Competitiveness Review

Enhancing national competitiveness through national cooperation: The case of South Korea and Dubai

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Received 16 May 2015
Revised 27 December 2015
Accepted 20 January 2016

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Abstract

Purpose – The purpose of this paper is to explore how countries can make a more efficient and effective cooperation strategy, considering their competitive strengths and weaknesses.

Design/methodology/approach – This paper is an exploratory study in examining the efficient way of national cooperation from the competitiveness perspective. By applying the double diamond-based nine-factor model and the framework for the life cycle of national competitiveness, this study proposes the importance of cooperation strategy, considering the current competitiveness status. A case study of two economies of South Korea (hereafter referred to as Korea) and Dubai reveals a potentially substantial cooperative relationship.

Findings – Although Korea and Dubai are geographically and culturally distant, they share complementary resources to enhance their overall competitiveness. In addition, their past experiences of growth can effectively deal with their current challenges and help their economies move to more advanced stage.

Practical implications – The methodology used in this paper can provide a useful guideline for policy makers to examine the current development status of their economies, find an appropriate cooperation partner and decide the priority of cooperating areas.

Originality/value – Although most existing studies explain national competitiveness from a narrow perspective, this paper provides a more comprehensive analysis using the extended model of Porter's single diamond model. In addition, this paper conducts an intensive case study of Dubai and Korea for possible cooperation.

Keywords Korea, Cooperation, Dubai, National competitiveness, Diamond model

Paper type Research paper

Introduction

Porter's diamond model has been a very influential framework for analyzing the national competitiveness. Despite its usefulness, it is not without criticism, and there have been several extended works which complement the limitations of Porter's work, such as the double diamond model (Rugman and D'Cruz, 1993), the nine-factor model (Cho, 1994), the generalized double diamond model (Moon *et al.*, 1995, 1998) and the double diamond-based nine-factor model (Cho *et al.*, 2008, 2009; Cho and Moon, 2013a).

Competitiveness Review
Vol. 26 No. 5, 2016
pp. 482-499

1059-5422
DOI 10.1108/CR-05-2015-0036

Porter's single diamond model and the extended models explain national competitiveness basically from the competition perspective.

However, firms' competitive paradigm has shifted from a single firm to a business ecosystem (Awuah and Gebrekidan, 2008; Moon, 2016a). To maximize the profits, instead of locating all the value chain activities in one country, firms spread the activities around the world. This raises the rationale for countries to cooperate with other countries and firms to enhance their competitiveness. Although the majority of current studies have focused on the inter-firm level cooperation, it should also be extended to the national level. Cooperation should be another important driver for national competitiveness (Momaya, 2011).

In this respect, there has been an increasing research in geographic agglomeration, such as free trade agreement, cluster and regional competitiveness (Lundberg, 2010). Despite their contributions, most of them focus on the national cooperation limited to the regional scope among neighboring countries in the form of regional cluster. In addition, although some studies (Moon and Jung, 2010) have emphasized on the importance of national cooperation from the competitiveness approach, they only defined the cooperative relationship among the involved countries and lacked the method of how to cooperate in a more efficient way. This raises the necessity of examining the cases of geographically distant countries and exploring the ways of how to select the areas of cooperation to maximize the benefits through cooperation.

To this end, this paper selected the cases of Korea and Dubai. Although they are located quite far with each other, one in East Asia and the other in Middle East, and also culturally different, their competitiveness structures display quite complementary with each other. In other words, the strengths of Korea are the weak areas of Dubai and vice versa, thus providing the opportunities for further cooperation. In addition, both economies are positioned at the transitional stage to a higher development stage. By analyzing their competitiveness structure, this paper proposes that in addition to strengthening the current competitive advantages, they should also place more efforts on tackling the current challenges or weaknesses for continuous growth through cooperation with partner economies.

This paper first begins with an extensive review of literature on the theoretical progress on national competitiveness based on Porter's diamond and its major extensions and other frameworks of national competitiveness. The brief case studies of Korea and Dubai are followed. After that, the empirical test of the cooperative relationship between the two countries is conducted. Key findings and in-depth analysis are then displayed. The paper is concluded by briefing the contributions of this research and useful implications for other countries.

Literature review

Porter's diamond model and the major theoretical extensions

Porter's (1990) diamond model is a pioneering model and also influential for analyzing national competitiveness. By criticizing traditional trade theories that are limited to macro-economic factors (e.g. natural resources, labor force, exchange rates and trade balance), Porter proposed a new theory that emphasizes the micro foundations for the creation of national wealth. Porter found four common attributes for those countries possessing internationally competitive industries: factor conditions; demand conditions; related and supporting industries; and firm strategy, structure and rivalry,

and he named the "diamond model." In this diamond model, Porter particularly addressed the importance of geographic concentration and competition among firms, because these encourage firms to continuously upgrade and innovate (O'Connell *et al.*, 1999).

