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Performance Impacts of E-Government: An International Perspective

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Abstract

Though policy makers and governments are interested in understanding the impacts of e-Government on national performance, there are relatively few empirical studies that analyze this aspect. Using secondary data from 99 countries and the IT impact literature as the guiding theoretical perspective, we first examine the impact of e-Government on first order government efficiency parameters (resource allocation and internal operations efficiency) and subsequently the impact of these first order outcomes on the two second order dimensions of national performance (social welfare and business competitiveness). Our initial analysis reveals a significant relationship between e-government development and resource allocation efficiency and also between e-Government development and internal operations efficiency. For the second order model, we find that the relationship between internal operations efficiency and social welfare competitiveness is not significant. We conducted a post-hoc analysis which revealed that the relationship between internal operational efficiency and social welfare competitiveness is fully mediated through national business competitiveness. Hence, business competitiveness emerges as an important aspect for realizing the social welfare benefits of e-Government. Through this research, we make some important contributions and implications for researchers, practitioners and policy makers.

Keywords: e-Government, IT impact, social welfare, business competitiveness, government efficiency

1. Introduction

E-Government can be defined as the use of information and communication technologies (ICTs) and the Internet to enhance the access to and delivery of all facets of government services and operations for the benefit of citizens, businesses, employees and other stakeholders. In recent times, e-Government has generated a lot of interest among researchers. Studies on e-Government can be classified into three broad areas: e-Government development and evolution (Layne and Lee 2001; Srivastava and Teo 2004; Tan and Pan 2003), e-Government adoption and implementation (Norris and Moon 2005; Li 2003) and the impact of e-Government on citizens and businesses (Banerjee and Chau 2004; West 2004). Though research in all the three identified areas is important, governments, policy makers, practitioners and academics are often intrigued by the *impact* of e-Government. Since the research on e-Government impact is still in a nascent stage, its relationship with national performance has not been clearly established.

The link between information technology (IT) investments and organizational performance, termed as IT payoffs, has been researched by numerous scholars (Brynjolfsson and Hitt 1996; Devaraj and Kohli 2003; Melville et al. 2004). The practical relevance of IT impact continues to motivate researchers for investigating the relationship between IT and performance (Srivastava and Teo 2005a). Although IT impact research continues to be a major component of information systems (IS) research, relatively few studies have been conducted to gauge the impact of e-Government on national performance. Past research on the impact of e-Government has highlighted some of the benefits it offers for citizens, businesses and governments. E-Government has not only helped in improving service delivery (Kibsi et al. 2001; Von Haldenwang 2004; West 2004) and increasing democratization (Von Haldenwang 2004; West 2004), but has also helped in reducing corruption and increasing government transparency (Banerjee and Chau 2004; Cho and Choi 2004; Von Haldenwang 2004; Wong and Welch 2004). Most of the impact variables investigated in past studies are process variables, which may eventually impact the national performance (Barua et al. 1995). But this link has not been clearly established in the current e-Government literature. In our study, we address this gap by viewing e-Government impact as a process, with intermediate variables mediating the relationship between e-Government development and national performance. We construe national performance as consisting of two dimensions of social welfare competitiveness and business competitiveness. Further, we posit that e-Government development impacts government efficiency (resource allocation and internal operations), which in turn impacts national performance on the two construed dimensions. Through our research, we investigate the relationship of e-Government development with first order impacts and consequently the linkage of first order effects with higher order performance variables (Barua et al. 1995; Melville et al. 2004).

Most e-Government studies are either conceptual (Kibsi et al. 2001; Layne and Lee 2001; Srivastava and Teo 2004; Von Haldenwang 2004; Warkentin et al. 2002; Wimmer 2002), or case studies (Banerjee and Chau 2004; Cho and Choi 2004; Heeks 2002; Lee et al. 2005; Li 2003; Srivastava and Teo 2005b). Though, e-Government literature also has some theoretically grounded empirical survey studies (Phang et al. 2005; Bretschneider 1990), such empirical studies are relatively few and are limited to analyzing a particular e-Government implementation within a country (Kaylor et al. 2001; Norris and Moon 2005; McNeal et al. 2003; Moon 2002; West 2004). Cross country and country level empirical studies are very few (for example, Wong and Welch 2004; Singh et al. 2004). Moreover, empirical studies assessing the impact of e-Government are even fewer (for example, Jain 2003).

