

Industrial Cluster Policies of the Korean Government in the Early 2000s: The Case of Daejeon

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Abstract : To tackle the problem of regional economic and social disparities in Korea, the government of Roh, Mu-Hyun(2003-2007), launched a series of radical policies and programs to decentralize administrative activities of the capital region and stimulate economic growth in less developed regions, based on regional innovation systems and industrial cluster concepts. This paper highlights the Roh government's approach to reducing regional disparities, and makes some comments on the innovation cluster strategy by investigating the realities appearing in a major city, Daejeon. It concludes that many ministries of the Roh government created various competing, undifferentiated programs that were assigned too much money and energy, and drained resources from other governmental activities. In fact, very few programs show positive signs of achieving the goals of innovation in less developed regions, balancing the growth gaps between well-off regions and the rest of Korea, and generating overall economic growth for the country.

Keywords : Regional Innovation Systems, Industrial Cluster, Daejeon, Korea, Roh Government

1. Introduction

Korea is a small country, equivalent to approximately 1/4 of California in terms of its land mass. However, it is not a small country if one considers the size of its population, the length of its history, and the complexity of its intra-regional competition. Korea, considering the South alone, has almost 50 million people and has an economy that is estimated to be the world's 12th largest.

Historically, the country has been divided into three regions that have competed with each other for a period of more than a thousand years. Although considered to ethnically homogeneous, there are at least three major groups of people who are identifiable by regional background, i.e., the dialects and custom. In the modern era, regional rivalry has become ever more serious as regional economic gaps have widened. In this context, this paper introduces the process of

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regional industrial and economic growth, and discusses the regional policies of the central government used to tackle the gaps. Finally, the paper evaluates the outcomes of past policies and suggests alternatives based on the identification of problems which emerged from the approaches of the government led by Roh, Mu-Hyun during the period covering 2003-2007.

2. Regional Policies Undertaken by the Past Governments

As the issue of uncontrolled urban expansion and stagnating rural economies were considered to be serious problems hindering political stability and national development, most of the governments in Korea in the past took some action to deal with them. The responses of the past governments included controlling urban growth in Seoul, launching the New Community Movement for rural development, developing industrial estates outside of the capital region, and strengthening the local autonomy. These approaches did not achieve the goal of balanced growth, and instead left the problems to be tackled by a rather revolutionary approach of the Roh government. The spatial policies taken by the past governments will be discussed below in detail.

1) Growth Control

From the early 1960s, there was insufficient urban infrastructure to support the population growth of Seoul, as well as a shortage of housing and employment opportunities. The growth was

also seen to be a problem for national security, as Seoul is very close to the border with North Korea. Therefore, in the 1960's the government attempted to reduce the pace of population growth in central Seoul by developing the southern suburbs, by creating satellite cities, and controlling the introduction of companies and institutions that might cause further population movement to Seoul. The satellite cities around Seoul were only 30 to 60 km from the city centre. The cities of Suwon, Seongnam, Gunpo, Bucheon, Uijeongbu, and Anyang, each of which currently has more than half a million people, were created in this context.

In addition, educational institutions and manufacturing companies were discouraged from locating in central Seoul, but encouraged to locate outside of the capital region. Many universities which wanted to expand established new campuses outside Seoul. The cities of Cheonan, Asan, and Jochiwon, located about 80 km from Seoul, have seen the development of university campuses.

2) Rural Development

To tackle the problems of declining rural areas and to have a more coordinated spatial development, the Korea government in the early 1970s proposed the New Community Movement, and the Comprehensive National Land Development Plans (CNLDPs). The former was an attempt to modernize the ways of living and economic activities in rural areas. As it was effectively practiced by the late 1970s, the movement did in fact improve the social and economic conditions of rural areas during the

1970s and 1980s. However, it was not enough to create a balance between rural and urban society.

3) Spatial Planning

To reduce the widening gaps between rural and urban areas, to have more spatially coordinated growth, and to supply industrial lands in a more systematic way, the government initiated a series of spatial plans, i.e., CNLDPs. The plans proposed to allocate development opportunities to the areas outside Seoul in a systematic manner, based on a long-term development perspective for the nation and for each province. The plans specified policies for industrial zoning of land and providing physical infrastructure. While they were designed to be ten-year plans, the first plan (for 1972-81) was prepared in the period of 1968-71. While the Ministry of Construction and Transportation was in charge of implementing the planning process, the actual activities were organized by a major policy planning institute, called the Korean Research Institute for Human Settlements (KRIHS).