Unlike the resource-based view of a firm, the diamond model deals with not only the firm activities but also other factors related to industries and rivals (O'Shaughnessy, 1996). In addition, Porter's new theory on competitiveness has an advantage of being comprehensive by capturing the most important variables or concepts stressed by the related existing theories (Barbe and Triay, 2011; Sledge, 2005), while not overlapping among the variables (Parc and Moon, 2013); hence, in practice, the model has been applied in many unit levels of analysis: country, industry and firm (Grant, 1991; Cho and Moon, 2013a).

Although Porter's diamond model is revolutionary, it is incomplete (Waverman, 1995), because it neglects internationalization (Rugman and D'Cruz, 1993; Dunning, 1993b; Moon *et al.*, 1995), the human factors (Cho, 1994) and the cultural dimension (O'Shaughnessy, 1996). Furthermore, some studies (Stopford and Strange, 1991; Van den Bosch and De Man, 1994) suggested reexamining the role of government and adding the variable of government as a fifth determinant along with the other four factors of the diamond. In addition, as it is based on the context of large advanced countries (e.g. the USA), it is insufficient in explaining two types of countries, the small and open economies (Rugman, 1991) and the less developed or developing countries (Cho, 1994; Barbe and Triay, 2011; Moon *et al.*, 2013). The following will then illustrate the modification and extension by the major preceding studies to increase the explanatory power of Porter's single diamond.

The four attributes of Porter's diamond model are limited to domestic context. Rugman has done substantial research in modifying and expanding Porter's single diamond to the international scope in the early period (Cartwright, 1993; Hodgetts, 1993; Rugman *et al.*, 1995). Rugman and D'Cruz (1993) introduced the double diamond model for explaining the Canadian competitiveness by adding the diamond of the USA (or named as the North American diamond), because of their close economic relevance. However, Rugman and D'Cruz's (1993) double diamond shows a limitation because although it fits well for explaining the competitiveness of nations which have high interdependence with the triad blocs, it does not fit for other small countries such as South Korea and Singapore (Moon *et al.*, 1995; Cho *et al.*, 2009).

Dunning extended Porter's diamond model by incorporating foreign direct investment (FDI). Dunning (1993a) introduced a comprehensive diamond system by adding FDI as the third exogenous factor, along with the government and chance variables. However, because of the increasingly important role of multinational activities on national competitiveness, FDI should be incorporated into the internal four determinants rather than an external variable of competitiveness (Moon *et al.*, 1995, 1998). Based on the preceding studies of improving Porter's diamond model, Moon *et al.* (1995) introduced the generalized double diamond model by incorporating multiple foreign diamonds into the internal determinants of national competitiveness; the new framework is thus referred to as generalized double diamond. This new model has been tested and supported by several empirical studies (Tummala *et al.*, 2000; Liu and Hsu, 2009; Molendowski and Zmuda, 2013). The above works extended Porter's original model by incorporating multinational activities.

On the other hand, Porter's diamond variables are more about physical factors, in particular technology, and do not appropriately deal with human factors. However, developing countries are less likely to build such competitive physical resources in their early stage of economic development; they also lack innovation capacity, which is Porter's central element for competitiveness. Given the different social and institutional contexts of developing countries such as Korea in its early development stage, some other factors are needed to explain national competitiveness. In this respect, Cho (1994) introduced the nine-factor model, incorporating human factors (i.e. workers, politicians and government, entrepreneurs and professionals), in addition to Porter's four physical factors. Cho (1994) argued that human factors play an important role in accumulating and allocating the limited resources in an efficient way, particularly in developing countries.

Later, IPS (2006) further extended it to the double diamond-based nine-factor model by combining the two models of the generalized double diamond and the nine-factor model into one framework. The advantage of the new model is that it incorporates the strengths of both models, thereby enlarging the applicability of the model to various types of countries, including small or developing countries. Cho *et al.* (2009) then demonstrated the validity of this new model through empirical tests. They demonstrated that both the generalized diamond model and the nine-factor model explain better than Porter's single diamond model; and the combined model (double diamond-based nine-factor model) can better explain the nations' competitiveness than either one of the two models.

