

# The Institutional Effects on the Evolvment of e-Government Online Service Delivery in the U.S. Cities\*

Ching-Heng Pan\*\* Chyi-Lu Jang\*\*\*

## Abstract

Under the federalism system, local governments have discretions and responsibilities prescribed by the state governments in matters under their jurisdiction including the adoption of e-government initiatives. The authors take an institutional perspective to examine the current development of local e-government in the U.S. context. Specifically, the present study aims to analyze the effect of isomorphism, vicarious learning, and structural institutions on the advancement of online services, which is in the process of moving from the basic stage to the more advanced stage. The findings suggest that frequency imitation and population trait imitation are present. A city's likelihood of expanding its service capacity is positively related to the frequency of previous adopters. The study also found that cities' advancement behaviors could be motivated by other

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\*\* Assistant Professor, Graduate Institute of National Policy and Public Affairs, National Chung Hsing University.

\*\*\* Associate Professor, Department of Political Economy, National Sun Yat-Sen University.

smaller cities' adoption of advanced services. City population, council-manager form of government, and the presence of e-government development plans are found to be positively related to service advancement. It is concluded that the development of city e-governments was mostly driven by informal institutions such as norms or managers' personal motives and less driven by formal e-government agenda. From a normative perspective, to realize the rhetoric benefits of e-government, federal government or state government may consider employing policy incentives to facilitate local e-government initiatives.

**Key Words:** e-government, organizational imitation, online service, local government, United States

## **I. Introduction**

As being analogized as the third industrial revolution, the impacts of information technology are so extensive on today's world that the governance structure is facing a revolutionary challenge. The new technology has powerful effect on the economy, society, and the government. In view of the governance structure, the effect reaches vertically from local, national, to supranational level, and horizontally from the private sector, public sector, to the third sector.

In the public sector, establishing the electronic government or e-government has become a focal agenda that challenges the academia and practitioners around the world. A major goal of building e-government is to provide services to citizens online. Scholars have been trying to identify predictors of website adoption among local governments (Weare, Musso, & Hale, 1999; Moon, 2002). The website adoption literature ranges from posting static information to providing interfaces for citizens to interact with the governments. Based on the current findings, the present study extends this line of research in two avenues. First, the literature does not discern the predictors of municipal online service delivery from simple website launching. We refer online services delivery to the more advanced stage that involves the more complex organizational behaviors rather than simple internet appearance. We argue that the predictors pertinent to different development stages have different policy implications. Second, the literature does not specifically attend to the dynamic aspect of institutional nexus that shapes city governments' decisions to adopt various online services. Enacting information technology is an complex institutional process that calls to the attention of institution scholars, who consider IT enacting institutions in the public sector more complex than in the market economy (Fountain, 2001). Although the identified predictors such as city size, government resources, and government forms are viable structural factors, they do not delineate the social learning process among city governments. Organizations may imitate others in adopting a

policy or strategy without evident technical efficiency (DiMaggio & Powell, 1983). The imitation effects are subtle and not well constructed by the structural variables.

Organizational imitation is a concept that theorizes policy diffusion through social processes among organizations. Such mimetic behaviors are usually associated with technical or environmental uncertainty. The organizational imitation research is rare in the public sector context. Our research expands the understanding of organizational imitation in the context of online service provision in city governments. We conceptualize the organizational mimetic behaviors as a social process between the adopting cities and their reference cities; and the frame of reference is subject to certain characteristics of the adopting cities such as population and regions. In addition to the inquiry of mimetic behaviors, we also examine the social process from two other aspects. First, by factoring the geographical patterns of adopters versus non-adopters of online service, we examine whether or not the technological advancement of internet has changed the conventional understanding of policy diffusion patterns pertaining to geographical proximity. Second, by examining local governments' entrepreneurial characteristics and their relationship with online service provision, we identify viable institutional factors that facilitate e-government initiatives. In so doing we attempt to bring the institutional insights to the understanding of the local e-government evolvement.

## **II. Literature Review**

### **1. Current phase of the e-government**

E-government has become a phenomenon that almost all countries around the world have put the e-government initiatives on their national agenda. From the global point of view, by 2004 about 93 percent or 178 out of 191 members of the United Nations had a website presence, and about one-third provided public

services online (United Nations Global E-government Readiness Report 2004). The World Bank defines E-Government as “the use by government agencies of information technologies (such as Wide Area Networks, the Internet, and mobile computing) that have the ability to transform relations with citizens, businesses, and other arms of government. These technologies can serve a variety of different ends: better delivery of government services to citizens, improved interactions with business and industry, citizen empowerment through access to information, or more efficient government management. The resulting benefits can be less corruption, increased transparency, greater convenience, revenue growth, and/or cost reductions<sup>1</sup>.” In general, e-government includes four major internal and external aspects: (1) the establishment of a secure government intranet and central database for more efficient and cooperative interaction among governmental agencies; (2) Web-based service delivery; (3) the application of e-commerce for more efficient government transaction activities, such as procurement and contract; and (4) digital democracy for more transparent accountability of government (Moon, 2002). Given the diverse connotation of e-government, it is expected that the literature covers a wide spectrum of research issues. While all aspects of e-government have been under exploration, the conception of e-government in the literature have largely focused on electronic service delivery as the key feature of this global phenomenon. Among other reasons, it is related to the current developmental stage of the e-government where online service delivery is the one of the major attainable features. From a more holistic view of e-government, delivering service electronically is only one of the aspects that e-government has to offer. A balanced e-government strategy ought to set the core value to employing the available technology to pursuit better public management as well as sound civic society. In turn, the full potential of e-government can be realized to benefit governments, businesses, citizens, and other stakeholders. We recognize

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<sup>1</sup> Available at World Bank’s E-government website

<http://www1.worldbank.org/publicsector/egov/definition.htm>. . Last access: February 22, 2005.

the visions of the e-government and elect to focus the present research on service delivery. Accordingly we continue the discussions on the development of e-government from the perspective of service delivery.

The evolvement phases of the e-government service delivery are mostly conceptualized by its functionality and the extent to which the internet changes the structure of the business processes. Scholars do not necessarily agree at all conceptualizations of the phasing but commonly label the current status as the early stages. For example, Layne and Lee (2001) use complexity involved and different levels of integration to label the four developmental of the e-government in four stages: (1) cataloguing, (2) transaction, (3) vertical integration, and (4) horizontal integration. Miranda (2000) defines the four stages in terms of the utilization of the internet: (1) formative, (2) distributive, (3) transactional, (4) transformational. Moon (2002) adopts Hiller and Belanger's typology to establish a five-stage framework, which sequences political functions or political participation as the fifth stage following the four administration function stages. The majority of city e-governments are currently at the stage that one-way dissemination is the main function. Fewer city e-governments have reached the more advanced transactional stage in which citizens can transact with the government electronically, such as paying taxes, utility bills, parking tickets, and applying for permits, etc.. In the later stage, ideally different functions and different levels of governments will be integrated so that citizens can access all government services through one portal. Via the portal, citizens will find that practices and processes of the e-government are based on needs and functions but not on departments and agencies. It certainly takes a serious commitment in time and effort for the governments to transform the structures and the mindset of the civil personnel to realize the vision. The developmental phasing is indicative at the time that these typologies are conceptualized. The so called last stage does not mean the evolvement of the e-government will come to an end when all the expected features are realized. Rather, it points out the challenges and goals in the

development of public administration, which will continue to grow and cope in the ever changing world.

