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Global Comparison of the Factors Promoting E-Government

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Abstract Many countries have developed e-governments, but their current statuses differ by country, as demonstrated in the United Nations E-Government Survey. This study focuses on what factors cause these differences. Specifically, it analyzes economic and organizational factors, both of which have not yet been sufficiently considered. Through quantitative and qualitative analyses, the results show that GDP growth and the days required to start a business are important factors, while fiscal balance does not appear to affect e-government development as much. In addition, the existence of allocated ministries or departments that belong to a president or prime minister are also important for e-government progression.

Keywords : e-government, digital government, economic factors, organization factors, business activities, fiscal constraints

전자정부 활성화 요인의 글로벌 비교

마츠오카 기요시*

요 약 지난 몇 년 동안 많은 나라에서 전자정부 정책을 추진하고 있다. 그러나 UN의 전자정부 평가결과에서도 나타난 것처럼 전자정부 진척도는 국가마다 차이를 보이는 것을 알 수 있다.

본고에서는, 이처럼 국가별로 전자정부 진척도에 왜 차이가 생길까에 주목하고, 경제적 요인과 조직적 요인 등 2개의 요인으로 나누어 정량적·정석적인 분석을 했다. 분석 결과, 전자정부 진척에 미치는 요인 중 경제적인 요인에서는 1인당 GDP성장률, 그리고 경제 활동의 편리성 지표로서 기업 설립에 있어서 필요로 하는 기간이 영향을 미치는 것으로 나타났다. 또한 조직적인 요인으로는 대통령이나 총리 직속의 부처가 강력한 리더십 하에 전자정부 전략 등을 수립하는 것이 중요한 것으로 나타났다.

주제어 : 전자정부, 디지털정부, 경제적 요인, 조직적 요인, 사업 활동, 제정 제약

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Ⅰ. Introduction

Recently, many countries have developed an e-government(or digital government), while the growth of this instauration differs among countries. Much is known about its status and differences, but limited information exists on what affects its development.

Thus, this study aims to analyze the factors promoting e-government development in the 20 most developed countries, those ranked higher countries in the Organization for Economic Co-operation and Development's e-government development index(EGDI) (see Table 1).

To clarify the factors more concretely, they are classified into two categories: economic factors and organizational factors. The former tackles the components affecting e-government progress(GDP growth and fiscal balance), while the latter addresses factors influencing the progress of concrete e-government policies and services(organizational planning arrangements or implementing e-government policy, strategies, and plans).

Ⅱ. Literature Review

1. Overall Analysis

Relatively few studies focus on the factors promoting e-government. Among these, the United Nations(UN) analyzed the e-government development trend by classifying countries and using correlation. One of the key findings was that "there is a positive correlation between the country's income level and its e-government ranking. High-income countries have very-high or high EGDI scores. This is not universal, however." This result presents a surprising yet significant impact. Keng Siau and Long(2009)

〈Table 1〉 20 Most Developed Countries
〈표 1〉 상위 20개국 순위

Rank(2018)	Country	Rank(2018)	Country
1	Denmark	11	United States of America
2	Australia	12	Germany
3	Korea	13	Netherlands
4	United Kingdom	14	Norway
5	Sweden	15	Switzerland
6	Finland	16	Estonia
7	Singapore	17	Spain
8	New Zealand	18	Luxembourg
9	France	19	Iceland
10	Japan	20	Austria

source: United Nations (2018)

implemented a regression analysis between Information and Communications Technology (ICT), human development levels, and e-government development. They concluded that both ICT and human development had a significant impact on e-government development, and that social factors, such as knowledge and economic conditions, were also important. Mosaad, et al.(2018) reviewed previous studies, such as international organization reports, journals articles, and conference proceedings. They indicated that little research had been done on e-government adoption from the governmental perspective and that critical issues should be considered, such as funding and policy makers' motives. Furthermore, they argued that although some important adoption factors were already considered (i.e., ease of use, perceived usefulness, trust, awareness, service quality, website design, resource availability, demographic characteristics, etc.), others were dismissed(i.e., citizen satisfaction, delivery channels, payment methods, cost, and mandate). Their argumentation seems to be valuable as they focused on the dismissed factors. Additionally, Gerunov(2019) investigated the relationship between several factors(i.e., qualified human resources, political will, technology, culture, legal, money, complexity, number of customers, and legacy IT systems) and Bulgaria's e-government development. They concluded that the availability of qualified human resources was the most important factor, followed by political will. In contrast, complexity, number of customers, and legacy IT systems played a relatively small role.

2. Economic Factors

Many studies have focused on the relationship between e-government and economy, both for individual countries and for international comparisons, by analyzing e-government's effect on economic growth. The European Union(2014) demonstrated that, based on cost-benefit analyses, a once-only strategy could generate around €5 billion total net impact per year at the EU 28 level, and that free access to basic data will generate new types of services as well as more digital services in the private sector. Khan and Majeed(2019) investigated the growth effect of ICT and e-government on macro economy growth in South Asia. They deduced that ICT and e-government have a positive and significant impact on economic growth(a 1% increase in the index of e-government causes and a 3.33% increase in GDP per capita growth in South Asia's economies).[1)]

On the other hand, a limited number of studies analyzed the impact of economic factors on e-government development. For example, Martin Lněnička tried to compare the EGDI among EU member states to identify the influence of macroeconomic indicators, using descriptive, correlation, and cluster analyses. This study suggested the following four hypotheses.[2)]

1) Farzana Naheed Khan and M. Tariq Majeed (2019), p.246.
2) Martin Lněnička (2015), p.78.