In addition to the above conceptual extension of Porter's diamond model, since 1990s, some famous international organizations published national competitiveness reports, ranking the world major developed and developing countries. There are three major reports, including World Competitiveness Yearbook (WCY) by the International Institute for Management Development (IMD), Global Competitiveness Report (GCR) by World Economic Forum (WEF) and National Competitiveness Research (NCR) by the Institute for Industrial Policy Studies (IPS). These reports adopt different evaluation frameworks, measurement methods and number of countries, thereby showing discrepancies in the rankings for the same country in the same year.

Limitations of existing extensions and the changing paradigm of national competitiveness

Despite these extensions, competitive advantage is often explained from a competition perspective (Lundberg, 2010). In particular, the competitiveness models developed with the context of advanced countries put more emphasis on competition than cooperation (Momaya, 2011). For example, Porter prioritized the role of competition which encourages firms' continuous innovation and upgrades their productivity. Similarly, Cho and Moon (2013b) defined the national competitiveness as the relative position of the country compared to the competitors. In this respect, it is natural for followers to pursue the benchmarking strategy by emulating the best practices of the more competitive countries to enhance their competitiveness.

Firms' competitiveness relies more on the relationship with other involved firms and institutions, even the rivals (Moon, 2016a). For example, Apple's business ecosystem includes Samsung, which is the key competitor but also an important supplier for its product components. Therefore, the paradigm of competitive advantage has shifted

from a single company to the business network (Awuah and Gebrekidan, 2008; Moon, 2016a). Accordingly, multinational firms no longer locate all the value chain activities in one country, but they rather establish their operational bases in multiple countries to maximize the efficiency of each activity in the global scope (UNCTAD, 2013). The technological development and policy support made possible for the dispersion of individual activities to the most efficiently performed locations, and then integrating them by connecting these locations in real time in the global value chains (GVCs) (Gereffi *et al.*, 2005).

As the host countries specialize in different roles for performing firms' value chain, countries require more interaction with other countries. GVC results in the agglomeration of economic activities (Ketels and Memedovic, 2008), which is irrespective of where value activities are located. The leading firm (e.g. Apple) organizes or is responsible for the efficient coordination across the GVCs (Gereffi, 1999). These leading global firms in the GVCs prefer to outsource the partners located in the clusters, which have higher productivity (Ketels and Memedovic, 2008). Hence, national government should concern not only local cluster development but also the formulation of GVCs by attracting global leading firms' investment. For this, countries inevitably have to coordinate with other locations in the GVC. Therefore, the relationship among countries should be more cooperative than competitive. Cooperation among countries increasingly becomes the important source of competitive advantages for nations, particularly for the small and less developed countries (Momaya, 2011; Niu *et al.*, 2008). Small countries lack the large market size and necessary labor force in particular; the less developed countries are weak in the possession of competitive, related industries and institutions for doing business. As it is difficult to build them in a short period of time, through cooperation with partner countries, they can easily overcome the weaknesses by sharing the advantageous resources (e.g. advanced infrastructure, knowledge and innovation facilities).

Singapore is a good example. Although it has a shortage of land and labor force, Singapore is one of the most favorable locations for global firms' investment. It is currently ranked in the top place by almost all competitiveness reports (e.g. IMD, WEF and IPS), and according to the survey published in UNCTAD's 2014 World Investment Report, Singapore is the only small country among the transnational corporations' (TNCs) top prospective host economies during the period of 2014-2016 (UNCTAD, 2014). Compared to other advanced or large developing countries, Singapore's competitiveness relies on its connectivity with other economies. The Singapore-based firms can exploit the advantages of Singapore's network with other Asian countries, such as China, India and the Association of South East Asian countries (Osman-Gani and Toh, 1999).

The research of national cooperation concentrates more on the geographic concentration or regional cluster over the past decades (Porter, 2000; Lundberg, 2010). This implies the shift of the unit level of analyzing nations' competitive advantages from a single country to clusters across country boundaries. Despite the increasing attention, the literature in the field of national cooperation through clusters is still an underdeveloped area, which necessitates further exploration (Niu *et al.*, 2008). There have been many studies examining the intra-cluster or regional clusters involving the cooperation among neighboring countries, but there are few studies examining the inter cluster networks which are geographically distant. This literature review suggests that the cooperation from a more comprehensive perspective is needed.

Porter's (1990) diamond model largely aims to explain the overall productivity/prosperity of a specific location. However, as Porter argued, the overall productivity is largely influenced by the micro-foundations of regions or the diamond system, and any weakness in the determinant(s) of the diamond will ultimately affect the overall competitiveness or productivity enhancement. Therefore, it requires to evaluate the strengths and weaknesses of the diamond system and seek for the potential cooperation partners to overcome the weaknesses.