Because the current e-government is at its early stage, it is understandable that the alleged benefits of e-government have not yet been fully realized, especially the visions in e-democracy is farther away from today's reality (Weare et al, 1999; Musso, Weare, & Hale, 2000; West, 2001; Moon, 2002). The literature suggests that the underpinning philosophy of the current e-government is obviously in favor of economic development rather than enhancement of democracy (Musso et. al., 2000; Stowers, 1999; Steyaert, 2000; Pratchett, 1999). More local government websites are designed to facilitate economic development such as supporting local business or attracting tourists (Kanfer & Kolar, 1995). The contents purporting to citizens' involvement into the political and administrative processes in an "e-society" are not emphasized proportionately as much as the advocates prescribe what the e-government may bring about. In view of the communication patterns between the city governments and the citizens, more websites are designed for one-way information dissemination from the governments to the citizens rather than interactive communications or monetary transactions. These findings and observations that identify the popular services requested by the citizens are mostly obtained from content analysis and surveys (Stowers, 1999; Brannen, 2001; Miranda, 2000; West, 2000, 2001, 2002) <sup>2</sup>. The emphasis of the e-government evolution are consistent with the theoretical framework that puts the political participation in the later stage. These general characteristics mark the current and beginning phases of the e-government.

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<sup>2</sup> Top citizen services for electronic delivery include driver's license renewal, voting, one-stop shopping, parking ticket payment, real estate records, and tax payment. Top business services for electronic delivery include federal or municipal court records, professional license renewal, criminal history background checks, business permits, workers' compensation reports, and license renewals of employees. Also see: Meghan Cook (2000) "What citizens want from e-government" Source: Center for Technology in Government.  
[http://www.ctg.albany.edu/publications/reports/what\\_citizens\\_want](http://www.ctg.albany.edu/publications/reports/what_citizens_want) (Last access: 12/16/2004)

## 2. Influential institutions to the adoption of online services

Weare et al. (1999) found the most significant predictors of the adoption of website in California cities are city size, government resources, concentration of social-economic elites, and voter registration levels. Using a nationwide survey data<sup>3</sup>, Moon (2002) also found that city size and council-manager form of governments are positively related to the adoption and longevity of the city website. The rapid diffusion of launching official websites is noticeable in recent years. The fast diffusion may result from its relatively low cost and low risk in adoption (Weare et al., 1999).

The researches that investigate the relationship between local governments' entrepreneurial characteristics and tendency of adopting reinvention programs provide insights to the present research, although they do not directly focus on the e-government initiatives. In the midst technical and environmental uncertainty, it takes on entrepreneurial characters of a city government to provide services in an innovative way. Municipal leadership is crucial in overcoming barriers of adopting reinventing government initiatives (Ruhil, Schneider, Teske & Ji, 1999; Moon & deLeon, 2001). Schneider and Teske (1992) show that local government entrepreneurs are most likely to appear in jurisdictions with slack budgetary resources, large percentages of homeowners, increasing racial diversity, growing population size, and high tax rates. Kearney, Feldman, and Scavo (2000) found that city managers' action taking behaviors on reinventing programs are not only positively related to managers' pro-reinvention attitudes but also related to municipal government workforce, geographical regions, and municipal wealth. They use municipal fund balance and taxable value of real estate as proxies of slack resources to regress on city reinvention actions. Weare et al. (1999) employ per capita revenue to measure slack resources accounting for early website

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<sup>3</sup> The study was based on the 2000 E-government Survey conducted by the International City/County Management Association (ICMA) and Public Technology Inc.



adoption. The literature shows a strong argument supporting a positive relationship between entrepreneurship and slack resources in local governments.

It is understandable that providing online services is not as prevailing as adopting websites. Providing interactive online services obviously faces more costs and uncertainty because the websites are no longer a display window but a portal to various services. Whether developed in-house or outsourced, interactive services incur higher costs of acquiring necessary technology, equipment, and personnel to integrate the functions of the front office and back office. The reengineering of the business processes certainly incur transaction costs in addition to the direct costs. Yet most of the governments that provide web-based online services also provide a paper option<sup>4</sup>. The administration costs are unlikely to be reduced at the initial stages when the up-front investment has not yet started to pay off. Moreover, the alleged economic efficiency of the e-government is still unclear among the early adopters. From this point of view, the uncertainty of the results of providing online services is considered high, and to some extent may hold back some risk-adverse city governments to embark their online services journey. All these arguments point to the suggestion that the predictors of website adoption are not necessarily comparable to online services that are considered more advanced along the e-government development path.

The literature on website adoption focus more on the static determinants than on the social dynamics of innovation diffusion. Variables such as city size, the characteristics of the electorate, or form of government are structural and relatively static in nature<sup>5</sup>. We contend that supplying online services is a quite different story given that it is a reform initiative, a managerial innovation with

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<sup>4</sup> The 2002 ICMA E-government survey shows that among those governments that provide online services also provide a paper option and payment by mail or in person for the majority of those online services.

<sup>5</sup> Population, form of government, and the voters structure certainly do not always remain unchanged over time. By labeling these variables static, we refer to their relative stability in the short run.

strong technological elements, as well as organizational strategic choices in the face of uncertainty. The interplay between social actors in adopting government online services merits further study. We consider city governments social actors who learn from one another to establish their policies and practices including online services.

History shows that technology and the use of technology shape and are shaped by social structures and social relations. The optimistic technocrats have all reasons to believe that e-government will significantly improve managerial efficiency, quality of service delivery, and political participation, since the required technology has been developed and adopted in the business realm. E-commerce is rapidly taking up a ever growing share of the entire economy. However, the institutionists argue that the promise of gains from the e-government is shaped greatly by organizational behavior and bureaucratic politics. The realization of the virtual government has to wait for the political institutions and human natures to catch up. The readiness of establishing e-government therefore depends more on the institutional factors and less on the maturity of technology. We argue that, among other factors, organizational imitation plays a crucial role in the process of developing e-government. This institutional perspective provides a more balanced view between the technology determinism and organizational behavior in assessing the adoptions of efficiency-oriented initiatives.

Technical efficiency is one of the major rationales of delivering government services online, which echoes the recent new public management movement in promoting efficiency-oriented reform initiatives. However, it is still an open question that whether or not the current practices actually increase the overall efficiency for all levels of governments that adopt them. Why would a government adopt online services if the efficiency gain from doing so may be unclear? DiMaggio & Powell (1983) argue in their seminal paper that more organizational changes are not driven by the need for efficiency but the social process of *isomorphism* under uncertainty to conform to the norms of legitimacy.

Roy and Seguin (2000) contend that public organizations are mainly propelled by institutional motives, as opposed to the technical usefulness, to adopt efficiency-oriented approaches. Other researches find that many local governments adopt, for example, privatization strategy without considering the contextual factors and the utility of such strategy (Pouder, 1996). The new institutionalism scholars point out that learning and following are critical drives behind certain organizational behaviors, which tend to altering the original business processes in order to adopt new practices that their peer organizations adopt. To date, flagging the best-practices tops other strategies in developing e-governments. The phenomenon of searching for best practices is arguably an evidence of organizational imitation; it is the social process among organizations that to a greater extent affects the organizational choice of adopting e-government initiatives.