In their review of IT impact research, Melville et al. (2004) have also stressed the paucity of IT impact research at national and cross-country levels. To fill these research gaps, using data from 99 countries, we analyze the relationship of e-Government development with national performance mediated by the intermediate efficiency variables. The rest of the paper is organized as follows. First, using IT impact as the guiding theoretical framework, we explicate the importance of having e-Government development for increasing national performance. Next, conceptualizing IT impact as a process, we posit that impact of e-Government on national performance (social welfare and business competitiveness) is mediated through efficiency enhancing process variables (resource allocation efficiency and internal operations efficiency). Subsequently, using data from 99 countries, we test the hypotheses so formulated and finally end the discussion with a set of conclusions and contributions of this study.

2. Theory and Hypotheses

2.1. e-Government Impact

Previous research has shown that IT may contribute to the improvement of organizational performance (Brynjolfsson and Hitt 1996; Melville et al. 2004; Mukhopadhay et al. 1995). To measure the impact of IT, researchers have used multifarious measures of organizational performance, like productivity enhancement, inventory reduction, cost reduction, competitive advantage, etc. (Devaraj and Kohli 2003; Hitt and Brynjolfsson 1996; Melville et al. 2004). Studies have used both, intermediate process-level measures as well as organizational performance measures for exhibiting the impact of IT. Barua et al. (1995) made a distinction between the processual intermediary variables and organizational impact variables. In their research, they presented a model which incorporated both, i.e., first order effects impacting operational variables like inventory turnover, as well as higher level variables (like market share) impacted by first order variables. Researchers have conceptualized the intermediate variables mediating the impact of IT on firm performance in a number of ways. For example, Weill (1992) identified intermediate mediating variables as 'conversion effectiveness factors', Francalanci and Galal (1998) proposed managerial choices as the process variables which mediate the relationship between IT and firm performance. In a similar vein, Soh and Markus (1995) conceptualized IT assets (IT conversion process) which mediate the relationship between IT investment and organizational performance. To have a fuller understanding of the process of IT impact, it is imperative to conceptualize IT as having first as well as higher order effects (Melville et al. 2004). The first order effects are mostly related to process efficiency whereas higher order effects are the impacts of these processual efficiency enhancements on organizational performance measures (Barua et al. 1995; Brynjolfsson and Hitt 2000; Subramani 2004; Subramaniam and Shaw 2002). Apart from creating value at the business unit and process level, IT may also impact the performance at the country level of analysis by improving the efficiency as well as effectiveness of the country (Alpar and Kim 1990; Dewan and Kraemer 2000). In our research, we conceptualize the impact of e-Government development on the intermediate process variables related to efficiency, which in turn impact the country performance measures.

Governments in countries have multifarious objectives, which can be broadly classified into two kinds. *First,* social and welfare objectives, which deal with improving the quality of life of its citizens by reducing poverty and removing social inequalities (which we call as social welfare competitiveness) and *second,* commercial objectives of making the nation and its businesses more competitive so as to have a better economic condition (which we call as

business competitiveness). Governments achieve these objectives through policy making, program administration and ensuring compliance (US Government 2002). We posit that e-Government may be instrumental in achieving these ultimate national performance objectives (social welfare competitiveness and business competitiveness) through intermediate efficiency enhancing processes.

In the current networked era, organizational linkages within and among organizations are opening up new ways in which firms not only acquire and convert factor inputs but also assimilate and use information from various sources for increasing their competitiveness (Hammer 2001; Straub and Watson 2001). In a similar vein, e-Government may be helpful in getting more accurate information about citizens and businesses. In addition to this, e-Government will improve the access of the government to its citizens and businesses and vice versa. This will help in a more accurate and efficient resource allocation, implying that government spends its resources in an effective way thus avoiding wastages. Hence we hypothesize,

H1a: E-Government development is positively associated with government resource allocation efficiency.