Beginning in the 1970s, two more CNLDPs were released consecutively, covering the periods of 1982-1991 and 1992-2001. In the middle of the third CNLDP period (1992-2001), the planning circle (centered on KRIHS) attempted to update the contents of the third CNLDP by reflecting the changes in the economy and politics of that time. However, the attempt was not successful mainly because the political aims of the government under President Kim, Young-Sam were not clear and not strong enough to be concretely planned. In the late 1990s, especially because of the 1997 economic crisis, a revision of the third CNLDP was thought to be inevitable. In 2000, the fourth

CNLDP was released to cover a fifteen year timeframe, i.e., the period from 2001 and 2015. After being in effect for only three years, the fourth CNLDP was rendered ineffective as a new government emerged from the 2002 presidential election. The new government proposed to create more balanced growth based on a bottom-up approach of Regional Innovation Systems (RISs). In this way, RIS and industrial cluster policies replaced the past Five-year Economic Development Plans and CNLDPs.

Such change was based on the understanding that since the CNLDPs focused on physical aspects of development, e.g., industrial land and water and energy supply, they could not cover technological aspects of the economy. As the Korean economic condition deteriorated in the late 1990s, many large and medium sized companies in Korea were moving their investments overseas, mainly to China. The Korean economy at that time, therefore, were suffering from plant-closure, low consumer confidence, and higher unemployment rates. The government believed the Korean economy was requiring a different approach that could achieve economic growth with societal and regional parity at the same time. During the Roh government (2003-2007), RIS policies were taken to be an alternative to former approaches, as they are believed to be effective in both creating balance and economic growth based on a bottom-up approach and technological advancement.

4) Decentralization

Another approach designed to create more balanced growth was decentralization and democratization. Prior to the early 1990s, local

governments in Korea had neither elected governors and mayors nor local councils. Since 1992, however, a major change led to the provincial and municipal governments being controlled by elected politicians and local council members. Enhanced local autonomy, in this way, has allowed elected officials of less developed regions to take more independent and creative actions to improve local economies. Even if there has not been a clear example showing a concrete success, the decentralization is thought to have provided an institutional and political base on which elected officials of less developed areas could generate innovative economic strategies that can contribute to regional balance.

3. The Approaches by the Roh Government

To deal with the problems associated with regional inequality and economic stagnation, the Roh government launched aggressive policies adopting the concepts of Regional Innovation Systems (Cooke 1998) and industrial clusters (Porter 1990). Even if these two concepts have been used interchangeably in Korea as we can see below.

1) Regional Innovation and Industrial Cluster Policies of the Roh Government

The Roh government in the early 2000s attempted to tackle the goals of balanced economic growth through RIS policies. "Regional" had meant the approach aims to create equality between the capital region (i.e., three provincial

level governments: Seoul, Gyeonggi, and Incheon) and the rest of Korea, and also between the southeastern and western regions. The "Innovation" in RIS had meant technological innovation in the economic structure. Technology was seen to be a key to rescuing the Korean economy from the slow growth following the 1997 economic crisis.

The main concepts included in the RIS were attractive for the political leaders of the Roh government as the concepts seemed to deal with the two main problems of Korean society, growth and equity, at the same time. The approach was expected to create economic growth in less developed regions based on technological innovation, supported by the government and universities. Therefore, roles of the universities and public research institutes were greatly emphasized.

The Roh government's policies of industrial cluster have been created and implemented by various ministries of the central government, coordinated mainly by the Presidential Committee of Regionally Balanced Development. One can state that, while the ministries were actually creating and implementing the policies, the committee oversees the overall process and coordinates the ministries' activities, where local governments were mobilized in actually implementing the policies and programs. The Ministry of Commerce, Industry and Energy ("Industry ministry," hereafter), for example, operating many programs proposing to promote or establish industrial clusters, such as those of Technopark, the Regional Technology Innovation Center, the New Technology Business Incubator Center, the RIS Pilot Project, and the Regional Research Center. The Ministry of Education and

Human Resources Development (“Education ministry,” hereafter) had also launched two major programs, called Brain Korea 21 (BK21), and the New Universities for Regional Innovation (NURI), while the Ministry of Information and Telecommunication initiated programs called Software Promotion Center Assistance. The Ministry of Culture and Tourism launched a Culture Cluster Center project and a Project for Assisting IT Start-ups. In fact, most of these programs were created adopting the core concepts of RIS and industrial cluster theory.