In this respect, this paper will conduct an empirical test of two distant countries, Korea and Dubai: one in Northeast Asia and the other in the Middle East. Although the two countries are much different in many perspectives, such as culture, economic size, social system and political system, both countries pursue the strategic position of being a regional business hub. However, both economies are not yet competitive as an international business hub and have some critical weaknesses in some areas of competitiveness factors. The following will examine their competitiveness structure and provide how they can cooperate with each other by exploiting the strengths and complementing the weaknesses of each other.

Case study: the cooperative partnership of Korea and Dubai

UAE is Korea's top priority for Korea's Middle East diplomacy, and Korea has also become a key consideration of Arab countries, including UAE, for promoting the "Looking Eastward" policy since twenty-first century because of Korea's strong economic performance and high-tech industries (Song, 2013). In 2010, the two countries launched UAE–Korea Business Council to consolidate the bilateral partnership and enhance the sustainable economic development. The former President Lee Myung-bak also expressed the importance of cooperation between the two countries in all business aspects.

UAE is composed of seven emirates, and each emirate has a high level of economic autonomy regarding the development strategy and industrial policies. This study hence chooses Dubai, which is the most open economy among the seven emirates and also the economic center of the region of Gulf Cooperation Council countries. Dubai is a small city state, which currently has a population of little more than two million. The discovery of oil reserves in 1966 contributed to Dubai's fast growth. However, as the government realized that the oil reserves would be depleted over the following decades, it committed to the upgrade of industrial structure and the economic diversity from oil to non-oil sectors by serving as regional hub in the areas such as finance, trade and high-tech sectors (Keivani *et al.*, 2003). However, after severe suffering and vulnerability from the recent global financial crisis, Dubai's growth model has become uncertain.

On the other hand, Korea has witnessed prominent growth over the past half a century. The country's gross domestic product (GDP) per capita has grown almost 300 times from 1960 to the present level. In addition to the macro economic growth, its industrial structure has also been upgraded from labor-intensive manufacturing industries to high-value-added industries. Despite its great success, Korea's growth began to slow down after the 2008 global financial growth, and the structural problems, such as inflexible labor market, aging population and unproductive service industries, became the obstacles to the sustainable growth in the future.

For continuous growth, it is critical not only to create competitive advantages but also to fix current disadvantages. The cooperation between nations is then an effective

way to overcome disadvantages. In this respect, Korea and Dubai have cooperated for long years, and the ties between the two economies have increased since 2009 in the areas such as nuclear power plants, energy, infrastructure and construction. Recently, the cooperation has been further extended to the new areas such as health and medicine, food and agriculture (Korea.net, 2015). To explain this case more systematically, we will utilize the double diamond-based nine-factor model in the following empirical analysis.

Analytical framework and empirical analysis

Data collection and methodology[1]

The analytical method of double-diamond based nine-factor model is quantified and measured with eight factors, 23 sub-factors and 200 criteria (see Table I)[2]. The criteria are composed of both hard and soft data; hard data were collected from the well-known international statistical organizations, such as World Bank and IMF, and the soft data were collected through the survey conducted by the international branches of Korea Trade-Investment Promotion Agency. The data for Dubai were collected under the help of Dubai Competitiveness Council. The report evaluated 65 economies, including advanced countries, newly industrialized economies and developing or less developed countries.

Competitiveness source	Factors	Sub-factors
Physical factors	Factor conditions	Energy resources (6)
		Other resources (13)
	Demand conditions	Basic demand (12)
		Demand quality (8)
	Related industries	Transportation (9)
		Communication (11)
		Finance (20)
		Education (10)
		Science and technology (9)
		Cluster development (3)
		Overall living environment (14)
	Business context	Strategy and structure (5)
		Globalization of local firms (5)
		Business culture (7)
		Foreign investment (13)
Human factors	Workers	Quantity of labor force (10)
		Quality of labor force (6)
	Politicians and bureaucrats	Politicians (7)
		Bureaucrats (8)
	Entrepreneurs	Personal competence (6)
		Social context (5)
	Professionals	Personal competence (7)
		Social context (6)

Table I. Measurement and criteria

Note: The figure in the parenthesis is the number of criteria under each sub-factor. See the Appendix 1 for the details on each sub-factor

Source: Cho and Moon (2009)

Because of the heterogeneity in country size and competitiveness among countries, it is necessary to classify the 65 countries into smaller groups of sharing similar characteristics. As Figure 1 shows, countries are classified based on two criteria: country size and competitiveness. Country size[3] is determined by the population and land size, and competitiveness is calculated based on the eight factors (IPS, 2006; Cho and Moon, 2013b). The 65 countries are first sub-categorized into three groups: large, medium and small. In a similar way, according to their competitiveness level[4], these countries are sub-categorized into three groups: strong, intermediate and weak; thereby, nine groups in total when combining these two criteria together. *K*-means clustering method[5] is used for the partitioning of the sample countries. If countries are classified in the same group, they are in a competitive relationship; if classified into different groups, they have a more cooperative relationship.