Recent research on organizational imitation investigates across a considerable range of market contexts (Haunschild, 1993; Korn & Baum, 1999; Baum, Li, & Usher, 2000; Henisz & Delios, 2001). Firms strategically imitate other organizations that are similar in size and being viewed more successful (Haveman, 1993). Some studies noted the incidences of popular administrative innovations such as merger and downsizing are adopted independent of the technical merit. Technological, organizational, or strategic innovation with ambiguous returns can diffuse in a bandwagon manner (Abrahamson & Rosenkopf, 1993; Abrahamson, 1991; Abrahamson, 1996). By comparing managerial innovation with technological innovation, Kimberly (1981: 87) notes that imitation is likely to play a significant role in managerial innovation. Government online service obviously combines the two aspects of innovation at once. It is managerial because online services can streamline the coordination among departments and hierarchies; it is technological because online services obviously involve technical equipment and expertise by which the managerial advancement can be realized.

Unlike the abundant imitation research in the marketing literature, the approach applied to the public sector context is limited. One of the rare incidents is by Tolber and Zucker (1983), who observe organizational imitation in the diffusion of civil service reform during 1880 to 1935. The present research attempts to add to the literature the understanding of organizational behaviors regarding the adoption of efficiency-oriented reform initiatives in general and the adoption of e-government online services in specific. In the sections to come we discuss the organizational imitation literature in more detail and its linkage to online service adoption.

### **3. Frame of Reference**

Imitations take place within certain boundaries. Organizations with similar structural factors may use one another as reference to evaluate their relative adequacy. The evaluation criteria are conditioned by norms, which are socially derived. We apply the concept of network structure and homophily theory to the interorganizational contagion of online service adoption. Research on the network structure of interpersonal contagion of a belief or behavior use two conditions to conceptualize diffusion – cohesion and structural equivalence<sup>6</sup> (Burt, 1999). As the homophily theory states, effective human communication or relations occur between a source and a receiver when they have similar attributes and have a common frame of reference such as demographic variables, beliefs and values (Lazarsfeld & Merton, 1954; Rogers, 1995). Cities may evaluate their adequacy by comparing with other cities within the frame of reference. Population, region, and form of government, for example, can be used to form the frame of reference.

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<sup>6</sup> Cohesion refers to the strength of the relationship between the receiving person and the source person. Socializing communication is the cause of contagion by cohesion. Structural equivalence refers to the receiver and the source having similar relationship with other people. The more similar the receiver and the source' relationship with other people, the more likely the receiver will quickly adopt any innovation perceived to make the source more attractive as the object of relations. (Burt, 1999: 39)

These variables are identified as strong predictors of website adoption or reinvention programs in the literature (Weare et al., 1999; Moon, 2002; Kearney et al., 2000).

A city with population of five thousand, for example, is unlikely to evaluate her adequacy in online service provision against a city with population of several millions, and vice versa. They are more likely to find references within a comparable range of population size. Kearney et al. (2000) find the regional effect on city managers' behaviors in adopting reinvention programs. Their findings show that managers of Sun Belt cities are more likely to recommend reinvention actions than their counterparts in Frost Belt cities, and managers in the South and Southwest are more likely to be leaders of reinvention than those in the northern states. Cities of the same jurisdiction such as state are likely to be mutual references because of they are in a comparable legal environment. For example, fiscal institutions imposed by the state determine which taxes a city may employ and which public services a city is responsible for providing. The form of government is an important variable in studying urban reform policies (Kearney & Scavo, 2001; Benton, 2002; Frederickson & Johnson, 2001; Klase & Song, 2000; Morgan & Kickham, 1999; Feiock & Kim, 2000). Council-manager municipalities are more receptive to managerial reforms and innovations than the mayor-council municipalities (Svara, 1990). In the context of e-government, the council-manager type of municipal governments tends to be early adopters of official websites (Moon, 2002). Decision makers may refer to those cities in the same form of government because the power structures through which the decision or political consensus is achieved can be an important concern in adopting innovative practices without strong proof of technical efficiency. The measure of organizational imitations can be better isolated when the frame of reference is carefully taken into account.

## **4. Organizational Imitation**

### **(1) Frequency-based imitation**

The new institutional school points out that the more organizations that adopt certain practice or structure, the legitimacy of the practice or structure is increased hence the desire of subsequent organizations to adopt such practice (DiMaggio & Powell, 1983; Tolbert and Zucker, 1983). Although frequent adoption may imply the actual technical value of the practice (Abrahamson and Rosenkopf, 1993), the presence of the economic efficiency of the practice is not necessarily required for the bandwagon effect to take place. The subsequent organizations' behaviors are based on the frequency of precedents of the practice instead of the technical benefits of the practice. The followers' adoption of the practice may thus become a taken-for-granted action driven by the legitimacy or perceived value enhanced by large numbers of the previous adopters. If the benefits of providing government services online for local governments are so far more rhetorical than reality as the literature suggests, then the popularity of the initiatives may indicate mimetic behaviors. Accordingly, we expect the frequency of cities in the frame of reference that previously provide online services is positively related to the likelihood that the focal city increases online services.

### **(2) Trait-based imitation**

Organizational studies show that certain traits such as size, success, or high-status of the organizations adopting a practice influence subsequent imitation of the practice by other organizations in the same population or frame of reference. Larger organizations serve as role models for other organizations in their population, indicating the institutional rule that larger firms are attached with positive values to their growth and survival in the environment hence merit imitation of other smaller organizations (Mezias and Lant, 1994; Burns and Wholey, 1993). Firm size is a good proxy indicator of the growth and success in the private sector, but may not be equally applicable to city or city government.

Large city does not necessarily mean more successful. For example, the per capita income of a large central city is not always higher than smaller suburban cities. Broadly speaking, a larger city's fiscal health is not necessarily better than a smaller city. Nonetheless, city size or population still has implications of city status of some kind. Larger cities are like larger firms who are more likely to be the subjects of imitation because of their visibility. Large cities also have the advantage of enjoying the economies of scale, which reduce the long term service cost as the output increases. Furthermore, the career ladder of most city managers starts from smaller cities and gradually move up to larger cities (Watson and Hassett, 2003), which implies a higher status of larger cities in terms of human capital attraction. Population growth, labor force growth, and per capita income also capture certain aspects of success in competitions (Bradley and Gans, 1998), hence represent economic success. Thus, we expect that population and the economic success of other cities within the frame of reference that have provide online services are positively related to the likelihood of subsequent adopters.

### **(3) Outcome-based imitation**

With outcome based imitation, it is not the total number or certain characteristics of other organizations that matters. Instead, the outcome of the policy or strategies being adopted is the issue at stake. In the context online service provision, the prospective city will evaluate whether other cities receive positive results from adopting online services. Presumably positive results lead to imitation while negative results lead to avoidance of adopting online service. Efficiency improvement is one of the expected outcomes of adopting online services, as many e-government advocates highlight. A prospective government may look up the other governments' overall efficiency change resulted from adopting online services.