H1: A correlational relationship exists between GDP per capita and the EGDI, but no correlational relationship appears between GDP per capita and the E-participation Index(EPI).

H2: After the recorded decline in the 2010 UN report, an increase will appear in the upcoming years(2012 and 2014).

H3: In 2010, the decline of the EGDI in the "old" Member States will be lower than in the "new" Member States in the following years.

H4: A similarity exists in the Eurozone Member States' development and they will be clustered in 2014.

Through this analysis, Martin Lněnička inferred that although H1 and H4 were supported, H2 and H3 were rejected, and that the global recession as well as the Eurozone crisis had influenced e-government progress.

3. Organization Factors

Studies on organizational factors are relatively few compared to those on economic factors. Many studies have analyzed the importance of each ministry/department, but a limited number have investigated e-government policy. Fountain(2001) argued that "an institutional perspective, extended and refined to account for information technologies and their role in organizational and institutional arrangements, provides a more complete, practical, more powerful explanatory framework." In addition, she discovered that the process of enacting technology referred to some organizational actors' tendency to implement new IT in ways that reproduce and strengthen institutionalized sociostructural mechanisms or preserve existing network relationships. Stea and Harindranath (2006) implemented an e-government initiatives' case study in a U.S. city. They concluded that organizational factors, including institutional arrangements and technological factors, determined the state of ICT strategic management and the nature of ICT strategic management paradigms, within a public agency impacting the direction of its e-government development. Hanna, et al.(20019) focused on the institution of e-government and suggested the four following models.

1. The policy and investment coordination model. This model has direct control over the funds required by other ministries to implement e-government and helps its integration with overall economic management. However, it may lack the focus and technical expertise needed to coordinate e-government and facilitate implementation.

2. The administrative coordination model. This model facilitates the integration of administrative simplification and reforms into e-government. However, it may lack the technical expertise required to coordinate e-government, or the financial and economic knowledge to set priorities.

3. The technical coordination model. This model ensures that technical staff is available and eases access to nongovernmental stakeholders. However, it may be too centered on technology or industry and disconnected from administrative reform.

4. The shared or no coordination model. This model is the least demanding, having little political sensitivity, but it may lead to rivalries among ministries. It also has no cross-cutting perspective and fails to exploit shared services and infrastructure as well as economies of scale.

Hanna, et al.(2009) classified countries into these categories(see Table 2) and suggested that governments have moved from ad hoc responses to institutionalized structures in order to lead and manage e-government programs. Furthermore, they proposed that governments have increasingly emphasized engaging top political leadership in their e-government programs.

Apart from these studies, many focus on the power and importance of ministries or departments that belong to president or prime minister(so-called 'core executives'), such as Patrick Dunleavy and R.A.W. Rhodes, Will Jennings et al., and Shinoda Tomohito. However, relatively few studies analyzed e-government policy from this perspective.

Ⅲ. Hypothesis and Approach

The following study proposes the following hypotheses to analyze the relationship between e-government development, and economic as well as organizational factors.

Economic Factors

E1. As business activities increase and GDP growth rate heightens, requests for streamlining and reducing administrative procedures will increase. Thus, a positive correlation will appear in the relationship between GDP growth rate and EGDI.

〈Table 2〉 Models for E-Government Institutions in Various Countries
〈표 2〉 국가별 전자정부기관 모델

Model	Countries
Policy and investment coordination(cross-cutting ministry such as finance, treasury, economy, budget, or planning)	Australia, Brazil, Canada, Chile, China, Finland, France, Ireland, Israel, Japan, Rwanda, Sri Lanka, United Kingdom, United States
Administrative coordination(ministry of public administration, services, affairs, interior, state, or administrative reform)	Bulgaria, Arab Republic of Egypt, Germany, Republic of Korea, Mexico, Slovenia, South Africa
Technical coordination(ministry of ICT, science and technology, or industry)	Ghana, India, Jordan, Kenya, Pakistan, Romania, Singapore, Thailand, Vietnam
Shared or no coordination	Russian Federation, Sweden, Tunisia

source: Hanna, et al.(2009)

E2. As fiscal constraints grow, governmental pressure for business process re-engineering (BPR) will be higher and the government will implement e-government as a BPR method. Then, a negative correlation will appear in the relationship between fiscal balance change and the EGDI.