E-Government not only helps in providing more accurate information facilitating better decisions by the government but it also helps in bringing down the processing time by reducing the number of working procedures. Some years ago, obtaining an import export license in Singapore required applicants to fill out 21 different forms and then wait for 15 to 20 days for the 23 government agencies to process the request. But since the government launched TradeNet (an electronic data interchange network for trade administration), applicants have to submit only one online form, and they may receive a license as soon as 15 seconds later (Kibsi et al. 2001). In a fully integrated e-Government system, a vertical and horizontal integration, within and across various ministries and government offices reduces the processing time for citizens and businesses drastically. In such a networked e-Government scenario, citizens and businesses may interact with multiple government agencies though a simple one stop portal, resulting in enhanced internal operational efficiency for the government through the reduction of bureaucratic red tape. Thus, we hypothesize,

H1b: E-Government development is positively associated with government internal operational efficiency.

E-Government helps governments become more efficient in their internal processes, by reducing the bureaucratic red tape. This efficiency coupled with the accurate information (since the information is received directly and does not need retyping) that it receives through the e-Government channels will help enhance the decision making efficiency (including the decisions related to resource allocation). In other words, an increase in internal efficiency in government operations will make the government more efficient in taking faster and better decisions related to all aspects of government, including resource allocation decisions. Hence we have the next hypothesis,

H2: Internal operational efficiency is positively associated with resource allocation efficiency.

We posit that the impact of e-Government on the process efficiency variables will translate to national performance variables, related to its two objectives of social welfare and business

competitiveness. An efficient resource allocation implies a better distribution of resources to the areas where it is really required, thus helping the citizens and businesses in the right proportions. Efficient resource allocation will help the nation not only in achieving social objectives (poverty and social inequality reduction) but will also help in improving the business competitiveness by contributing efficiently to their development. Hence we hypothesize,

H3a: Government resource allocation efficiency is positively associated with social welfare competitiveness.

H3b: Government resource allocation efficiency is positively associated with business competitiveness.

In a similar vein, a government which has internal operational efficiency will not only process business proposals more efficiently but will also process the implementation of social welfare programs in a shorter time. The reduction in red tape in the government coupled with increased information flow through e-Government channels will not only help government make faster decisions but also more accurate and useful decisions. Thus, government internal operational efficiency helps enhance both social welfare competitiveness as well as business competitiveness.

H4a: Government internal operational efficiency is positively associated with social welfare competitiveness.

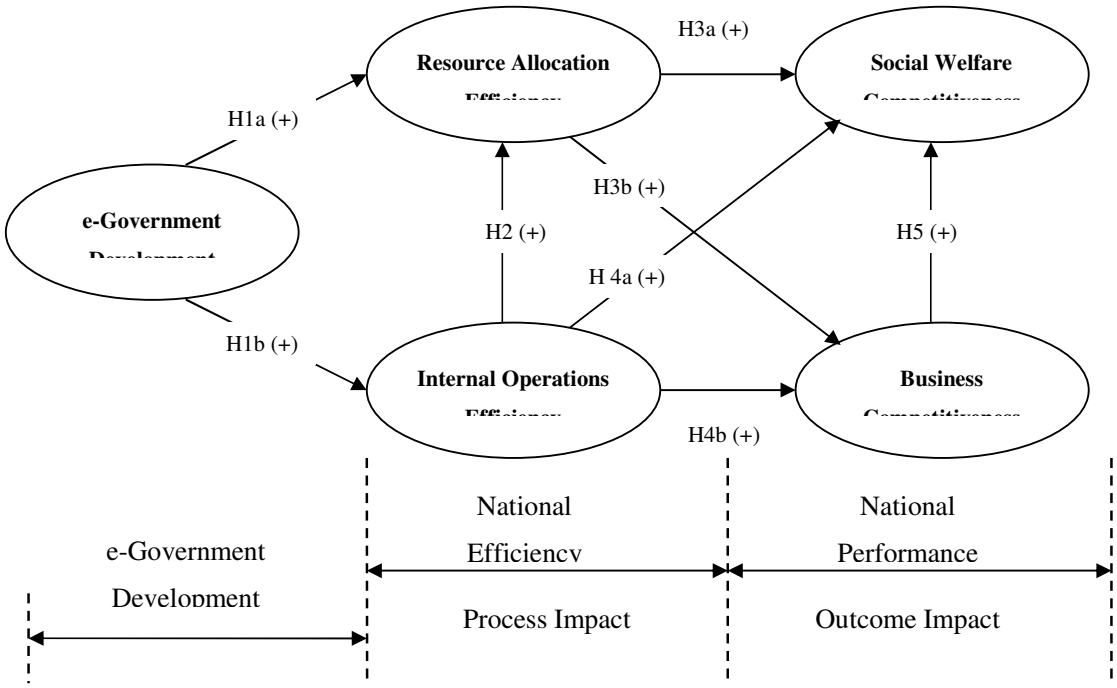
H4b: Government internal operational efficiency is positively associated with business competitiveness.

