Legal and Policy Environments: An Institutional Perspective of Global E-commerce Adoption

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Abstract

Grounding on institutional theory and e-commerce adoption literature, this study conducts a cross-country analysis, assessing the impact and effect of legal and government environments on global e-commerce adoption in 2003 and 2007, respectively. The study utilizes a set of secondary data from the Economist Intelligence Unit’s global e-readiness rankings. The results indicate that at the starting stage of e-commerce, the legal and policy environment was a powerful facilitator for e-commerce adoption. As e-commerce becomes more prevalent recently, the supportive government policy can still foster e-commerce adoption, but the effect of legal environment turns to negligible. The study discusses extensively the e-commerce policy and its impact on e-commerce adoption. It is one of the first cross-country studies on the institutional environment for e-commerce and the research findings have policy implications for global e-commerce development.

1. Introduction

E-commerce is momentous for both developed and developing countries in strengthening the economy and supporting development. The reality is, however, that after a decade of development, e-commerce adoption among different countries is still uneven due partially to different legal and policy environments for e-commerce. The challenge is thereby for researchers and policy-makers to ensure that the opportunity and potential offered by e-commerce is taken and realized in all economies. E-commerce should be facilitated, not inhibited, by its external environment. There has been a long-standing debate and different approaches on how an enabling environment should be created and shaped to foster e-commerce adoption. When there is enough stakeholder involvement, political wisdom, and social awareness in “e-strategies,” making progress in the adoption and diffusion of e-commerce can be an exciting reality. It is an object of this study, therefore, to provide an institutional lens for understanding the external environment, the legal and policy environment in particular, of e-commerce adoption in different countries.

Accordingly, this study assesses the impact and effect of the institutional environment (i.e., governmental support, legal adequacy, and national cultural compatibility) on global e-commerce adoption. The assessment first builds the research model based on institutional theory in organizational study and extensive reviews of previous studies. The assessment then proceeds to test three research hypotheses using quantitative methods, secondary data source, and multi-time point approach (i.e., the first phase in 2003 and the second phase in 2007). The results of the assessment demonstrate the degree of association between the institutional environment and e-commerce adoption in different countries. The findings provide empirical evidence and systematic insights for researchers and policy-makers to comprehend the role of the institutional environment in e-commerce adoption at country level and over time, and to craft the right strategies with respect to e-commerce. This study is also one of the first multidisciplinary studies investigating systematically the legal and policy factors in the institutional environment for global e-commerce adoption.

The subsequent sections are organized as follows. Section 2 discusses the research background (including the adoption and policy of e-commerce). Section 3 discusses institutional theory and its application in e-commerce policy studies, in alignment with the research model and hypotheses in this study. Section 4 presents the methodology of how this research was designed and pursued. Section 5 presents the statistical analysis results. Research findings and implications are discussed in the last section.

2. Research background
2.1. Uneven adoption of e-commerce

Even with considerable opportunities offered by e-commerce, the adoption of e-commerce is varied largely among individuals and firms in different countries. In general, the U.S., developed countries in Northern Europe, and Singapore lead e-commerce diffusion in the world. After six years since its first global e-commerce report was published in 2001, the United Nations Conference on Trade and Development (UNCTAD) finds that e-commerce remains limited in developing countries and there are still wide gaps between countries [1]. According to the UNCTAD’s global e-commerce report [2], in Africa, e-commerce remained almost negligible except in South Africa. In Asia and the Pacific region, enterprises, particularly in the manufacturing sector, were exposed to pressure from customers in developed countries to adopt e-commerce models and hence e-commerce was spreading quickly. E-commerce in developing countries together did not reach 5% of global e-commerce. Even within the developed countries, the level of e-commerce adoption varied. In 2004, among major EU (European Union) countries, the share of enterprises purchasing online ranged from less than 10% in Italy to more than 50% in UK; the share of enterprises receiving orders online ranged from 5% to 25% [3]. While it accounted for 10% of all sales in Ireland, the share of online sales was close to zero in several EU economies.

