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경제학석사 학위논문

Does Balanced Regional Development Policy Work for Korea?

- Empirical Evidence on Regional Disparity -

지역격차 완화와 지역균형발전 정책의 역할
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Does Balanced Regional Development Policy Work for Korea?

- Empirical Evidence on Regional Disparity -

A thesis presented

By

JaeHee Hwang

To

**Graduate Program in Regional Information
in partial fulfillment of the requirements
for the Master of Arts in Economics**

**Graduate School
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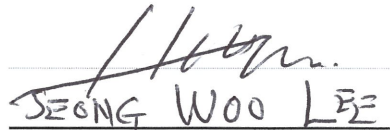
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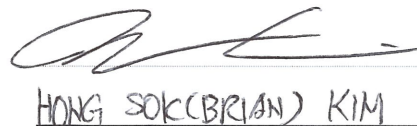
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Abstract

Does Balanced Regional Development Policy Work for Korea?

- Empirical Evidence on Regional Disparity -

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While achieving remarkably rapid economic growth, Korea adopted an unbalanced growth strategy for industrialization. However, in a recent decade, balanced regional development policy emerged as a top priority of the government in response to social problems caused by the growth-pole strategy. The policy has been one of the main policy objectives in the two most recent administrations, and planned with rosy expectations of substantial contributions to interregional balance and the achievement of social cohesion with allocated significant portions of the budget. Though well known and controversial, its effectiveness on reduction in regional disparities has received

little to no empirical investigation to date.

In this context, this study begins to fill this vacuum with one major research question: Did the balanced regional development strategy work for Korea? To address the question, first of all, this paper sheds light on theoretical and historical background of BRDPs in Korea. It in turns conducts empirical analysis through GRDP (Gross Regional Domestic Product) as a nominal indicator and TFP (Total Factor Productivity) as a real indicator for 14 metropolitan regions. The analysis covers 1995 to 2010 and examines inequality among the regions by applying Gini and Theil indices to evaluate whether the balanced development strategy reduced the interregional inequality in Korea. The findings suggest the regional TFP and GRDP disparities widened despite the continuous policy intervention to lessen the gap during the period. In particular, the upward trend of the inequality coefficient implies that the policies faced obstacles to achieving balanced regional development. This paper also offers some policy implications regarding balanced regional development as an attainable goal in Korea.

Keywords : Regional Disparity, Balanced Regional Development,
Inequality Index, Unbalanced Growth, Decentralization Policy

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I . INTRODUCTION

Difference among the groups exists in all societies. It promotes the diversity of society and acts as the driving force of the social advance. In Korea, however, it seriously appears based on the residential neighborhoods. It also has led to problems of the regional disparity beyond the spatial differentiation. Accordingly, some parts of Korea monopolize various city and social services and this phenomenon causes a threat to the social disorganization.

The Regional disparity is one of the largest obstacles to achieving social cohesion in Korea. It causes consuming conflicts within the country and undermines the dynamics of democratic governance of the social and political sectors (Park, 1996; Hong, 2006). This interregional disparity originated from the process of rapid economic growth after the Korean War.

South Korea's (hereafter, Korea) economic success is best characterized as "A prime example of latecomer's high-rate growth, which condenses the longer development history of developed countries" (Cho, 1994: 177). In 1960, South Korea had a per capita gross national product of \$80, which was roughly the same level as Ghana and Sudan and slightly behind India. Since then, Korea has been near the top of the world's growth charts, with forty years of growth averaging more than 8% per year, doubling repeatedly in an exponential explosion of economic growth. With the exception of neighboring Taiwan, this sustained boom has no parallel in history—not even in postwar Japan. This

rapid economic development has made Korea one of the fastest-growing OECD countries, with real GDP rising by more than 4% per annum during the past decade (OECD, 2012). However, despite remarkable economic growth, Korea has encountered severe regional inequalities caused by the growth pole strategy for rapid economic development (Hong, 2006; Ahn, 2009). In recent decades, the level of regional disparity between the Capital Region (hereafter, CR) and the non-CR has become substantial. The fact that 48.9% of the total population lives in 11.8% of Korean territory describes overconcentration in the CR¹.

Under these circumstances, the goal of social equity has suggested the need for regional equalization, whereupon the necessity of Balanced Regional Development Policies (henceforth BRDPs) has been further expanded. Socially, the arguments for BRDPs appeared due to the fact that regional disparity gives rise to inequality of opportunity based on residential areas and interferes with social integration. The economic viewpoint emphasizes that the policy demands on redistribution grow as the interregional gap widens, and that the incremental financial commitment induced by these requirements dampens economic growth and private investment (Temple, 1999; Frank, 2009; Yang, Kim, & Seo, 2011). In addition, a political perspective argues the necessity of BRDPs while representing emerging concern over interregional inequalities. In this context, the main objective of BRDPs is as follows:

1) STATISTICS KOREA, <http://kosis.kr/>

Balanced national development means to promote the equal opportunity of regional development, to increase regional development capability for enhancing the quality of life and planning sustainable development, then to strengthen national competitiveness (SABND, 2004)².

However, although BRDPs are planned with rosy expectations of substantial contributions to interregional balance, it is difficult to overcome the structural constraints of the regional gap such as the international environment and existing industrial structure (Amos, 1988; Wyly, Glickman, & Lahr, 1998: 7; Yamamoto, 2006; KRIHS, 2008; Richardson, Eds.: Richardson et al., 2011). These constraints are enduring and difficult to be overcome by simple and repetitious planning.

There has been a deficiency in both theoretical and empirical investigations of BRDPs. Although some discussions and arguments on the process of Korea's regional development have focused on regional disparity, they have typically been qualitative studies or explanations of descriptive statistics. No previous study has connected an overview of the background of BRDPs with an evaluation of these policies by applying inequality coefficients from 1995 to 2010. In this regard, the current study examines the historical processes of BRDPs and whether BRDPs reduce regional inequality by calculating inequality indices in Korea. The paper estimates GRDP (Gross Regional Domestic

2) Re-quoted from Ahn (2009). SABND is the Special Accounting for Balanced National Development.

Product) and TFP (Total Factor Productivity) as nominal and real indicators and includes data from 1995, when BRDPs were not yet discussed, to 2010, when much of the policy had been developed.

The present paper is organized as follows. It begins with a discussion of theoretical issues that are relevant to regional development and disparity. It also introduces the background of BRDPs in Korea. It then proceeds to the grand power shift from concentration to dispersion strategies. The empirical tests are run using two different indicators and indices. The analysis is conducted with GRDP and estimated TFP by region as nominal and real indicators, as GRDP and TFP are indicators of primary regional characteristics. It then analyzes the changes to the Gini and Theil coefficients, the inequality indices, as the policies were implemented in Korea. The utilized unit of administrative districts includes metropolitan cities and provinces because they are a spatial unit that can be configured with their own economic regions in Korea. Then, the present study examines the effects on reducing regional disparity through the governmental investment. Finally, it provides a summary and suggests future policy issues and studies.

II . THEORETICAL BACKGROUND

II –1. Regional Development and Disparity

Concentration is one of the most substantial phenomena that impact economic activities in certain regions (Kaldor, 1970; Parr, 1973), as human activities tend to form an uneven distribution over space (Mulligan, 1984). In fact, although spatial factors such as resource endowment and innate advantages partly cause the difference in regional growth rate within a country (Kaldor, 1970), economic agents would still tend to form regional concentrations and spatial clusters in a perfectly homogenous world (Mulligan, 1984; Kanbur & Venables, 2005). Reflecting this concentration logic, regional development should focus on economically competitive regions (Parr, 1973). However, inequality of opportunity arises in the regions that are alienated from concentration. Thus, many discussions have considered the necessity of governmental intervention to solve regional disparities (Kaldor, 1970; Kanbur & Venables, 2005; Hong, 2006; Yang, Kim, & Seo, 2011).

The relationship between regional development and regional disparity has been a controversial theme in geographical economics and spatial planning since the 1950s. Numerous studies have examined the pattern of regional disparity in a country as regional development projects were propelled. According to the primary regional development theories, the pattern of regional disparity can be considered from two contrasting viewpoints. One

view states that regional disparity ultimately declines as development progresses, whereas the other suggests that regional disparity can be maintained and even expanded due to regional development policies based on a cumulative causation logic. As mentioned above, the various theories of economic geography provide different causal explanations for spatial inequality and elicit different policy responses to combat inequality (Kim, 2008). Thus, it is important to review these theories in detail to gain a greater understanding of the theoretical and empirical considerations of regional disparity.

Growth Poles Theory and Polarization

Development is fundamentally economic (Peet & Hartwick, 2009: 23). Neo-classical theory explicitly introduces a spatial dimension into economic growth strategy (Gunther, Eds.: Johansson et al., 2001; Stimson, Stough, & Roberts, 2002). Neo-classical growth theory models, based largely on the traditional Solow model, stress the economic feasibility of regional development, regarding agglomeration as regional competitiveness. That is, they select particular locations where the concentration of human activities can be used efficiently and emphasize the increase of wealth through agglomeration.

The theory argues that development strategies need to intensively foster specific regions (or sectors), so-called growth poles, to initiate propulsive development. By spatially concentrating highly profitable regions, production factors converge on those regions. These regional or sectorial targeted

poles produce spatial structure. The theory maintains that the spatial arrangements generate an agglomeration benefit to both growth poles and surrounding regions due to the backwash effect and spillover effect³).

The neo-classical growth theory models focus on the homogeneity of production factors, the price mechanism and the process of capital accumulation, all of which lead to convergence and eliminate interregional differences over time (Stimson, Stough, & Roberts, 2002). Therefore, if fundamental assumptions including the unrestricted mobility of capital and labor, constant returns to scale and perfect competition are satisfied, a neo-classical development plan may result in interregional balance.

Based on this theory, regional disparity is a temporary stage in the process of overall regional development by the market (Kim, 2008). It asserts that regional disparity declines, as the spillover effect of growth poles exceeds the backwash effect. Williamson's inverted U-pattern that regional disparity first rises and then falls is consistent with a simple neo-classical interpretation of regional growth (Alonso, 1968; Amos, 1988).

Despite well-described arguments on the backwash and spillover effects, the growth pole strategy has failed to stimulate nation-wide regional development (Richardson, 1976). The expected spatial spillover effect has not been evidenced in many

3) In fact, these terms, 'backwash' and 'spillover' effects, were initially used by scholars opposed to neo-classical explanations related to the benefit of concentration, for instance Myrdal(1957: 31-33).

regions including Korea (Park, 1996). The opposing theory argues that the are inconsistent with the actual economic phenomenon. That is, the assumptions of neo-classical theory are unrealistic due to the immobility of capital and labor, increasing returns and imperfect competition. As the credible alternative, other theories emphasize that the role of government intervention is to solve regional disparity.

Cumulative Causation Theory and Devolution

Development is responsible for the social consequences of the development process. Development planning should attend to the material and cultural goals of the region (Peet & Hartwick, 2009: 1). Accordingly, advocates of cumulative causation theory argue that development strategies must consider not only economic factors, but also social, cultural and institutional factors, with the latter factor as a fundamental explanation for interregional disparities (Stimson, Stough, & Roberts, 2002).

Then, why do neo-classical development strategies continuously expand the gap between central and peripheral spaces? The cumulative causation model proposes that the gap grows due to market forces and the manner in which some areas obtain capital, skills and expertise to accumulate competitive advantage over other locations, with backwash effects preventing the disadvantaged locations or regions from developing the internal capacity to compete and prosper (Stimson, Stough, & Roberts, 2002: 17). For these reasons, if particular regions are developed intensively, social and political environments that have

a positive influence on growth are formed at those locations. This cumulative phenomenon results in the gigantism of central regions and the extreme differences in income and productivity between these regions and the more backward areas (Alonso, 1968). On the other hand, regional development that reduces incremental disparities between regions facilitates social cohesion based on the equality of opportunity. In this sense, this theory regards economic development dynamics as 'social organisms' and stresses that intense relations and connections among social integration, reciprocal confidence, rule of law, democracy and education constitute a greater ability to successfully work toward interregional symbiosis (Panico & Rizza, 2004).

To achieve balanced regional development, the theory proposes to add the implementation of governmental dynamics as regional development processes (Krugman, 1995; Stimson, Stough, & Roberts, 2002: 18). Policy makers should respond to growing regional disparity by utilizing much more social and political power than economic power (Kim, 2008; World Bank, 2009). Then, redistribution policies created by the government would be able to create the positive incentive effect such as an increase in investment opportunities (Aghion, Caroli, & García-Peñalosa, 1999).