Increased business competitiveness in a nation results in multifarious benefits not only for the businesses but also for citizens. An increase in business competitiveness implies an increase in the micro-economic condition of the country, which is translated into an increased wealth in the country (Porter 2005). This increased wealth in the nation can be used by governments to achieve its social objectives. More so in the presence of e-Government and an increased internal and resource allocation efficiency, we posit that business competitiveness positively influences social welfare competitiveness. Thus, we hypothesize,

H5: Business Competitiveness is positively associated with social welfare competitiveness.

The research model for this study is presented in Figure 1.

Figure 1: Research Model: E-Government Impact



3. Method

3.1. Data

For a meaningful testing of hypotheses, we require data from a large number of countries aggregated at the national level. For this purpose, we extracted relevant data from multiple secondary data sources. Using secondary data for our research serves a number of important and useful purposes. *First,* there is a dearth of IS studies using secondary data. Though many of the important related management fields like strategy, finance, etc., make extensive use of secondary data in their research, the practice in IS research is mostly to use primary data from surveys or case studies. Through this research, we wish to highlight the usability of secondary data research in many of the IS contexts, so as to incorporate methodological diversity in IS research. *Second,* secondary data research is easily reproducible. This allows other researchers to build on our work, thereby helping to establish a cumulative tradition as emphasized by Keen (1980). *Third,* it is virtually impossible for a small group of researchers to collect primary survey data from nearly 100 countries as it would entail tremendous resources to do so. *Fourth,* data collected by reputable agencies like UN, WEF, etc., are mostly valid and reliable because of their resources, experience and practice of following a uniformly

structured pattern for collecting data from all the countries. *Fifth,* it gives an opportunity to deal with larger samples than when using in-depth case studies, which increases the generalizability of results.

In this study, we use two major data sources: the United Nations Global e-Government Readiness Report (UN Report 2004) and the World Economic Forum Global Competitiveness Report (WEF 2005). These were the two most recent reports available. Though WEF has been publishing global competitiveness report for a number of years now, UN started publishing the United Nations Global e-Government Readiness Report only recently in 2003. Hence we used cross-sectional data from the UN report (released late 2004) and from WEF (2005) (released early 2005) for our analyses. Another consideration for this study is the fact that the variables used in this study were taken from both the reports, hence it was essential to consider data only for those countries which were available in both reports. After analyzing for the common data points across the reports, we had data from 99 countries for analyses.

3.2. Constructs, Variables and Measures

As depicted in our research model (Figure 1), there are five constructs in this study: e-Government Development, the two process efficiency constructs namely, Resource Allocation Efficiency and Internal Operational Efficiency, and finally the two national performance constructs of Social Welfare Competitiveness and Business Competitiveness. In our research model we conceptualize e-Government impact translating to national performance (social welfare and business competitiveness) through the efficiency enhancements in resource allocation and internal operations. The measures for various constructs have been directly taken from the two reports mentioned above. While forming the various indexes, the reporting agencies carried out suitable procedures for ensuring their validity and reliability (UN Report 2004; WEF 2005). Hence in our study, we take the individual indexes to be reliable and valid and use them directly in our data analysis. We give a brief description of the constructs and measures employed in this study.

E-Government Development: The construct of *e-Government development* denotes the level of web usage in a country for the conduct of the government business and is indicated by the 'Web Measure Index' from the UN e-Government Readiness Report 2004. The Web Measure Index is based upon a five-stage model, ascending in nature, and building upon the previous level of sophistication, of a country's online presence. For countries which have established an online presence, the model defines stages of e-readiness according to a scale of

progressively sophisticated citizen services (UN Report 2004). Countries are coded in consonance with what they provide online and the stage of e-Government evolution they are presently in. The five stages of e-Government on which the country websites were coded were based on the UN's five stage e-government evolution model[7] in which the stages are: emerging presence, enhanced presence, interactive presence, transactional presence and networked presence. The Web Measure Index is an indicator of the sophistication and development of the e-Government websites of that particular country.

