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Linking E-Government to Good Governance for Sustainable Development in Small Island Developing States

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Abstract

Most studies exploring the relationship between e-government development and good governance have concluded that e-government has largely positive effects on various aspects of governance. However, an important criticism of the current literature on e-government is that the relationship often lacks a theoretical foundation. In this study, we propose a conceptual framework for the relationship between e-government and good governance, based on the conjecture that while there is a link between the two, conditions must be ripe for e-government to be effective in enhancing good governance. We propose a framework where the relationship between e-government and good governance is both direct and indirect, moderated by social conditions. As an exploratory effort, we test this model in the context of Small Island Developing States and find that the effects of e-government on governance are moderated by other social conditions such as social openness and the rule of law to influence governance. These results are encouraging as we attempt to understand the mechanisms by which e-government can play a role in enhancing good governance.

Key words: e-government, governance, Small Island Developing States (SIDS), sustainable development

Ⅰ. Introduction

Since the early 1980s, the pursuit of e-government as a tool for enhancing governance has become a worldwide trend. E-government has been credited with making government more efficient and effective, more responsible and accountable, more open and accessible, and more democratic. Originating as applications of information and communications technology (ICT) that were focused on increasing the efficiency of government service provision, e-government is now widely accepted as a vital tool for achieving better overall governance (UNPAN, 2012). Currently, e-government systems are adopted not only to improve administrative efficiency, but ultimately to establish systems of good governance, particularly in developing countries (Helbig, *et. al.*,

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2009; Lee, 2012).

A content analysis of 84 papers on e-government by Heeks $ Bailur (2007) found that the impacts of e-government are viewed as "technologically determinist." Furthermore, e-government is many times presented as a cost-effective approach to elevating the quality of public services in developing countries. These empirical studies have also provided evidence that e-government enhances transparency and promotes active public participation in government.

However, other research suggests that the relationship between e-government and governance is not straightforward and its impacts on governance may not be simple as supposed (Gil-Garc a & Pardo, 2005; Harrison & Sayogo, 2013; Heeks & Bailur, 2007; Kumara & Best, 2006; Pardo, *et. al.*, 2010; Sayogo & Pardo, 2013; Wong & Welch, 2004). This scholarship argues that much of the existing research often fails to capture e-government as "a complex organizational and social phenomenon" with "recursive interactions" among internal and external factors (Gil-Garc a & Pardo, 2005; Sayogo & Pardo, 2013). Consequently, this literature does not fully capture the societal implications and institutional character (Pardo, *et. al.*, 2010) of the contexts in which government operates (Jones, *et. al.*, 2007). As a result, the impacts of e-government are not fully understood (Lee, 2012) and their evaluation remains "an under developed area" (Jones, *et. al.*, 2007).

As an exploratory effort, we examine the moderating role of social and political contexts on the relationship between e-government development and good governance at an international level. In particular, we focus on Small Island Developing States (SIDS) as a sample of interest. SIDS have faced with the critical issue of sustainability due to isolation, climate change, overexploitation of land, and lack of resources. With assistance from various international agencies, SIDS are prioritizing e-government projects as major drivers of their national development strategies (Lee, 2014). Such strategies require extensive investment in ICT and e-government infrastructures. However, there is the debate on the effectiveness of ICT investment and e-government projects by SIDS governments. Some argue that SIDS nations are not ready to make the most of e-government initiatives, while others argue that e-government projects will enhance the various aspects of governance which, in turn, lead to sustainable development in SIDS. With such investments at stake, it is important to clarify the role of e-government in development strategies and to understand the mechanisms by which it enhances good governance and facilitates development.

In the following section, we review some of the current literature on e-government and its relationship with development and governance. We then develop a conceptual framework in order to guide our exploration of some of the conjectures about the proposed linkage between e-government and good governance. Finally, we report on our findings from an analysis of SIDS data, concluding with a discussion of the policy implications of these findings.

II. Literature on the Relationship between E-government and Governance

It is often assumed that e-government has various, mainly positive, impacts on economic and social development of a nation. For example, Bhatnagar (2003) finds that e-government empowers communities, increases efficiency and effectiveness of service delivery, and promotes positive social impacts in the form of increased transparency and reduced corruption. In addition, major economic impacts include increased tax revenues, reduction in service delivery cost, and better control of government expenditures. In similar findings, Kearns (2004) reports improved service quality and cost reduction for core service outcomes as well as enhanced trust as impacts of e-government.