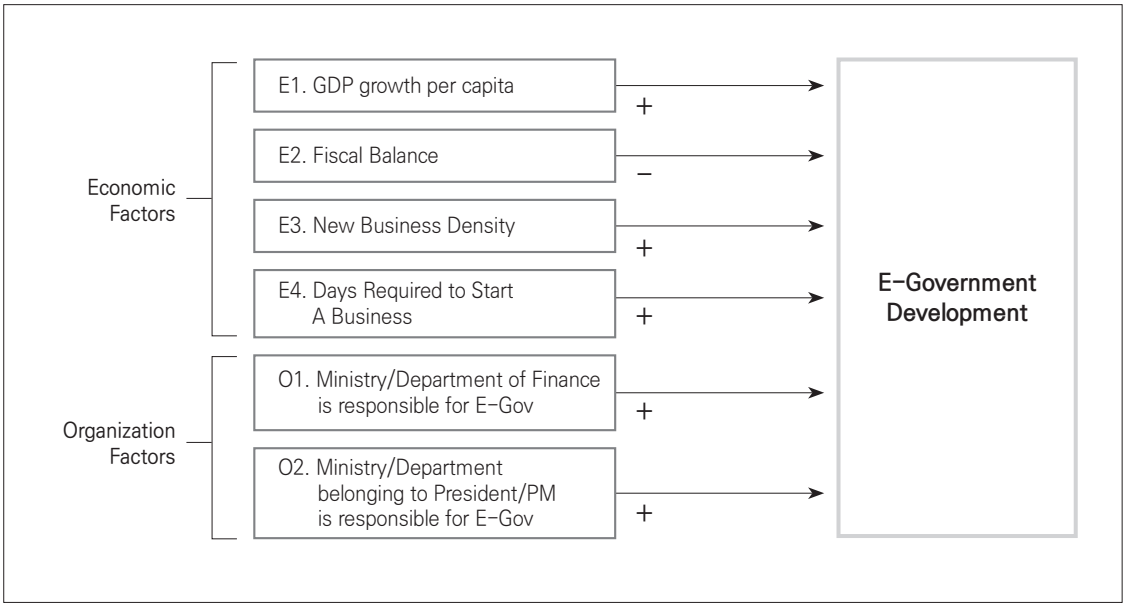
E3. As the number of new businesses increases, the need for simplifying procedures to establish companies also grows. Thus, the relationship between new business density and EGDI will results in a positive correlation.

E4. Due to the same stipulated increases and growths as in E3, a positive correlation will also appear in the relationship between days required to start a business and EGDI.

Organizational Factors

O1. Related to O2, if finance ministries/agencies manage e-government policies, e-government will become a method of fiscal reform. Then, finance ministries/agencies develop e-government more intensively than other ministries/agencies.

O2. If presidents or prime ministers strongly support or perceive e-government as an important issue, it will develop rapidly or highly. Then, a positive relationship will appear between EGDI rank and the existence of a ministry or department that belongs to a president or minister, and is chiefly responsible for e-government.



〈Fig. 1〉 Hypotheses Overview
〈그림 1〉 가설 개요

These hypotheses are partly similar to those found in previous studies focusing on economic factors (Lněnička, 2015). However, this study analyzes 20 different countries and does not consider developing countries, while also focusing on organizational factors (see Fig. 1).

To examine these hypotheses, this study examines the relationships both quantitatively and qualitatively.

Ⅳ. Analysis and Findings

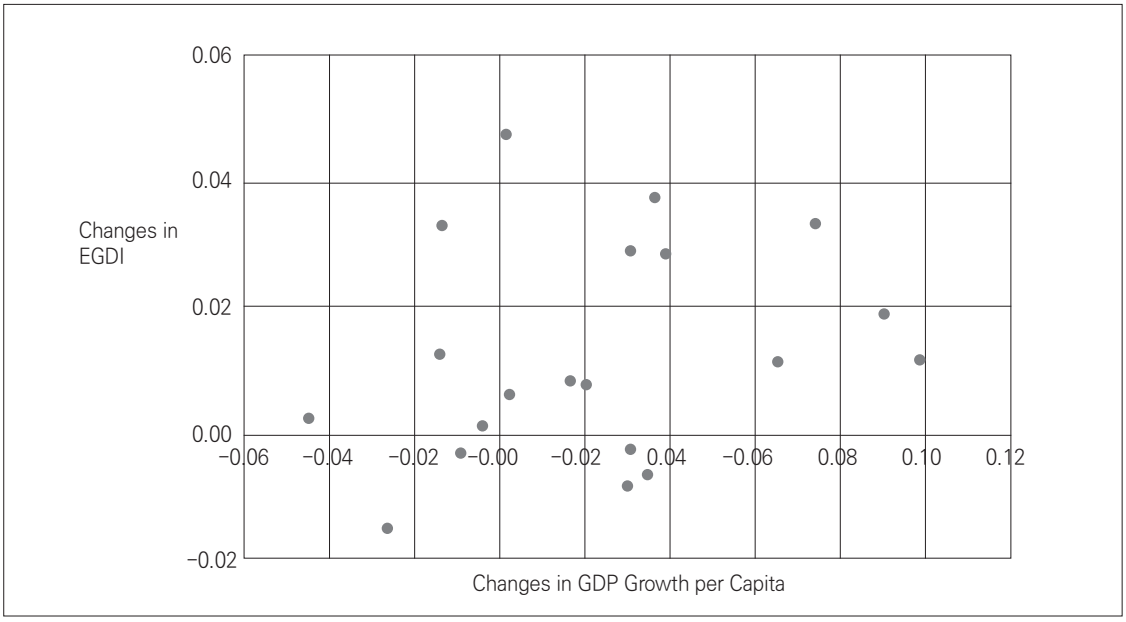
1. Economic Factors

To examine hypotheses E1 and E2, I calculated the changes in EGDI (2014→2018), GDP growth