Measuring outcome is an important area of study in public administration. A method of measuring outcome efficiency is to calculate the output to input ratio, which is commonly seen in the performance measurement literature in

government service delivery. Some researches attempt to build econometric models by constructing the efficiency frontier to compare efficiency among cities (Borger and Kerstens, 2000). However, research of this line is limited to specific service and is short of generalizability. Benchmarking across localities is still an ongoing effort among the academia and practitioners. Recognizing the limitation, researchers also assess outcome through opinion surveys. Although objectivity is an arguable issue in opinion surveys, the information can provide meaningful references in that user satisfaction is a vital aspect in evaluating service delivery. The perceived outcome may influence future decision makings of the interested parties.

Our study utilize survey data to test the outcome-based imitation. We use the supply-side users' perception of the efficiency gain of their online services. We expect that a city is more likely to adopt online services when workers of other local governments within the same frame of reference have positive perception toward the efficiency of their online service delivery.

## **5. Geographical Effects**

In general, the policy diffusion literature agrees on the positive effect of geographical adjacency on policy diffusion (Berry & Berry, 1999; Mintrom 1997a, 1997b). Baum, Li, and Usher (2000) find that geographical proximity and organizational learning are correlated in the context of chain's acquisitions. The geographical effects on policy diffusion may result either from the Tiebout-type competitive pressure (Tiebout, 1956) or from social learning mechanisms through which policies spread without pressure or advantage. The Tiebout competitive pressure occurs when a city's residents or businesses move out of the city because there are better public services elsewhere, particularly the neighboring cities. Significant reduction in population may stagnate local economy. Among other actions of remaining competitive in the locality, city officials may adopt the efficiency-oriented policies adopted by other cities as a response to the Tiebout



effect. Even without such explicit competitive pressure, policies may diffuse through information spillover across the boundaries or through social interactions.

However, we are cautious about making propositions about the geographical effects in the e-government context because of the nature of the internet. On the one hand, cities could learn from their neighbors, as we discussed above. On the other hand, the internet technology alters the pattern of information exchange and redefine the geographical and time boundaries that confine traditional media. Through the internet, perhaps some crucial policy information that shapes a city's policy agenda belongs to a source city located at hundreds of miles away. Although the information available online certainly does not have to be e-government related, presumably policy makers of the e-government initiatives should be relatively more sensitive to the advantages of the internet than of other policy areas. They should not limited their information search to their neighbor cities but be able to take advantage of the extensive availability of online information, such as operation models, service types, and various local information of the previous adopters elsewhere. In addition, networking becomes relatively easier and inexpensive through the internet, even at the global level. In turn, the technological advantage of the internet can diffuse policy information without extensively relying on geographical and interpersonal connections. Assuming that policy makers in the area of the e-government initiatives have a higher sensibility to the advantage of the internet, we expect a weak geographical effect in the social learning process of online services provision.

### **III. Data And Method**

The primary data sets are the Electronic Government Survey of year 2002 and 2000, conducted by The International City/County and Management Association (ICMA). The *Electronic Government 2000* survey was mailed to 3,749 local governments, including 2,899 municipalities and 850 counties, above

10,000 in population with either the council-manager or council-elected executive form of government in the United States. The response rate is over fifty percent, including 50.7% of municipalities and 48.2% of counties.

The *Electronic Government 2002* survey was mailed in spring 2002 to the Chief Administrative Officers in municipalities with populations 2,500 and over, and to the Chief Administrative Officers of counties with populations 2,500 and over with the council-administrator or council-elected executive form of government. Of the 7,005 municipalities and 839 counties that received surveys, 3,700 responded (52.8%) and 423 responded (50.4%) respectively. Among the respondents in 2002, varying in service items, about 164 to 2,423 local governments provide one or more dynamic online services.

In order to analyze the change over the two year period, we identified 1,351 governments (1,077 municipalities and 274 counties) that responded to both surveys. Samples at the municipality level are the subjects of our investigation and the data are used to model the change of service provision over the two-year period.

In addition to the ICMA survey data, we use data from the U.S. Census Bureau. We use the data of demographics, local economic and financial statistics including population, attainment of higher education, labor force rate, employment rate, population in certain occupations or industries (i.e., information, professionals, and public administration), population of local government workers, and per capita income. These variables are selected for their association with the diffusion of government online services.

There are ten service items that appear in both survey years (see Table 1). We group these services into two broad categories, advanced and basic, that largely match the characteristics of the first two to three stages of the e-government. Our focus of attention is on the advanced services including online monetary and documentary transactions, which require more managerial and technological sophistication. We contend that institutional factors such as organizational

imitations are important variables to the adoption of advanced service features because the uncertainty and costs of providing advanced features are higher than providing advanced features, so the effects of imitations will be more salient in the process of decision making. Basic services, on the contrary, will be associated with weaker or no imitation effects because the choice of provision will be relatively easier to made without referring to other cities. Moreover, the basic services are often regarded as the fundamental features for ICTs or online application, and they are not the core elements related to deliberately institutional choice or organizational imitations in the establishment of e-government. Although the analysis and inferences of the present study may be sensitive to the distinction between the basic and advances services, it is necessary to exclude or control the extraneous variance caused by variables other than isomorphism, vicarious learning, and structural institutions on the advancement of online services. Thus, it is expected that due to the similarity in the basic services, the variance inherent in the evolvement of e-government online service is more significantly correlated to the advanced services than to the basic services.

Table 1 Online services

Service Types	Service descriptions
<b>Advanced services</b>	<ol style="list-style-type: none"> <li>1. Online <b>payment</b> of taxes</li> <li>2. Online <b>payment</b> of utility bills</li> <li>3. Online <b>payment</b> of fines/fees</li> <li>4. Online <b>completion and submission</b> of <b>permit</b> applications</li> <li>5. Online <b>completion and submission</b> of <b>business license</b> applications/renewals</li> <li>6. Online <b>property registration</b>, such as animal, bicycle registration</li> <li>7. Online <b>voter registration</b></li> </ol>
<b>Basic services</b>	<ol style="list-style-type: none"> <li>8. Online <b>requests</b> for local government <b>records</b></li> <li>9. Online <b>requests for services</b>, such as pothole repair</li> <li>10. Online <b>registration</b> for use of recreational <b>facilities</b>, such as reserving picnic areas, racquetball courts, and classes</li> </ol>

Source: Authors' tabulation.

## 1. Dependent variables

After matching the two datasets of 2000 and 2002, a city can be put into one of the four categories shown in Table 2. The focus of our study is the institutional effects on the adoption of online services during the two year span. Therefore, the population in our model include only those cities that did not have the services in question in 2000. That is, we test the institutional effects by comparing those who advanced with those who remained no service. We do not include in the study population the cities that provided services in 2000 for two reasons. First, the main reason to discontinue the services is very unlikely to be imitations. Since the technological, managerial, and political costs had been invested, operational difficulties or inefficiency are more likely to be the cause of forfeiting the investment in two years. Similarly, for those who continued to provide services, the imitation effect of the decision making is minimal because of the inertia of policy continuity. Second, we elect the binary logistic regression instead of polytomous logistic regression to maintain the robustness of the model. As mentioned above, the imitation effects would be less salient for those who already had services in 2000. Using four categories do not contribute much to the isolation of the institutional effects. In addition, specifying more categories in the dependent variables may run into the problem of zero cells and cause instability in coefficient estimates.