Through these programs the ministries were providing large scale funds to institutions such as universities and private companies to promote technological innovation and strengthen relationships among their partners mainly universities, private companies, governmental agencies, and non-governmental organizations. Some of the ministries use local governments and universities to implement such programs; others established their own local agencies in charge of implementing their programs. The Industry ministry, for example, created twelve Technoparks: one for each provincial level government. It has also established another agency for each government at the provincial level, called the Daejeon Regional Innovation Agency (DRIA).

A typical way in which the Roh government launched a cluster strategy was that first, a ministry created a program and then transferred guidelines to local governments asking them to organize a strategy of promoting or creating an industrial cluster. Another way for a ministry to accomplish the task was to call for proposals at the national level and then selected a certain number of proposals to be assisted through a process of

reviews by an expert committee. Some programs were only short-term, up to three years, while a few others were stretched over a longer period. The following sections will introduce the details of the process and outcomes of the ministerial policies and programs of creating industrial clusters, taking as an example the provincial level government of Daejeon.

2) Industrial Cluster Programs in the City of Daejeon

(1) The City of Daejeon: an Introduction

The Korean local government is composed of sixteen provincial level governments: seven metropolitan governments and nine provinces. The city of Daejeon, one of the seven metropolitan governments, is located in the middle of the country. It is a cultural and administrative center for the region composed of the Chungnam and Chungbuk provinces. The city has one and half million residents and the Daedeok Special R&D District, composed of major education and R&D activities of universities, governmental laboratories, and other research institutes of private companies. The special R&D District in fact was playing a key role in the advancement of Korean science and technology since the late 1970s.

Daejeon traditionally maintained very little control over Daedeok Special R&D District in the past. However, it has increased power over the district in recent years, even if it does not fully control the district. (The district was created by the Ministry of Science and Technology in 1974. Many of the sixteen governmental laboratories were also established by the ministry and controlled partly by the ministry.). Similar to many other provincial

governments, Daejeon was also involved in creating and implementing various programs of regional innovation and industrial cluster. Rather than independently creating policies and programs, the city simply cooperated with the central ministries, primarily by acquiescing to the requests of the central ministries. The main reasons for Daejeon following the central government was the fact that the city lacked the financial resources and confidence in policy planning and design required to initiate independent policies and programs.

(2) RIS Pilot Program

The RIS Pilot Program was designed by the Industry ministry. The idea was to create start-up activities, or assist the existing firms by supplying R&D activities from universities and other research institutions. The main concept was to assist networking activities among concerned parties with the expectation that synergy effects would follow. Under the networking scheme, a leading institution equipped with a commercializable technology was expected to form a community of businesses, universities, and other institutions, if necessary, in the hope that the community would develop into an industrial cluster. With the idea and the details of the program, the Industry ministry called for proposals in March 2004. The ministry was going to select two project teams from each provincial government, and to provide each government with approximately 2.5 million dollars per year over a three-year period.

In response to Industry ministry's proposal call, universities, business organizations, and firms organized their proposals and submitted them to the concerned regional governments. Regional governments were requested to rank their priorities

among the submitted proposals. They were also required to contribute about ten percent of the budget for each selected proposal.

In the case of Daejeon, six proposals were submitted to the city, including project teams led by DRIA, the Korea Advance Institute of Science and Technology (KAIST), and Hanbat National University (MCIE 2004b). KAIST had formed a project team concerned with information technology, while a local university had done so for technology related to logistics and testing chemicals in organic farm products.

At the national level, the Industry ministry was able to accept approximately 110 proposals. In order to select two for each province, a review committee was formulated consisting of approximately 40 experts coming mainly from universities and governmental research institutes. Among 110 proposals, 43 project teams were selected (MCIE 2004b). In the case of Daejeon, two official project teams were selected, but in reality there were four: one team, in fact, included three original teams. This happened as Industry ministry wanted to select two official teams without excluding the fourth ranked project team; the ministry merged the three project teams on the top of the list into one. The merged project teams included DRIA, KAIST, and Hanbat National University. The results were released and contracts were signed between the ministry and the leading institution of each project team.