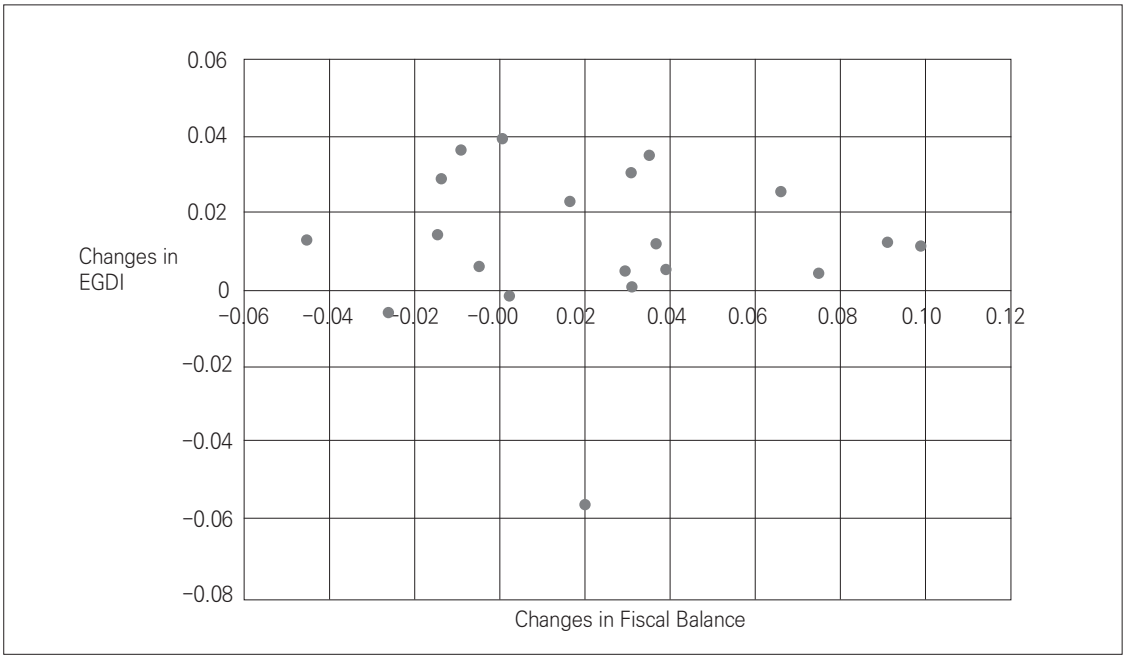
〈Table 3〉 Changes in EGDI (2014→2018), GDP per Capita (2013→2017), and Fiscal Balance (2013→2017)
〈표 3〉 EGDI(2014→2018), 1인당 GDP (2013→2017), 재정균형 (2013→2017)의 변화

Rank	Country	Changes in EDGI	Changes in GDP growthper Capita	Changes in Fiscal Balance
1	Denmark	0.0988	0.0117	0.0115
2	Australia	-0.0050	0.0011	0.0059
3	Korea	-0.0452	0.0019	0.0129
4	United Kingdom	0.0304	-0.0026	0.0307
5	Sweden	0.0657	0.0116	0.0256
6	Finland	0.0366	0.0375	0.0122
7	Singapore	-0.0264	-0.0149	-0.006
8	New Zealand	0.0162	0.0085	0.023
9	France	-0.0148	0.0127	0.0145
10	Japan	-0.0091	-0.0029	0.0368
11	United States of America	0.0021	0.0059	-0.0016
12	Germany	0.0901	0.0191	0.0126
13	Netherlands	-0.0140	0.0330	0.0291
14	Norway	0.0200	0.0077	-0.0566
15	Switzerland	0.0295	-0.0083	0.0047
16	Estonia	0.0306	0.0291	0.0004
17	Spain	0.0005	0.0476	0.0388
18	Luxembourg	0.0743	0.0335	0.0042
19	Iceland	0.0346	-0.0067	0.0348
20	Austlia	0.0389	0.0287	0.0052

source: United Nations(2018) and World Bank(2013-2018)



〈Fig. 2〉 Scatter Plot of Changes in EGDI (2014→2018) and in GDP Growth per Capita (2013→2017)
〈그림 2〉 EGDI (2014→2018)와 1인당 GDP 성장률(2013→2017)변화의 산점도



〈Fig. 3〉 Scatter Plot of Changes in EGDI (2014→2018) and Fiscal Balance (2013→2017)
〈그림 3〉 EGDI (2014→2018)와 재정균형(2013→2017) 변화의 산점도

〈Table 4〉 Rank of Changes in EGDI(2014→2018), New Business Density(2014), and Days Required to Start a Business(2016)
〈표 4〉 EGDI(2014→2018), 신사업 밀도(2014), 사업 시작 시 요구되는 일자(2016)의 변화와 순위

Rank	Country	Changes in EGDI	New Business Density	Days Required to Start A Business
1	Denmark	0.0988	4.36	3
2	Australia	-0.0050	0.73	3
3	Korea	-0.0452	2.30	4
4	United Kingdom	0.0304	12.90	5
5	Sweden	0.0657	6.87	7
6	Finland	0.0366	3.43	15
7	Singapore	-0.0264	9.51	3
8	New Zealand	0.0162	16.63	1
9	France	-0.0148	2.26	4
10	Japan	-0.0091	0.15	11
11	United States of America	0.0021	N/A	6
12	Germany	0.0901	1.29	11
13	Netherlands	-0.0140	5.34	4
14	Norway	0.0200	7.72	4
15	Switzerland	0.0295	2.53	10
16	Estonia	0.0306	16.05	4
17	Spain	0.0005	2.97	13
18	Luxembourg	0.0743	6.10	17
19	Iceland	0.0346	9.48	4
20	Austlia	0.0389	0.73	21