Table 2 Categories of service status

Categories of service status from 2000 to 2002
1. Service in 2000 and in 2002 (Yes-Yes)
2. Service in 2000 and no service in 2002 (Yes-No)
3. No service in 2000 and Service in 2002 (No-Yes)
4. No service in 2000 and no service in 2002 (No-No)

**Source:** Authors' tabulation.

Among the ten services examined, seven features are considered more advanced according to the organizational and technical complexity of providing such services. The provisions of advanced features are fewer in numbers and do not have sufficient sample size to fit multilevel logits by each individual feature. Therefore, we pool all seven advanced features and collapse the responses into two levels, increase or otherwise, and fit into a binary logits model.

Table 3 Typology of the dependent variables

Binary coding for the dependent variables	Grouping of the samples
Aggregate number of service change: (1 =Increase; 0 = otherwise)	Seven advanced service features
	Three basic services features

Source: Authors' tabulation.

## 2. Independent variables

There are three broad sets of independent variables: imitation effects, community characteristics of the city including geographical characteristics, organizational characteristics of the city government. The geographical effects are included in the group of community characteristics. Table 4 lists all independent variables.

Table 4 Summary of variables

<b>Organizational imitations</b>
<ul style="list-style-type: none"> <li>• Frequency imitation: percentage of earlier adopters in the state where the city is located.</li> <li>• Population trait imitation: <u>average</u> population of the earlier adopters in the state where the city is located.</li> <li>• Income trait imitation: <u>average</u> per capita income of the earlier adopters in the state where the city is located.</li> <li>• Perceived outcome imitation: percentage of earlier adopters that perceived a positive efficiency gain in the state where the city is located.</li> </ul>
<b>Community characteristics of the city in 2000</b>
<ul style="list-style-type: none"> <li>• Total city population</li> </ul>

• Per capita income (1999)
• Percentage of city population with bachelors degree or higher
• Percentage of city population in information industry
• Percentage of city population with professional occupations
• Employment rate of the city
• Central city in metropolitan areas
• City located in the Sunbelt (below the 37 <sup>th</sup> parallel of latitude)
• Proximity to earlier providers
<b>Organizational characteristics of the city government in 2000</b>
• City government size (Percentage of city population being city government employees)
• Council-manager form of government
• Had e-government master plan in 2000
• No advanced/basic service in 2000

**Source:** Authors' tabulation.

### **(1) Measures of the imitation effects**

The independent variables include organizational imitations, organizational structures, and population characteristics. The first imitation variable is frequency imitation, measured by the percentage of adopters in 2000 within the state where the city is located. The second and third are trait imitations. The population trait imitation is measured by the percentage of adopters in 2000 with population size over 100,000 within the state where the city is located. The income trait imitation is measured by the percentage of adopters in 2000 with per capita income higher than the national median within the state which the city is located at. The perceived outcome trait is measured by the percentage of adopters in 2000 with perception of positive efficiency gain within the state which the city is located at. We expect that the increase of services in 2002 are positively related to these imitation measures.

### **(2) Measures of community characteristics of the city**

City size, measured by total population, signifies the size of the demand as

well as the organizational and financial resources of the supply. Larger cities tend to be early adopters of official websites (Weare et al., 1999; Moon, 2002). Some city characteristics are more important than others in relation to the demand of services from the citizens. Considering the current online services being at its early stages, certain community traits are more substantial than others in signaling the level of Information Communication Technology (ICT) know-how in using online service delivery as an alternative to the traditional way of interaction with city governments. Higher income individuals or households are more likely than lower ones to own computers and internet access, which are the basic requirement of accessing online services. People with higher education attainment, with occupations as professionals, or working in the information industry are more receptive to using computer as communication media with the government. The average wealth of the city population is measured by per capita income in 1999. Education attainment is measured by the percentage of population 25 years and over with bachelor's degree or higher in 2000. The industry and occupational variables are measured by the percentage of population in information industry and holding professional jobs in 2000, respectively.

The U.S. Census Bureau divides the U.S. into four geographical regions (i.e., Northeast, North Central, South, and West). The Sunbelt region is known as the states in the south and southwest or below the 37<sup>th</sup> parallel of latitude. The literature suggests that the cities from the south and the west seem to be more adaptive to recent government reinventions. Considering e-government an important thread of the recent reinvention movement, we include Sunbelt in our model to examine whether regions appear to be a factor of online service provision.

Measures of geographical effects. If the effect of geographical adjacency is present, we expect to see a positive relationship between adjacency and online service increase. We calculate the average distance of the five nearest earlier providers for each city. The distance is calculated by Euclidean distance,

measured by the cities' longitude and latitude used by the U.S. Census Bureau. The other geographical variable is the city's location in the Sunbelt. We use the common division of the sunbelt and frost belt at the 37 degree parallel. A city is coded 1 if it is located under the 37 degree parallel (i.e., the sunbelt), and 0 otherwise.

### **(3) Measures of organizational characteristics of the city government**

In addition to the community characteristics of the city that depict the demand side of services, we include a set of variables on the supply side that may affect the adoption of online services. These variables focus on certain organizational characteristics that may contribute to the adoption of online services.

The literature generally supports the notion that council-manager form of government tend to be more adaptive to managerial renovations. Providing online services poises strong managerial and technological renovation under uncertainty. We expect to see that council-manager form of governments are more likely than the other forms of governments to adopt online services.

Some governments had an overall strategy or a master plan in 2000 to guide their future e-government initiatives. One would expect those governments with the plans in 2000 to be more likely to put online services on agenda and then carry out the plan by providing the services in two years. We expect this managerial characteristic to be a factor of service provision in 2002.

Government size is measured by the percentage of population working in the local government in 2000. There may be different implications of the size of local government. On the one hand, larger government size indicates more available resources, which is possibly contributive to service provision initiatives. On the other hand, lager governments may be less likely to seek delivering services online that would ultimately cut back manpower, especially for those governments with stronger worker unions.

Previous provision status. The dependent variable measures the increase in



service items, which includes new advancement status (i.e., from zero to one or more service items) and service expansion (i.e., from fewer to more services items). The provision status in 2000 controls for two possible biases in the estimates associated with either situation. The first possible bias to be controlled is the economies of scope and the other is the city government's probability of advancement. The economies of scope is associated with service expansion. Although each advanced service item has its unique aspect, some of them may share the upfront investment in personnel, technology, and other infrastructures. Once the service operation has been established, the total fixed cost of adding more service items could be minimal. For example, once the online utility bill payment system is built first, at least part of the technical infrastructure and staff could overlap with the provision of online fee/fine payment service. The second bias is that the city government's likelihood to advance could be higher for those who only provided basic services in 2000. Those cities that did not provide advanced features (i.e., those who only provided basic features) in 2000 would be more likely to advance themselves to the next level two years later because of the technical possibility and the general sentiment in the environment that motivated them to advance service features. In addition, those who already provided advanced services in 2000 and did not expand service range in 2002 may have reached the production possibilities frontier with the available inputs, hence resulting in a slower rate of service expansion. Therefore, we control for the observation city's service status in 2000 to isolate the imitation effect.

## **IV. Results**

Among the four imitation variables, the frequency imitation and population trait imitation are significant. Most of the community characteristics are not significant except population and employment rate, which show a modest relationship with the dependent variable. Council-manager form of government

and e-government development plan are positively related to the increase in advanced services. The other variables in our hypotheses are not significant. The following discussions have more details on the significant variables. Table 5 shows the results of the models.