Despite the consensus related to regional equity, these policies infringe on the potential of regions that have abundant resources and innate advantages for economic growth. In addition, it is conceivable that policies of regional equalization may slow the growth of the total economy (Alonso, 1968).

New Economic Geography and Regional Growth

New Economic Geography (hereafter, NEG) admits the difficulty of balanced regional development on a nationwide scale. Rather, the intervention of central government would cause severe side effects such as a slowdown in production of the whole country (Kim, 2003; Goh, 2010).

According to NEG, agglomeration is universal and inevitable phenomenon. Since economic activities are not perfectly divisible, the transportation of some goods between some places becomes unavoidable (Fujita & Thisse, 2009). That is, no competitive equilibrium exists unlike the neo-classical theory assumes perfect competition and constant returns to scale. Therefore, increasing returns to scale and prices of transportation promote agglomeration of economic activities and in turn lead to heterogeneous spatial development. In this context, NEG explains the emergence of regional disparity, emphasizing the role of clustering forces in generating an uneven distribution of economic activity and income across space (Venables, 2010).

NEG focuses on the importance of geography in shaping economic interactions and a set of general equilibrium related to location choice. It provides the clustering mechanisms such as high trade cost, market access and productivity benefits in dense centers of economic activity, as geographically and historically influenced economic factors to describe why regional discrepancies increase over time. In addition, knowledge spillovers, thick labor markets, market access benefits, or inter-firm linkages also influence on the interaction of

transportation costs and increasing returns to scale.

NEG implies regional policies to reduce spatial divergence result in economic and fiscal inefficiency for reasons mentioned above, especially because agglomeration is inevitable phenomenon. It asserts, rather, regional policies to strengthen the agglomeration are empirically turned out to help improve underdeveloped areas through the increase of overall growth (Martin & Ottaviano, 1999; Kim, 2003).

However, even though NEG illustrates current economic geography structure which makes regional disparities difficult to be resolve, it is not easy to say that it is the reason why the central government limits policies to reduce regional gap and it is a useful policy planning tool. This is because, first of all, regional disparities cover not only the economic gap between production activities, but the social problems caused by social inequality. Also, this model describes the phenomenon in a more useful way, but it overlooks the location choice not by market access, but government intervention, which the political decisions put the infrastructure in core regions at the beginning. Of course, it is reasonable that there is no guarantee that fostering the specialized industry in a particular area leads the area into the heavily agglomerated region of the industry⁴). However, social impacts accompanying regional disparities require a more in-depth inquiry on the level of policy intervention to reduce spatial discrepancy and promote spatial cohesion.

4) According to Kim (2003), moreover, it is acceptable that when the central regions formed by government intervention do not conform to the core areas caused by increasing returns in the market, it is difficult to see industrial development in the regions.

II –2. BRDPs in Korea: Consensus and Controversy

The two different regional development strategies are related to the recent ‘Growth first vs. Redistribution first’ agenda in Korea. The controversy can also be understood as a dichotomy between ‘Efficiency and Equity’. Regardless of the particular terms used in this argument, the dispute is quite controversial; thus, it is difficult to reach a consensus. The ‘Growth first’ group insists that the growth of the entire country should be promoted before building regional competitiveness through BRDPs because national economic growth eventually leads to regional growth (Choi, Yang, & Choi, 2007; Kim, 2009). On the other hand, the proponents of ‘Redistribution first’ argue for dispersion policies to reduce the interregional gap. They argue that a more spatially equitable allocation of infrastructure and public services must be ensured through policy interventions for endogenous growth of each region and the achievement of social integration (Park, 1996; Hong, 2006; Yang, Kim, & Seo, 2011).

In general, spatial inequality is the net result of the balance of forces between concentration and dispersion, and rapid economic growth is often associated with concentration strategies of regional development. Thus, policy makers are concerned that development is likely to exacerbate rather than reduce spatial inequalities (Kim, 2008). Korea is included in this case, and it has been widely accepted that concentration-initiated national development policies enlarged the regional disparity in Korea for a few decades (Hong, 2006; Kim, 2009).

Based on the advanced stages of economic development proposed by Amos (1988), Korea has experienced the latter stages of economic development following the inverted-U pattern. This development is attributable to a pattern of systematic changes in the structure of economic activities, which indicates the enlargement of urban sprawl or the movement into a service-based economy (Amos, 1988). In other words, both the degree and scale of regional inequality will escalate at the national level, based on the advanced inverted-U hypothesis. The expectation justifies governmental intervention that reduces the problem and cost of regional disparity and aims to achieve the equalization of opportunities and social cohesion. This logic is the assertion of cumulative causation models, which indicate the weakness of the previous neo-classical development strategies and stress balanced regional development strategies. That is, cumulative causation models can be explained as what results when the political dynamic is applied aggressively to the development process.

It cannot be ignored that maintaining most of the current functions in the CR is the best strategy to improve the CR's aspiration to be a world city⁵⁾ (Richardson, 2003; Jun, 2010). However, BRDPs propose an acceptable logic from both the economic and non-economic perspective. From the economic viewpoint, it is more lucrative to reduce agglomeration cost and achieve social cohesion in the long term. From the social and

5) According to British consulting group Z / Yen, Seoul achieved the 9th place of 77 cities in the 'Global financial Center Index (GFCI)' survey (2012.03.25) and has been recognized as a global financial hub.

political view, equal opportunities and social cohesion improve quality of life and the ultimate development of the nation (Jeong, 2009). Moreover, the advocates of equity argue that none should experience alienation or inequality of opportunities on the grounds of residential area, and this assertion has become the basic pillars of BRDPs enforcement.

In addition to the theoretical grounds, practically, public demand for balanced development has increased. This demand is a reflection of the problem and cost of regional disparity and social integration. In the Korean context, polarization reverse, as the evidence of spillover effect which neo-classical theory presents, was rarely observed. Factors of production and purchasing power have been heavily concentrated in the CR. The infrastructure to stimulate growth has intensively improved in this area, in accordance with Cumulative Causation theory. Nevertheless, According to NEG which spatial concentration inevitably occurs and lasts in economic growth process, BRDPs which develop all areas equally are likely to result in inefficiency.

Here, the question arises of whether these BRDPs materially decrease the gap. Additionally, it is necessary to determine whether the concrete plans of BRDPs are appropriate and effective for domestic situations. The policies for regional balance were at the top of the prior government's political agenda and they are one of the main policy objectives in the current government, with significant portions of the government budget allocated to these objectives. According to <Table 1>, the two most recent administrations made tremendous efforts towards

reducing regional inequality. The Special Account for Balanced National Development was established on the basis of a special law in January 2004, and the budget increased by 2010. Additionally, whereas the BRDP budget accounted for 0.37% of the total national budget in 2004, the first year of BRDPs, the proportion significantly increased to 3.04% in 2010. These increases demonstrate the Korean government's emphasis on these policies.

Table 1. Scale of Investment in BRDPs

Measure: USD Billion								
Year	2004	2005	2006	2007	2008	2009	2010	2011
Budget*	3.6	4.1	4.5	5.3	6.2	7.9	8.6	8.9
Rate of Increase (%)	-	12.6	9.9	17.9	17.5	27.2	8.1	3.5

Footnote: *Budget Change is based on Constant Market Price by Consumer Price Index (Year 2010=100).

Exchange rate is based on 2010 (1USD=1,156KRW).

Note: Special Account for Balanced National Development realigned to Regional Development Special Account in April 2009.

Source: Ministry of Knowledge Economy (<http://www.mke.go.kr>), National Assembly Budget Office (<http://www.nabo.go.kr>), Presidential Committee on Regional Development (<http://www.region.go.kr>)

Nevertheless, most of the literature related to this topic has only focused on qualitative arguments and BRDPs in specific administrative districts. Otherwise, they compare only descriptive statistics before and after BRDPs. Given the limited amount of

literature devoted to the emerging process of BRDPs and the analysis of their empirical effect, the present study is unique in several respects. First, the study identifies the relationships between regional development and disparities, and then investigates the background of the emergence of BRDPs in Korea. It subsequently conducts empirical analyses to determine regional gap changes in GRDP and TFP among regions within Korea. In particular, it examines the period from 1995, when BRDPs were not yet discussed, to 2010, when much of the policy had been developed. The study also suggests policy implications and future research based on the arguments above.

III. POWER SHIFT : AGGLOMERATION TO DISPERSION

III-1. Concentration of the Capital Region in South Korea

Korea adopted an unbalanced growth strategy for industrialization after the Korean War to modernize the economy. In this respect, anticipated imbalances became apparent in many areas, for example, between urban and rural development, large-scale and small-scale businesses, and export and domestic industries. Incorporating the unbalanced strategy and the successful economic growth, although the living standard of the country's population has increased substantively, the effect of the benefits has been concentrated in a few regions. Because the development model focusing on efficiency was supported widely, upholding the so-called growth pole strategy, preference was given to a few predetermined industrial projects concentrated within selective locations. This strategy was inevitable due to limited financial resources to promote industrial development. Thanks to the unbalanced development plan, before the 1980s, most of the industrial and urban activities were concentrated around the Seoul and Busan metropolitan areas and the remaining parts (particularly South- and North-Jeolla and Gangwon provinces) of the country lagged behind in their economic development (See <Figure 1>).

Figure 1. Cities and Provinces of Korea



Note: The shaded portion is the Capital region of Korea. The Capital region is composed of Seoul, Incheon and Gyeonggi Province.

Although diverse government interventions to lessen the disparity have been implemented since the 1980s (Kim Y. W., 2001), the consequence has been a typical example of ‘the rich get richer and the poor get poorer’.

<Table 2> demonstrates that central features of Korea were concentrated in the CR. This pattern continued until BRDPs began in earnest, and even after the policies were enforced in 2010. The phenomenon was especially dominant in areas related to local

income and industrial competitiveness such as the bank, finance, university and manufacturing sectors. In particular, in 2000, when BRDPs were being discussed, the gap in indicators between the CR and Non-CR emerged as a serious social problem. Occupying approximately 12% of the country's total area, the CR accounts for 46% of the total population. In addition to the share of the population, most widely cited statistics for the CR dominance over the rest of the country are that it has 57% of manufacturing firms, 48% of GRDP to the nation's GNP, 68% of deposits, 65% of total loan amount, 42% of total enterprises involved in finance and insurance, and 41% of universities. Its dominance is even more pronounced in terms of fiscal resources, accounting for 71% of personal income tax receipts and 85% of corporate income tax receipts in 2003. Average per capita local tax revenue in the capital region is more than 60% above the national average, resulting in wide regional variations in the share of own-source revenue in local government revenue (Randall & Yokoyama, 2005). Seoul and its surrounding areas are the center of government, education, culture, industry and entertainment. Thus, this region is truly the heart of Korea, and the perception of 'Seoul and other desserts' prevails in the country.

Table 2. Concentration Ratio of the Capital Region in Korea

Measure: %

Variables		2000 (Before BRDPs)	2010 (After BRDPs)
Area		11.8	11.8
Population		46.2	48.9
Number of Manufacturing Companies		57.0	50.7 ²⁾
Industry	No. Workers	46.4	50.6
	Gross Regional Product	48.0	48.9
Bank	Deposits	68.1	72.0
	Loan	65.2	70.1
Financial institution & insurance	No. Enterprises	42.3	44.8
	No. Workers	50.1	38.3
University	No. Universities	40.5 ¹⁾	37.2
	No. Students	39.3 ¹⁾	41.9

Note: ¹⁾ mean values in 2002 and ²⁾ in 2009.

Source: STATISTICS KOREA (<http://kosis.kr>),

Ministry of Knowledge Economy (<http://www.mke.go.kr>),

Ministry of Education, Science and Technology (<http://www.mest.go.kr>)

However, the excessive concentration of the nation's life, in terms of politics, economics and culture, in Seoul has caused a large number of urban problems, including problems with housing, transportation and environmental degradation. Critics argue that the heavy reliance on Seoul hinders balanced regional development in Korea.

Even with the diverse balanced development policies in place during the last couple of decades, the disparity between the CR and the rest of the country has increased (Kim Y. W., 2001). The continuing dominance of the CR over the rest of the country has

imposed two types of agonies on the country. On the one hand, inequality between the CR and other regions continues to grow. On the other hand, diverse negative externalities were exposed in the CR. The gap between the metropolis and the other regions in terms of income and living standards has never narrowed. With the exception of the southeastern coastal area, which has been the primary beneficiary of the government's growth pole strategy since the 1960s, the rest of the country lags far behind. Many indices indicate problems such as housing shortages, high land and housing prices, traffic congestion, the degrading quality of urban amenities and environmental pollution in the CR⁶⁾.