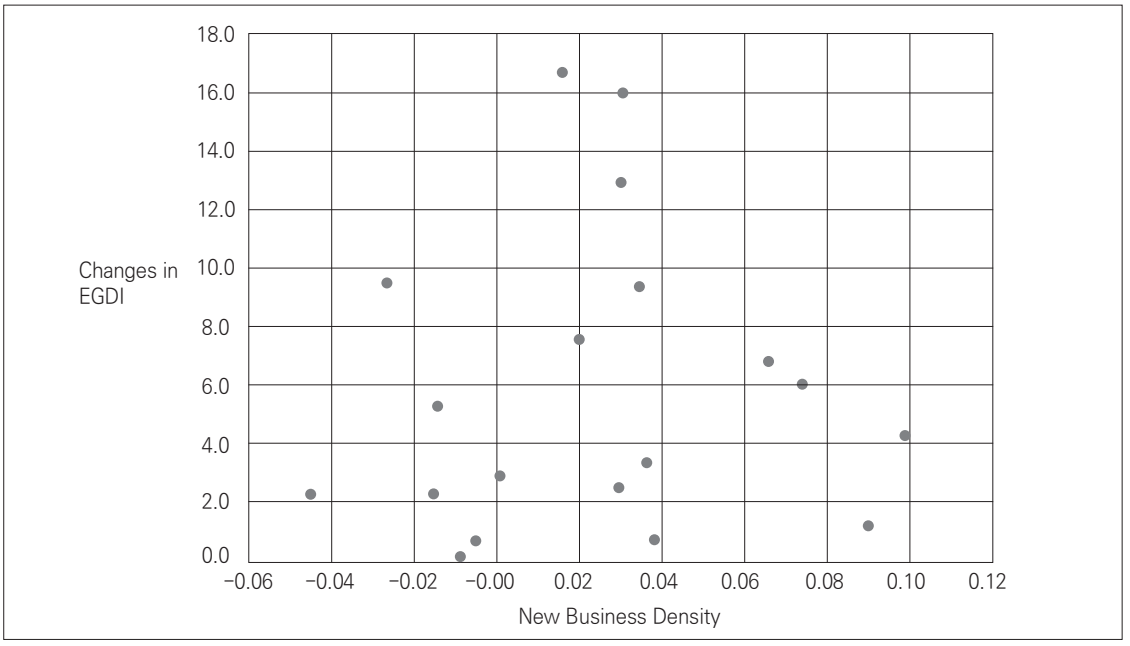
source: United Nations (2018) and World Bank (2013-2018)

per capita (2013→2017), and fiscal balance (2013→2017), based on the UN and the World Bank (WB) surveys (see Table 3).

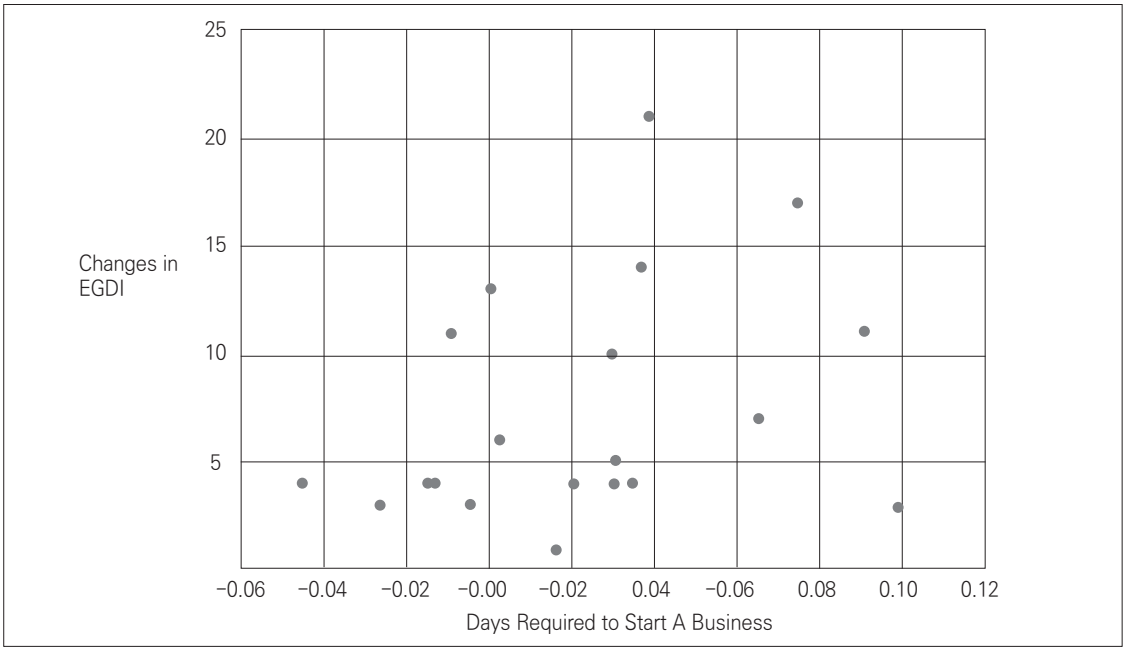
For hypothesis E1, the correlation coefficient between EGDI and GDP per capita was 0.2532184. Thus, EGDI and GDP per capita has a relatively positive relationship(see Fig. 2).