Using the data from the Global Information Technology Reports (GITR), Figure 1 compares the average e-commerce scores in 2001 and 2006 of the top-40% and bottom-40% countries in the reports. It depicts that the difference between the average scores of the top and bottom countries increased 67% from 2001 to 2006. Unfortunately, the gap separating the countries of fast e-commerce adopters from the countries of late adopters was broader rather than narrower in the past half decade.

There has been a concern that uneven diffusion of e-commerce would create unfair competitive advantages for multinational oligarchs against local SMEs and create a “digital divide” between developed and developing countries. Countries that lag behind in e-commerce will risk being bypassed by the competitive edge of those using the new technologies [4]. In a worse scenario, existing socio-economic divisions would be reinforced by the “digital divide,” rather than be narrowed or changed by e-commerce.

2.2. E-commerce policy

For the facts shown above, e-commerce has been a key policy issue of public institutions. The social and economic contributions and potentials of e-commerce provide enough incentives for policymakers and other stakeholders to take actions. Many disparate guidelines, directives, laws, and treaties have emerged and governments around the world have developed bold plans for boosting e-commerce. The key areas that have seen policies and regulations are digital signatures, information privacy, intellectual property, and online taxation. For example, aiming at encouraging e-commerce worldwide, more than 140 member countries of the World Trade Organization (WTO) have committed to a moratorium on imposing customs duties on electronic transactions since 1998. Even in the U.S., where the government generally takes a hands-off approach to the Internet economy, Congress has engaged in many e-commerce policy issues, such as Internet taxation, encryption and digital signature, online patent and copyright protection, network security and privacy safeguards [5]. These institutional activities, in turn, created and shaped the external environment for e-commerce adoption, although the degree of their effects might be varied across countries.

How to create a supportive environment for e-commerce adoption has driven much of the debate on policy making since the end of the 1990s. One of the responses was a Framework for Global Electronic Commerce proposed by the U.S. government in 1997. Among the principles suggested to help the growth of e-commerce were that 1) governments should avoid undue restrictions on e-commerce; and 2) the aim of governmental involvement should be to support and enforce a predictable, minimalist, consistent and simple legal environment for e-commerce [6]. The Framework recognized that governments could have a profound effect on e-commerce, either facilitating or inhibiting it. Knowing when and how the government...
should act is crucial to the development of e-commerce.

From a global perspective, while adoption of IT and economic development are positively correlated, countries with similar levels of GDP have very different levels of adoption of IT, and vice versa [7]. The variation among countries in e-commerce cannot be explained simply by relative income and infrastructure levels [8]. The UNCTAD’s global e-commerce report therefore suggested that IT policy choices could make a significant difference in the adoption of e-commerce [7]. The report, however, did not investigate further the relationship between IT policy and e-commerce adoption, due to the lack of e-commerce data in non-U.S. countries.

Despite the numerous governmental endeavors, constructing policies to enable and promote e-commerce faces significant challenges. It should proceed carefully with consideration for the cultural and institutional capacities of a country. It is commonly believed that the private sector makes its business and management decisions in an integrated institutional context covering laws, regulations, standards, norms, funding and promotions. It is also believed that policy-making has an original motivation to promote e-commerce adoption. However, how the policy plays and how it should play the role as a promoter regarding e-commerce is still unclear. One of the reasons is that, in an increasingly complex information economy, it is difficult to identify and measure the effect of policy outcomes.

To conclude at this point, both the significance and challenge of e-commerce are so obvious that there is an imminent need to evaluate scientifically the effects of institutional factors on e-commerce adoption for reference in appropriate policy-making and business decisions.