The selected project teams were going to receive approximately 1.3 million dollars annually over the period between July 2004 and June 2007 (MCIE 2004a). In the case of the merged project team, which received the same amount as other teams, however, three original teams had to share the

budget inportion. This was a serious problem because each team had stated their proposed targets that could be achieved with the total amount of the grant available for the whole team, but the budget available for one of the original teams was only one third of the amount that it had requested in its original proposal. Another problem was coordination. Unexpectedly, the three project teams had to work together, requiring cooperation among themselves. This was a daunting task for them because they had never thought it would be necessary. In such circumstances, no one wanted to be in charge of coordinating roles. Eventually, they decided to conduct business with minimum cooperation and coordination, going against the textbook principles of industrial cluster theory. Officially, DRIA became the leading institution, while the others became “partners”. Those who were taking part in this merged project team were very unhappy with the circumstance that they were facing.

Another project team that was receiving funds through the Industry ministry was the one organized by a local university with partners from another local university, a local branch office of the Korean Agricultural Cooperative (Nonghyup), and a few firms related to organic farming and farm products. The core technology of this project team was testing chemicals in agricultural products. However, the official goal of the team was to create a cluster for the logistics industry. The logistics industry had in fact been important for Daejeon as the city is located in the middle of the country, maintaining good accessibility from any region of the country. The central concept of this project team was to generate an agricultural logistics cluster for products based on the testing

technology and equipment. The role of the Korean Agricultural Cooperative was important as its warehouses and distribution channels could be utilized as a part of the planned logistics cluster.

Two years have passed after the completion of the 3-year RIS Pilot Program; however, the two project teams could hardly be said to have achieved their goals. The main problems for the first project team, on one hand, were budget cuts and altered status. With the limited resources, they were unable to achieve their goals. On the other hand, the main problems for the remaining team were awkward business concepts. The idea of forming a logistics cluster centered by a core technology of testing agricultural products was not feasible from the outset. The relationship between the core technology of the team and the idea of forming a logistics cluster was too weak. If the idea of forming a logistics cluster were workable, the core must be any technologies directly related to the logistics industry, rather than those only related to chemical tests.

Problems existed not only at the local level, but also at the central level. The administration of the program was not flexible enough to accommodate the circumstances occurring at various stages. The project teams had to wait a long time to receive the assigned grants from the Industry ministry as they had to go through various steps in paperwork. In the first year, the grants actually became available for the project teams in November, five months later than the official starting date of the program, July 1. The circumstances in the second and third years were not different from that of the first year as it took several months to complete a review of the previous year's achievement. The Industry ministry

was maintaining a rule restricting assigning funds for a project year only to teams that pass the review process of their performance in the previous year. In fact, there were a few project teams that were unable to have their performance approved and were, therefore, excluded from the program.

During the period when the funds were not available, the project teams could not function as they should. This problem could be exacerbated if one considers the reality that a team has to use up assigned funds for the previous project year not by the end of June but by the end of May. This was to show that they used the funds at the time of writing the year-end report, which was normally completed at the end of May, not June. A month long time-lag between the project teams and the ministry was involved here. In this case, the team had only six months for actual work with available funds, not a year! The ministry administered the program mainly through one of its subordinate institutions, the Korean Research Institute of Industrial Technology Evaluation and Planning (ITEP), not directly. Consequently, there were inefficient communication channels.

Problems also existed in the constraints for using the grants as the money was strictly controlled by the ministry. One example of the rigid rules was that only certain percentages of the total budget could be allocated to three major categories, such as expenses for salaries, fixed capital, and miscellaneous. Even if there was a diverse nature to the project that required flexibility, project teams were not allowed to spend more than 20% of their budget for salaries, for example. In addition, university professors were not allowed to expense their wages for their contributions to the program,

but they were allowed compensation for their expenses alone. This was a problem as the rule discouraged participating university professors from committing their time and energy to the program as they were not rewarded, while often professors were playing key roles in their project teams. Even in the case of reimbursing professors' expenses, they had to complete a lot of paperwork, causing extra work and a feeling of being distrusted.

Another problem was that project teams had to spend a considerable portion of their time and energy in preparing reports. Originally a project team was supposed to report their performance four times a year to the Industry ministry through ITEP. In addition to the quarterly reports, however, the team had to comply with occasional requests from the ministry. Reporting was not a discrete process; it was very common for a project team to receive requests to amend and supplement its reports several times as the reports did not satisfy ITEP or the ministry. In this way, the team had to spend time and energy on a kind of work that was not directly contributing to the goals of the project teams.