Resource Allocation Efficiency: The construct of *Resource Allocation Efficiency* denotes the extent to which the government spending is on activities *actually* required by the citizens. This construct is indicated by the 'Wastefulness of Government Spending' taken from the Global Competitiveness Report 2005. It indicates whether the public spending provides necessary goods and services not catered to by the market or whether the spending is done in wasteful propositions. High resource allocation efficiency indicates that the spending efforts of the government are efficiently directed towards the actual requirements.

Internal Operations Efficiency: The construct of *Internal Operations Efficiency* denotes the efficiency of government in managing its internal processes. One of the important parameters denoting the efficiency of internal operations is the government's success in reducing the processing time for its various functions. The lesser the extent of bureaucratic red tape in government, the higher its internal operations efficiency. In our study, construct of Internal Operations Efficiency is indicated by the 'Extent of Bureaucratic Red Tape' taken from the Global Competitiveness Report 2005. The measure as used in our research indicates the efficiency in government operations and the extent to which bureaucratic red tape is not impeding the processing time. High internal operations efficiency indicates that the extent to which government is efficient in conducting its internal affairs.

Social Welfare Competitiveness: *Social welfare competitiveness* is a measure of success of governments in their welfare objectives. Social upliftment, poverty alleviation, removal of social inequality, etc., appear as some of the most important welfare objectives of governments across the world. We posit that governments doing well on the welfare objectives have a high level of social welfare competitiveness. In our study, social welfare

[7] The full description of the model is available at http://www.unpan.org/egovernment3.asp

competitiveness is indicated by 'Government Effectiveness in Reducing Poverty and Inequality' taken from the Global Competitiveness Report 2005.

Business Competitiveness: The *business competitiveness* of a nation is an indicator of the micro-economic capabilities of its constituents. Unless the micro-economic capabilities of the national constituents improve, the macro-economic, political, legal and social reforms will not bear full fruit in terms of its prosperity. Competitiveness is thus related to a nation's standard of living and prosperity (Porter 2005) and is measured by the GDP per capita adjusted for purchasing power parity, the values for which are taken from the Global Competitiveness Report 2005.