3. Theory and research hypotheses

3.1. Theoretical foundation

One of the approaches to study e-commerce adoption is employing institutional theory, focusing on the external environment for e-commerce adoption. “Insights from the New Institutional Economics suggest that we should look beyond those proximate indicators [i.e. physical infrastructure] to examine how the institutional environment in a country contributes to (or undermines) confidence in e-commerce and supports private investment in the new medium [of business transaction].” [9] The theoretical underpinnings in this section provide the context, rationale and relevance of using institutional theory in the study.

The meaning of the term “institution” is twofold. First, institutional theory traditionally views institutions as a framework “of rules, procedures, and arrangements” [10]. or “prescriptions about which actions are required, prohibited, or permitted” [11]. Second, institutions could be labeled as social organizations including legislatures, government agencies, trade unions, and even societies [12]. These two definitions relate to each other. The formal organizations in the latter definition create and shape the normative rules in the society in the formal definition. Those rules and arrangements, in turn, influence the decision and behavior of individuals and organizations in the society. In viewing institutions more widely as varied social constructs, new institutionalism has included cultural beliefs, in addition to its formal legal historical roots. Contemporary institutional theory focuses on developing a sociological view of institutions—the way they interact and the way they affect society. New institutionalism attempts to answer how social choices are shaped, mediated, and channeled by institutional arrangements, since social choices are generally not free from institutions, customs, social norms, or legal procedures [13].

New institutionalism recognizes that individuals and organizations live and operate in an environment consisting of institutions, called the institutional environment. Every member of the society is influenced by this environment. The New Institutionalists believe that social, economic and political factors constitute an institutional structure of such an environment. They also believe that the institutional environment can reduce uncertainty by providing dependable and efficient frameworks for economic exchange [14]. In order to survive, individuals and organizations must conform to the rules and belief systems prevailing in the environment [15].

Within IS research, King et al. defined institutions as “any standing social entity that exerts influence and regulation over other social entities” [16]. They further argued that the relationship between environmental factors and e-commerce adoption could be explained using institutional theory. Later in a cross-country study, the governmental, legal and cultural factors were analyzed as the institutional environments for e-commerce [9]. In that study, the institutional environment was defined as the “set of fundamental political, social and legal ground rules that establish the basis for production, exchange and distribution” [9].

Applied specifically to this study of global e-commerce adoption, institutionalism lays an important
theoretical foundation for constructing the research model (see Figure 2) and reasoning through the research model to a couple of specific hypotheses about the expected impact and effect of the legal and policy environment on e-commerce adoption.

![Figure 2. The research model](image)

The adoption of e-commerce in Singapore was a good example of governmental support driving technology innovation. Singapore was among the best performers of e-commerce around the world thanks to the government’s savvy early focus on e-commerce adoption [23]. The government in Singapore had a clear vision for e-commerce and IT development. It did not only engage deeply in national IT development (such as an e-commerce master plan and a series of initiatives to take it forward), but also launched a major educational program exposing the society to e-commerce [20, 24]. Those government programs were impressive in increasing the level of understanding of e-commerce in Singapore [20]. Moreover, the government in Singapore encouraged e-commerce uptake by qualified local companies through subsidizing their costs of e-commerce consultancy, Internet connections, and hardware and software purchases [25]. The government also provided tax incentives for foreign companies to use Singapore as their base for e-commerce activities in Asia [20].

Among other economies, government influence affected positively the likelihood of EDI adoption in Hong Kong [26, 27]. Governmental promotions and supportive policies were related significantly to e-commerce decisions in China [28] and the extent of e-commerce adoption in Pakistan [29]. In the cases of Chile, the U.S. and South Korea, firms even felt the pressure from the government to adopt e-commerce [30-32]. On the other hand, lack of governmental support was a significant barrier to e-commerce adoption in Oman [33].