3) NURI Program

The Education ministry was also maintaining two major programs, related to regional innovation policies: "Brain Korea 21 (BK21)" and NURI (see BNC 2007). While the BK21 program focuses on research and educational activities, NURI focuses on forming industrial clusters with an orientation to industrial and commercial activities. Main intentions were to advance the quality of university education by strengthening relationships between

universities and the business community, and to supply the business community with better trained college graduates. The program was also expected to create mutual support networks between universities and the business community so that both can strengthen their abilities.

Through the NURI program, the Education ministry was planning to invest 260 million dollars annually over the five-year period beginning in 2004 (MEHRD 2004). There were three categories of project teams: large-, medium-, and small-scale under NURI. A large-scale project team was eligible for a budget ranging from three to five million dollars per year, while a medium-scale project was eligible for a budget ranging from one to three million, and a small project for a budget less than the medium-scale project budget. To implement the program, the Education ministry called for proposals from universities in the early 2004. Universities were asked to submit project proposals stating that they would reform their educational systems to be more practical, train their students with technical and practical knowledge, and incorporate expectations of the local business communities in their research, educational, and training programs. The grant was eligible only for universities located outside the capital region, as it was seen to contribute to balanced growth by promoting the economies of areas outside the capital region.

In response to the proposal call in 2004, 454 project teams applied for the program (MEHRD 2004). Through a rigorous review process, 111 projects were selected: 25 large-, 25 medium-, and 61 small-scale project teams. These project teams were going to be supported by the Education ministry's funds for five years with 220 million

dollars for the first year, and 300 million for each subsequent year by 2009. In 2005, seven additional project teams joined the program as there was a room for additional project teams (BNC 2007). On one hand, the additional teams were accepted because seven project teams dropped from the program in the first year since they were not satisfied with the conditions embedded in the program, or since they were not confident that they would be able to fulfill the ministry's requirements. On the other hand, the first year review resulted in budget cuts for some of the less successful project teams, which left surplus funds for the support of other projects. The second year review also resulted in two project teams being excluded from the program, while 34 teams received budget cuts.

In the case of Daejeon, three large-scale, two medium-, and four small-scale projects were selected and assisted by NURI (City of Daejeon 2007). In the year 2004, 25 project teams from seven universities applied to the program, from which six project teams from four universities were selected. In the year 2005, 20 teams from five universities applied to the program, from which two teams from one university were selected. It had been found that the technology areas that the project teams focused on were mainly the "strategic industries" of Daejeon, including next generation telecommunications, bio-science, mechatronics, and new materials and parts suppliers. These teams were taking part in NURI and receiving a few million dollars a year.

On the national scale, a special committee, BK21-NURI, has been established to oversee the processes and outcomes of the Education ministry's programs: both BK21 and NURI. It has

been stationed in the Korean Research Foundation, a governmental agency supported by the Education ministry (see BNC 2007). The committee states that the program has shown some initial success in making participating universities and community colleges downsize the number of students for a better quality of education. In addition, the rate of hiring teaching staffs was improved by 12.4%; the rate of student enrollment has reached 100%; 110,000 students took part in practical internships in corporations; 4,000 students have experienced on the job training; and 2,000 corporate managers took part in university educational programs. The committee also states that the program has significantly contributed to the improvement of relationships between universities and the business community (BNC 2007).

4) Daedeok Innovative Cluster Plan

Since 1974, Daejeon has hosted a major science park, such as Daedeok Special R&D District. However, as Daedeok Special R&D District was controlled mainly by the central government's Ministry of Science and Technology, which has been amalgamated by the Industry ministry, the city used to maintain very little power over Daedeok Special R&D District (see Shin 2001). Therefore, it was unable to take full advantage of Daedeok Special R&D District for the local economy. Therefore, the city started to create an industrial cluster program as part of the effort to generate local impacts by taking advantage of Daedeok Special R&D District.

The Daedeok Innovative Cluster Plan was designed by the director of DRIA, and financed by the Industry ministry. The program was put into

operation starting from December 2005. The main strategy was to create several discussion groups made up of technology-intensive small and medium firms through which member firms could share information, know-how, knowledge, and technologies. The discussion groups were also expected to advocate for their interests to the industry and governments.