Governance is a multifaceted concept and, consequently, different aspects of e-government impacts on governance are represented in the literature. One common line of inquiry focuses on the effects of e-government on the efficiency and effectiveness of public service delivery (Cellary, 2008; Srivastava & Teo, 2007; Yang & Rho, 2007). There appears to be a general consensus that e-government increases government efficiency and effectiveness in terms of both resource utilization and administrative processes.

Another stream of research focuses on the impacts of e-government on citizen satisfaction and trust in government, finding that e-government increases citizen-government interactions and government responsiveness which, in turn, enhances citizen satisfaction and trust (Parent, *et. al.*, 2005; Tolbert & Mossberger, 2006; Welch, *et. al.*, 2005). However, more nuanced studies find that e-government is a secondary factor in influencing trust (Parent, *et. al.*, 2005), noting that increased citizen interaction by itself is not enough, rather, it is the quality of these interactions instead that matters (Tolbert & Mossberger, 2006; Welch, *et. al.*, 2005).

Perhaps the earliest and most widely studied impact has been the role of e-government in enhancing transparency and reducing corruption (Andersen, 2009; Bertot, *et. al.*, 2010; Kim, *et. al.*, 2009; Shim & Eom, 2008). Once again, the impact of digital governance on government transparency and anti-corruption efforts is viewed as highly positive. In an effort to understand the nature of this relationship, researchers have turned their focus on the mechanism by which e-government achieves these positive effects. Instead of assuming a direct effect, a more complicated relationship has been posited where the effect is influenced by the cultural orientation of citizens (Bertot, *et. al.*, 2010), leadership quality, and the other strategies that are implemented along with the introduction of e-government (Kim, *et. al.*, 2009). However, isolating the unique effects of e-government is difficult. This is because e-government is rarely introduced in isolation; its introduction is generally accompanied by a change in leadership style and a number of other strategies designed to improve transparency and government responsiveness.

One of the studies is an examination of the effects of e-government on government structures and the relationships among public officials within the executive branch in New Zealand. From her analysis of three e-government case studies, O'Neil (2009) reports that the changes brought by e-government

are instrumental, rather than systemic, because "it is evident that the political, legal and constitutional structures and relationships of executive government remain unchanged."

The studies reviewed so far focus mainly on efficiency and effectiveness, citizen satisfaction and trust in government, transparency, anti-corruption, and the effects on government structures and relationships. A noteworthy limitation of these studies is that they postulate a direct relationship between e-government and governance. Efforts at a more realistic portrayal of the relationship have led to modeling the complexities of the relationships between governance and e-government. However, an important criticism of the current literature is that it lacks the theoretical foundation required to accomplish this portrayal (Ching & Luk, 2009; Ciborra & Navarra, 2005; Gil-Garc a & Pardo, 2005; Harrison & Sayogo, 2013; Heeks & Bailur, 2007; Kumara & Best, 2006; Pardo, *et. al.*, 2010; Sayogo & Pardo, 2013; Wong & Welch, 2004).

In this regard, Heeks & Bailur (2007) warns against "technology determinism" which assumes that information and communications technology (ICT) development will naturally lead to social development of a nation. Instead they emphasized the actors and social contexts for successful implementation of e-government projects. According to Gil-Garcia & Pardo (2005), the success of an ICT project is a product of managerial, political, and legal factors surrrounding the project. Wong & Welch (2004) investigated the role of bureaucracy types, and Kumara & Best (2006) emphasized the role of political and administrative support in the study of the relationship between e-government and good governance. There have been many discussions, but we have not come to a definitive conclusion yet.

This lack of consensus is due, in part, to the fact that each of these studies draws upon different spatial and temporal contexts. That is, they are unique in terms of their research contexts, and it is consequently difficult to find consistent patterns that prevail across contextual environments. These studies lack a systematic approach to modeling the impacts of e-government on good governance.