Oxley et al. indicated that governments played a critical role in creating the institutional environment that fostered private investment [9]. Governmental actions should leverage and facilitate but not stifle e-commerce adoption. Gibbs et al. argued that governmental promotions and incentives were a major enabler of e-commerce and that national policies for IT infrastructure, such as trade and telecommunication liberalization, were also likely to have a big impact on e-commerce by making IT more affordable to the society [34]. Shore suggested that governmental IT support could be provided through national policies for training and maintaining an adequate IT workforce [35]. Government’s role in supporting e-commerce adoption has been referred to as a leader, promoter, facilitator, regulator, educator and financier [20]. Mann further posited that the slowness or failure of e-commerce adoption in some developing countries were the consequence of policy inaction or wrong action by their governments [36]. The European Commission, in its e-business report, suggested that governmental policies aiming at promoting e-commerce should include, among others, 1) creating incentives and a

3.2. Research hypotheses

3.2.1. Government policy. In early empirical studies, Iacovou et al. found that the use of governmental subsidies and promotional efforts could lead to faster adoption of EDI in Canada [17]. Dasgupta et al. found that the government policy was an important determinant of IT adoption in India [18]. After a longitudinal study over 16 years, Wang concluded that building national IT infrastructure was a primary policy choice supporting IT adoption in Taiwan [19].

When asked to identify the measures to encourage wider adoption and use of e-commerce, SMEs in the APEC region highly ranked the following government actions: improving telecom infrastructure, imposing fair tax policy for online transactions, developing national e-commerce strategy, enhancing government e-commerce use, providing e-commerce training, and promoting e-commerce use [20]. In a qualitative interview with seven SMEs in southern Italy, interviewees indicated that governmental campaigns, financial incentives and tax breaks were important external factors affecting their adoption of e-commerce [21]. Similarly, after interviewing 22 leading companies in five developing countries in the Caribbean region, Fraser et al. suggested that governments hoping to promote e-commerce should emphasize training, education, reducing telecom cost and improving its service [22].
favorable environment; 2) supporting educational and training programs; and 3) establishing the role model of the public sector [37].

Drawing on the theoretical arguments, together with the previous empirical findings, this study hypothesized that the government policy, such as national IT policy and initiatives, tax deductions and other financial incentives, educational and training programs, and governmental role model in e-commerce adoption, should have a positive impact on e-commerce adoption, as follows:

**H1:** The more supportive/effective is the governmental policy for e-commerce, the more prevalent is e-commerce adoption in the country.

### 3.2.2. Legal environment

A number of cross-country studies using secondary data found that the legal environment in a country significantly affected e-commerce activities and revenues in that country [9, 38, 39]. A group of firm-level survey studies also showed that the regulatory environment was significantly important to determine both the breadth and depth of e-business adoption, especially in developing countries and newly industrialized economies [40-44]. A study of SMEs’ e-commerce adoption in the APEC region further specified that an adequate legal framework supporting e-commerce was important for reducing uncertainties and building trust and confidence in the electronic marketplace; it was particularly important for lower GDP economies [20]. Overall, the legal environment should be secure, stable and predictable for e-commerce adoption.

Unfortunately, the development of the legal framework for e-commerce was generally well behind developments in technology, and thus conducting business through the electronic networks raised numerous legal questions [20]. The key legal challenges could be found in different stages of e-commerce transaction:

1) Pre-transaction phase: the privacy of personal data and intellectual property protection of digital content;

2) Transaction phase: the legal status of electronic contract and digital signature and security of online transaction; and


Absences of regulations and legislations were a major barrier and/or serious limitation to e-commerce adoption in the APEC region, Oman, Turkey, and UK [20, 33, 45, 46]. A study shows that e-commerce adoption was slow in the countries without adequate legal framework regulating rights and obligations in the intangible cyberspace [8]. For example, compared with the U.S., fewer firms in China adopted e-commerce due to the less friendly legal environment [8]. By contrast, the US legal environment was more supportive of e-commerce than in other countries. It led to a higher percentage of US firms using e-commerce [8]. A related study confirmed that the U.S. did have a better legal environment supporting e-commerce use than other countries and that US companies expressed fewer legal concerns when doing e-commerce [47]. On the other hand, APEC’s study on e-commerce adoption found that firms in lower GDP countries appeared to be more concerned about legal issues than similar firms in higher GDP countries [20]. This concern might be due, in part, to a relative lack of adequate legal infrastructure for e-commerce in those lower GDP countries. This issue was further reflected in Wang’s study in which he found that regulatory reform was critical for IT adoption in developing and newly industrialized economies [19].