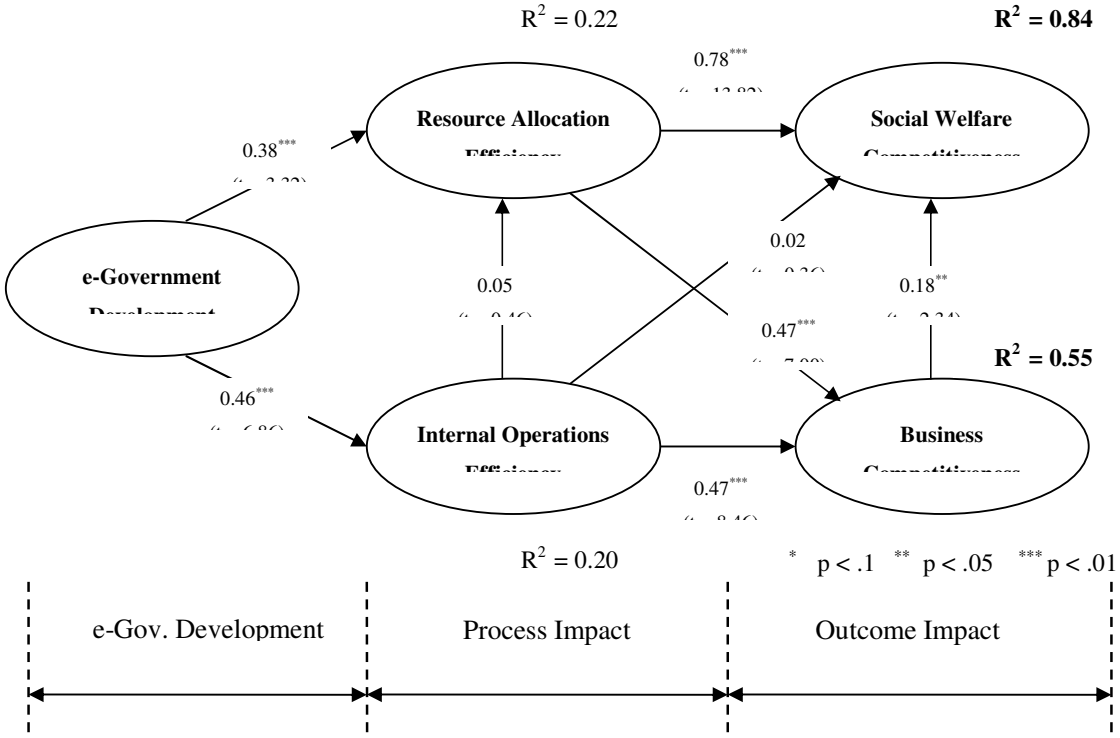
4. Results and Discussion

For our analysis, we employed Partial Least Squares (PLS) (Barclay et al. 1995; Chin 1998; Wold 1989). The greatest advantage of using PLS is that it enables us examine complex theoretical models (having more than one level of theoretical linkages) as is the case in our study (Gefen et al. 2000). PLS imposes minimal demands in terms of sample sizes, measurement scales, and residual distributions to validate a model compared to alternative structural equation modeling techniques (Wold 1989; Gefen et al. 2000; Mahmood et al. 2004). Another advantage which PLS offers is that the PLS analysis is distribution free and does not assume true independence of the variables, leading to more reliable results (Gefen et al. 2000; Tobias 1999). PLS is also robust against other data structural problems such as skew distributions and omissions of regressors (Cassel et al. 1999). Many information systems (IS) studies have found it to be an effective method of analysis (Bock et al. 2005; Subramani 2003). Moreover, the exploratory theory development stage that e-Government research is currently in makes PLS a suitable choice for analyzing the data in our study.

From the results (Figure 2), hypothesis 1a which states that there is a positive association between e-Government development and resource allocation efficiency received strong support (path = 0.38, t = 3.32, $p<0.01$). Hypothesis 1b which states that e-Government development is positively associated with internal operations efficiency was strongly supported (path = 0.46, t = 6.86, $p<0.01$). Hypothesis 2, was not supported (path = 0.05, t = 0.46, ns) indicating the lack of a significant relationship between internal operations efficiency and resource allocation efficiency. One possible reason is that the resource allocation may be more of an external driven process rather than being influenced by internal

efficiency. In other words, citizens and businesses play a major role in providing information and also influencing government for facilitating efficient resource allocation.