However, one area where there does seem to be some consensus is with the role of social capital. It would appear that many scholars have independently arrived upon the importance of social conditions as plausible moderating factors in determining the level and nature of the role of e-government in governance (Harrison & Sayogo, 2013; Pardo, *et. al.*, 2010; Sayogo & Pardo, 2013). Emphasizing societal contexts and institutional characteristics in understanding e-government impacts, Pardo, *et. al.*(2010) argue that we need to pay attention to "the unique context, power, and character of government" based on two premises: the under-evaluated role of the societal context and the poorly understood role of ICT in government's impacts on social, political, and economic life. Pursuing e-government research, they argue, "requires a strategy to overcome cultural and organizational barriers."

Although the conceptualization of the contextual variables has been initiated, there are few empirical studies exploring the plausible role of social conditions as contextual variables. One exception is the Green Button case study of a US government data disclosure project by Sayogo & Pardo (2013).

They found that the interaction between internal and external factors is important to success. The external factors they considered included economic factors, technological factors, regulatory contexts and policy incentives, and factors that stimulate imitative behavior among the adopters. In another study, Harrison & Sayogo (2013) found e-government had a positive effect on governance in their examination of how socio-political conditions and budget transparency influence public participation in the budget process.

In Figure 1, we propose a conceptual framework where the positive impacts of e-government are moderated by social conditions. Our framework is based on the premise that e-government by itself cannot be solely responsible for bringing about economic development and good governance. While e-government serves as a positive force in good governance, it needs to be accompanied by the correct societal conditions in order to elicit its desired effects. We propose that for the positive governance effects of e-government to be fully realized, it must be introduced and contextualized in societal structures and conditions that include the presence of adequate human capital.

To develop and maintain an e-government infrastructure, there must exist the human capital that can support this infrastructure. As the literature suggests, e-government has the technical capacity to improve efficiency and effectiveness of private and public sector activity. However, we posit that while technology can influence societal change, technology cannot effect appreciable change by itself. For e-government to be successful it must be accompanied by social conditions and capacity that moderate its effectiveness in enhancing good governance as depicted in 〈Figure 1〉.

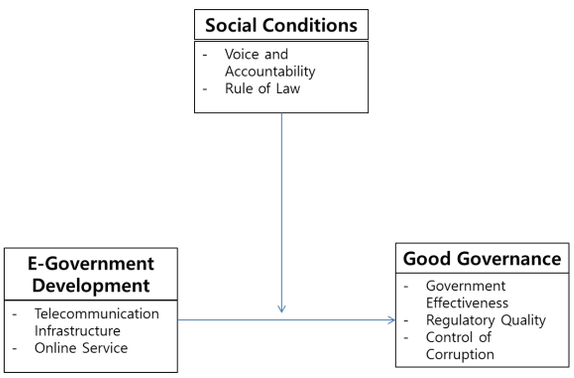

Figure 1. Conceptual framework for e-government impact

To determine whether there is empirical support for this model, we use the e-government development indices in the United Nations (UN) E-Government Surveys as measures of e-government development in Small Island Developing States (SIDS). According to these UN surveys, the level of e-government development can be assessed in four areas: (1) ICT infrastructure (TII), (2) ability to use e-government (HCI), (3) e-Service (OSI), and (4) e-Participation (EPI). TII and OSI capture the technical¾hardware and software¾aspects of e-government infrastructure, whereas HCI and EPI capture the human capital and participation levels. We utilize only TII and OSI components as proxies of e-government development. The HCI and EPI components represent an ability to use ICT and e-government applications instead of a level of e-government development.

According to World Bank (1992), the definition of governance is "the manner in which power is exercised in the management of a country's economic and social resources for development." Furthermore, the World Bank contends that good governance will be realized through improving the

level of transparency, democracy, and government capability. Kaufmann & Kraay (2007) define governance as the traditions and institutions by which authority is exercised. They divide good governance into three categories: process, capacity, and interaction between the citizens and their government. The process aspect of governance by which those in authority are selected and replaced includes measures such as "Voice & Accountability" and "Political Stability & Absence of Violence." Government capacity pertains to the ability to formulate and implement policies, which includes measures such as "Government Effectiveness" and "Regulatory Quality." The interaction between the citizens and the state includes measures such as "Rule of Law" and "Control of Corruption."