Several studies have developed theoretical arguments as to the best practices for regulating e-commerce. They discussed numerous issues from legal frameworks to legislating efforts with respect to e-commerce [48-51]. In the real world, legal systems have tried to re-orient themselves to suit the needs of dynamic development and changes of e-commerce. Since the Model Law on Electronic Commerce drafted by the United Nations Commission on International Trade Law (UNCITRAL) in 1996, more than 50 countries and regions have passed and implemented various legislations and regulations related to e-commerce [52]. Many international and regional organizations, including the World Trade Organization (WTO), International Chamber of Commerce (ICC), Organization for Economic Cooperation and Development (OECD), European Union (EU), and Asian-Pacific Economic Cooperation (APEC), have been actively involved in policy-making for global e-commerce development.

The legal consideration was the root of traditional institutional theory. Institutions were first the legal ground rules and procedures. Institutional influences were therefore political in nature as when members in the society must conform to laws and regulations to earn the legitimacy [14, 15]. The legal institution should provide predictable, credible, coherent and adaptable rules for economic transactions. Among those criteria, adaptability is particularly necessary because it helps ensure that the changes in social preferences, technology and other external factors can be accommodated by institutional structures [12]. Accordingly, new institutionalism believed that the legal environment should reduce uncertainty by providing adequate, clear and efficient frameworks for economic change [14].
Drawing on both theoretical and empirical assertions, this study hypothesized that an adequate, adaptable and supportive legal environment could have a positive impact on e-commerce adoption, as follows:

\[ H2: \text{The more adequate/supportive is the legal environment, the more prevalent is e-commerce adoption in the country.} \]

4. Research methodology

4.1. Use of secondary data

The data collected by other research institutions, government agencies or international bodies are called “secondary data” or “archival data”. Secondary data analysis is especially appropriate for studies that cover large numbers of countries over time [53]. Some scholars argued that the intelligent use of secondary data sets plays a significant role in the development of research continuity and the accumulation of knowledge in IS research [54]. Furthermore, since the secondary data have been collected by a different organization, the analyst has only minimal impact on the data collection process and thus has minimal researcher bias in the analysis [55]. Given the advantages provided by secondary analysis, there were several calls for employing secondary data in IS research [55, 56]. However, it is still rare so far in IT adoption literature.

This study used secondary data collected and compiled by the UK-based Economist Intelligence Unit, a well-respected international research and advisory institution, to study e-commerce adoption across a number of countries and at two time points. The EIU has published an annual e-readiness ranking since 2000. A country’s e-readiness is essentially a set of measures of its e-business environment (including business, legal, policy and culture environments) which is conductive to its e-business adoption. The earliest available data were in 2003 and the latest data were in 2007. Based on a series of secondary data analyses conducted in this study, institutional theory in e-commerce adoption and its related hypotheses were tested.

Technically speaking, the concept of the institutional environment was difficult to measure directly in every country. Therefore, e-readiness rankings in the EIU’s report were composite scores from aggregating scores in six distinct categories, and these six categories in turn were aggregated scores of nearly 100 quantitative and qualitative observable criteria. The majority of original data were sourced from the EIU’s regularly calculated Country Forecasts. Those national forecast indicators were scored on a scale from 1 to 10, reflecting qualitative assessments by the EIU’s extensive network of country analysts and reviewed by the EIU’s top economist team [25, 57].