For hypothesis E2, the correlation coefficient between EGDI and fiscal balance was -0.024005094, resulting in a poor relationship (see Fig. 3).

To examine hypotheses E3 and E4, the author calculated changes in EGDI(2014→2018), new business density(2014), and days required to start a business(2016), based on the UN and the WB



〈Fig. 4〉 Scatter Plot of Changes in EGDI(2014→2018) and New Business Density(2014)
〈그림 4〉 EGDI(2014→2018)와 신사업 밀도(2014)의 변화의 산점도



〈Fig. 5〉 Scatter Plot of Changes in EGDI(2014→2018) and Days Required to Start A Business(2016)
〈그림 5〉 EGDI(2014→2018)와 사업 시작 시 요구되는 일자(2016) 변화의 산점도

surveys(see Table 4).[3)]

For hypothesis E3, the correlation coefficient between EGDI and new business density (except the U.S.A.) is 0.056410059, demonstrating a poor relationship.(see Figure 4).

For hypothesis E4, the correlation coefficient between EGDI and days required to start a business is 0.325, revealing a positive relationship between the two factors(see Fig. 5).

2. Organizational Factors

To examine hypotheses O1 and O2, this study tried to confirm the impact and the type of ministries/departments mainly responsible for e-government, using EU surveys and websites on the 20 countries' governments. The criteria mainly depends on whether the ministry/department formulates an e-government strategy or not. Then, the author classified them into five categories, similar to those proposed by Hanna, et al.(2009). However, this study focuses on the importance of ministries/departments that directly belong to presidents, or prime ministers, resulting in the addition of another category.

1. Ministry/Department directly belonging to president, or prime minister(new category).

2. Ministry/Department dealing with financial/fiscal affairs, similar to the 'policy and investment coordination' model.

3. Ministry/Department handling economy, also similar to the 'policy and investment coordination' model, with the addition of fiscal constraint impacts. Thus, this study's categories distinguish between ministries/departments handling economy from those dealing with financial/fiscal affairs.

4. Ministry/Department dealing with interior (internal affairs), local governments, and civil services, similar to the 'administrative coordination' model.

5. Ministry/Department covering ICT and infrastructure, similar to the 'technical coordination' model.

According to the above criteria, Table 5 presents the 20 countries' current statuses.

A comparison of Table 5 with Hanna, et al. (2009) research suggests that the main responsible ministries/departments have changed and various ministries/departments are in charge of e-government. According to this classification, the number of ministries dealing with interior(or internal affairs) and civil services is the highest, followed by those belonging to presidents or prime ministers. In contrast, the number of ministries handling financial/fiscal affairs are relatively few. Furthermore, countries where a ministry/department, directly belonging to the president or prime minister, is mainly responsible for e-government rank higher than countries where a financial/fiscal affairs ministry/department is mainly responsible. This

3) The year difference is due to the available data constraints. As for new business density, the United States of America's data is absent.

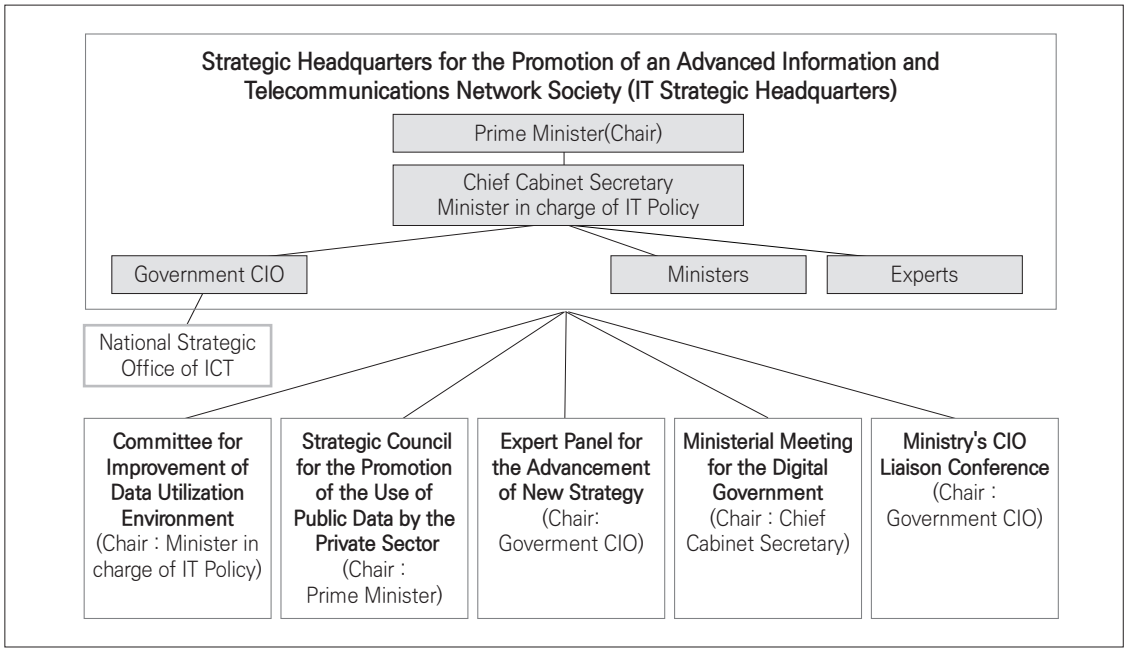
〈Table 5〉 Ministry/Department Mainly Responsible for E-Government
〈표 5〉 정부부처의 전자정부를 위한 주요 책임