Our focus is on how e-government enhances government effectiveness and strengthens participatory democracy. Hence, we draw upon the capacity and citizen-government interaction indicators from Kaufmann & Kraay (2011) to construct our measures of good governance, using the following measures: Government Effectiveness, Regulatory Quality, and Control of Corruption.

The development literature emphasizes the importance of openness and a transparent system of laws as conditional contexts for any government reform. Thus, we use Voice & Accountability and Rule of Law from Kaufmann & Kraay (2011) as proxies for the social conditions that moderate the impacts of e-government.

Ⅲ. Research Design

1. Sample

There are 52 Small Island Developing States distributed across three different regions: nine states in the Atlantic, Indian Ocean and South China Sea (AIMS) region, 20 in the Pacific region, and 23 in the Caribbean region. We were able to obtain time-series data on 35 of the 52 states for the years 2003~2014. These data were obtained from all nine of the AIMS states, 11 Pacific states, and 15 Caribbean states.

2. Measures of the Variables

1) Measures of E-Government

We utilize two dimensions of the UN E-Government Development Index as measures of e-government development; these are ICT infrastructure (TII) and e-Public Service (OSI).

ICT infrastructure reflects the telecommunication infrastructure index and a composite index of the proportion of internet users, the proportion of fixed phone lines, the proportion of mobile subscribers, the proportion of fixed internet subscribers, the proportion of fixed broadband subscriptions, and wireless broadband subscriptions. Data on TII are from the International Telecommunication Union's ICT development Index (IDI)

E-Public Service is an online service index measuring national website's service level such as governmental portals and ministries' websites of education, labor, social services, health, finance, and environment. Each index ranges from 0 to 1.

2) Measures of Good Governance

As mentioned above, the concept of good governance is measured by three governance indicators proposed by Kaufmann & Kray (2011): Government Effectiveness, Regulatory Quality, and Control of Corruption. Our measure of good

governance is calculated as the average of these three indicators.

Government effectiveness measures the quality of public service provision and the independence of government from political pressures. It captures the quality of policy formulation and implementation, particularly for the delivery of public goods as well as the credibility of government commitment to policies.

Regulatory quality measures the ability of the government to formulate and implement sound policies that create an environment conducive to private sector development. Relaxation of excessive regulation on trade and private businesses can be conceptualized as the formation and implementation of policies and regulations in support of the development of the private sector, emphasizing market-friendly government policies.

Lastly, the control of corruption is a measure of the extent to which government authority is exercised by elites for personal benefit and the ability of private interests to capture the state.

Data on these measures are all from the World Bank's Worldwide Governance Indicators (2003-2014) combined from several sources including the Economist Intelligence Unit, International Institute for Management Development, Asian Development Bank, and Freedom House. Worldwide Governance Indicators are constructed by aggregating indicators of six broad dimensions of governance for over 200 countries and territories combined from several sources. These indicators range from -2.5 to +2.5.

3) Measures of Social Conditions

Social conditions as the candidates for moderating variables are measured by two variables: Voice & Accountability and Rule of Law.

Voice & Accountability is an index that represents the extent to which a country's citizens are able to participate in selecting their government, freedom of expression, association, and a free media obtained from the World Bank's World Governance Indicators. The Rule of Law index incorporates citizens' perception of crime, judiciary effectiveness, and enforceable contracts. These data are also from the World Bank's Worldwide Governance Indicators (2003-2014). Each index ranges from -2.5 to +2.5.

4) Other Control Variables

In addition to the above variables, we included GDP per capita and a human capital index (HCI) as control variables. The use of GDP per capita is to control for differences in economic development, which is also assumed to affect governance. The human capital index is a composite index consisting of the weighted average of adult literacy rate, primary, secondary, tertiary enrollment, and expected years of education. It is a measure of the differential ability to use e-government across nations.