4.2. Multi-time point approach

Unlike most cross-sectional analyses that took place at a single point in time, this study involved a series of data collections and measurements at multiple points in time. Phase-I of the data collection occurred in 2003. It represented the early stage of e-commerce adoption—governments around the world began to take e-commerce into account in formatting economic policies. Phase-II of the data collection occurred in 2007. The data represented a snapshot of the latest development of e-commerce and its institutional environment. The investigation repeated the secondary analysis in Phase-II to test the same (or similar) hypotheses as in Phase-I. It was particularly important and interesting to see whether there were different effects of the legal and policy environments on e-commerce adoption at its beginning stage and when e-commerce model was becoming prevalent and routine. This temporal approach to observe change of those institutional influences over time provides a better basis for causal inference than a single cross-sectional study does [58]. It also enhanced the comprehension and explanation of the institutional circumstances that affected e-commerce adoption.

4.3. Sample

4.3.1. Phase-I (2003). To conduct the second secondary data analysis at Phase-I, this study used the EIU E-readiness Rankings of 2003 and there were 60 countries (N1=60) in the first sample. This sample covered the world’s 60 largest economies, which accounted for 95% of global GDP [57].

4.3.2. Phase-II (2007). At Phase-II, this study looked into the latest available data from the 2007 EIU E-readiness Rankings. The sample size extended from 60 countries covered in Phase-I to 69 countries (N2=69). The samples in both phases represented an exhaustive set of countries for which reliable institutional environment data and e-commerce data were available at the time of data collection.

4.4. Variable list
4.4.1. Phase-I (2003). This study chose three available composite categories from the 2003 EIU E-readiness Rankings for the Phase-I secondary data analysis. The independent variable (IV) at Phase-I was measured by the composite score of “legal and policy environment” (LPE). This score reflected a country’s overall legal framework, laws covering e-commerce, and government policy. The dependent variable (DV) at Phase-I was represented by the composite score of “consumer and business adoption” (CBA). This score reflected the prevalence of e-commerce practices in each country. Another composite score of “social and cultural infrastructure” (SCI) was used as the first control variable (CV). It reflected the national “e-literacy”—the receptivity to e-commerce and proclivity to business innovation and entrepreneurship. National GDP per capita (GDPPP) in 2002 was used as the second CV. The data were obtained from IMF (International Monetary Fund).

4.4.2. Phase-II (2007). The EIU repeated its measurements of national e-readiness at annual intervals. However, the variables in the rankings have been continuously updated and refined from year to year. This was because of the dynamism of the IT developments and the need to review the appropriate set of variables in good time in order to improve the data quality. The revisions also made the new sets of variables used in the Phase-II analyses better match the research model than the ones used in Phase I.

Specifically speaking, the legal environment category (LE) has been refined to reflect a more focused look at the specific regulatory frameworks that influence e-adoption [59]. As a reflection of its greater emphasis on the role of governments in fostering e-business, the EIU isolated the effect of government policy from the original category of “legal and policy environment” and created its own category “government policy and vision” (GP). The whole process of refinement was undertaken by the EIU analyst panel led by the director of global technology research. All assessments were, in turn, reviewed by the EIU’s senior economist team [59]. Accordingly, there were two IVs at Phase-II: LE and GP. The DV and two CVs remained the same at Phase II: CBA, SCI and GDPPP (all reflecting new scores in 2007).

5. Data analyses and results


The descriptive statistics of the IV and DV used in the Phase-I data analysis are shown in Table 1. Multiple regression was used to test the research model. Upon satisfying all assumptions, the regression model is shown in Table 2. The result showed that LPE was a significant predictor of e-commerce adoption (p<0.01) in the EIU sample in 2003. The positive coefficient of the IV confirmed LPE’s role as a strong e-commerce facilitator. Whenever the legal & policy environment increased 1 standard deviation and other independents (SCI and GDPPP) were held constant, the average amount of e-commerce adoption would increase 0.56 standard deviation. The legal & policy factor was almost twice as important as the social & cultural factor. It was also notable that the standard error for each regression coefficient was low, making the confidence interval narrow and indicating a good prediction.