Rank	Country	Main Responsible Ministry / Department				
		President/PM	Finance	Economy	Interior/ Cilil Service	ICT/ Infrastructure
1	Denmark		○			
2	Australia	○				
3	Korea				○	
4	United Kingdom	○				
5	Sweden					○
6	Finland		○			
7	Singapore	○				
8	New Zealand				○	
9	France	○				
10	Japan	○				
11	United States of America	○				
12	Germany				○	
13	Netherlands				○	
14	Norway				○	
15	Switzerland		○			
16	Estonia			○		
17	Spain				○	
18	Luxembourg					○
19	Iceland				○	
20	Austlia					
Number		6	3	2	7	2

source: European Commission(2019) and website of each government

tendency supports the Hanna, et al.(2009) study that suggested that governments have placed an increasing emphasis on engaging top political leadership in their e-government programs.

For example, in Japan, the Strategic Headquarters for the Promotion of an Advanced Information and Telecommunications Network Society formulates the e-government's(now for 'digital government') strategies and plans. The headquarters involve the prime minister, ministers of state, Government Chief Information Officer, and other experts. In addition, the headquarters'



〈Fig. 6〉 The Strategic Headquarters for the Promotion of an Advanced Information and Telecommunications Network Society, and Related Organizations
〈그림 6〉 첨단정보통신 네트워크 사회 진흥을 위한 전략 본부 및 관련 기관

office (National Strategic Office of Information and Communication Technology) belongs to the cabinet secretariat(see Fig. 6 and Appendix).

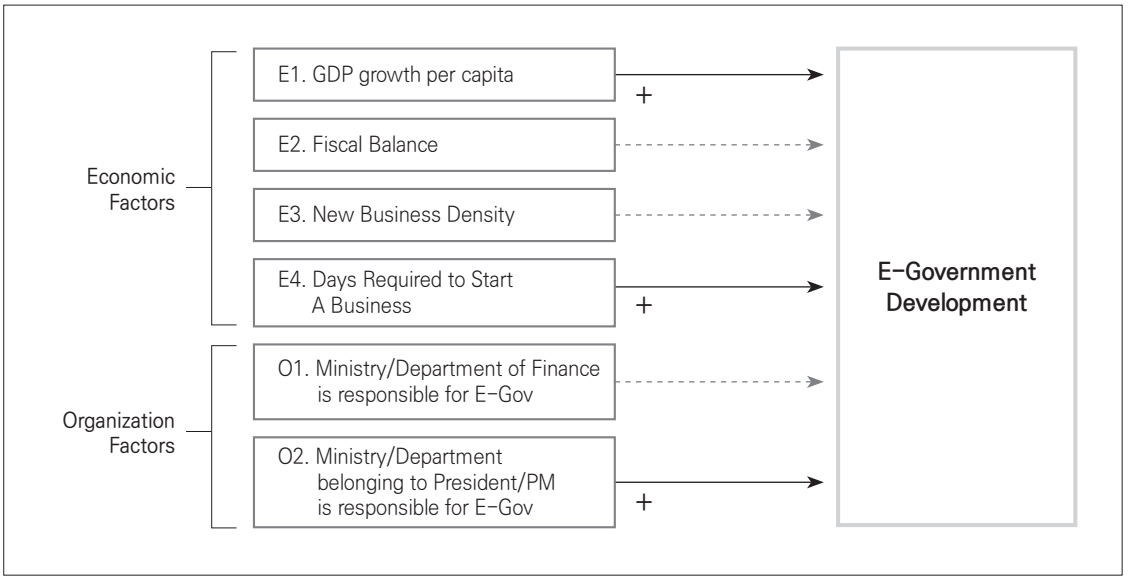
3. Summary

The analyses, as described above, demonstrate some key finding regarding the factors affecting e-government development. First, in terms of economic factors, GDP per capita growth and days required to start a new business create some positive impacts on e-government, while fiscal balance does not affect it sufficiently. Second, regarding organizational factors, a ministry/department that belongs to a president or prime minister has the responsibility to manage e-government. In contrast, it is not as important for a ministry/department of finance to carry this responsibility.

Ⅴ. Discussion and Conclusions

The quantitative and qualitative analyses revealed the significant factors affecting e-government development. The assessment of economic factors supports hypothesis E4 and partly supports hypothesis E1.[4] However, hypotheses E2 and E3 do not show enough

4) This result is consistent with Lněnička (2015) finding.



〈Fig. 7〉 Result of Analyses
〈그림 7〉 분석 결과

correlation, resulting in their rejection. The evaluation of organizational factors, within the 20 countries, supports hypothesis O2, but rejects hypothesis O1(see Fig. 7).

Based on the results and previous studies, the author discovered some implications. First, economic growth facilitates e-government and the latter's development would also promote economic growth. Thus, a cycle appears between economic growth and e-government development. Specifically, simplifying and streamlining the business procedure seems to be important. Second, e-government development is not necessarily perceived as the path to fiscal reform(e.g., cost reduction or saving expenditure) in some countries. Third, owing to the fact that ministries/departments which directly belong to presidents or prime ministers are responsible for e-government in the countries in higher rank, strong leadership of presidents, or prime ministers is important for the development of e-government.