3. Empirical Models and Estimation

To test the plausible moderating effects of social conditions on the relationship between e-government development and governance, we adopted a two-stage analysis strategy. In the first stage, we built a model to test whether certain characteristics of a country interact with e-government development to influence governance. The model specification is represented in Equation 1:

$$Good\ governmance_{i,t} = + \alpha_0 + \alpha_1 EGD_{i,t} + \alpha_2 EGD_{i,t} Country\ group_i + \alpha_3 Country\ group_i + \alpha_4 HCI_{i,t} + \alpha_5 (GDP\ per\ capita) + \epsilon_{i,t} \quad \text{(Equation 1)}$$

We first created three governance categories–high, medium and low–according to governance indices of each country. That is, based on the values of governance indicators, we assigned the top 12 countries to the high governance group, the next 12 countries to the middle governance group, and the remaining 11 countries to the low governance group.

Next, we included the level of e–government development and its interaction with country group on the right side. This specification allowed us to examine whether e–government influences governance and, also, whether interaction between e–government and country's characteristics influence governance.

In summary, Equation 1 provides and initial check of whether e–government has a direct or an indirect, moderating effect on governance.

In the second stage of the analysis, we built an model to test the moderating effect of social conditions on the relationship between e–government development and good governance.

$$Good\ governmance_{i,t} = + \alpha + \beta_1 EGD_{i,t} + \beta_2 EGD_{i,t} V\&A_{i,t} + \beta_3 EGD_{i,t} Rule\ of\ law_{i,t} + \beta_4 V\&A_{i,t} + \beta_5 Rule\ of\ law_{i,t} + \beta_6 HCI + \beta_7 (GDP\ per\ capita) + \epsilon_{i,t} \quad \text{(Equation 2)}$$

Where EGD represents e–government development, V&A represents Voice & Accountability as a measure of social conditions, and Rule of Law is another moderating variable. Equation 2 represents good governance as a function of e–government development, social conditions, the interaction of e–government development and social conditions, and other control variables. One of interesting points on this equation is the effect of e–government development on governance captured by β1. And it is also central to the analysis whether the interaction terms (β2 and β3) are statistically significant. In this paper, we also will compare Equation 2 with the model that has no interaction terms. By taking this strategy, we will be able to show how social conditions interact with e–government to influence governance.

For the analysis, we used panel data, which is likely to involve autocorrelation (serial correlation) and heteroskedasticity. We conducted the Wooldridge test for autocorrelation and the Breusch–Pagan test and White's test for heteroscedasticity. Both autocorrelation and heteroskedasticity were present, and we used Feasible Generalized Least Squares (FGLS) to correct our estimations.

Ⅳ. Analysis and Results

1. Descriptive Statistics and Correlation Analysis

〈Table 1〉 below shows descriptive statistics for the variables used in the analysis.

The average index of e–government development in the sample SIDS is 0.224, which is lower than the world average (0.4712), indicates the under–developed status of e–government in SIDS. This gap is one of the reasons that SIDS recently prioritized this area for national development. In terms of governance, the averages of three

Table 1. Descriptive statistic

Variable	Gov't effectiveness	Regulatory Quality	Control of Corruption	EGD	EGD × V&A	EGD × Rule of law	V&A	Rule of law	HCI	ln(GDP per capita)
Average	−0.068	−0.191	0.107	0.224	0.008	0.076	0.289	0.078	0.773	8.248
S.D.	0.834	0.838	0.819	0.166	0.125	0.174	0.713	0.805	0.150	1.112
N	214	217	217	217	216	217	216	215	217	214

governance indicators are −0.068, −0.191, and 0.107, respectively, in the range of −2.5 and 2.5, which are also below world averages.

The correlation among the variables is also shown in 〈Table 2〉. Overall, the correlation coefficients among e−government and governance indicators are high ranging from 0.643 to 0.737.

Even these simple correlations indicate a potential interaction effect between the two moderating variables and governance.

2. Results of Regression Analysis

1) Results of the First Stage Analysis

The results of regression analysis of Equation 1 are shown in Table 3. First, country group variables have a statistically positive effect on good governance in both models. Second, surprisingly and contrary to many previous studies, the direct impacts of e−government on governance are not statistically significant in either model. Third, the interaction terms have a positive effect on good governance. This suggests e−government interacts with country characteristics and lends empirical support for our conceptual framework.