DRIA conducted a large scale survey of 900 scientists and engineers at local universities, research institutes, and firms. Based on the survey results, DRIA came up with an idea to create eight industry clusters. Out of the eight clusters, four were in the category of the so-called "strategic industry," while the other four were growing new and dynamic industries. The former included the information technology, bio-science, high-tech suppliers and special materials, and mechatronics industries; the latter included the ubiquitous, military, atomic energy, and aerospace industries. According to this classification, DRIA assigned the scientists and engineers covered by its survey into eight clusters, which were then divided into fourteen mini-clusters. Members of the IT Cluster, for example, were asked to choose one of the following five mini-clusters: Communication Services and Equipments, Communication Suppliers and Materials, Software and Contents, Semiconductors and Displayers, and Optic Materials and Related Machines. The members of the BT Cluster were asked to take part in one of the following three mini-clusters: Biomedical, Fundamental Biology Technology, and Bio-materials. A steering committee, called the Innovative Networks of Daedeok Valley, was going to oversee the activities of the whole of the clusters. The steering committee was composed of

the director of the Department of Economy and Science for the city of Daejeon, and a representative of each cluster.

Under the organizational structure, meetings were held to explain DRIA's plan and nominate a representative of each cluster first, and then those for each mini-cluster. During the early 2006, four clusters were organized under elected officers, while administration of the fourteen mini-clusters was also organized in the subsequent months, completing the organizational work. Each cluster held meetings in order for its members to be better acquainted with each other and further discuss common interests.

During the first half of 2006, this program was very popular receiving considerable attention not only from the local media and government but also the Industry ministry. However, initial popularity evaporated. The office of the program designer (i.e., DRIA Director) foresaw that he would not be able to stay in office for a long time as the then mayor who had nominated the director lost in the civic election held in May 2006. Even if the director had stayed in office by the end of the year, he no longer committed himself to the program as much as he had in the previous year. Since his resignation in December 2006, the directorship was vacant for nearly a year, as DRIA was under the consideration of being amalgamated with other city planning agency, called Daejeon Development Institute. The cluster strategy initiated aggressively by DRIA was up in the air after only a year's action, which made most of the clusters disappeared. (DRIA was not amalgamated; however, it has been put into place under a new organization, called "Daejeon Technopark" since March 2008.)

4. Evaluation of the Roh Government's Approach

It can be stated that it was relevant for the Roh government to choose RIS policies and an industrial cluster strategy to reduce inequalities between well developed and under developed regions of Korea policies and strategy. However, many problems have occurred in the process of implementing the programs.

At the national level, too many cluster programs were created. Various ministries poured out various programs based on the same concept of industrial cluster theory. The Industry ministry was operating seven major programs, while the Education ministry and the Ministry of Information and Telecommunications were sponsoring two to four programs each. In total, six ministries were operating a total of thirteen programs. In this way, financial and human resources were wasted because of overlapping programs. This also caused confusion at the level of local governments and individual project teams where the programs were actually implemented. Some ministries that were operating multiple programs did not maintain enough personnel to manage the programs. Therefore, they often relied on subordinate agencies for actual implementation, such as ITEP for the Industry ministry. This was causing a major problem as it required a longer time for communication between the relevant ministry and project teams because of the additional communication channels. Even if the task was transferred to subordinate research institutes, the receiving institutes did not fully commit themselves to the program, as they did not consider such

programs to be part of their core activity. Therefore, it was very common to see only a few overworked staff responsible for dozens of projects with large-scale budgets.

To avoid this kind of problems, the number of ministries that took part in industrial cluster policies had to be reduced, first. Second, some programs also needed to be merged. Third, the total budget assigned to such popular policies and strategies also needed to be reduced. As the project teams did not have sufficient ability to effectively handle such a large amount of grants and the ministries did not maintain sufficient capacity to effectively manage such large budgets, national financial resources were being wasted. Fourth, the ministries needed to decentralize their controlling power to their subordinate research institutes and project teams to reduce the time required for communication and to increase flexibility. Finally, project teams had to be relieved from the burden of preparing many reports to allow them to concentrate on their work. Once project teams were selected, they needed to take full responsibility in relation to both goal achievement and accounting. Reporting four times a year was too often; once a year could be enough. Frequent requests to report on the performance and accounting did not necessarily ensure successful operation of the project teams. Rather, they tended to simply produce many complex documents that appeared to be solid, but were without any relationship to the achievement of real goals.