Table 1. Descriptive statistics of the EIU 2003 data

<table>
<thead>
<tr>
<th>Item</th>
<th>Mean</th>
<th>Minimum</th>
<th>Maximum</th>
<th>Std Deviation</th>
</tr>
</thead>
<tbody>
<tr>
<td>LPE</td>
<td>6.34</td>
<td>2.10</td>
<td>8.90</td>
<td>2.07</td>
</tr>
<tr>
<td>CBA</td>
<td>5.51</td>
<td>1.00</td>
<td>9.10</td>
<td>2.47</td>
</tr>
</tbody>
</table>

Overall, R² in the full regression model (with the IV and CVs together) showed that 92% of the variance in e-commerce adoption in the EIU 2003 sample was explained jointly by legal & policy environment, social & cultural infrastructure and GDP per capita.

5.2. Phase-II (2007)

The descriptive statistics of the two IVs and DV used in the Phase-II data analysis are shown in Table 3. The regression model is shown in Table 4. The result showed that GP was the most significant predictor of e-commerce adoption (p<0.01) in the EIU 2007 sample. The effect of LE on e-commerce adoption was not found significant here. The relative importance of the two IVs in predicting a country’s e-commerce usage in this given model was about 1:2.89, corresponding to the ratio of unique contributions of legal environment and government policy.

Table 2. The multiple regression model (EIU 2003)

<table>
<thead>
<tr>
<th>Item</th>
<th>Beta</th>
<th>Std. Error</th>
<th>t</th>
<th>Significance</th>
</tr>
</thead>
<tbody>
<tr>
<td>LPE</td>
<td>0.556</td>
<td>0.097</td>
<td>5.716</td>
<td>0.000</td>
</tr>
<tr>
<td>SCI</td>
<td>0.288</td>
<td>0.118</td>
<td>2.427</td>
<td>0.019</td>
</tr>
<tr>
<td>GDPPP</td>
<td>0.154</td>
<td>0.091</td>
<td>1.678</td>
<td>0.101</td>
</tr>
</tbody>
</table>

Table 3. Descriptive statistics of the EIU 2007 data

<table>
<thead>
<tr>
<th>Item</th>
<th>Mean</th>
<th>Minimum</th>
<th>Maximum</th>
<th>Std Deviation</th>
</tr>
</thead>
<tbody>
<tr>
<td>LE</td>
<td>6.73</td>
<td>2.10</td>
<td>9.70</td>
<td>1.84</td>
</tr>
<tr>
<td>GP</td>
<td>6.33</td>
<td>2.50</td>
<td>9.85</td>
<td>2.08</td>
</tr>
<tr>
<td>CBA</td>
<td>6.37</td>
<td>2.50</td>
<td>9.50</td>
<td>2.08</td>
</tr>
</tbody>
</table>

The regression model was shown in Table 4. The result showed that GP was the most significant predictor of e-commerce adoption (p<0.01) in the EIU 2007 sample. The effect of LE on e-commerce adoption was not found significant here. The relative importance of the two IVs in predicting a country’s e-commerce usage in this given model was about 1:2.89, corresponding to the ratio of unique contributions of legal environment and government policy.

Table 4. The multiple regression model (EIU 2007)

<table>
<thead>
<tr>
<th>Item</th>
<th>Beta</th>
<th>Std. Error</th>
<th>t</th>
<th>Significance</th>
</tr>
</thead>
<tbody>
<tr>
<td>LE</td>
<td>0.131</td>
<td>0.086</td>
<td>1.531</td>
<td>0.131</td>
</tr>
<tr>
<td>GP</td>
<td>0.379</td>
<td>0.088</td>
<td>4.303</td>
<td>0.000</td>
</tr>
<tr>
<td>SCI</td>
<td>0.184</td>
<td>0.095</td>
<td>1.942</td>
<td>0.057</td>
</tr>
<tr>
<td>GDPPP</td>
<td>0.329</td>
<td>0.073</td>
<td>4.524</td>
<td>0.000</td>
</tr>
</tbody>
</table>

Overall, R² in the full regression model (with the IVs and CVs together) showed that 91% of the variance in e-commerce adoption in the EIU 2007
sample was explained jointly by legal environment, government policy, social & cultural infrastructure, and GDP per capita.