Results

First of all, according to the results of group classification, 18 countries are categorized as small economies, 22 as medium and 25 as large economies. Dubai, classified as a small economy, ranks ninth in this group; Dubai's position is special, because it is the top of intermediate-small group but also the bottom of the strong-small group. On the other hand, Korea belongs to the medium-sized country group. Korea ranks eighth in the medium-sized country group. Similar to the situation of Dubai, Korea is located at the bridge point of strong-medium group and intermediate-medium group. Therefore, the particular positions of both Korea and Dubai are the tipping points for both economies to move up from developing stage to a more advanced one.

For the overall ranking, Korea ranked 23rd and Dubai ranked 16th out of 65 countries. Diving into the competitiveness structure at the factor level, the results are as follows. For Korea's four physical factors, demand conditions (11th) ranked the highest, followed by the related industries (22nd) and business context (32nd). Factor conditions (58th), however, displayed much lower competitiveness compared to other physical factors. Regarding the human factors, Korea showed particularly strong performance in professionals (16th) and entrepreneurs (15th). In contrast, the other two human factors, workers (48th) and politicians and bureaucrats (37th), ranked lower.

Competitiveness \ Size	Small	Medium	Large
Strong	Strong-Small Countries	Strong-Medium Countries	Strong-Large Countries
Intermediate	Intermediate-Small Countries	Intermediate-Medium Countries	Intermediate-Large Countries
Weak	Weak-Small Countries	Weak-Medium Countries	Weak-Large Countries

Source: IPS (2006)

Figure 1.
Economy groups

On the other hand, Dubai's business context (13th) ranked the highest among the four physical factors, followed by demand conditions (19th) and related industries (25th). Dubai's factor conditions (48th) were placed at the lowest position, although these were a little higher than those of Korea. For human factors, in contrast to Korea, Dubai's politicians and bureaucrats (4th) showed substantially high ranking, followed by entrepreneurs (8th) and professionals (14th). The ranking of Dubai's workers (62nd) was the lowest. To be more specific at the sub-factor level, Korea was competitive in the demand quality (5th), communication (6th), science & technology (12th), personal competence of entrepreneurs (7th) and professionals (4th). In contrast, Korea's weak areas include energy (42nd) and other resources (49th), education (40th), cluster development (40th), foreign investment (52nd) and quantity (41st) and quality (44th) of labor force (Table II).

Korea is well-known for sophisticated market demand. According to Financial Times (2013), Korea leads the way in Asia for taste and sophistication, and it is thus regarded as the bellwether market for Asia. Therefore, multinational firms consider Korea as a strategic location playing the role of test bed before they introduce new products to other Asian countries. Regarding the information technology (IT) industry, because of its continuous investment and firms' efforts, Korea has grown into a global leader in this filed. Korea has conducted high commitment in developing technologies, and the ratio of R&D investment to GDP is the highest among the Organization for Economic Cooperation and Development (OECD) (4.4 per cent in 2012). According to recent Bloomberg Global Innovation Index, Korea was ranked first, based on a group of criteria such as R&D capability, productivity, technology density and patent activity (Forbes, 2014b).

Regarding the competitiveness of entrepreneurs, it is interesting to note that Korea's entrepreneurs have high personal capability in terms of catching new businesses, education level and other skills, but the social conditions supporting the growth of start-ups are not so favorable. Much of the country's value added is generated by the big business groups (*chaebol*); top ten chaebol accounted for 84 per cent of Korea's GDP in 2012 (Forbes, 2014a). The current government, therefore, particularly emphasized the entrepreneurship as a driving force for sustainable economic growth and provided various financial and technological supports and other infrastructures.

Korea's education system characterized as *testocracy* (a system where merit is based on test scores) has played an important role in propelling it to the current level, but it shows a growing limitation for producing more innovative students required in the more advanced phase of economic development (Moon, 2016b). In addition, although since the 1997 Asian financial crisis, the Korean Government has significantly improved the business environment to promote FDI, the result is not satisfactory; the percentage of inward FDI to Korea's GDP in 2013 was just 1 per cent, lagging far behind that of the newly industrialized economies (NIEs) (7 per cent) (UNCTAD, 2015). Korea's low competitiveness in labor quality was due to its poor relationship between the labor and management, although Koreans work very hard and are well disciplined.