Through the quantitative and qualitative analyses, this study partly explains the factors that promote e-government from the governmental perspective. The results also support previous literature by emphasizing the impact of economic(or fiscal) factors on e-government development and not the impact of e-government development on economic growth. This study further contributes to the literature by suggesting the importance of a ministry/department that belongs to a president, prime minister, or cabinet in impacting the field of e-government.

However, this research does present some limitations. First, the countries addressed in this study are highly developed. Thus, future studies should determine whether these findings are

applicable to developing countries.[5] Second, the author could not analyze many factors due to time and material constraints. As mentioned in Chapter 2, many other factors may promote e-government and this requires further study. Lastly, the author focused on the ministries/departments that formulate e-government strategies. However, those that coordinate or implement e-government seem to be equally important. Although understanding the 'real' process of coordinating and implementing is not easy, further studies should evaluate these factors or, for example, connect similar studies as the present one to Hanna, et al.. Finally, the author mainly analyzed the national or federal government. Comparatively, a limited number of studies focus on e-government at the state or local level. Thus, researchers have many possibilities and plenty of room to analyze e-governments at these levels.

■ References

Dunleavy, P. & Rhodes, R. (1990). "Prime Minister, Cabinet and Core Executive." Palgrave.

European Commission (2019). "Digital Government Factsheets 2019." in https://joinup.ec.europa.eu/collection/nifo-national-interoperability-framework-observatory/digital-government-factsheets-2019

European Union (2014), "Study on eGovernment and the Reduction of Administrative Burden," in https://ec.europa.eu/digital-single-market/en/news/final-report-study-egovernment-and-reduction-administrative-burden-smart-20120061

Fountain, J. (2001). "Building the Virtual State: Information Technology and Institutional Change." Brookings Institution Press.

Gerunov, A. (2019). "Socio-Economic Enablers of E-Government in Bulgaria." in "Economic Alternatives." Issue 3, 437-455.

Hanna, N., Qiang, C., Kimura, K. & Kuek, S. (2009). "National E-Government Institutions : Functions, Models, and Trends." in "Information and Communications for Development 2009 : Extending Reach and Increasing Impact." 83-102.

Jennings, W., Bevan, S., Timmermans, A., Breeman, G., Brouard, S., Bonafont, L., Pedersen, C., John, P., Mortensen, P. & Palau, A. (2011). "Effects of the Core Functions of Government on the Diversity of Executive Agendas." *Comparative Political Studies, 44*(8), 1001-1030.

Khan, F. & Majeed, M. (2019). "ICT and E-government as the Sources of Economic Growth in Information Age: Empirical Evidence from South Asian Economies." *A Research Journal of South Asian Studies, 34*(1), 227-249.

Lněnička, M. (2015). "E-Government Development Index and its Comparison in the EU Member States." in "Scientific Papers of the University of Pardubice. Series D. Faculty of Economics and Administration." *22*(34), 75-87.

Matsuoka, K. (2019). "Analysis on the Relationship between E-Government Development and Economic Growth and Fiscal Balance." in "Administration and Information." *55*(1), pp. 87-90.

Mosaad, A., Hesham, A. & Ramadan, N. (2018). "A Comprehensive E-government Adoption Literature Review." in "The 53th Annual Conference on Statistics, Computer Sciences, and Operation Research." 48-64.

5) Matsuoka(2019) shows that the relationship between EGDI and GDP per capita differs among developed and developing countries to some extent.

Siau, K. & Long, Y. (2009). “Factors Impacting E-Government Development.” *Journal of Computer Information Systems, 50*(1), 98-107.

Stea, B. & Harindranath, G. (2006). "Public Sector ICT Management Strategy and its Impact on E-Government: A Case Study." in “ECIS 2006 Proceedings 71, 1-11.

Tomohito, S. (2005). “Japan’s Cabinet Secretariat and its Emergence as Core Executive.” *Asian Survey, 45*(5), 800-821.

United Nations (2018). “UN E-Government Survey 2018.” in https://publicadministration.un.org/egovkb/en-us/Reports/UN-E-Government-Survey-2018

World Bank (2013-2018). “World Development Indicators,” in https://datacatalog.worldbank.org/dataset/world-development-indicators

[Appendix]

〈Table 6〉 Ministries/Departments Mainly Responsible for E-Government (detail)

Rank	Country	Ministry / Department
1	Denmark	Ministry of Finance
2	Australia	Prime Minister and Cabinet Portfolio
3	Korea	Ministry of the Interior
4	United Kingdom	Cabinet Office
5	Sweden	Ministry of Infrastructure
6	Finland	Ministry of Finance
7	Singapore	Prime Minister's Office, Ministry of Finance, Ministry of Communication and Information
8	New Zealand	Department of Internal Affairs
9	France	Prime Minister(support: Secretary of State for Digital Technology)
10	Japan	Cabinet Secretariat
11	United States of America	Whitechouse
12	Germany	Ministry of the Interior, Building and Community
13	Netherlands	Ministry of the Interior and Kingdom Relations
14	Norway	Ministry of Local Government and Modernization
15	Switzerland	Department of Finance
16	Estonia	Ministry of Economic Affairs and Communications
17	Spain	Ministry of Territorial Policy and Civil Service
18	Luxembourg	Ministry ofr Digitalisation
19	Iceland	Ministry of the Interior
20	Austlia	Ministry for Digital and Economic Affairs

source: European Commission(2019) and each government's websites