6. Discussion and conclusion

6.1. Discussion of findings

The secondary data analyses in this study were able to demonstrate the cause-effect relationship between the institutional environment and e-commerce adoption. Specifically speaking, the legal and policy environment did exert a substantial positive impact on e-commerce adoption around the world at the early stage of e-commerce (the worldwide average score of e-commerce was only 5.51 out of 10 in the EIU 2003 sample). Government vision regarding e-commerce, government financial support of e-commerce and related infrastructure projects, effectiveness of legal framework, and laws covering e-commerce, together they fostered consumers and businesses in many countries to engage in e-commerce in 2003. This finding proved the institutional perspective about the critical role of government policy and legal environment in driving e-commerce adoption.

Four years later, in 2007, the global average score of e-commerce improved from 5.51 to 6.37, at a rate of 16%. As e-commerce became more prevalent in the world, supportive government policy still provided a powerful explanation for variations in e-commerce adoption around the world. On the other hand, the impact of legal environment was reduced. A possible explanation from the perspective of institutionalism is that a predictive and effective legal environment was important to reduce the institutional uncertainty and ensure the trust and confidence in e-commerce activities, especially during the initial stage of e-commerce development. A good legal system is a safeguard for online commercial transactions. Nevertheless, the encouraging influence of legal environment would be diminished as people understand e-commerce better and e-commerce becomes a common practice in the society.

6.2. Policy implication

An effective research project is not only used to explain and predict social phenomena, but also to help humans master them to achieve social objectives through yielding useful policy recommendations [60]. All sound policy prescriptions should rely on a solid theory base, valid data analysis, and rational discussion. In reality, however, policymakers generally lack adequate scientific evidence and knowledge for making crucial decisions on e-commerce development. The application of institutional theory in e-commerce adoption and its empirical findings in this study have a clear relevance to policy makers. If we understand better at the theoretical level how those institutional factors would produce an outcome of e-commerce adoption, we then have the basis for a conditional prediction in the real world on how e-commerce will develop in a certain environment. It will help policy makers to formulate appropriate policies to accelerate e-commerce adoption.

Experience has taught us that it is important to build a friendly climate for technology innovation and diffusion. The effects of the legal and policy environments will depend to a significant extent on how policy-makers and other stakeholders will act and influence. According to this study, this is particularly vital at the starting stage of e-commerce. The advancement in e-commerce adoption at Phase I (2003) could be credited to supportive legal environment and government policy. In particular, proactive government policies were the prime mover of e-commerce in many developing countries, and it is still a driving force of e-commerce diffusion today.

The fosterage of government policy is summarized as follows. First, government policies that encourage investment in IT adoption, particularly the financial incentives, are stimulating to e-commerce development. Second, government efforts to promote an open and free trade environment, including deregulating telecom markets, improving IT infrastructure, and conducting e-procurement itself, will encourage e-commerce adoption and diffusion. Third, government’s assurance on recognizing e-contracts and providing legitimate legal frameworks will facilitate e-commerce activities. Fourth, government’s educational and training program will foster “e-literacy” and greater awareness of e-commerce among businesses. Last, cooperation between government and private sector is a key to e-commerce.

On the other hand, this study also shows that the lack of adequate legal framework might be a concern for engaging in e-commerce at first, but that the lack thereof would not deter the society from further e-commerce diffusion. Thus, after an initial push on e-commerce adoption, legislations should not interfere directly in private investments in e-commerce until there is a clear sign of market uncertainty and disturbance.

Finally, as Kofi Annan, the former Secretary-General of UN, indicated, “if all countries are to be benefited [from e-commerce], … more needs to be
done to … create an enabling environment, nationally and internationally." [7]

7. References