Surprisingly, many of these weak areas are those in which Dubai displayed quite or moderately strong (Table II). The IMD report 2014 evaluated UAE Government as the most efficient, the strongest decision-making and the lightest bureaucracy in the world. Dubai as one of the UAE members has these characteristics. Dubai Government's open economic policy and efficient control of the private sectors have played a critical role in

Competitiveness source	Factors and sub-factors	Korea	Dubai
Physical factors	*Factor conditions*	58	48
	Energy resources	42	27
	Other Resources	49	61
	Demand conditions	11	19
	Basic demand	18	7
	Demand quality	5	33
	Related industries	22	25
	Transportation	19	24
	Communication	6	21
	Finance	22	7
	Education	40	32
	Science and technology	12	54
	Cluster development	40	34
	Overall living environment	28	18
	Business context	32	13
	Strategy and structure	26	11
	Globalization of local firms	23	34
	Business culture	33	24
	Foreign investment	52	2
Human factors	*Workers*	48	62
	Quantity of labor force	41	38
	Quality of labor force	44	62
	Politicians and bureaucrats	37	4
	Politicians	41	7
	Bureaucrats	34	3
	Entrepreneurs	15	4
	Personal competence	7	8
	Social context	28	5
	Professionals	16	15
	Personal competence	4	14
	Social context	25	14

Note: The figure in the table represents the rankings of Korea and Dubai out of 65 countries at the sub-factor level. The higher ranking means higher competitiveness of that country in that sub-factor
Source: Cho and Moon (2009)

Table II.
Korea and Dubai: strengths and weaknesses

attracting large amount of FDI. Its timely and efficient promotion of large-scale national projects also contributed to the economic take-off and fast growth. Because of Dubai's small population, the economic growth has largely been dependent on the import of foreign cheap workers; the lack of collective bargaining power of workers also leads to economic growth and job creation.

Discussion

Porter (1998) stressed the importance of commonalities and complementarities for inter-firm cooperation within the cluster. This can also be applied to the inter-cluster cooperation across national boundaries for successful and sustainable cooperation. As shown above, Korea and Dubai's competitiveness structures display quite complementary. In other words, the Korea's strong areas are Dubai's weak areas in most

cases, and vice versa. For example, at the factor level, Korea can learn from Dubai in the areas of business context and politicians and bureaucrats to improve its overall national competitiveness. Some studies (Moon and Jung, 2010) have proposed the necessity of competitiveness approach for national cooperation because of its comprehensiveness. However, to enhance the efficiency and effectiveness of cooperation, the areas of priority for cooperation are important, considering their development status.

To examine the characteristics of the competitiveness structure of Korea and Dubai, we utilize Cho's (1994) life cycle of national competitiveness for the following analysis. The importance of competitiveness factors varies for different stages of development, from less developed to developed stages. As Table III shows, factor conditions and workers play particularly critical role in less developed stage; business context and politicians and bureaucrats in developing stage; related industries and entrepreneurs in semi-developed stage; and demand conditions and professionals in developed stage.

Therefore, for advanced countries, the sources of national competitiveness should depend more on the factors of demand conditions and professionals; on the other hand, for less developed countries, their initial efforts on improving national competitiveness rely more on factor conditions and workers. However, this does not mean that advanced countries should only be competitive in the advanced factors while neglecting other competitive factors, such as business context and related industries. On the contrary, while focusing on the core factors of national competitiveness according to their development status, these countries should also pay attention to other factors. If countries understand the hierarchy among competitiveness factors for cooperation, they can benefit more effectively from each other.

For Korea, the low competitiveness in factor conditions is due to its poor endowment of energy resources and other resources. Regarding Korea's worker condition, although its number of labor force is several times more than that of Dubai, it is much smaller than other large countries (e.g. China, India and the USA). On the other hand, although Dubai has superior comparative advantages in the endowment of oil reserves, it shows poor performance in other resources (e.g. water pool, wood production and land size). The overall factor conditions of Dubai are not competitive.

According to the rankings of the eight factors shown in the previous section, we can find that Korea and Dubai's competitive structures are quite different but at the same time very complementary. Despite Korea's competitiveness structure moving toward the advanced stage, the factors (i.e. business context and politicians and bureaucrats) relevant to the developing stage maintained relatively low, as well as some factors (i.e. related industries) in the semi-developed stage. These factors are actually the current challenges faced by the Korean Government's structural reforms. Therefore, for smooth

Table III.
The competitiveness structure of Korea and Dubai

Stage	Less-developed	Developing	Semi-developed	Developed
Physical factor Human factor	Factor conditions Workers	Business context Politicians and bureaucrats	Related industries Entrepreneurs	Demand conditions Professionals
Korea	Low/low	Medium/medium	Medium-high/high	High/high
Dubai	Low/low	High/high	Medium/high	High/high

Note: The life cycle of national competitiveness is abstracted and modified from Cho (1994)

transition, Korea must fix the problems of these factors, which then can be potential areas for further cooperation with other countries.