Table 2. Correlations among variables

Variable	Gov't effectiveness	Regulatory Quality	Control of Corruption	EGD	EGD × V&A	EGD × Rule of law	V&A	Rule of law	HCI	ln(GDP per capita)
Gov't effectiveness	1									
Regulatory Quality	0.894***	1								
Control of Corruption	0.889***	0.770***	1							
EGD	0.737***	0.705***	0.643***	1						
EGD ×V&A	−0.236***	−0.326***	−0.179***	−0.425***	1					
EGD × Rule of law	0.274***	0.241***	0.304***	0.493***	−0.069	1				
V&A	0.358***	0.392***	0.383***	0.072	−0.011	−0.248***	1			
Rule of law	0.839***	0.793***	0.849***	0.570***	−0.307***	0.104	0.573***	1		
HCI	0.550***	0.437***	0.525***	0.364***	−0.195***	−0.133*	0.169**	0.548***	1	
ln(GDP per capita)	0.820***	0.771***	0.779***	0.736***	−0.350***	0.091	0.289***	0.779***	0.639***	1

* p〈0.1, ** p〈0.05, ***p〈0.01

Table 3. Regression results of detecting other influential factors

Variable	Non-interaction model	Interaction model
EGD	0.013	-0.052
Country group	0.398***	0.275***
EGD× Country group	-	0.414***
HCI	0.197	0.267**
ln(GDP per capita)	0.329***	0.293***
constant	-3.700***	-3.630***
N	214	214

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

Also, in the interaction model, the interaction term has a statistically significant impact on governance, while the direct effect of e-government is statistically insignificant. This result suggests that a plausible path for the impact of e-government on governance lending further support for the our framework.

2) Results of the Second Stage Analysis

From the first stage results, we learn that country characteristics affect governance. The purpose of the second stage analysis is to explore the role of moderating variables in this relationship.

We model the moderating role played by social conditions in the relationship between e-government development and good governance. To capture social conditions in a country, we used Voice & Accountability and Rule of Law. This postulated relationship is tested and the results are presented in 〈Table 4〉 through 〈Table 6〉.

〈Table 4〉 shows the moderating effects of social conditions on government effectiveness. With moderating variables in the equation, e-government development (EGD) has a positive and statistically significant influence. Two interaction terms between e-government and social condition are also positive and statistically significant. However, the moderating variable, Voice & Accountability, does not have a statistically significant effect on government effectiveness, but the interacting term with e-government development is positive and statistically significant. In sum, we can conclude that social conditions measured by social openness and the rule of law serve as moderating factors for the relationship between e-government and government effectiveness. For example, under a social environment that freedom of expression is guaranteed, e-government would seem to have greater influence on governance. Also, a law-based social environment enhances the effects of e-government on governance.

Table 4. Moderating effects of voice and accountability and rule of law on government effectiveness

Variable	Non-interaction model	Interaction model
EGD	0.412***	0.448***
EGD×V&A	-	0.333**
EGD×Rule of law	-	0.541***
V&A	0.037	0.039
Rule of law	0.439***	0.459***
HCI	0.173	0.290*
ln(GDP per capita)	0.247***	0.256***
constant	-2.214***	-2.415***
N	210	210

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

〈Table 5〉 shows the impacts of e-government development on regulatory quality, another proxy for governance. In this result, the interaction term between e-government and Voice & Accountability has no significant effect, while another interaction term is positive and significant. And in this

estimation, the direct effect of e-government disappears after the introduction of moderating variables. One possible interpretation of the result is that Voice & Accountability itself and its moderating role with e-government do not matter in the politics of regulation making. However, Rule of Law is statistically significant and its moderating influence on e-government is positive. E-government projects often require a legal basis for its implementation, and the provision of such legal grounds tends to lead to transparent governance.

Table 5. Moderating effects of voice and accountability and rule of law on regulatory quality

Variable	Non-interaction model	Interaction model
EGD	0.291*	0.054
EGD×V&A	-	-0.187
EGD×Rule of Law	-	0.443**
V&A	0.035	0.066
Rule of Law	0.362***	0.352***
HCI	-0.164	-0.189
ln(GDP per capita)	0.348***	0.360***
constant	-2.863***	-2.964***
N	213	213

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

The moderating effects of social conditions on the relationship between e-government development and Control of Corruption are shown in <Table 6>. In this analysis, we could not find a direct effect of e-government on governance in either model. Instead, we find that e-government has a positive effect on governance only via interaction with moderating variables. This result suggests that the two variables, e-government and Control of Corruption have an indirect relationship. It implies that controlling corruption can be an important factor for the effectiveness of e-government initiatives.