Table 5 Aggregate model for the advanced features

<b>Dependent variable:</b> change in the aggregate number of service items (Increase vs. No increase) <sup>†</sup> <b>Independent variables:</b>	Model <sup>††</sup>				
	(1)	(2)	(3)	(4)	(5)
<b>Imitations</b>					
• Frequency: % earlier adopters in the state	0.025** <i>0.0128</i>				0.0211* <i>0.0147</i>
• Population trait: <u>average</u> population of the earlier adopters in the state		-1.89E-06** <i>8.49E-07</i>			-1.81E-06** <i>8.70E-07</i>
• Income trait imitation: <u>average</u> per capita income of the earlier adopters in the state			-0.00002 <i>0.000025</i>		8.20E-07 <i>0.000027</i>
• Perceived outcome imitation: % earlier adopters perceived positive efficiency gain in the state				0.00000 <i>0.000006</i>	0.00000 <i>0.000006</i>
<b>Community characteristics of the city</b>					
• City population	1.43E-06* <i>8.66E-07</i>	1.72E-06* <i>9.23E-07</i>	1.48E-06* <i>9.00E-07</i>	1.56E-06* <i>8.90E-07</i>	1.81E-06* <i>9.34E-07</i>
• Per capita income	-3.41E-06 <i>0.000021</i>	-9.61E-06 <i>0.000022</i>	-8.43E-06 <i>0.000021</i>	-6.43E-06 <i>0.000019</i>	-6.36E-06 <i>0.000022</i>
• % Bachelors or higher	-0.00363 <i>0.0122</i>	-0.00464 <i>0.0126</i>	-0.00393 <i>0.0125</i>	-0.00333 <i>0.0175</i>	-0.00302 <i>0.0128</i>
• % population in information industry	0.0925	0.0992	0.1243	0.0943	0.0896

	<i>0.0785</i>	<i>0.0796</i>	<i>0.0798</i>	<i>0.0788</i>	<i>0.0813</i>
• % population with professional occupations	0.0296	0.044	0.0346	0.0316	0.0365
	<i>0.0525</i>	<i>0.0538</i>	<i>0.0528</i>	<i>0.0521</i>	<i>0.0548</i>
• Employment rate	0.0275*	0.0289*	0.0264	0.0277*	0.0285*
	<i>0.0159</i>	<i>0.0165</i>	<i>0.0164</i>	<i>0.0164</i>	<i>0.0166</i>
• Government size	-0.00123	-0.00131	-0.00119	-0.00129	-0.00130
	<i>0.0165</i>	<i>0.0166</i>	<i>0.0163</i>	<i>0.0164</i>	<i>0.0167</i>
• Sunbelt	0.0725	0.3066	0.0932	0.1922	0.2396
	<i>0.2241</i>	<i>0.2432</i>	<i>0.2388</i>	<i>0.2488</i>	<i>0.2568</i>
• Central city	0.2296	0.1699	0.1691	0.1593	0.1433
	<i>0.2552</i>	<i>0.2669</i>	<i>0.2672</i>	<i>0.2642</i>	<i>0.2703</i>
• Geographical adjacency	2.29E-06	2.11E-06	2.48E-06	2.82E-06	2.83E-06
	<i>8.79E-07</i>	<i>8.93E-07</i>	<i>9.01E-07</i>	<i>8.91E-07</i>	<i>8.84E-07</i>
<b>Organizational characteristics of the city government</b>					
• City government size (% population being city government employees)	0.00541	0.0177	-0.00644	-0.01643	0.0170
	<i>0.0563</i>	<i>0.0617</i>	<i>0.0611</i>	<i>0.0621</i>	<i>0.0624</i>
• Council-manager form of government	0.4312*	0.5195*	0.4590*	0.5595*	0.5302*
	<i>0.2595</i>	<i>0.2772</i>	<i>0.2755</i>	<i>0.2835</i>	<i>0.2785</i>
• Had e-government master plan in 2000	0.6672**	0.72**	0.7203**	0.7361**	0.7313**
	<i>0.2952</i>	<i>0.3015</i>	<i>0.3011</i>	<i>0.2911</i>	<i>0.3019</i>
• No advanced service in 2000	0.4369	0.3535	0.3767	0.3969	0.4258
	<i>0.333</i>	<i>0.3283</i>	<i>0.3296</i>	<i>0.3316</i>	<i>0.334</i>
	R <sup>2</sup> = 0.06 (Max-rescaled R <sup>2</sup> = 0.09) N=700	R <sup>2</sup> = 0.07 (Max-rescaled R <sup>2</sup> = 0.11) N=644	R <sup>2</sup> = 0.06 (Max-rescaled R <sup>2</sup> = 0.10) N=644	R <sup>2</sup> = 0.06 (Max-rescaled R <sup>2</sup> = 0.10) N=644	R <sup>2</sup> = 0.07 (Max-rescaled R <sup>2</sup> = 0.11) N=644

† Logits modeled use 'Increase' as the reference category.

†† Standard deviation in italic. \* $p \leq 0.1$ , \*\*  $p \leq 0.05$ , \*\*\*  $p \leq 0.01$

Source: Authors' calculations.

## 1. Imitation effects

The organizational imitation literature states that the number of early adopters of certain practices or policies is positively related to the number of later adoptions, which is known as frequency imitation. Moreover, the practices or policies first adopted by the firms with certain traits such as larger size or higher asset values are more likely to be adopted later by other firms, which is known as trait imitation. Our base model consists of a set of the community variables and a set of organizational variables. The imitation variables are entered to the base model separately to test their individual effects. The results show that frequency imitation and population trait imitation are significant predictors of the adoption of advanced online service features among American cities in our data. The other trait imitation, income trait imitation, and perceived outcome, are not significant. The result of the frequency imitation supports our hypothesis. The negative relationship between the trait imitations and service increase is opposite to our expectation. The followings are more detailed discussions of the findings.

The first model in Table 5 shows that the effect of frequency imitation is significant. The result indicates that the frequency of early adopters of advanced features is positively related to the increase in advanced features after two years. In a state with a higher percentage of cities that supplied advanced features in 2000, cities of the state had stronger likelihood of launching advanced features the first time or broadening the range of advanced features in 2002. The result of frequency imitation concurs the general understanding in organizational imitation that organizations tend to conform to the norms in the manner of “following the crowd” especially in environment with higher uncertainty. Higher frequency of adoption signals legitimacy and the potential efficacy of the practice or policy being adopted. It is potential because it is still too early to assert the alleged efficacy of adopting online service features, especially the economic efficiency of the more advanced features. The e-government trend on the one hand and the

uncertainty on the other fuel the frequency imitation among city governments.

The second and the third model test the population trait measured by the average size of early adopters of advanced features in the state where the observation city is located, and the income trait measured by the average per capita income of early adopters of advanced features in the state where the observation city is located, respectively. We expect that larger or wealthier cities' adoption of advanced service features in the first time period to be positively related to the likelihood of increase in the number of advanced features in the next time period. The notion is that decision makers would focus on larger or wealthier adopters when they decide to provide a service, and the more average population or average per capita income of the earlier adopters the more likely they are to adopt. Contrary to our expectations, the data show that they are not positively related. The increase of advanced services in 2002 is negatively related to the average population size of the cities that provided advanced services in 2000.