In this respect, Dubai can be an appropriate candidate of cooperation for Korea. Dubai has achieved fast economic progress over the past decades led by the government, but some might argue that the strong government intervention is not appropriate for the countries at the advanced level, which should follow the free market principle. However, recently, there have been some scholars proposing that even the advanced countries still need industrial policies for the nation's continuous and sustainable development. Bianchi and Labory (2006), for example, proposed that if the "old" industry policies are more intervention-oriented or "picking the winners," the "new" policy should evolve toward providing favorable environment and competitive conditions for firms to enhance their capabilities and innovation.

Dubai Government is not only competitive in attracting foreign investments but also in cultivating the relationship with regional partner countries for being a regional business hub. According to CB Richard Ellis, Dubai was ranked one of the world top 15 global business hubs[6] in terms of the number of international firms operating offices there. Dubai has attracted more than half of the biggest multinational firms, thanks to its effective government schemes, tax breaks, integrated infrastructure and high degree of internationalization (Arabian Business, 2011). On the other hand, although Korea has many advantages for becoming a regional business hub, it is not included in the world's most popular business hubs. Korea is positioned as a strategically important location in the Northeast Asia (connecting with more than 50 cities more than one million people within one and half hours of flight). Korea also has world-class transportation and communication infrastructure.

However, its connection with the neighboring countries still remains at the trade level, and the degree of openness in terms of FDI still lags far behind other competing countries/cities. Although most Koreans acknowledge the positive role of FDI, some people of Korean society still have protectionist/negative sentiment against FDI. There are also many unnecessary regulations which hinder foreign firms from investing in Korea. Therefore, Korea should take advantage of its location and other advantages while overcoming its weaknesses for becoming the business hub in the region by sharing the success experiences of Dubai, such as government services and proper regulations.

On the other hand, Dubai's fast economic growth should be attributed to its strong competitiveness in some service sectors, such as retail, tourism, real estate and finance. However, this growth model of "service over manufacturing" has been criticized for the vulnerability of external environmental shocks. Dubai was one of the most severely hit cities by the global financial crisis in 2008 (Business Insider, 2011). The manufacturing industries, the advanced manufacturing in particular, are important for creating quality jobs and strengthening advanced industrial structures. That is why countries, after the 2008 global financial crisis, have begun to stress the important role of manufacturing sectors in stabilizing the economic growth. Dubai is not appropriate to develop internationally competitive manufacturing industries because of its small population and the lack of related and supporting industries. However, for building a stronger economic base, Dubai needs a strong commitment in improving some selective manufacturing sectors by sharing some experiences from others.

In this respect, Korea can be a good partner due to its strong manufacturing base in several industries such as electronics, engineering, chemical and bio-medicine, which are less labor-intensive but technology- and capital-intensive. Korea also has very competitive professionals and world-class technologies. Although Dubai has by far achieved a certain level of growth by employing foreign professionals, it is still not enough for sustainable growth in the future. There are already some efforts of cooperation between the two economies in the areas of health and medicine, but it can be expanded to a larger extent. Dubai can thus benefit significantly by collaborating with Korea. The two economies, Korea and Dubai, look much different, but this is why these economies can complement more to help each other.

Conclusion

Since Porter introduced the diamond model in 1990 for explaining the sources of national competitiveness, over the past couple of decades, there have been significant theoretical extensions and empirical tests. The majority of these studies are competition-oriented, where a country's enhancement of competitiveness is to compete with other rivals for the global resources and market. However, with the changing pattern of firms' competitive advantage from a single firm to the business ecosystem, the scope of national competitive advantage should also shift from a single country to a cluster of countries. The capability of cooperating with partner economies becomes increasingly important in enhancing national competitiveness. It is particularly important for small and open countries, such as Korea and Dubai, to strengthen their competitiveness positions through strategic partnership.