Critics who advocate the need to adopt the balanced development policy (Kim, 2004; Lee, 2004) argue that the growth pole strategy in the 1960s and 1970s is the major cause of the disparity. They also argue that the balanced regional development policies during the last two decades failed to correct the imbalance between the CR and the other regions because the policies focused on physical regulations rather than changing economic circumstances. Regional development policies in Korea have been executed by hardware-based measures such as industrial park or infrastructure construction rather than by fostering the region's economic base to guarantee economic self-sufficiency. In this vein, President Roh Moo-Hyun, in his inaugural address in 2003, accentuated that the government would pursue balanced regional development as a top policy priority in his regime.

6) OECD (2005: 5) noted that air pollution in Seoul is the most severe among cities in OECD member countries.

III – 2. Decentralization Policies for Balanced Regional Development

There is no denying that the central place and growth pole theories of the Neo-classical school impacted past regional policy and national economic development in Korea. However, the polarization effect is far more prevalent than the trickle-down effect. In other words, regional disparity intensified during the last decades, affecting views about regional competitiveness. Therefore, major questions have emerged such as what is sustainable regional competitiveness and what must be done to reduce regional disparities and strengthen regional competitiveness? Government intervention is required as a response to these issues; Korea attempts to solve spatial growth inequality through decentralization policies.

The government considers decentralization to be necessary to compete in a globalized world, create a knowledge based economy and promote the development of civil society. The current administration has thus adopted decentralization and balanced regional development as major items on its policy agenda (PCBND, 2003). To put this agenda into practice, the government instituted three bills related to devolution and balanced national development⁷⁾.

De-concentration and decentralization policies executed by the

7) These bills include the Special Act of Decentralization, the Special Act on Balanced National Development, The Special Act on Construction of the New Administrative Capital in 2003. However, the last bill was abolished by a decision of the Constitution Court.

previous regimes over the last three decades were neither effective nor successful (Kim K. H., 2001; Kim Y. W., 2001). The policies were intended to constrain the CR's growth through diverse land use zoning systems and moving public agencies, universities, research facilities and companies to other regions. Given the continued trend toward concentration to the CR, however, the incumbent administration embraced much firmer strategies to achieve balanced regional development in Korea. The strategies were as follows: construction of the new administrative city and relocation of public institutions; relocation of government-supported business enterprises and public organizations; introduction of a new policy framework of lessening strict growth control policy in the CR; promotion of strategic industries in other regions and revitalizing depressed sub-regions (See <Table 3>).

The relocation of public institutions that are operated or supported by the government is another major decentralization project of the incumbent administration. These institutions will be relocated to underdeveloped areas, which will be called innovative cities. The concept of the innovative city was first developed by President Roh Moo-hyun in Korea. According to the detailed, the government will relocate 176 public organizations and state-run enterprises to 12 innovative cities by 2012, one for each provincial district excluding Daejeon and North Chungcheong Province, which are the adjacent city and province of the new administrative city.

Table 3. Major Spatial Policies for Balanced Regional Development

Policies	Major Activities
Construction of the new administrative town	<ul style="list-style-type: none"> ◇ Constructing a new administrative town at Yongi and Gongju in South Chungcheong Province - Relocation of 12 of 18 central government ministries - Relocation of 30 additional government offices
Construction of innovative cities	<ul style="list-style-type: none"> ◇ Relocating of government sponsored enterprises in the CR to other regions - 176 public organizations in the CR will be relocated to other regions - Approximately 12 cities will be constructed throughout the country by 2012
Construction of Business-friendly towns	<ul style="list-style-type: none"> ◇ Associating regional strategic industries - 6 cities were selected as a pilot project in 2005 - Planning to appoint 1-2 cities each year from 2006 to 2012
New policy framework for the Capital region	<ul style="list-style-type: none"> ◇ Deregulating of the CR - Allow foreign-invested companies to build or expand their plants in the CR - Regulating domestic companies to build/expand their plants in the CR

Source: Seo et al. 2005. Decentralization strategies and policy guidelines for balanced national development (I). Korea Research Institute for Human Settlements.

Opinions vary on the amount of relocation costs; however, the relocation is expected to be a large fiscal burden on the government, along with its venture to move dozens of administrative offices to South Chungcheong Province. Provincial cities and counties are vying to host the state-owned firms due to the effects that the relocation would have on their regional economy. The 176 organizations have a total of 32,000 employees.

These organizations pay approximately 75.6 billion won in regional taxes annually, and the total assets held by the organizations reach 139.7 trillion won. The ministry of construction reports that it has divided the 177 entities into several categories depending on their size and industrial functions. According to the plan, each province is expected to host six to ten institutions assigned to that location based on the level of the area's development and its strategic industry.

Mainly using the experiences of the Toyota company town in Japan as a benchmark, and as one of the major projects of the balanced development policy, an enterprise city is classified as into the following four types: industry and commerce; knowledge-based; travel and leisure and innovative cluster (Seo et al., 2005). A company can propose a town project plan itself or jointly with a local government. If designated as the travel and leisure category, two regions can arrange preparatory work to begin the establishment of enterprise city. Concrete development plans were announced in 2005 and construction began in the second half of 2006.

To provide better opportunities to underdeveloped cities and counties in the second level of autonomy, the government categorized some 230 provincial cities and counties into seven groups based on their economic development level and prevented those in the top two groups from applying for the project. Companies can also enjoy substantial cuts in regional taxes, as local governments have vowed to reduce real estate, property and other regional taxes for the companies for up to 15 years.

Foreign companies and developers that participate in the project can enjoy the same level of benefits as local companies. In 2005, six cities met conditions such as population, social and economic environment and financial stability for a pilot project of the construction of the business-friendly town.

At the same time, the government has planned to relax the regulations on construction in the capital region for the development of the CR. The approach is regarded as a compromise because citizens in the CR have voiced concerns that their area will suffer from the relocation of large functions in industry and administration. The government has allowed foreign-invested companies to build or expand plants in Seoul and its adjacent areas to attract more foreign direct investment (FDI) in 25 high-tech industries. Although the government was reluctant to allow the construction or expansion of plants by domestic companies involved in industries that may add to the risk of population influx into the CR, the restrictions on building factories, schools and tourist facilities in the capital region were relaxed beginning in 2006.

After 2008, the mechanism of growth control for the CR was converted from prohibition-oriented to a review system for plant construction. With the completion of the new administrative town project and relocation of government-supported establishments in the CR, the law⁸⁾ that regulates the development of the CR will

8) The Capital Region Rearrangement Act: Large-scale construction projects, such as new towns and industrial complexes and tourist facilities, which may increase the concentration of population in the capital region is almost impossible to execute in the CR because it requires prior approval

be abolished (Seo et al., 2005). In an effort to consolidate competitiveness of the CR, the plan shows that the region will be developed as an international hub of finance and business in Northeast Asia.

In addition to these major strategies for the balanced regional development of the prior regime, the government launched a Regional Innovation System (RIS) to create clusters of government research institutes, firms and universities in various locations outside of the capital region. Although there are concerns about the monolithic application of the RIS to underdeveloped areas in Korea (Park, 2001), the government also designated regions experiencing chronic high unemployment and economic decline as special revitalization zones (called Specialized Land Development Zones), encouraging the RIS in depressed regions by offering diverse government incentives (Sohn, 2005). Ambitious infrastructure construction to maximize growth potential by building an equally accessible territory that is best represented by the construction of a high-speed railway linking Seoul and the nation's southwestern region (South- and North-Jeolla) is another major part of the policy agenda (Lee, 2004; Seo et al., 2005).

of the committee on Capital Region Rearrangement.

III – 3. Critics for BRDPs in Korea

Dispersing the regional concentration of people and wealth in the CR would be an ideal way to appease the people who are increasingly dissatisfied with the slowing economic growth and widening income discrepancies in the rest of the country. In this regard, developing diverse government interventions may have a positive impact on the government's goal of achieving more balanced regional development.

However, these efforts to limit the market force of concentration may be costly. The continued growth of the CR indicates that the high costs of location are outweighed by the benefits, such as economies of agglomeration due to proximity to the nexus of business activities. There is evidence that some sectors receive more benefits from the spatial concentration of people, firms and information (McDonald, 1997: ch. 12; Bowen and Kumar, 2003). Indeed, more than two thirds of venture enterprises are located in the capital region, which offers high quality human capital, excellent universities, and an attractive living environment. However, the limits on construction in the capital region make it difficult for these businesses to expand beyond the incubation stage (Kim & Son, 2004).

While the balanced development strategy is desirable, the strategy of balanced growth in Korea is challenged on several grounds. First, it is criticized due to its nature of currying votes. As Hirschman (1958) noted, balanced development policies are, in general, a political effort to gather ballots, which results in

“greater spatial equity”. This was one reason that some South American countries failed to sustain their generative growth in the 1970s and 1980s. This is particularly true for the construction of the new administrative town. Although a majority of the people living in the Seoul metropolis area has opposed building the administrative town, the government has promoted it under the pretext of pursuing balanced regional development. However, the government’s intention is generally accepted as its desire to maintain its support among people in the Chungcheong provinces, who decisively helped Roh Moo-hyun win the close 2002 presidential election⁹⁾. The current government also gained political benefit, thus, it appears as though the Lee administration is repaying Chungcheong. The decision to complete the construction of a high-speed railway linking Seoul and the nation’s southwestern region by 2015 is another example of a political decision to curry votes¹⁰⁾. The project is cited as a

9) President Roh and Uri ruling Party (at that time) made the relocation of the capital to the central inland province one of his election pledges in 2002. It was believed that obtaining a majority of votes from Chungcheong Provinces was be a key to decide which party would win the presidential election in 2007.

10) Apparently mindful of the 2006’s local elections, the party has struggled with plummeting approval ratings in the Jeolla provinces. It failed to win a single seat in the region (out of nine seats available) in the by-elections since June 2004. In January 2006, the Prime Minister opposed the Seoul-Mokpo high-speed railroad, saying “the project requires long-term consideration of its feasibility and economic impacts, and thus should not be handled lightly.” The Prime Minister, however, abruptly changed his stance after President Roh Moo-hyun stated that population and commercial viability do not need to be the only criteria to judge the railroad construction.

major effort to achieve the balanced regional development for which the government has strived.

Another argument against the government policy was made by market economists, who advocated the positive functions of the market in a capitalist economy. In Korea, the government's diverse decentralization policies in the previous regimes that were not in line with the market did not end concentration in the CR. The previous regimes implemented numerous measures following the 1970s to reduce concentration in the capital region. However, as in the case of other OECD countries, including Japan, these policies were not successful (OECD, 2012). Whereas advocates of the balanced regional development policy argued that regional inequality increased in the 1990s, Moon (2003) reported that regional inequality in terms of per capita GRDP in Korea was at a similar level to that of OECD countries such as France and Germany. This inequality will eventually diminish as Korea develops, as income convergence was observed in the experiences of many of the developed countries in the West.

In this vein, Richardson (2003) is particularly cynical about the policy. He stresses that regulations that restrict investment and new businesses in the capital region in Korea may limit the economic benefits of agglomeration and cause conflict with the objective of maintaining rapid economic growth. He also argues that Korea must provide all of the support necessary to insure Seoul's place as a major world city, considering the current development stage of Korea. Bingham and Jung (2003) also caution that although it may be necessary to spread the wealth

to some degree, it is undesirable for Korea's government to act at the expense of Seoul's world city status. In a similar line of reasoning, Chung (1999) notes that "It is possible that Seoul's agglomeration economy is just too powerful for many economic activities to keep themselves too far from it."

Some empirical studies have supported these concerns. Kim K. H. (2001) argues that spatial policies aimed at discouraging the location of people and jobs in the CR were ineffective and generated negative housing and commuting side effects. Lee (2000) also notes that growth control policy in the CR has a negative impact on the productivity of manufacturing establishments; a similar effect is also reported in the UK (Evans, 1996). In this vein, in a recent report, the OECD (2005) expresses concerns about the excessive support for balanced development policy by the incumbent administration and recommends policies that focus primarily on the objective of fostering national productivity growth rather than on regional development.

It is not easy to define the concept of balanced development, and it is much more difficult to materialize the ideology in practice. It has been a critical norm of the capitalist economy since Adam Smith first introduced the concept of Economics in his famous book "The Wealth of Nations." The conventional definition of the term is related to the distribution of economic activity and wealth and access to these factors in any geographically defined area such as nation or region. However, the driving force of the distribution should not come from "the

haves” and result in a zero-sum game. The equalization of living standards is neither possible nor desirable in the capitalist economy. In this regard, Kim W. B. (2001: 53) accentuated that “an equal provision of basic social infrastructure ...(*omitted middle*)... should be considered a legitimate goal of balanced development.”