Figure 2: Results of PLS Analysis

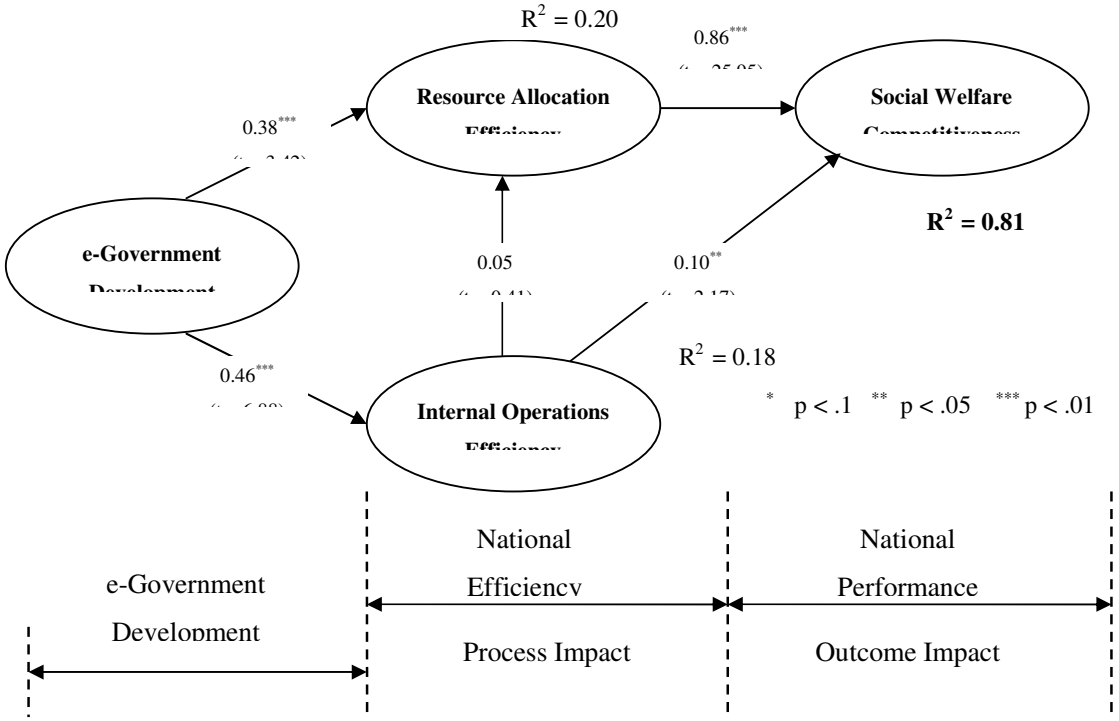


Hypothesis 3a which indicates a link between resource allocation efficiency and social welfare competitiveness was strongly supported (path = 0.78, t = 13.82, p<0.01). Hypothesis 3b was also strongly supported (path = 0.47, t = 7.00, p<0.01) establishing the association of resource allocation efficiency with business competitiveness. These results establish the intermediate role of resource allocation efficiency in the relationship between e-Government development and national performance on both the dimensions of social welfare as well as business competitiveness. It indicates the presence of intermediate variables in the e-Government impact process, thus extending the work on IT impact in the e-Government context. Surprisingly, hypothesis 4a which indicates a positive association between internal operational efficiency and social welfare competitiveness was not supported (path = 0.02, t =

0.36, ns). Hypothesis 4b was strongly supported (path = 0.47, t = 8.46, $p<0.01$) indicating a strong link between internal operational efficiency and national business competitiveness. The relationship between business competitiveness and social welfare competitiveness was also significant (path = 0.18, t = 2.34, $p<0.05$) thus providing support for hypothesis 5. Further, the proposed model explains a significant amount of variance 83.6 % in social welfare competitiveness and 54.8% in business competitiveness.

The lack of support for hypothesis 4a is interesting and also surprising as apparently it refutes past IS studies on IT impact which indicate that improvement in internal operational efficiency should create an impact on its performance parameters (Barua et al. 1995; Subramaniam and Shaw 2002). Studies on e-Government in the past have also shown positive impacts on different performance metrics including those related to social welfare (Banerjee and Chau 2004; Von Haldenwang 2004; West 2004). A result indicating non association of internal operational efficiency with social welfare competitiveness, no doubt raises an important counter intuitive issue which needs further exploration. There can be two plausible reasons for this theoretically anomalous non significant result. *First,* there is *actually* no relationship between internal operational efficiency and social welfare competitiveness. *Second,* the impact of internal operational efficiency on social welfare competitiveness is realized fully through business competitiveness (since in our model that is the only other significant path from internal operational efficiency to social welfare competitiveness). Some past studies on IT impact have shown the importance of understanding the process of impact realization through intermediate mediating variables (Barua et al. 1995; Hitt and Brynjolfsson 1996; Mukhopadhyay et al. 1995; Subramaniam and Shaw 2002). To analyze this aspect, we did the PLS analysis again, without the construct of business competitiveness, the results of which are shown in Figure 3.

Figure 3: Testing for Mediation of Internal Efficiency through Business Competitiveness



for achieving Social Competitiveness

From the results in Figure 3, we observe that in the revised model, the path from internal operational efficiency to social welfare competitiveness becomes significant (path = 0.10, t = 2.17, p<0.05). This brings forth a very interesting finding about the relationship between internal operational efficiency and social welfare competitiveness. In the presence of the path between internal operational efficiency to social welfare competitiveness through business competitiveness, the direct path between internal operational efficiency and social welfare competitiveness becomes insignificant (Figure 2). This indicates that the relationship between internal operational efficiency and social welfare competitiveness is fully mediated through business competitiveness. This result is interesting as it indicates that in our hypothesized model even a second order impact variable (business competitiveness) serves as a mediating variable for another second order impact variable (social welfare competitiveness). The result makes an important contribution in enriching our understanding about the complex process of impact assessment at the national level. Further, it brings forth the important role of business

development in a nation as it is not only related to enhancing national business competitiveness but is also instrumental in helping governments achieve social welfare objectives.

5. Limitations

The key limitation of this study is the reliance on secondary data for our analyses. The biggest limitation of using secondary data for research is that we have to depend on the information available in the databases and some constructs may be indirect measures of the intended phenomenon. For example, as there were no available direct measures for social welfare competitiveness, we used measure for 'government effectiveness in reducing poverty and inequality' as a surrogate measure (since some of the most important social objectives of the nation center around citizen welfare through reduction in poverty and equitable distribution of wealth).