This paper has three key contributions. First, it conducted an extensive literature review by showing the changing paradigm of national competitiveness and the strategic need for national cooperation. Second, in contrast to the existing studies of cooperation which focus on the regional clusters or cooperation among neighboring countries, this paper selected two geographically distant countries, Korea and Dubai, to show how they can solve the current challenges for moving upward and sustain competitive advantages. Last, this paper suggested that countries should first carefully examine their current strengths and weaknesses and cooperate with other countries to overcome the weak areas which are necessary to fix for upgrading the current development stage. The case study of Korea and Dubai implies that countries possessing different competitive advantages and disadvantages can have substantial opportunities for mutual benefits through cooperation.

Notes

1. The data for analysis are abstracted from the research project of Dubai's competitiveness by Cho and Moon (2009); the methodology used in this project is from the competitiveness research conducted by the IPS (IPS, 2006).
2. WCY includes four factors and 20 sub-factors; GCR includes 12 sub-factors under three factors since the 2007 report. Although all the three reports (*i.e.* WCY, GCR and NCR) include comprehensive criteria for evaluating national competitiveness, both WCY and GCR missed the criteria related to natural resources. Moreover, WCY missed the criteria about cluster development and customer sophistication, which are included in GCR instead. On the other hand, GCR missed the criteria on FDI. Therefore, IPS report incorporates more comprehensive

criteria which are critical for the sources of national advantages, compared with other two reports.

3. Country size here refers to the physical size, not the economic size, which is often measured by a country's GDP. Preceding studies use either of two criteria – population and land size – to measure the physical size of a country. For example, WCY utilizes population only.
4. Competitiveness level is measured by the national competitiveness index based on the 200 criteria. The higher score of the index, the higher competitiveness the nation has. The detailed calculation method of the index is explained in IPS (2006). The *strong* group includes countries which have sub-factors ranking between 1st to 22nd; the *intermediate* group ranked between 23rd and 44th; and the *weak* group ranked between 45th and 65th.
5. *K*-means clustering is the most widely used clustering method. Given a set of n data points in real d-dimensional space, R^d, and an integer k, the problem is to determine a set of k points in R^d called *centers* to minimize the mean squared distance from each data point to its nearest center (Kanungo *et al.*, 2002).
6. Ranked from 1 to 15: Hong Kong, Singapore, Tokyo, London, Shanghai, Mosco, Beijing, Madrid, Dubai, Paris, New York, Warsaw, Milan, Sao Paulo and Bangkok.

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Appendix 1. Definition of the 23 sub-factors

Factor conditions

Energy resources index measures a country's endowment of natural resources, including oil, natural gas and coal. *Other resources* index includes resources such as wood, livestock, fish, fresh water and the land size.

Demand conditions

Basic demand refers to the market size of the country, including criteria such as GDP, GDP per capita and trade of goods and services. *Demand quality* index refers to the market sophistication of the country, which is measured by the survey data such as customers' sensitivity to quality, design, health and environmental issues.

Related industries

Transportation incorporates the infrastructure for motor vehicles, civil aviation and maritime transport; *communication* refers to the IT infrastructure, such as mobile phone subscribers, personal computers and internet users; *finance* measures the degree of financial development such as access to loans, capital market, foreign exchange stability and international reserves; *education* evaluates a country education performance and soundness of the education system; *science and technology* evaluates the resources and capability of innovation; *cluster development* includes the quantity and quality of local suppliers, and extent of collaboration among them; and *overall living environment* refers to the social systems that support high-quality living environment, such as social safety net, public order, medical service and personal security.

Business context

Strategy and structure evaluates the conditions that firms are created, organized and managed; *globalization of local firms* measures the global mindset of local firms; *business culture* incorporates the value and attitude of doing business such as ethical practices, relationship between labor and management and corporate social responsibility; and *foreign investment* evaluates the status of inward and outward foreign direct/indirect investment.

Workers

Quantity of labor force (i.e. unskilled labor) includes the indices such as the number of labor force, life expectancy, working hours and wage; and *quality of labor force* includes criteria that influences the skills and productivity of labors, such as education, literacy rate, attitude and motivation and labor unions.

Politicians and bureaucrats

Politicians measures the quality of legal framework, political system, education level, cleanliness and international experiences of politicians; and *bureaucrats*, on the other hand, measures the effectiveness of the policy making and implementation, education level, cleanliness and international experiences of bureaucrats.

Entrepreneurs

Personal competence evaluates the capability of entrepreneurs such as decision-making, seizing business opportunity, education level and international experiences; and *social context* refers to the social conditions for creating and supporting new businesses and new ideas and treatment of foreign entrepreneurs.

Professionals

Personal competence evaluates the capability of professionals and professional managers, such as education level, international experience, decision-making and management; and *social context* refers to the social conditions of support and treatment of professionals and professional managers such as compensation, job openness and social pride.

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