IV. HOW SUCCESSFUL IS *BRDP* IN KOREA?

IV-1. Estimation of Regional Disparity

Analytical indicators and Data

As mentioned above, the regional disparity encountered in Korea must be estimated empirically. The current paper examines empirical evidence of the impact of BRDPs on GRDP and TFP to investigate regional disparity since BRDPs have been implemented.

GRDP can be used to evaluate the degree of regional growth and development (Pernia & Quising, 2002; Indiatuti, 2003; Moon, 2003; Kim, 2009). Development refers to all changes in the economy including changes in economic structure that accompanies changes in output or GRDP; therefore, increased GRDP is a major indicator of regional development (Indiatuti, 2003). In this regard, the present analysis utilizes GRDP on the unit of provinces and metropolitan cities¹¹⁾, provided by STATISTICS KOREA¹²⁾.

Despite the usefulness of GRDP for this analysis, another indicator related to productivity must be estimated to measure

11) The administrative districts used in the analysis are the largest type of administrative district units in Korea. The analysis results vary depending on the scale of analysis area (Portnov & Felsenstein, 2005). The gap becomes smaller as the regional unit segmentation is more subdivided; however, this unit is the smallest unit of areas that can be obtained from statistics in Korea.

12) STATISTICS KOREA, <http://kosis.kr>

the disparity on growth potential and real regional competitiveness. Also, the regional balance doesn't mean interregional income convergence through income transfer or equalization of population density among all the regions (Kim, 2005). In this context, the current study uses TFP as real indicator. TFP plays a significant role in the acceleration of regional economic growth as well as dynamics of sustainable regional economic growth (Lee, 2008; Xin & Qin, 2011). Thus, TFP implies the spatial capability to utilize innate resources and advantages; hence, TFP disparity can be easily related to interregional economic inequality. Previous studies also show that TFP is the key determinant of economic development and spatial disparity (Tong, 2001; Cai, Wang, & Du, 2002; Peng, 2005). The present study reflects these prior outcomes and conducts TFP disparity analysis among regions. To do so, capital stock is calculated because the Korean government has not officially released this statistic since 1997. The estimation of production function and capital stock is implemented according to Lee (2008). The unit of analysis is provinces and metropolitan cities in Korea, depending on availability of data.

First, the production function can be developed as shown below. The quantity of production Q represented by GRDP is

$$Q = A(L, K) \text{ -Eq.(1)}$$

where A indicates TFP, L is labor input, specified as the total employment, by region and K is total capital stock¹³⁾ by region.

Then α and β are estimated by a regression analysis using independent variables $\ln L$ and $\ln K$. The transformed function that applies estimates α and β is as follow:

$$Q = AL\alpha K\beta \text{ -Eq.(2)}$$

$$\ln Q = \ln A + \alpha \ln L + \beta \ln K \text{ -Eq.(3)}$$

Then, the value of $\ln A$ is obtained from the estimated α and β , and TFP is subsequently calculated using Eq.(4).

$$\ln A = \ln Q - (\alpha \ln L + \beta \ln K) \text{ -Eq.(4)}$$

In the analysis, this estimated TFP is a real indicator, whereas GRDP is utilized as a nominal indicator¹⁴).

Methods of Measurement

Every policy is designed to achieve a specific purpose and benefit. Thus, every policy aims to meet its own policy goals. The main purpose of BRDPs is to relieve severe regional disparity and encourage social cohesion. Hence, the present paper analyzes the impact of the policies by estimating regional inequality. There are several ways to measure regional inequality. For instance, CV, Gini, Theil, index of concentration and distance-based measures are typically used for studies with spatially unequal

13) This study uses the estimated values of total capital stock and the values of α and β described by Lee(2008) and Park (2012).

14) Estimated TFP values are shown in the Appendix (p.61).

distribution (Chakravorty, 1996). Additionally, some studies suggest various combinations of analytical tools for disparity analyses (Litchfield, 1999; Portnov & Felsenstein, 2005). Although many methods exist, the location Gini and Theil coefficients are the simplest and most widely used measures of regional disparity (Yamamoto, 2006; Kim, 2008). Moreover, the Gini index is useful because its scale invariance is not affected by the unit of measurement of the variate (Kim, 1986)¹⁵. Furthermore, the Theil index can complement the shortcomings of the Gini¹⁶. For these reasons, the present study calculates the Gini and Theil coefficients in the regional disparity estimation process for the GRDP and TFP indicators.

The Gini coefficient is a simple and comprehensible measure of inequality (Portnov & Felsenstein, 2005), as the Gini index can be accurately estimated without fitting curves to data when the data are grouped properly (Gastwirth, 1972). Much of the literature on regional disparity uses the Gini coefficient, the reliable index, to investigate the degree of disparity (Moon, 2003; Hong, 2006; Kim, 2009). The coefficient takes on values between 0 and 1, with zero interpreted as no inequality. The calculation can be specified as follows:

15) Re-quoted from Hong (2006).

16) Korea Planners Association (2006) argues that Lorenz curves, from which the Gini coefficient is derived, are not only more sensitive to a degree of deviation in the upper and lower bounds than in the mid-range, but also more difficult to interpret when they intersect with each other.

$$\text{Gini} = \frac{\text{Area between Lorenz curve and the diagonal}}{\text{Total area under the diagonal}}$$

$$= \left\{ \frac{1}{2n^2\mu_t} \right\} \sum_{i=1}^n \sum_{j=1}^n |y_i - y_j|$$

where n is the total number of regions, μ_t is average income at time t , y_i is income of i^{th} region and y_j is income of j^{th} region.

The Theil coefficient is also a commonly used inequality index to estimate regional disparity. This coefficient is typically calculated with the Gini index, as the Gini index suffers from several problems¹⁷⁾. Graphically, the process of calculating the coefficient can be implemented as below:

$$\text{Theil} = \frac{\text{Logarithms of the Reciprocals of Income Shares}}{\text{Total number of target areas}}$$

$$= \left(\frac{1}{n} \right) \sum_{i=1}^n \left(\frac{y_i}{\mu_t} \right) \log \left(\frac{y_i}{\mu_t} \right)$$

where n is the total number of regions, μ_t is average income at time t , and y_i is income of i^{th} region.

17) See footnote (8) on p.28.

IV-2. Regional disparity of GRDP

There are doubts about the effectiveness of regional policy to reduce regional disparities. In order to examine the effectiveness, disparities in the scale of regional economies have to be considered through GRDP. GRDPs for all 14 provinces and cities that this paper takes account of are like <Table 4>. It shows

Table 4. GRDP for 14 Regions in Korea

Measure: USD Billion

Year	Seoul	Busan	Daegu	Incheon	Gwangju	Daejeon	Gyeonggi	Kangwon	North Chungcheong	South Chungcheong	North Jeolla	South Jeolla	North Gyeongsang	Ulsan/South Gyeongsang	Total
1995	140.5	32.2	21.2	26.8	11.8	11.7	75.6	15.0	14.8	19.5	16.5	27.4	29.5	48.0	461.5
1996	145.6	33.9	22.4	28.1	12.5	12.4	80.5	16.3	16.3	22.2	17.8	29.8	32.2	53.5	523.5
1997	149.5	33.9	22.8	28.9	12.9	13.0	83.9	17.1	17.3	24.0	18.8	32.3	34.3	57.2	545.9
1998	135.3	29.6	19.7	23.5	11.1	12.0	75.1	15.2	15.4	21.9	16.3	29.6	31.3	60.1	496.1
1999	144.3	32.1	20.8	26.4	12.1	12.8	88.8	16.0	17.6	24.9	17.8	30.9	35.6	66.1	546.2
2000	157.5	33.9	22.4	28.3	13.4	13.9	99.4	17.0	19.0	26.7	18.8	32.2	39.2	70.1	591.8
2001	161.8	36.3	22.5	29.3	13.7	14.4	105.6	17.3	19.3	27.5	19.2	33.1	41.5	73.4	614.9
2002	174.3	38.6	23.5	32.2	15.0	15.5	118.5	18.4	20.6	29.5	19.9	35.9	44.7	79.5	666.1
2003	176.2	40.4	24.1	32.8	15.1	16.6	123.6	19.7	21.4	33.5	20.9	36.0	47.9	82.2	690.4
2004	177.2	40.4	24.8	33.8	15.3	16.8	132.8	19.7	23.0	37.4	21.4	36.4	51.1	84.4	714.5
2005	180.7	41.5	24.8	34.9	16.3	17.3	146.4	19.9	23.1	41.0	21.8	37.0	53.4	86.4	744.5
2006	188.5	43.0	25.8	37.3	17.4	17.9	157.7	20.8	24.0	46.2	22.8	37.6	54.1	89.9	783.0
2007	196.7	45.0	27.0	40.0	18.0	18.4	167.4	21.8	25.4	49.7	24.0	40.1	58.8	94.4	826.7
2008	202.4	45.6	27.3	40.7	17.8	18.7	174.4	22.0	25.9	53.2	24.4	40.9	59.2	97.4	849.9
2009	205.5	44.4	26.0	41.0	17.8	18.8	176.1	21.9	26.8	58.0	24.6	41.5	57.3	96.5	856.2
2010	210.3	46.6	28.0	44.2	19.4	20.0	195.8	22.5	29.2	65.7	25.9	43.0	59.5	102.5	912.6
Average	171.6	38.6	23.9	33.0	15.0	15.6	125.1	18.8	21.2	36.3	20.7	35.2	45.6	77.6	676.5

Note: Exchange rate is based on 2010 (1USD=1,156KRW).

Source: STATISTICS KOREA (<http://kosis.kr>)

concentration of GRDPs on CR including Seoul, Incheon, and Gyeonggi. Also, GRDPs of Busan and Ulsan/South Gyeongsang are relatively high, since they are the central places of heavy industry and harbour in Korea.

Based on the GRDP disparity measured in this paper, the persistent gap between the regions has worsened over time in Korea. The fluctuation of interregional GRDP disparity was similar between the Gini and Theil coefficients from the 14 regions and over 16 years¹⁸⁾ (Refer to <Figure 2>).

First, Gini coefficient values changed within the range of 0.41~0.44 during the period between 1995~2010. It is difficult to draw a standard conclusion on the degree of regional inequality. However, by observing the tendency of fluctuation, the study implements a relative measurement of regional inequalities over time because it aims to determine whether BRDPs are effective in Korea.

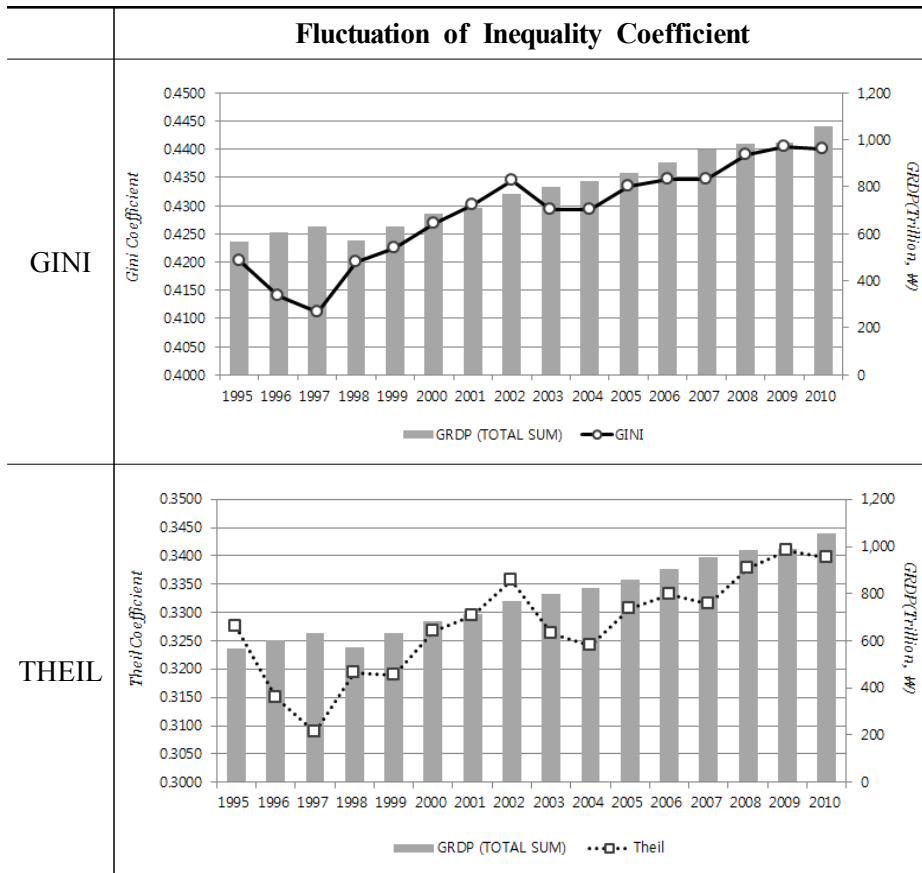
These values examined by the inequality coefficients across 16 years can be divided into 4 sections. The first section is 1995~1997, in which regional disparity in Korea was reduced continuously before the 1997 IMF financial crisis. In fact, the declining inequality indices in 1997 were connected to an overall decrease in GRDP caused by the IMF financial crisis, especially in major commercial districts. Therefore, it is not regarded as a positive indicator of progress in interregional equalization. The second section includes 1997~2002. During this period, the

18) The fluctuation trend of the Thiel index is mostly identical to that of Gini. On the other hand, although the Gini coefficient showed an increase in 1999 and 2004, Theil slightly diminished.

decreasing trend started to reverse in the wake of the financial crisis and the inequality index began a sharp upward trend. Thirdly, there is a specific trend between 2002~2004, when the disparity decreased. In the period between 2004~2010, the coefficients ascended again. The rate of increase was slightly slower in these recent years compared to the second period. However, this constant increase in regional disparity makes the prospects of interregional equalization bleak because a significant portion of economic growth has progressed in Korea. Based on the description of Amos (1988), Korea is in the third stage of the increase-decrease-increase of regional disparity stages, and it can be interpreted that the disparity will expand unless BRDPs are effective.