The fourth model suggests that the efficiency gain perceived by the employees of the earlier adopters does not have an effect on the service increase in other cities. The ICMA survey shows that in 2000 about 27% respondents reported efficiency improvement and 10% reported cost saving from e-government. If the decision of a city to increase online services was motivated at least in part by the efficiency gain in other cities, the outcome imitation is likely to be significant. Perhaps the self-assessed outcomes are not considered credible because the respondents could answer the questionnaire with a self-fulfilling bias. Another possible interpretation is that other cities did not take the efficiency gain as the primary concern at this stage of development, whether or not the alleged efficiency gain is credible. This interpretation implies that cities do not increase services for seeing improved efficiency in other cities but for other reasons. Considering the significant effect of the frequency imitation and population trait imitation, it further confirms our expectation that cities increased advanced online services based on non-efficiency rationales.

When modeled separately, either frequency imitation or population trait imitation is significant. When all four imitation variables are entered into one model (Model 5), the results are similar. The model results suggest that decision makers refer to smaller cities rather than larger cities to decide on the services provided. This finding seems counterintuitive and invites conjectures. First, the technical efficiency gain from employing online services is still uncertain, especially for the more advanced features. If the smaller cities could make online services up and running, it is more evident of the technical achievability of online services, given the fact that smaller cities usually have less financial and organizational resources than larger cities. Second, smaller cities' provision of advanced features could form a pressure to larger cities. There may be a "tailgating pressure" that drives the larger cities to advance their services capacity.

## **2. Community characteristics**

City population is an indicator of service increase; the larger size, the more likely a city would increase advanced services. Concurring to the e-government literature, our data support an positive relationship between the likelihood of service expansion and city population size. Among various barriers to E-government initiatives, lack of technology/web staff, lack of technology/web expertise, and lack of financial resources are identified as the top three during the period that our data were collected. Larger cities usually have more financial and organizational resources, hence more latitude of acquiring technical personnel or expertise necessary to supply the online services. More population may also imply higher demand of the e-government services. The frequency of business transactions and communications between the citizens and the city governments increase with population density. Online services provide more flexibility in time and location for conducting transactions than do the traditional "brick and mortar stores". A large city has relatively high commuting costs as the commuting distance and traffic congestion increases. With more population, it is also likely to

see longer physical waiting lines for paying bills/fines/fees and longer waiting time for business phones call to go through. It is reasonable to see a higher demand of online services, which provide the citizens flexible alternatives to do business with the government.

As discussed above, cities might learn from smaller cities instead of larger cities in making the decisions of increasing advanced services; and city size too is positively related to the probability of increasing advanced services. Does the significant effect of larger city size conflict with the finding of population trait imitation? We argue that the findings do not have to be in conflict because learning from the smaller cities measures an effect of the more subtle social processes, while population size is an objective measure of the city characteristics. Although larger cities are more likely to advance their service capacity by increasing the service features, they could be at the same time pressured by smaller cities.

Employment rate is the other variable among the community characteristics that shows a mild positive relationship with the increase in advanced features. Employment rate is the employed population as a percentage of the labor force. A higher employment rate indicates more labor force participation and household income. A growing employment rate is usually associated with the expanding economy. The possible interpretation probably involves the available financial resources of the city government.

The geographical effects are not significant in our models. Geographical adjacency to early adopters did not have an significant effect on the likelihood of a city to increase its online service capacity. Neither do we find that cities in the South or West are more likely to show stronger tendency of increasing online services, although the literature suggests that cities in these regions are more likely to adopt reform initiatives. It is possible that the boundary-crossing nature of the internet has loosened up the ties of information transfer that geographical proximity creates to facilitate homophilous relations. Kaufer & Carley (1993)

argue that the advent of new technologies like print, the telegraph, the telephone, and e-mail may have relaxed the bounds of geography by lowering the effort involved in contact. The Tiebout effect does not seem to be present in the current local e-government context, either. This may suggest that the diffusion pattern of online service has deviated from the space-centric logic.

### **3. Organizational characteristics of the city government**

The council-manager form of government is more likely than other forms of government to increase advanced services. This finding is consistent with the literature of website adoption (Moon, 2002). The urban reform literature generally supports that council-manager form of governments are more likely to undertake urban reinventions (Ruhil, Schneider, Teske and Ji, 1999; Svara, 1990). The literature suggests that professional public managers have different values, orientations, and interests than elected officials such as mayors of the mayor-council form of governments. Mayors are more responsive to high-powered incentives such as political stability or the political edge in reelection, while professional city managers are more interested in their personal competitiveness in the national market (Lineberry and Fowler, 1967; Frant, 1996). Being set to carry out the policies of the city council, city manager is characterized as the embodiment of professionalism in local governance (Montjoy & Watson, 1995). Although city managers play an active role in the policy process, however, unlike managers in the private sector, city managers have little influence on the personnel arrangement such as hiring and promotions. It is in the city managers' interest to adopt reform initiatives that aim at reducing difficulty and the transaction costs of coordinating local operations (Ruhil et al., 1999). E-government initiatives seek to utilize technology to streamline service delivery by integrating vertically between levels of hierarchies and horizontally between agencies or departments. Once being set up, some procedures may be automatized to reduce the managers' costs of coordinating and monitoring. In turn, the



institutional constraints on city managers' influence over personnel structure can be mitigated. These benefits from successful integrations will not be fully realized in the short run. However, managers may still benefit from the reputation of introducing the initiatives, regardless of the actual improvement from the adoption of online service delivery. The reputational gain will become the city managers' personal assets contributing to their career advancement in a nationwide competitive market.

The strongest structural predictor of increasing advanced services is the presence of e-government plans. Consistent with the descriptive analysis in Chapter three, the governments with an overall e-government development plan in 2000 were much more likely to increase services two years later. In addition, the cities with higher per capita income, education attainment, and higher percentage of population working in the information industry are more likely to have a e-government development plan. Once the developing plans had been established, it is reasonable the implementation of the plan would bring forth the results and show better progress than the cities without a plan. The presence of an e-government plan in a city almost for sure signals its more advanced e-government status. The more interesting question is to ask what determines the creation of an e-government plan. It is understandable that the more resources a city has, the more likely the city government will have a strategic plan at the organizational level. But future studies may identify the factors that enact smaller cities to come up with an e-government plan, which may yield informative policy implications from a normative perspective. For example, the federal or state governments may employ incentives on local governments in order to facilitate the development of e-government at the local level. Among other things, it may be of the federal or state governments interest to facilitate vertical integration such as linking the business license databases between different levels of governments.

## V. Conclusion

The notion of e-government is diverse and vague when it is referred to without a clearly defined scope. Any governmental operation that is related to the use of ICTs can be a part of e-government. The relevant issues of interest can be as broad as the global governance structure and as specific as posting public information on the web. Some researches pay attention to utilizing the information technology to improve citizens' political participation or so called e-democracy. Among all e-government initiatives, delivering public services to citizens via the internet is the dominant connotation. The present study focuses on online service delivery of the cities in the United States. There can be a long list of rationales for adopting online services; among the more salient claims is reinventing government by making the best use of ICTs to improve efficiency. We aim to add to the understanding of online service delivery by taking an institutional perspective to assess the role of efficiency improvement versus other institutional motives, namely the social process of organizational imitation, in the decision of increasing online service capacities. There are three types of imitation in the context our study. First, frequency imitation is derived from isomorphism, which denotes the positive effect of the total number of previous adopters. The more adopters in the same state where the prospective city is located, the higher probability the prospective city would increase its service features. Second, trait imitation refers to the prospective city's adopting decision is positively related to certain traits such as size or success of previous adopters. We hypothesize that a city is more likely to advance its service capacity if it sees either the larger or wealthier cities in the same state have adopted advanced services. Third, outcome imitation talks about the positive relationship between the prospective city's adoption decision and the positive outcome of previous adopters. We expected the outcome imitation would not be a strong factor to the advancement in online

services. In addition to the main inquiry of imitation effects, several structural factors that characterize the community of a city and the organization of the city government are also included in our study.

