments in the U.S. to advance environmental sustainability. Public managers or policymakers, therefore, should be careful when learning from the best practice or exemplar cases. They must consider the broad societal and cultural context in which these practices are introduced and implemented, in order to predict the potential outcomes and effects (Fitzpatrick et al. 2011; Kim 1999).

The third essay moves from policy adoption to implementation and aims to investigate how government agencies might effectively carry out sustainability policies and practices. Drawing on the contingent theory, the study finds that responsibility delegation might set barriers to sustainability implementation when the government has a highly formalized structure and a culture discouraging innovative behaviors. The finding

contributes to the emerging debate on responsibility delegation by establishing an interactive path between implementation strategies and the government's structure and culture. It also provides insights for public managers on how to craft a strategy to advance sustainability policies depending on different internal settings.

In conclusion, my dissertation responds to the growing concern that more nuanced examinations are needed to understand variations in the development and implementation of local government's sustainability initiatives (Ji 2016; Feiovk and Coutts 2013). First, the research enhances the understanding of why some local governments have developed comprehensive sustainability policies/practices, while others have not. For instance, results from the first essay suggest that the utilization of social media in public agencies might give rise to a more interactive and participatory decision-making process, which then results in a more comprehensive sustainability plan. Given the importance of policy design and its link with improved sustainability performance (Darnall and Kim 2012; Ji 2016), the findings have significant implications for public managers and policymakers to develop sustainability initiatives that incorporate a variety set of economic, environmental, and social objectives.

Moreover, despite that the comparative method is considered essential in generating reliable administrative knowledge (Fitzpatrick et al. 2011; Jreisat 2005), relatively little research has employed this lens to examine environmental sustainability in local governments. This study identifies several country-specific findings. For instance, different countries might emphasize different dimensions of societal cultures. In the U.S., it is the perception of competition that shapes the ways through which governments react to external stakeholder pressures and develop their sustainability efforts; while the

dimension of independence has a salient influence on the government's environmental sustainability in Japan. These findings reinforce the notion that a country's history and culture play an important role in determining how other factors might influence government sustainability initiatives. Therefore, public managers must take the broad social context into consideration when introducing new environmental practices, particularly in an era that advocates for global actions on sustainability development.

Finally, the dissertation also contributes to the growing evidence that provides public managers with a basis for implementing sustainability policies and practices. Scholars suggest that extant research provides little guidance to practitioners hoping to move from an adopted sustainability policy to action (Kinzer 2018). This research helps advance the ongoing debate toward a more productive discussion on how to effectively develop implementation strategies for better sustainability outcomes. The finding implies that a seemingly productive strategy might turn into problematic if it is incompatible with the government's internal arrangement or the broader social context. It provides insights on how to achieve better sustainability management and implementation.

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