Although some studies argue that regional disparity must be reviewed over a long period of time (Richardson, 1976), domestic balance policies do not require the long-term observation of policy effects, as the coefficients of inequality are immediately reduced in the BRDPs process. From this perspective, the BRDPs of the Roh government focusing on region-unit RIS were effective in the early phase of implementation. However, since then, even BRDPs of the Lee government, which emphasized the Economic Region Development Plan, did not contribute much to the reduction of the interregional gap. Specifically, regional disparities began to deteriorate again in the middle of the Roh government, which raises a question about which factors impeded positive effects of BRDPs in spite of a tremendous budget. The reasons are covered in [IV-4], comparing with TFP inequality indices.

Figure 2. Fluctuation of Inequality Coefficient in GRDP

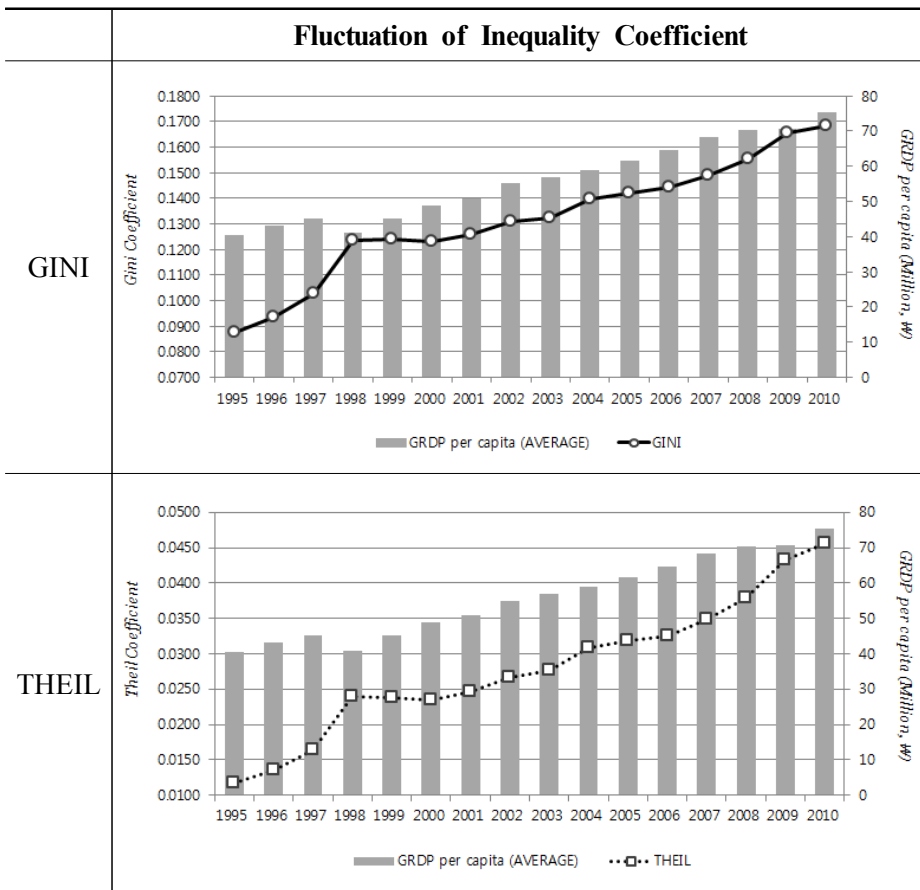


Note: GRDP is calculated based on 2005 prices.
 Source: STATISTICS KOREA (<http://kosis.kr>)

On the other hand, the fluctuation of <Figure 3> by per capita GRDPs is slightly different from that of <Figure 2>. Even though it is about the same in that coefficients show upward trend and there is a rapid change in the middle of first section (1997~2002), inequality indices on per capita GRDPs tend to be expanded more consistently. It is conspicuous difference, comparing with the fact that changes in GRDP and per capita

GRDPs show analogous patterns. It can be interpreted that the gap between the level of income of local residents has deepened more consistently than disparities in the scale of regional economies.

Figure 3. Fluctuation of Inequality Coefficient in per capita GRDPs

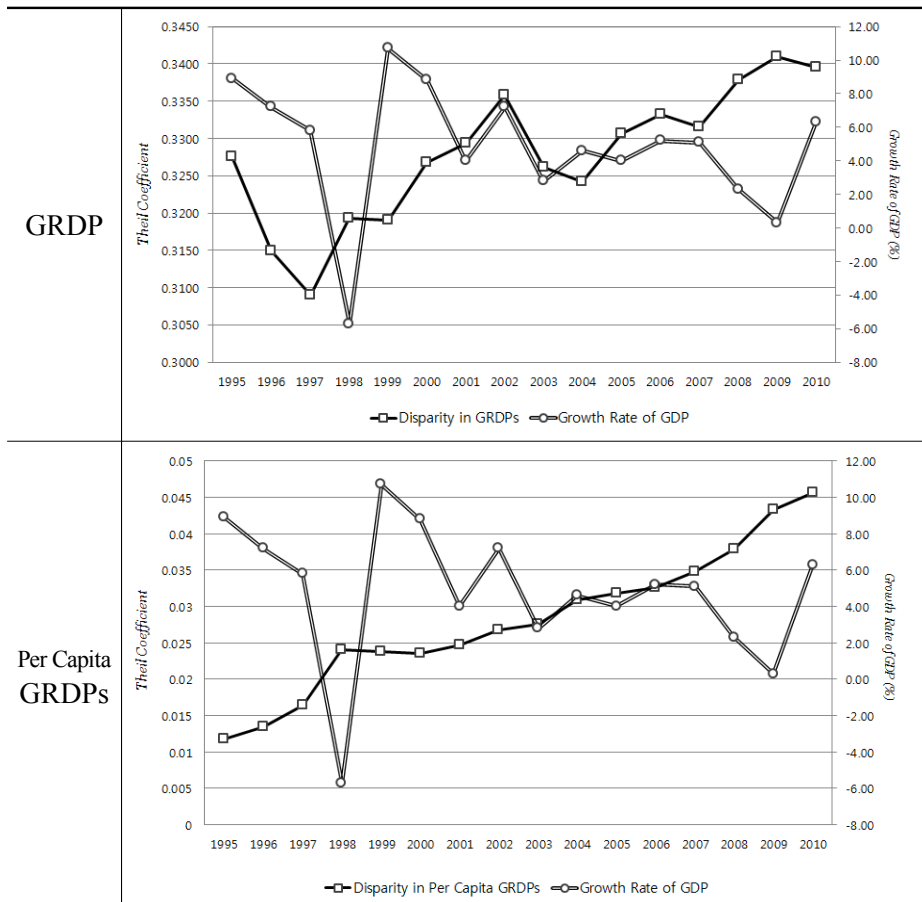


Note: GRDP is calculated based on 2005 prices.

Source: STATISTICS KOREA (<http://kosis.kr>)

〈Figure 4〉 shows the relationship between growth rate of GDP and regional disparities of GRDP and per capita GRDPs. In low-growth and economic recession after two big financial crisis, regional inequalities in the scale of economies and income of residents keep expanding. However, it can be noted that fluctuations of regional GRDP disparity and growth rate of GDP are nearly analogous.

Figure 4. A Comparison with Economic Growth Rate



Note: Growth Rate of GDP is calculated based on constant market price (Year 2005=100).

Source: STATISTICS KOREA (<http://kosis.kr>)
Bank Of Korea (<http://ecos.bok.or.kr>)

IV – 3. Regional disparity of TFP

Regional development tends to be interested in the conditions that increase production and improve growth flow rather than economic growth (Peet & Hartweek, 2009: 2). Thus, it is important to estimate the gap in TFP. Estimated Values of TFP are like <Table 5>. Except Seoul, TFP appears predominantly across southeastern area including Ulsan/South Gyeong-sang, North Gyeong-sang, and South Jeolla provinces than metropolitan cities. In recent years, TFP of South Chung-cheong has continued to make rapid strides. Furthermore, regional TFP values in the manufacturing sector have been shone very firmly not on the area of CR, but rather non-metropolitan areas.

Contrastively, based on <Table 6>, total percentage of establishments in Gyeonggi province is 34.66% and in CR is 50.87% of total number of establishments in manufacturing sector. It shows a half of total establishments concentrates on CR. The ranking of Gyeonggi in value of shipment is followed by Ulsan/South Gyeong-sang which has strong manufacturing industry, nevertheless, the value of shipment per company in Gyeonggi is significantly lower than current high TFP regions. Total number of employees in Gyeonggi province is higher than any other regions in <Table 6>, however, the number of employees per company in Gyeonggi is likely to belong to lower group. In this sense, there are many of small manufacturers where the average number of employees is 36 in Gyeonggi. Like other variables above, tangible fixed assets also shows the gap

in rankings between total amount and per company in CR.

This phenomenon is partly originated from the fact that CR's major industries are not manufacturing sectors, but service and finance-insurance sectors. Nevertheless, it accounts CR with low levels of productivity despite CR-concentrated domestic industrial structure. This low TFP growth of CR, especially Gyeonggi, is likely to be blamed for decrease of technical efficiency after the enforcement of Special Act on Balanced National Development in 2004 (Cho & Bae, 2012). It can be interpreted that the policy has brought about the imbalance between TFP and industrial resources. The imbalance is due to the fact that, in a domestic environment which the national economy is formed with CR as the center, the Special Act was to promote the equalization of the whole country by disturbing the natural economic activity and physically distributing the resources in CR.

Furthermore, like the statistics on <Table 2>, various infrastructure and the total amount of resources for industrial development increase in CR, on the other hand, TFP and amount of values show low growth. It is attributable to the implementation of BRDPs which growth inhibition on CR decreased the potential for growth in other regions by the formation of another manufacturing pole. It also raises the needs to change the perspective of BRDPs on the industries in each region and on the industrial structure on a national scale.