We use the e-government survey data collected by the International City/County and Management Association (ICMA) in 2000 and 2002 to observe the evolvement from basic to advanced features in 1,066 cities during the two year span. Viewing from the developmental path of the e-government, the current operations are considered at the early stages. The majority of cities that have started to embark e-government only demonstrate preliminary or basic utilization of ICTs. However, there is a growing number of cities that were evolving from the basic stage of static categorization to the more advanced stage with dynamic and interacting transactions. Unlike launching an official city website and posting static information, providing transactional services is considered highly uncertain in the outcome returns. In other words, the overall technical efficiency gain from adopting online services is not evident in an absolute term. Have a city had acted rationally in light of technical efficiency gain, the advancement in services would have been slower and dimmer than it was. Therefore, we argue that cities imitated others in making the decision of adopting advanced online services based more on a tendency of conforming to the norms than on a technical rationale.

Among the three imitation types, the extent to which a city is acting rationally in making adoption decisions increases from frequency imitation, trait imitation, to outcome imitation. Our main argument is that cities do not act as rationally as they would be if the evidence of technical efficiency gain from advancing its service capacity is the required criterion. Our findings support this argument by showing significant effects of frequency imitation and population trait imitation but not the income trait imitation and outcome imitation. The findings also confirm the new institutionalism literature suggesting that public organizations adopting efficiency-oriented approaches in the face of uncertainty are not driven by the need for efficiency or technical usefulness but the social

process of *isomorphism* to conform to the norms of legitimacy or propelled by institutional motives (DiMaggio & Powell, 1983; Roy and Seguin, 2000). It is therefore suggested that the benefit of introducing e-government practice be emphasized and promoted through institutional incentives such as performance review, benchmark learning, and organizational development.

Although the population trait imitation is present, the result is opposite to our expectation. That is, the likelihood of increase in advanced service features in the later period is negatively related to the average population sizes of earlier adopters of advanced features. While larger cities were more likely to increase services, they also look for smaller cities' online service status. The measure of the traits in the private sector oftentimes refers to firm size or profit margin as the proxies of success, which in turn makes intuitive sense that successful companies usually show substantial growth either in size and market share. In the public sector context, however, larger city size does not necessarily mean success, not to mention profit which is by nature not an appropriate measure of a successful city. The reverse relationship may reveal a scenario purporting to the public sector context. First, if the smaller cities could make online services up and running, it somewhat evidence the technical achievability of online services, given the fact that smaller cities usually have less financial and organizational resources than larger cities. Second, smaller cities' provision of advanced features could form a tailgating pressure to motivate the larger cities to improve their services capacity. It is also obvious that when introducing new ICTs, cities with smaller scale may enjoy the advantages of institutional adaptation and risk aversion in capital investment. Thus, it is suggested in practice that new service features be mainly employed and tested in small cities to understand their real benefit, and then small cities with successful experiences in application may play a role model for other larger cities.

Our finding on the council-manager form of government agrees with the urban reform literature that the council-manager form of government is more

likely than other forms of government to adopt reform initiatives that aim at improving efficiency. It follows that city managers have a stronger tendency to adopt online service delivery since the initiative also intends to improve government efficiency. More importantly, we argue that city managers do not necessarily expand the city's online service delivery because of the evidence of overall efficiency gain. Rather, a strong motive may be the city managers' reputational gain from introducing efficiency-improving innovations. The reputation of being public entrepreneurs, like their private sector counterpart, who are able to quickly respond to and adopt managerial innovations can be translated into valuable qualification for competing in a nationwide job market. Given the fact that many benefits of e-government have been so much talked about in recent years, it is in the city managers' interest to seize the opportunity to adopt online services regardless the actual efficiency improvement.

Having an overall e-government development plan or strategy is a strong indicator of the likelihood of a city to expand online service capacity. It is understandable that a policy with formal agenda has a greater chance of being followed by policy implementation. The fact was that most cities did not put the e-government initiatives on their formal agenda. Among those who advanced their service capacity during the two year period in our sample, 85% of those cities did not have a plan or strategy to guide their implementation. Unlike the online service initiatives at the federal and state level that have drawn stronger attention on formal agenda since the Clinton administration, city governments obviously are relatively short of formal institutional drives. The lack of formal institutions to promote online services at the city level highlights its stronger dependence on informal drives that are embedded in organizational behaviors such as imitations and managers' career motives. To pursue a successful vertical integration between different levels of governments needs the efforts from all levels of governments. From a normative policy perspective, the federal or state government should employ policy incentives to promote formal institutional change at the local level

to expedite the realization of the e-government benefits. What would be the effective policy incentives is beyond the discussion of the present research and it can be seen as the limitation of the present study. Future researchers may find it interesting to delineate the better policy tools that can be employed in practice by the federal or state government to change local institutions in favor of the establishment of e-government in the context of intergovernmental relationship. In sum, there is no single established way, no “best practice” that would lead to successful e-government. Whilst in broad terms the elements for success are already known, their interpretation and application must be invented locally. Local governments should carefully plan their e-government strategic goals, implementation timeframes and resources, vis-à-vis obstacles and risks to be overcome, to ensure the success of this process. Particularly during the start-up phase, lessons learned by other successful governments that have been at the forefront of e-government should help avoid the costly trial and error approach.

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# 制度效應對電子化政府演進之影響： 以美國地方政府網上服務為例\*

潘競恆\*\*、張其祿\*\*\*

## 摘 要

電子化政府業已成為美國各級政府最重要的行政革新措施之一，惟在聯邦分權體制下，各地方政府對電子化政府的推動往往呈現出不同的進程與差異。本文因此將採一制度分析的觀點來瞭解當前美國地方政府網上服務的發展情況，特別是探索不同制度結構、組織模仿、趨同學習等因素對各地方政府採行電子化政府改革措施的影響效果。本文發現美國各地方政府在推動電子化政府措施時，確實出現組織模仿與學習的現象。換言之，地方政府的網上服務措施與該措施在其他地方被採行的經驗與頻率呈現高度的正向相關。此外，地方城市的人口、府會治理型態與目前電子化政府的發展計畫亦與地方政府網上服務的發展情況密切相關。本文結論認為美國地方政府電子化政府的推動受到非正式制度的影響似乎更勝正式制度的影響，亦即影響地方政府網上服務革新的因素主要來自於市府管理者的信念與價值等，而非制式的電子化政府發展議程。按此並可導引出一規範性的結論，聯邦或州政府應採取更積極的策略來協助地方政府推動電子化政府改革。

關鍵詞：電子化政府、組織模仿、網上服務、地方政府、美國

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\*\* 國立中興大學國家政策與公共事務研究所助理教授。

\*\*\* 國立中山大學政治經濟學系副教授。