Table 6. Moderating effects of voice and accountability and rule of law on control of corruption

Variable	Non-interaction model	Interaction model
EGD	0.148	-0.119
EGD×V&A	-	0.315*
EGD×Rule of Law	-	0.758***
V&A	0.050	0.085*
Rule of Law	0.465***	0.482***
HCI	0.170	0.194
ln(GDP per capita)	0.242***	0.289***
constant	-1.989***	-2.459***
N	213	212

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

V. Conclusion and Impilications

Economic development in SIDS is inherently vulnerable and there is no guarantee that it is sustainable. SIDS are geographically isolated, susceptible to natural and environmental disasters, and have small populations and resource bases. As in many other developing countries, great hope is placed in the positive role of e-government as a tool for economic and social development and for good governance. For this hope to be realized and to design appropriate strategies, it is important to understand how e-government impacts governance.

The current literature suggests that there is a positive relationship between e-government development and good governance. However, there does not appear to be a consensus regarding the nature of that relationship. We have proposed a conceptual model that allows social conditions to

play a moderating role in the relationship between e-government and good governance.

Utilizing SIDS data, we find support for our model where social conditions moderate the impacts of e-government on governance. Contrary to received wisdom, our analysis did not always find a direct effect of e-government on good governance. However, we did find that the interactions with moderating variables influence governance. This suggests that the relationship between e-government development and governance is perhaps more complicated than a simple cause and effect relationship between technology and governance. Furthermore, it suggests that a context has to be created and societal conditions have to be ripe in order for the positive effects of technology to take hold.

According to the results of the study, the effectiveness of e-government initiatives on good governance may heavily depend on the social contexts of a developing state. On the one hand, e-government initiatives helps to improve governance directly and, on the other side, it positively affects social change which helps to enhance good governance. This indicates that the effects of e-government on good governance can be maximized, if the social environment is favorably constructed. Therefore, it may be important to strategically combine the promotion of a friendly social environment when pursuing e-government projects in developing countries. On the other hand, the implementation of e-government initiatives needs to be appropriate to the social context of developing countries for their effectiveness.

As a preliminary exploration of our e-government framework, this study is encouraging. However, empirical work of this type is always fraught with limitations even though the general finding of the link between e-government and good governance seems robust. The precise nature of the mechanism underlying this link requires additional scrutiny before we can make recommendations regarding the nature of the investments in e-government as a vehicle for facilitating development and good governance.

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지속가능발전을 위한 전자정부 발전과 거버넌스와의 관계에 대한 연구: 도서개발국가를 중심으로

국문초록 이 논문에서는 도서개발국가들(Small Island Developing States)을 대상으로 전자정부의 발전과 거버넌스와의 관계를 실증적으로 분석하고 있다. 기존 문헌들은 대부분 전자 정부 발전과 거버넌스와의 선형적 관계를 가정하여, 전자정부의 발전이 거버넌스의 다양한 측면에 긍정적 영향을 미치고 있다고 보고하고 있다. 그러나 이 논문에서는 두 변수의 관계가 단순한 선형적 관계가 아니라, 두 변수 사이에 그 영향을 조절하는 변수가 개입할 수 있고, 이에 따라 전자정부 발전의 거버넌스에의 효과가 다르게 나타날 수 있다고 가정한다. 즉, 전자정부의 발전이 거버넌스에 직접적인 영향을 미칠 뿐만 아니라, 사회적 여건에 따라 간접적인 효과도 갖는 실증 모형을 설정하여, 그 영향을 실증적으로 분석하고 있다. 분석결과, 이 연구는 사회적 개방성이나 법에 의한 통치 등 사회적 여건 변수가 조절변수로서 전자정부 발전과 거버넌스와의 관계에 개입하는 것을 확인하였다. 이를 통해, 본 연구는 전자정부의 발전이 거버넌스에 미치는 다양한 경로에 대한 연구가 보다 활발히 진행되어야 함을 강조하고 있다.

주제어 : 전자정부, 거버넌스, 도서개발국가, 지속가능한 발전

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