Table 5. Estimated Values of TFP in Korea

Year	Seoul	Busan	Daegu	In-cheon	Gwang-ju	Dae-jeon	Gyeong-gi	Kang-won	North Chung-cheong	South Chung-cheong	North Jeolla	South Jeolla	North Gyeong-sang	Ulsan/South Gyeong-sang
1995	5.9881	5.7157	5.7799	5.9803	5.7753	5.6309	5.7587	5.6975	5.7167	5.7865	5.6144	5.9437	5.8261	6.0181
1996	6.0221	5.7574	5.8252	5.9935	5.8063	5.6694	5.7705	5.7515	5.7960	5.8941	5.6804	6.0084	5.8891	6.1023
1997	6.0473	5.7474	5.8361	5.9888	5.8066	5.6979	5.7786	5.7872	5.8400	5.9338	5.7258	6.0722	5.9367	6.1369
1998	6.0100	5.6690	5.7433	5.8404	5.7148	5.6562	5.6988	5.6959	5.7431	5.8611	5.6189	6.0019	5.8421	6.2008
1999	6.0675	5.7543	5.7826	5.9246	5.7951	5.7099	5.8289	5.7419	5.8736	5.9723	5.7087	6.0454	5.9552	6.2877
2000	6.1294	5.7816	5.8240	5.9530	5.8557	5.7560	5.8885	5.7876	5.9337	6.0213	5.7439	6.0816	6.0241	6.3195
2001	6.1464	5.8387	5.8100	5.9587	5.8559	5.7627	5.9092	5.8109	5.9421	6.0368	5.7586	6.1070	6.0722	6.3467
2002	6.2098	5.8738	5.8273	6.0254	5.9141	5.8028	5.9743	5.8503	5.9904	6.0887	5.8004	6.1824	6.1308	6.4003
2003	6.2211	5.9475	5.8496	6.0379	5.9323	5.8733	5.9825	5.9291	6.0389	6.2040	5.8503	6.1917	6.1916	6.4074
2004	6.2136	5.9403	5.8590	6.0515	5.9297	5.8730	6.0069	5.9207	6.0992	6.2849	5.8808	6.2173	6.2462	6.4116
2005	6.2232	5.9590	5.8501	6.0733	5.9709	5.9014	6.0674	5.9246	6.0903	6.3527	5.8937	6.2266	6.2801	6.4258
2006	6.2617	5.9873	5.8866	6.1162	6.0277	5.9195	6.1037	5.9597	6.1180	6.4316	5.9320	6.2472	6.2853	6.4507
2007	6.2979	6.0339	5.9328	6.1612	6.0423	5.9328	6.1285	6.0092	6.1590	6.4681	5.9831	6.3120	6.3674	6.4717
2008	6.3270	6.0495	5.9484	6.1647	6.0245	5.9316	6.1410	6.0134	6.1578	6.5361	5.9901	6.3225	6.3649	6.4770
2009	6.3521	6.0301	5.8928	6.1458	6.0124	5.9350	6.1378	5.9972	6.1751	6.6118	5.9941	6.3224	6.3229	6.4598
Average	6.1678	5.8724	5.8432	6.0277	5.8976	5.8035	5.9450	5.8584	5.9783	6.1656	5.8117	6.1522	6.1156	6.3278

Note: 1) INDUSTRY STATISTICS provides statistical items up to 2009, TFP is calculated by 2009.

2) Jeju is excluded and Ulsan Metropolitan City is estimated with South Gyeongsang, as it was separated from South Gyeongsang Province in 1998.

Table 6. Descriptive Statistics in Manufacturing Sector

Measure: *USD Thousand

Year	Number of Establishments	Value of Shipments*		Number of Workers		Value Added*		Amount of Tangible Fixed Assets*	
			Each		Each		Each		Each
Seoul	5,093 (8.81)	26,701,608 (2.75)	5,243	131,797 (5.38)	26	11,392,685 (3.52)	2,237	6,457,485 (1.97)	1,268
Busan	3,825 (6.61)	31,236,925 (3.22)	8,167	125,567 (5.13)	33	10,860,609 (3.36)	2,839	13,391,441 (4.09)	3,501
Daegu	2,869 (4.96)	17,356,949 (1.79)	6,050	95,272 (3.89)	33	6,176,608 (1.91)	2,153	6,752,476 (2.06)	2,354
Incheon	4,281 (7.40)	44,660,803 (4.60)	10,432	155,996 (6.37)	36	14,115,764 (4.36)	3,297	18,179,827 (5.55)	4,247
Gwangju	1,066 (1.84)	18,017,804 (1.86)	16,902	56,909 (2.32)	53	5,390,801 (1.67)	5,057	4,942,923 (1.51)	4,637
Daejeon	728 (1.26)	10,038,839 (1.03)	13,790	32,925 (1.34)	45	4,157,699 (1.28)	5,711	3,744,513 (1.14)	5,144
Gyeonggi	20,050 (34.66)	203,114,184 (20.93)	10,130	724,730 (29.59)	36	82,953,740 (25.63)	4,137	85,782,237 (26.17)	4,278
Kangwon	762 (1.32)	7,931,122 (0.82)	10,408	28,023 (1.14)	37	3,138,520 (0.97)	4,119	4,760,040 (1.45)	6,247
North Chungcheong	2,050 (3.54)	37,326,799 (3.85)	18,208	116,892 (4.77)	57	14,015,704 (4.33)	6,837	15,338,398 (4.68)	7,482
South Chungcheong	2,901 (5.02)	110,854,189 (11.42)	38,212	182,757 (7.46)	63	36,952,105 (11.42)	12,738	39,224,332 (11.97)	13,521
North Jeolla	1,593 (2.75)	26,075,704 (2.69)	16,369	73,721 (3.01)	46	8,799,861 (2.72)	5,524	10,068,265 (3.07)	6,320
South Jeolla	1,331 (2.30)	72,659,544 (7.49)	54,590	66,805 (2.73)	50	16,496,972 (5.10)	12,394	21,313,389 (6.50)	16,013
North Gyeongsang	3,972 (6.87)	116,190,478 (11.97)	29,252	210,827 (8.61)	53	40,913,628 (12.64)	10,301	28,813,179 (8.79)	7,254
Ulsan/ South Gyeongsang	7,319 (12.65)	248,435,272 (25.60)	33,944	446,934 (18.25)	61	68,252,176 (21.09)	9,325	68,984,357 (21.05)	9,425
Total	57,840 (100.00)	970,600,221 (100.00)		2,449,155 (100.00)		323,616,871 (100.00)		327,752,862 (100.00)	

Note: 1) Round brackets mean total-to-value ratio.

2) INDUSTRY STATISTICS provides statistical items up to 2009, TFP is calculated by 2009.

3) Jeju is excluded and Ulsan Metropolitan City is estimated with South Gyeongsang, as it was separated from South Gyeongsang Province in 1998.

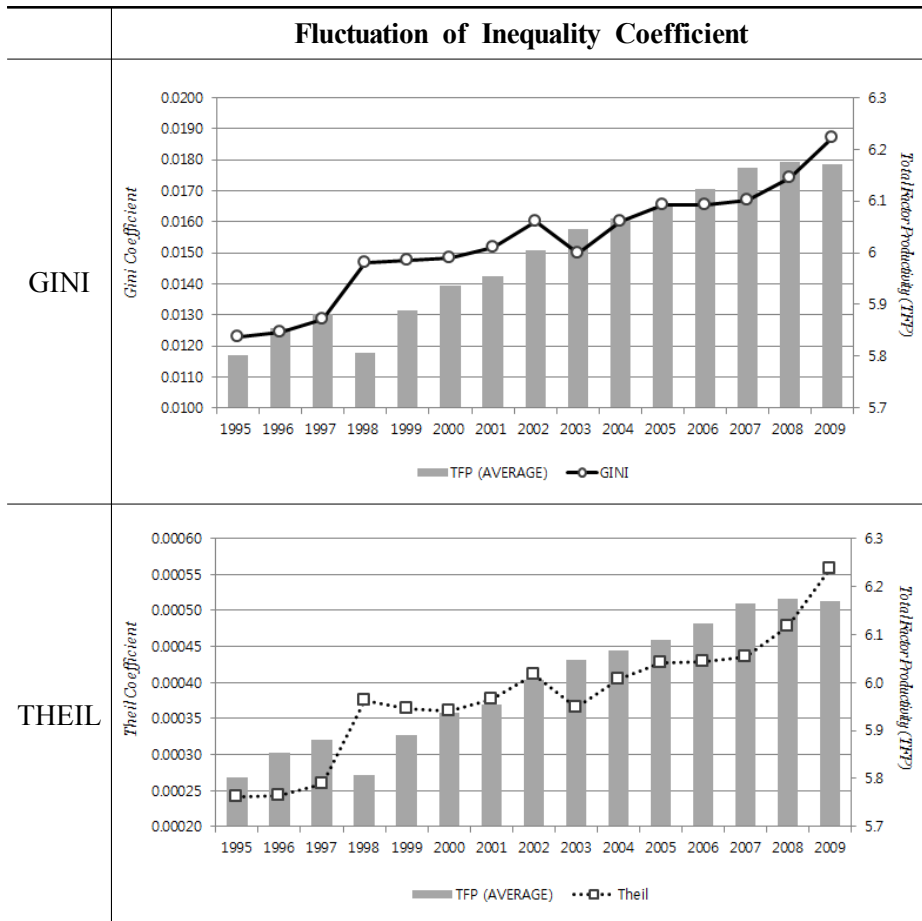
4) Exchange rate is based on 2010 (1USD=1,156KRW).

Similar to GRDP, the empirical results regarding the variation of interregional TFP disparity, the real distribution indicator, were approximately the same between Gini and Theil coefficients. The results showed that Gini coefficient values were within the range of 0.0123~0.0187 during the period between 1995~2009, whereas Theil changed within the range of 0.00024~0.00056 from 1995 to 2009 (Refer to <Figure 5>). According to the coefficients, the level of TFP disparity decreased temporarily in 2003, when the financial barometer began to rise in Korea (5 to 6 years after the 1997 IMF financial crisis) and the government developed BRDPs. In a comprehensive view, interregional TFP disparity consistently widened. The interregional inequality in TFP showed a steady increase following 2003. As mentioned above, it is not easy to develop a standard judgment on the degree of interregional disparity. Nevertheless, this study only focuses on the variation tendency in the same reason with GRDP.

By investigating the fluctuation of TFP inequality, these coefficient values of Gini and Theil are divided into four periods. During the period between 1995~1997, there was a steady increase in the degree of inequality. The second period is between 1997~2002. From 1997 to 1998, there was a sudden rise for one year due to the IMF financial crisis. Then, the inequalities decreased or increased slowly. In this period, recession and recovery efforts progressed in all of the industrial fields following the IMF economic crisis, contributing to the reduction of spatial inequalities. Moreover, the CR encountered a reduction in economic dynamism and national consumption due to

the economic crisis, which had a positive effect on bridging the gap. That is, the gap reduction of this period was not a policy response, but a response to market changes. Next, the period between 2002~2004 comprises the third section. In the early part of this period, there was a temporary diminution. This decrease can be seen as an immediate policy response to the strong implementation of BRDPs, similar to the gap of interregional GRDP inequalities. The inequality indices, however, began to rise again in the latter half of this period. Then, in the period between 2004~2009, the coefficient values began to soar. The disparity increased sharply after 2007. During the period, the productivity gap significantly widened between the metropolitan regions targeted by the Economic Region Development Plan. Although investment in regional development expanded, the strategy contributed to the expansion of regional disparities rather than a reduction in regional disparity and achievement of social cohesion. This pattern of fluctuation was due to limitations in the policy enforcement process and structural factors such as industrial structure. The limitations are examined with GRDP disparity in [IV-4].

Figure 5. Fluctuation of Inequality Coefficient in TFP



Note: GRDP used in estimating TFP is calculated based on 2005 prices.
 Source: STATISTICS KOREA (<http://kosis.kr>)

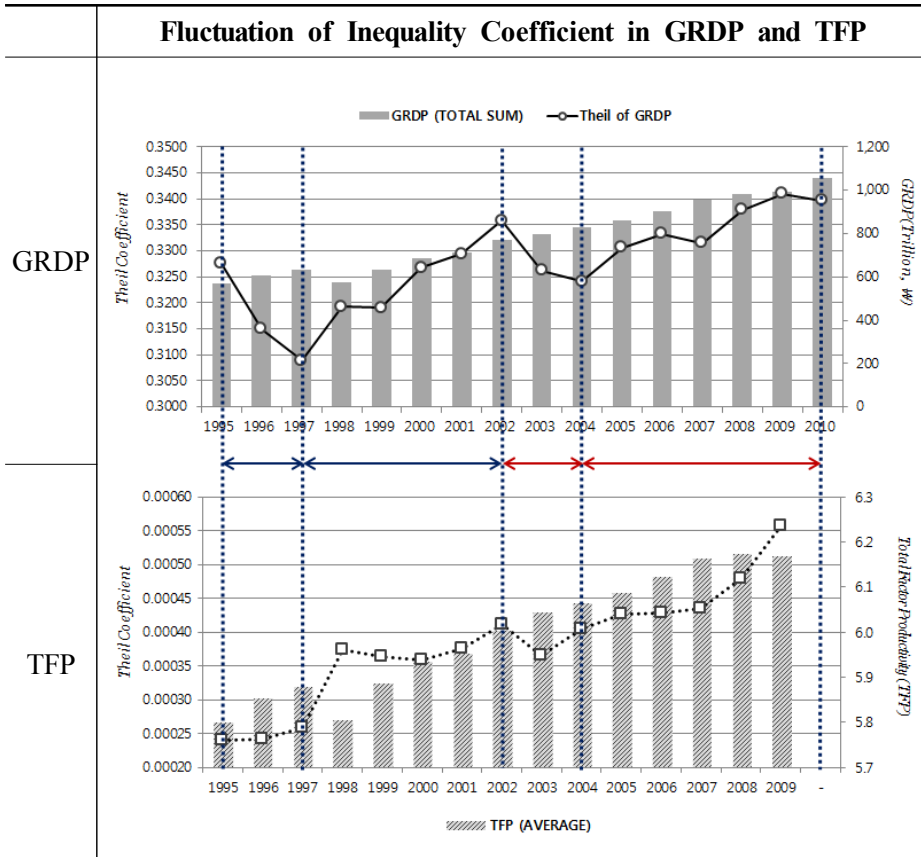
IV-4. Comparison of Indices of GRDP and TFP

There are similarities and differences between the GRDP and TFP inequality indices, and they provide the reasons why BRDPs failed to achieve their original purpose. To clarify the comparison, the Theil coefficient was selected as the indicator because the fluctuation of Gini and Theil coefficients were similar for GRDP and TFP, and the fluctuation of Theil was more sensitive and specific than that of Gini.