Commercializing or transferring a new technology is not a simple task. Successful commercialization of a technology requires not only a good technology but also an effective

system of implementing commercialization. The reality during the Roh government in Korea was, first, that very few project leaders were actually holding good technologies that could be commercialized in business. Second, the whole system of administering the programs did not effectively support project teams, as the system was requesting unnecessary work, discouraging the participants from committing their time and energy, and distributing grants with awkward timing. Partners often did not cooperate with the leading institution if they did not expect any fiscal benefit for themselves. While university professors were often the key members of any project team, they could hardly relate their futures to the accomplishment of their project goals. The cluster programs required university professors to participate in the programs as a “volunteer.” However, most competent professors who hold applied scientific knowledge do not have sufficient time and energy to committing their time and energy to such programs simply as a “volunteers.” Therefore, it is important to organize a program in a way in which all participating members can benefit from the success of a program.

In addition, the Korean industrial cluster programs under the Roh government overly focused on high-technology and manufacturing activities centered on only a few technological areas, such as IT and BT. This has caused duplication and overlap in the work of different project teams. Traditional sectors, such as cultural and endogenous manufacturing and service activities, received very little attention. Therefore, future industrial cluster programs need to account for this aspect.

5. Conclusion

The Roh government in Korea attempted to achieve balanced growth using RIS policies and industrial cluster programs. As it has been five years since the initiation of the policies and programs, it is reasonable for one to evaluate the process and outcomes. From observation of the activities at the ministerial and local levels, one could state that both of the beneficiaries and the institutions in charge of program implementation paid too much attention to bureaucratic matters, rather than real goals.

It could also be said that the cluster programs have achieved minimum expectations: orienting participants to a notion that the core concept of industrial cluster theory and RIS, i.e., cooperative relationships among related institutions and enterprises, is important for effective education and economic growth; that local economic growth requires innovative activities; and that the business community needs trained people equipped with practical knowledge and know-how.

It can hardly be said, however, that the industrial cluster programs have contributed to creating balanced growth. Even if millions of dollars have been invested to the programs, and many government officials were assigned to the programs, one cannot state that the programs have achieved the goals of the programs, i.e., technological innovation and balanced economic growth. They were overly ambitious, but resulted in policy confusion and the waste of financial and human resources. Considering the lessons of the previous government, Korean industrial cluster approach in the future needs decentralized,

flexible implementation with a focus not only on manufacturing industries in traditional and high-technology sectors but also on the service economy. For the next government of Korea, “creative industry”(Florida 2002; Pratt 1997; Scott 2000) could be a promising alternative to the Roh government’s approach. In order to create industrial clusters effectively, the program also needs to provide participants at the local level with practical benefits and trust.

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최초투고일 2009년 1월 5일
최종접수일 2009년 3월 30일

지방 차원의 산업 클러스터 정책: 대전광역시를 사례로*

신동호**

요약: 한국의 급속한 경제성장은 지역간 큰 사회, 경제적 격차를 가져왔다. 과거 여러 정권이 수도권과 비수도권, 영남과 호남간의 격차를 해소하기 위해 여러 가지 정책을 수립, 구사하였다. 그 가운데 노무현 정부는 지역혁신론 및 산업 클러스터론에 기초하여 가장 진보적이고 획기적인 정책을 수립, 추진하였다. 본 연구는 노 정부의 그러한 정책을 소개하고, 대전을 사례로 그러한 국가적 정책들이 지방단위에서 어떻게 구체화되는지를 소개하고, 그 결과를 평가하고자 한다. 이 연구는 노 정부가 짧은 기간에 여러 부처가 큰 예산과 정책 에너지를 투자하면서 경쟁적으로 지역혁신사업을 추진하는 과정에서 예산의 낭비와 정책의 혼선을 초래하였으며, 대전의 경우 역동적인 산업 클러스터를 조성하고자 분야별로 다양한 기업가 모임을 조직하고, 후원하였으나, 추진 기관의 장이 바뀌어 그 사업이 정착되지 못했다고 주장한다.

주요어: 지역혁신, 산업 클러스터, 노무현 정부, 전략산업기획단, 대전

* 이 논문은 2008년도 한남대학교 교비연구비 지원에 의해 연구되었습니다.

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