Another limitation of using secondary data is that we analyze data only from those countries which were present in our secondary data sources, for example, we could not include countries like Hong Kong and Taiwan in our analyses as data for these countries were not available in the UN report. Taking into consideration the fact that we have large scale data from 99 countries, omitting some of the countries may not make a substantial difference in the results. Despite this potential limitation, our study is one of the first few studies to understand the process of e-Government impact in a cross-country scenario. Moreover for an analysis such as ours which aims to analyze data across nearly a hundred countries, we have to depend on established secondary sources of data, as collection of primary data would entail huge amount of resources.

6. Contributions and Conclusions

The recent spur in e-Government implementations by governments across the world is motivated by the expectations of anticipated benefits it promises. Accenture in its recent report mentioned,

> *"Electronic government (e-Government) enables high performance. It enables better outcomes for less cost—maximum value from every resource expended. In the process it helps governments transform service delivery, so that they meet their obligations to their stakeholders in the most efficient and cost-effective way possible"* (Accenture, 2004, p.2).

Understanding the impact of e-Government development by governments and policy makers is vital for the effective implementation and administration of government plans and policies (UN Report 2004; Von Haldenwang 2004). E-Government development represents the maturity of the countries' e-Government websites in terms of their functionality with reference to the five stages of e-Government evolution: emerging presence, enhanced presence, interactive presence, transactional presence and networked presence. In this research, using the IT impact perspective, we analyze the process through which e-Government helps nations achieve their social welfare and commercial objectives (business competitiveness).

Through this research, we make some important contributions for academics as well as practitioners and policy makers. *First,* most studies on e-Government are either conceptual or case studies. There is a dearth of quantitative empirical studies on e-Government (Norris and Moon 2005). Moreover there are relatively few studies on e-Government which address issues from a global perspective. Further, very few studies on e-Government use secondary data for their analyses. Our empirical study which uses secondary data to analyze e-Government development and its impact from a cross-country perspective fills these gaps in e-Government literature and makes an important methodological contribution for e-Government research. Future research can make use of other sources of secondary data for better understanding of e-Government from a cross country perspective.

Second, there are very few studies analyzing the impact of IT at the country level of analysis (Melville et al. 2003). Moreover studies analyzing e-Government impact in a cross-country scenario are even lesser (Banerjee and Chau 2004; Wong and Welch 2004). Through this research by studying the relationship between e-Government and national performance on the two dimensions of social welfare and business competitiveness, we enrich the IT impact literature by analyzing the contexts not explicitly explored in the past.

Third, in our research we conceptualize e-Government impact as a process model having first order impacts on efficiency (resource allocation and internal operations), which in turn are related to social and business competitiveness. Analyzing e-Government impact through intervening mediating variables gives a more accurate and fuller understanding of the process through which it impacts national performance. Past IT impact studies have used process models in various contexts. Our study is one of the first to take a processual view of e-Government impact.

Fourth, our study suggests that the development of e-Government is significantly associated with resource allocation efficiency and internal operations efficiency of governments. Enhancements of these efficiencies in turn impact the national performance on the two dimensions of social welfare and business competitiveness. Thus, improvement in government efficiency mediates the relationship between e-Government development and national performance. Our results also show that a second order impact on one dimension of national performance may impact the other dimension of national performance. Specifically in this research, we see that the relationship between government internal efficiency and social welfare competitiveness is fully mediated by business competitiveness. This result reiterates the important role of business competitiveness in attaining social welfare objectives. The result has implications for policy makers to have a greater focus on the business development in a nation as it not only impacts the business competitiveness but also helps nations alleviate poverty and achieve social equality. Hence concerted efforts should be made by governments in both directions.

Further, there are very few studies on e-Government which use rich sources of secondary data for cross country studies. Our study is a case in point and exhorts future researchers to use other cross country secondary data sources to make inferences about e-Government from a global perspective. Another aspect that is brought out in our study is the non significant role of government internal operations efficiency in enhancing resource allocation efficiency. Future research can investigate the role and impact of internal operational efficiency as well as other processual variables like the actual usage and quality of usage (Devaraj and Kohli 2003) of e-Government on national performance.

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