<Figure 6> shows the common and different aspects between GRDP and TFP inequalities. According to the graphs, BRDPs did not have positive effects on GRDP or TFP. Then, what do the analysis results mean and why were BRDPs not effective in Korea?

In this context, Richardson (Eds.: Richardson et al., 2011) has suggested that it is inadequate, on the basis of global competitiveness, that the Roh Administration emphasized government office relocation as its key BRDPs' instrument. Additionally, to maintain and promote CR's world city status, redistributing social inequities such as income or in-kind subsidies can be much more cost-effective than focusing on spatial inequities. In this sense, although spatial disparity explains numerous inequality issues in Korea (Park, 1996) and government intervention has begun to diminish it, globalization is a structural factor that impedes the success of BRDPs.

Figure 6. Comparison of Theil Index between GRDP and TFP



Note: GRDP is calculated based on 2005 prices.

Source: STATISTICS KOREA (<http://kosis.kr>)

GRDP is the size of output produced in a region and represents regional production capacity (Moon, 2003). Thus, the GRDP inequality index is relatively more inclined to be a nominal index than TFP in estimating inequalities. In the structural respect, regional disparity of GRDP can be interpreted as fairly sensitive to changes of external environment, thus, dependent on structural aspects. TFP are also influenced by global changes,

including structural factors, the international changes in industrial structure, strengthening the competitiveness of a particular domestic industry. That is, the regional disparities in the process of economic growth have increasingly expanded as the industrial structure changes from manufacturing- to service-oriented (Wyly, Glickman, & Lahr, 1998).

Furthermore, regional disparity worsened after BRDPs were enforced. In this context, not only the external environment, but also planning aspects can be considered. In respect to spatial planning and policies, the growing regional gap in spite of BRDPs is due to the fact that repetitious work and conflicts among governmental agents raises deficiencies of the linkage effect (Jeong, 2009). These deficiencies interfere with the effective implementation of BRDPs. Monolithic equalization policy is also blamed for the policy problems. The philosophy of the monolithic equalization in BRDPs, which emphasizes distribution between regions rather than differentiated policy based on regional characteristics, resulted in the inefficient use of resources (KRIHS, 2008). Thus, BRDPs did not contribute to a substantial reduction in the gap and the endogenous development through efficient uses of resources in underdeveloped areas.

There was a temporary diminution in inequality level during the third period, from 2002 to 2004. In the early part of this period, the long-term effectiveness of deregulation induced by the financial crisis led to the improvement of nation-wide productivity, as the easing of excessive regulations is the primary action to improve the productivity of restricted industries

(MOSF, 2010: 13). At that time, the economy began to improve with revitalized spending, and hosting the 2002 World Cup vitalized the national economy (Kim et al., 2003: 12–35). In addition, the building of new institutions of BRDPs formed a more prominent social atmosphere. These social and economic circumstances reduced the interregional gap, particularly in the nominal indicator.

The two primary differences between GRDP and TFP are as follows. In the fourth period, interregional TFP disparity increased more sharply than GRDP, which is attributable to the dynamic of globalization and the existing industrial structure. The geographical structure of existing industrial distribution was set in the country. The spatial industrial structure, fixed since the 1960s, has led to conditions where value-added industries and industries with high revenue such as heavy manufacturing industries cause higher GRDP at a particular regions in Korea. After stabilization of the open economy system in Korea, high value-added industries such as the semiconductor industry and financial institutions converged on CR. The industrial structure quickly reorganized after the financial crisis and heavily leaned towards the IT industry and deepened the concentration in the CR (Kim et al., 2003: 11). The South Gyeongsang region has recorded significant sales due to the heavy industry and South Chungcheong has attempted to develop a trade industry. However, due to the current industrial structure, BRDPs have difficulty reducing national-wide interregional disparity.

BRDPs were undertaken without a strategic effort to improve

productivity, which has also been blamed for the lack of disparity reduction. It is reasonable that the gap remains in that the industrial structure of each region was already determined. However, regional disparities increased in the empirical results. In particular, TFP inequality coefficients showed a sharper increase than GRDP disparity. In this sense, the upward trend of TFP disparity implies a dim outlook for productivity equalization. The trend also shows that BRDPs did not slow or reverse the upward trend of interregional productivity inequality. The reason for the overall productivity gap is somewhat similar to the GRDP results; but, conversely in this case, the policy terms appear more important than structural aspects. More specifically, because major industries are clearly separated by region, the situation which specialized industries within certain areas tend to accumulate their property has been severely intensified over time in Korea. Consequently, along with the lack of synergies mentioned above, the problems of planning and spatial policy emerge, as a political logic is applied to administrative districts with insufficient consideration given to industry characteristics and the productivity of each region (Jeong, 2009). Moreover, in the case of attracting industry to regions, there has been significant conflict due to excessive competition between regions to attract other regions' businesses (KRIHS, 2008).

Another difference is that the inequality values of TFP increased slightly, whereas those of GRDP reduced greatly during the first section before 1997. This difference originates from the distinctive features of GRDP and TFP. As mentioned above,

GRDP is sensitive to business fluctuations and TFP is more closely linked to the existing industrial structure. In this regard, in this period, the spillover effect reduced GRDP disparity. At that time, the domestic and external economic circumstances seemingly imposed no significant obstacles; therefore, capital moved from central regions to surrounding regions (i.e., trickle-down). However, although the degree of increase in TFP disparity was lower, it can be seen as a consequence of the existing industrial structure that particular industries of specific regions take more revenue than if others had remained.

V. CONCLUSION:

TOWARD EFFECTIVE *BRDP* IN KOREA

“Does Balanced Regional Development Policy Work for Korea?” This question has become more important in recent years, as the spatial dimension of inequality has attracted considerable policy interest, especially since decentralization policies were initiated (Kanbur & Venables, 2005). In this respect, the study examined interregional disparity in Korea between 1995~2010 to identify how the recent efforts of BRDPs have affected GRDP and TFP inequalities across different jurisdictions. By applying these indicators to investigate the fluctuation of inequality indices, the analysis attempts to show that regional development is a multidimensional process which not just involve the spatial reorganization of the economic resources and wealth, but the reorientation of the social resources. The results of the empirical analysis and their policy implications can be summarized as follows.

First, Gini coefficient values of GRDP changed within the range of 0.41~0.44 during the period between 1995~2010. The fluctuation trend of Theil was nearly identical to that of Gini, changing within the range of 0.3089~0.3410 during this time. The fluctuation trend shows that the persistent gap in disparities between the regions worsened over time in Korea and inequality indices of per capita GRDPs also show a similar trend.

Secondly, inequality indices of TFP shows that Gini coefficient values fluctuated within the range of 0.0123~0.0187¹⁹⁾

during the period between 1995~2009, whereas Theil changed within the range of 0.00024~0.00056 in the same period. Based on these values, the level of TFP disparity decreased temporarily in 2003. During this time, the Korean economy seemed to be stabilizing after the IMF financial crisis in 1997 and the government developed BRDPs. However, in a comprehensive view, interregional TFP disparity consistently widened. Also, after the enforcement of Special Act on Balanced National Development, high TFP regions of the manufacturing sector have been shone very firmly on the non-CR. Unfortunately, it can not be told as achievement of the purpose, rather it is attributable to the implementation of BRDPs which growth inhibition on CR decreased the technical efficiency on CR and the growth potential on other regions by the formation of another manufacturing pole. It also raises the needs to change the perspective of BRDPs on the industries in each region and on the industrial structure on a national scale.

In conclusion, the two indicators were similar in terms of the clearly increasing trend. This is attributable to two different aspects, the external structure and the policy enforcement mechanism. From structural viewpoint, it is difficult to reverse a large globalization trend that emphasizes regional competitiveness within the world, not only within a country. Under this open economy system, Korea has little chance but to have difficulties reversing the international structure. Furthermore, the existing

19) I think I should remind you that this paper takes note of the fluctuation, not coefficient value, especially in the case of TFP.

industrial distribution by region must also be considered. In respect to spatial planning and policies, repetitious work and conflicts among governmental agents raised deficiencies of the linkage effect, and the philosophy of the monolithic equalization in BRDPs caused the inefficient use of resources. Additionally, there was substantial conflict due to excessive competition between regions to attract industry, which is one reason why BRDPs were not successful.

There is no denying that government intervention is inevitable in pursuit of balanced regional development and social cohesion in Korea, although its amount is debatable. The analysis results demonstrated that BRDPs did not result in reduction on the interregional discrepancies in Korea. Even more important is the demonstration that structural problems emerged with the planning-spatial policies. It is very difficult to achieve trend-reverse against globalization and the existing industrial distribution structure. In this context, some important factors and future directions must be identified to solve this problem. First, BRDPs must reflect the polity of each region, not only in administrative districts established by law. BRDPs must concentrate on productive decentralization rather than the ideals of monolithic equalization. Through productive decentralization, BRDPs improve the distinctive spatial competitiveness of each region (Park, 2003). Second, future distribution policy must set up the scale and definition of region to be used in those policies. It should be sublated that political slogans hold back the interregional equalization through BRDPs. Third, long planning

time horizons would be an effective way to prevent balanced regional development from tilting based on political logic²⁰. Fourth, to solve the exhausting struggle induced by repetitious work and conflicts among governmental agents, a policy for smooth adjustment and association based on cooperative governance between agents is required (Kang, 2007). Finally, to derive other policy implications, the expansion of the budget is not a pragmatic solution and it is too costly to reverse structural constraints. In this regard, population decentralization policies can be a more practical alternative to reduce interregional disparity of GRDP. Additionally, BRDPs that emphasize fostering industrial competitiveness can decrease interregional TFP inequalities in regions with low productivity. Further, policies must promote regional TFP, especially in the service sector because of the possibility of improving productivity in current service industries (OECD, 2012).

Future studies might pursue more a comprehensive analysis of spatial disparity and examine various theories and methodologies. Specifically, some analytical approaches must be enhanced regarding the impact on migration, investment scale on regional specialized industry, effectiveness of major budget sections, particular causality and so on. Moreover, numerous studies should explore which specific BRDPs are effective and how BRDPs foster economic growth and social cohesion within each region and the entire country. Although further studies on

20) Based on the study of Richardson (1976), the dynamics of backwash and spillover would be positive to area-wide development if the planning time horizon was sufficient in length.

the performance of other inequality indices may be needed to verify the generalization of these observations (Portnov & Felsenstein, 2005), these results have meaning in that they empirically caution against a constant upward trend of inequality indices and limitations of BRDPs. Accordingly, we must recognize that current BRDPs are not a panacea to achieve social cohesion through interregional equalization. Along with the directions mentioned above, improving productivity should be a key strategy to ultimately reduce the regional disparities through each region's niche market development.

REFERENCES

- Aghion, P., Caroli, E., & García-Peñalosa, C. 1999. "Inequality and Economic Growth: The Perspectives of the New Growth Theories," *Journal of Economic Literature* 37(4): 1615-1660.
- Ahn, S. C. 2009. "Balanced Regional Development Policy: Unintended Conflict Mechanism in South Korea," *MA: Asia Pacific Studies*, University of Leeds.
- Alonso, W. 1968. "Urban and Regional Imbalances In Economic Development," *Economic Development and Cultural Change* 17(1): 1-14.
- Amos, O. M. 1988. "Unbalanced Regional Growth and Regional Income Inequality in the Latter Stages of Development," *Regional Science and Urban Economics* 18: 449-566.
- Bingham, R. D. & Jung, J. H. 2003. "Balanced Regional Development for Korea: Is It Likely or Even Desirable?," *Proceedings of the International Conference for the 40th Anniversary of Dept. of Urban and Regional Planning*: 75-88. ChungAng University. Seoul, Korea.
- Bowen, W. M. & Kumar, M. 2003. "Locating Capital Cities within an Economy: A Case Study of Knowledge-Based Industry Clusters around Capital Cities in the United States," *Proceedings of the International Conference for the 40th Anniversary of Dept. of Urban and Regional Planning*: 75-88. ChungAng University. Seoul, Korea.
- Cai, F., Wang, D., & Du, Y. 2002. "Regional Disparity and Economic Growth in China: The Impact of Labor Market Distortions," *China Economic Review* 13: 197-212.
- Chakravorty, S. 1996. "A Measurement of Spatial Disparity: The Case of Income Inequality," *Urban Studies* 33(9): 1671-1686.
- Cho, S. 1994. *The Dynamics of Korean Economic Development*. Seoul,

- Korea: Institute for International Economics.
- Cho, Y. & Bae, K. 2012. "The Determinants of Total Factor Productivity of Manufacturing Industries in Korea," *GRI Review* 14(1): 87-107.
- Choi, Y., Yang, D., & Choi, O. 2007. "Analysing Major Issues Regarding Regional Disparity: Results and Policy Implications," *Journal of the Korean Urban Management Association* 20(2): 3-27.
- Chung, H. S. 1999. "Growth Containment Policy: The Case of Seoul," *RAPI Congress Papers. 27th National Congress*.
- Coe, N. M., Hess, M., Yeung, H. W., Dicken, P., & Henderson, J. 2004. "Globalizing' Regional Development: A Global Production Networks Perspective," *Transactions of the Institute of British Geographers, New Series*, 29(4): 468-484.
- Evans, A. 1996. *Of Growth Controls, Green Belts and Economics*. Center for Spatial and Real Estate Economics. The University of Reading, Reading, UK.
- Frank, M. W. 2009. "Income Inequality, Human Capital and Income Growth: Evidence from a State-Level Analysis," *Atlantic Economic Journal* 37: 173-185.
- Fujita, M. & Thisse, J. F. 2009. "New economic geography: an appraisal on the occasion of Paul Krugman's 2008 Nobel Prize in Economic Sciences," *Regional Science and Urban Economics* 39: 109 - 19.
- Gastwirth, J. 1972. "The Estimation of the Lorenz Curve and GINI Index," *The Review of Economics and Statistics* 54: 306-316.
- Goh, Y. 2010. "The Purpose and Strategy of Regional Policies," *The Korean Economic Forum* 2(4): 45-59. (in Korean)
- Gunther, M. Eds.: Johansson, B., Karlsson, C., & Stough, R. 2001.

- Theories of Endogenous Regional Growth*. Springer: Verlag Berlin.
- Hirschman, A. O. 1958. *The Strategy of Economic Development*. Yale University Press: USA.
- Hong, J. H. 2006 “The Actual Analysis of Regional Disparities,” *The Korea Association for Policy Analysis and Evaluation, Conference Paper*: 15-16. (in Korean)
- Indiastuti, R. 2003. “The Financing Of Regional Development and Economic Growth in West Java Province,” *Department of Economics, Padjadjaran University, Working Papers in Economics and Development*: 1-9.
- Jeong, W. S. 2009. “The Comparative Analysis of Regional Development Policy between Participation and Lee Myung-Bak Government in Terms of the New Regionalism,” *Public Administration Review* 13(3): 23-53. (in Korean)
- Jun, M. 2010. “Korea’s Public Sector Relocation: Is It a Viable Option for Balanced National Development?,” *Regional Studies* 41(1): 65-74.
- Kaldor, N. 1970. “The Case for Regional Policies,” *Scottish Journal of Political Economy* 17(3): 337-348.
- Kanbur, R. & Venables, A. Eds.: Kanbur, R. & Venables, A. 2005. *Spatial Inequality and Development*. Spatial Inequality and Development: Overview of UNU-WIDER Project. OXFORD University Press Inc: New York.
- Kang, H. S. 2007. “The Evaluation of Regional Development Policy (2003-2007) in Korea,” *Citizen and World* 11: 1-362.
- Kim, E. J. 2005. “Regional Disparity and the Effect of Balanced Regional Development,” *Urban Review* 2005 Spring: 17-21. Urban Design Institute of Korea.
- Kim, H. K. 2004. “Alternative Regional Development Based on

- Decentralization and Innovation,” *Paper Presented at the 6th Global Forum on Reinventing Government*. United Nations.
- Kim, K. H. & Son, J. Y. 2004. “Spatial Policies Towards the Seoul Capital Region”, *Paper Presented at the International Seminar on Metropolitan Growth Management*. Seoul, Korea.
- Kim, K. H. 2001. “Spatial Policies towards the Seoul Capital Region,” *GeoJournal* 53: 17-28.
- Kim, K. H. 2009. “Reconsidering the Goal and Strategy of Regional Development Policy in Korea,” *Journal of Economic Policy* 32(1): 71-96.
- Kim, K. W. and Kyeon, S. W. Eds. 2003. *Five Years Since the Financial Crisis, How Korea Economy Has Changed*. Samsung Economic Research Institute. (in Korean)
- Kim, S. 2003. “Regional Development Policies for Balance between CR and Non-CR,” *Korea Association for Public Administration (KAPA) Special Conference 2003*: 31-66. (in Korean)
- Kim, S. 2008. *Spatial Inequality and Economic Development: Theories, Facts, and Policies*. Working paper No.16. Commission on Growth and Development. The International Bank for Reconstruction and Development. The World Bank.
- Kim, W. B. 2001. “Planning Issues in the Territorial Integration of the Korean Peninsula,” *GeoJournal* 53: 47-56.
- Kim, Y. W. 2001. “National Territorial Planning at the Turn of the 21st Century,” *GeoJournal* 53: 5-15.
- KRIHS. 2008. *KRIHS Policy Brief*. Korea Research Institute for Human Settlements. (in Korean)
- Krugman, P. 1995. “Cycles of Conventional Wisdom on Economic Development,” *International Affairs* (Royal Institute of International Affairs 1944-) 71(4):717-732.

- Lee, B. S. 2000. *Determinants of Manufacturing Productivity in the Capital Region*. University of Seoul, Seoul, Korea.
- Lee, W. S. 2004. *Balanced National Development Policies in Korea*. Working Paper in Korea Research Institute for Human Settlement. Anyang, Korea.
- Lee, Y. S. 2008. "Metro Cities' and Provinces' Total Factor Productivity and its Determinants in Korea," *The Korea Spatial Planning Review* 66: 39-53. (in Korean)
- Litchfield, J. A. 1999. "Inequality: Methods and Tools," *Text for World Bank's Web Site on Inequality, Poverty, and Socio-Economic Performance*: <http://www.worldbank.org/poverty/inequal/index.htm>.
- Martin, P. & Ottaviano, G. 1999. "Growing locations: Industry location in a model of endogenous growth," *European Economic Review* 43(2): 281-302.
- McDonald, J. F. 1997. *Fundamentals of Urban Economics*. Prentice Hall: NJ, USA.
- Moon, H. P. 2003. "Regional Inequality and Fiscal Decentralization in Korea: Evaluation and Policy Implications", *Developing and Strengthening the System of Intergovernmental Fiscal Relations and Fiscal Decentralization, World Bank and Korea Development Institute Conference Proceedings*. Korea Development Institute, Seoul, Korea.
- MOSF (Ministry of Strategy and Finance). 2010. *OECD Reports on Korea's Economy*. Ministry of Strategy and Finance.
- Mulligan, G. F. 1984. "Agglomeration and Central Place Theory: A Review of the Literature," *International Regional Science Review* 9(1): 1-42.
- OECD. 2005. *Economic Survey of Korea*. Paris, OECD.

- OECD. 2012. *Economic Surveys of Korea (Overview)*. Paris, OECD.
- Panico, C. & Rizza, O. "Myrdal, Growth Processes and Equilibrium Theories," *Geography, Structural Change and Economic Development*: 183-202.
- Park, K. S. 2012. "Estimation and Determinants of Total Factor Productivity: Application of Spatial Econometrics Models," *Doctoral Thesis: Program in Regional Information*. Seoul National University. (in Korean)
- Park, S. B. 1996. "The Essay about Analysis of Regional Development Disparities: Focusing on Local Governments in 1994," *Journal of Governmental Studies* 8(2): 385-403. (in Korean)
- Park, S. O. 2001. "Regional Innovation Strategies in the Knowledge-Based Economy," *GeoJournal* 53: 29-38.
- Park, Y. H. 2003. "Policy Agenda for the 'Great Balance' of National Land" *National Land (Gook-to)* 255 (January): 2-135. (in Korean)
- Parr, J. B. 1973. "Growth Poles, Regional Development, and Central Place Theory," *Papers of the Regional Science Association* 31: 173-212.
- PCBND. 2003. Visions and Tasks of Balanced National Development. Presidential Committee on Balanced National Development. (in Korean)
- Peet, R. & Hartwick, E. 2009. *Theories of Development: Contentions, Arguments, Alternatives*. The Guilford Press: New York.
- Peng, G. 2005. "The Disparity of Income, TFP and the Convergence Hypothesis in Chinese Provinces," *Economic Research Journal* 9: 19-29.
- Pernia, E. & Quising, P. 2002. "Is Economic Openness Good for Regional Development and Poverty Reduction?: The Philippines," *ERD Policy Brief Series* 10: 1-10.

- Portnov . B. A. & Felsenstein, D. “Measuring regional inequality in small countries,” *Paper presented at the 2005 ERSA Conference*.
- Randall, S. J. & Yokoyama, T. 2006. *Getting the Most Out of Public-Sector Decentralization in Korea*. OECD Economic Department Working Paper No. 468.
- Richardson, H. W. 1976. “Growth Spillovers: The Dynamics of Backwash and Spread,” *Regional Studies* 10: 1-9.
- Richardson, H. W. 2003. “The Location and Relocation of National State Capitals in North America and the Rest of the World,” Korea Planners Association. *The International Symposium on a Planning Policy for Korea’s New Capital City*: 120-131.
- Richardson, H. W. Eds.: Richardson, H. W., Bae, C., & Choe, S. 2011. “Chap.15 The New Economic Geography and Balanced Regional Development Policies,” *Reshaping Regional Policy*. Edward Elgar Publishing.
- Seo et al. 2005. *Decentralization Strategies and Policy Guidelines for Balanced National Development (I)*. Korea Research Institute for Human Settlements. (in Korean)
- Sohn, J. R. 2005. “Korea’s National Balanced Growth in Regional Reverse (Rodzi),” *Paper Presented at the 8th International Conference of the Asian Planning Schools Association*.
- Stimson, R. J., Stough, R. R., & Roberts, B. H. 2002. *Regional Economic Development: Analysis and Planning Strategy*. Springer: Advanced in Spatial Science.
- Temple, J. 1999. “The Growth Evidence,” *Journal of Economic Literature* 37(1): 11-156.
- Tong, C. S. 2001. “Total Factor Productivity Growth and its Spatial Disparity across China’s Township and Village Enterprises,”

Journal of Contemporary China 10(26): 155 - 172.

Venables, A. 2008. "New Economic Geography," *The New Palgrave Dictionary of Economics*. Eds. Steven D. & Lawrence B. Palgrave Macmillan. 2008. The New Palgrave Dictionary of Economics Online. Palgrave Macmillan.

World Bank. 2009. *World Development Report 2009 (Outline): Spatial disparities and development policy*. World Bank.

Wyly, E. K., Glickman, N. J., & Lahr, M. L. 1998. "A Top 10 List of Things to Know about American Cities," *Journal of Policy Development and Research* 3(3): 7-32.

Xin, X. & Qin, F. 2011. "Decomposition of Agricultural Labor Productivity Growth and its Regional Disparity in China," *China Agricultural Economic Review* 3(1): 92-100.

Yamamoto, D. 2008. "Scales of Regional Income Disparities in the USA, 1955 - 2003," *Journal of Economic Geography* 8: 79 - 103.

Yang, K. S., Kim, S. Y., & Seo, W. S. 2011. "Relationship between Regional Economic Growth and Social Equity: Focused on Seoul local government," *Journal of Korean Planning Association* 46(5): 31-40. (in Korean)

[WEBSITES]

Bank Of Korea (BOK). <http://ecos.bok.or.kr/>

STATISTICS KOREA. <http://kosis.kr/>

Ministry of Education, Science and Technology. <http://www.mest.go.kr/>

Ministry of Knowledge Economy. <http://www.mke.go.kr/>

National Assembly Budget Office. <http://www.nabo.go.kr/>

Presidential Committee on Regional Development. <http://www.region.go.kr/>