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WHAT DIRECTION SHOULD THE CLUSTER POLICY TAKE, TOP-DOWN IMPLEMENTATION OR BOTTOM-UP EMERGENCE? THE CASE OF JAPAN

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ABSTRACT ¹

In this paper we present a study on how we can fill a gap between the top-down governmental cluster policy and the bottom-up emergence of the SMEs' inter-firm networks. Such a gap has become a serious problem for many countries and regions struggling to implement cluster policies as a new approach for the economic growth. Practicing both the review of the Cluster Plans designed by two Japanese Ministries (METI and MEXT) and the fieldwork within several representative industrial districts in Japan, we distinguish important general patterns and implications within the new encounter between the implementation of the top-down governmental policy and the bottom-up emergence among the local actors. The results of our field study in the Japanese regions show various "patterns" of local efforts and some proactive phenomena emerging from their independent standpoints or unique interpretations of the top-down policy. Based on the field study results and the analysis of the cluster-related policies major suggestions to the policy-makers will be outlined.

Key words: Clusters, Policy, Regions, Inter-firm networks, SMEs.

JEL codes: O38, L20, H70.

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1. Introduction

During the last several years major changes and restructuring have been taking place in the Japanese economy. Like other developed countries Japan has been increasingly recognizing the importance of small and medium-sized enterprises (SMEs), industrial agglomerations (called also districts or clusters) and inter-firm networks. Throughout the last two decades Japan's industrial and SMEs promotion policies have fundamentally changed. However, the policy change seems to be very gradual and slow compared to the actual change surrounding local SMEs. Even though there has always been a general and inevitable gap between the national policy and the SMEs motivations, the question of how to overcome such a gap has emerged only recently as a crucial target of the current industrial policy (OECD, 2001c). Such a tendency could be commonly observed in different countries (OECD, 2001a; 2001b).

This study gives suggestions to the policy-makers on how they should fill up the huge gap between the top-down implementation of policies and the bottom-up emergence of SMEs motivations. In order to make such an objective clear we wish to focus on both the top-level framework of national policies and the bottom-level behavior of local SMEs. The problem addressed here is similar to organizational problems such as "from hierarchy to flat structures" or "overcoming of information asymmetry". We argue that the main factor of the future growth should be more democratic networks rather than bureaucratic organizations.

In the first part of this paper we shall outline and analyze the latest developments related to the government oriented policies on clusters and SMEs. The Japanese government has been implementing new policies such as the Industrial Cluster Plan (METI) and the Intellectual Cluster Plan (MEXT) since 2001. These policies have been promoted as a part of the current decentralization of power. In this paper, we try to analyze what sort of substantial efficiencies such a very top-down policy change could bring about. In the second part of the paper we shall present some of the results of the field study that we conducted in Japan during the six-month period from October 2002 to April 2003. Our objective was to study the grassroots small-firm networks and also their surrounding environments, from the local industrial policy or the university-industry relations policy to the local embedded institutions. We believe that the potential for the cluster development lies within such endogenous networks found in different kinds of industrial agglomerations in Japan. A qualitative approach based on interviews with SME managers and local bureaucrats was applied. Around 40 interviews were made in 9 different industrial districts in Japan. We shall present different "patterns" of local efforts that we distinguished, focusing on the most proactive phenomena found in some of the regions. In the concluding part major implications and suggestions to the policy-makers will be outlined.

2. Framework for the Evaluation of a Cluster Policy

Let us first mention a few general conditions of the cluster policy deriving from some of the successful cases. Based on these conditions, we will present comparative analyses of effectiveness of the current cluster policy in Japan in the following section.

In the cases of Silicon Valley and the Cambridge Region, there was almost nothing of top-down approaches or government support to generate these regional outstanding agglomerations, at least until the end of the 1980's. Initiated rather by private parties, these networks were generated in a more autonomous manner in both regions (Saxenian, 1994; Segel, 1985). In the case of Third Italian districts, flexible networking among the SMEs were generated basically by their higher motivation of self-support and self-responsibility (Okamoto, 1994; Vidal, 1990; Putnam, 1993). In addition,

Silicon Valley has frequently transformed its industrial structure flexibly. In the Third Italy as well, industrial clusters are characterized by vitality. Okamoto (2001) called such phenomena the “mutation” of districts.

On the other hand, the role of government is also important. Even in the case of Silicon Valley, in the early 1990’s, there was a need to establish a new organizational strategy for regional governance in the period of serious recession and the hollowing-out of industry. Being initiated by trans-sectoral Non-Profit Organizations, Joint Venture: Silicon Valley Network (JV: SVN), formed by individual leaderships both of grassroots and establishment, the local governments were required to start cooperating with each other to promote the regional public policy (JV: SVN, 1994). In the case of the Third Italy, the outstanding responsibility and effectiveness of the regional government of Emilia Romagna was observed (Putnam, 1993). In both of these cases, the main role of the government (or the government-owned agencies) was coordination in order to overcome the inconsistency or the redundancy of various public policies and make them more efficient for regional stakeholders.

The role of the national government, seems to depend on each nation’s institutional background. However, regional governments are generally motivated to promote the policy in order to get the subsidies or projects from the national government (or even the higher level like EU) in all cases. On top of that, as a more recent role, regional governments should coordinate the gaps between top-down policies and bottom-up actors’ motivations. Even in the most decentralized cases, such as Germany, strategic competition between the regional governments for the national level projects, like EXIST or BioRegio as federal government-driven cluster policy, has been ever more fierce. Regional governments have been required to support selected actors like spin-off companies from universities investing huge amounts of money not only of the region but also of the federal government. However, especially in the case of less developed regions, regional governments tend to depend on national government’s policies or subsidies in all countries. Thus, we can observe that the national government has indirectly or directly initiated the regional policy in such regions. Even in case of some well-developed regions, a lack of effective initiatives by regional governments can often be observed. Each situation depends on its political and historical institution embedded in the region’s socio-economic system.

The most difficult task is how to embed the market-oriented approach in the public policy, which is strongly required for different reasons. On one hand the governmental policy should be efficient in increasing productivity. On the other hand, a more holistic efficiency of the policy, which increases economic competitiveness within much more market-driven mechanisms, is also required. In the case of German bio-industrial policy above, selective decisions of such public investments to the private venture business needed the great application of a market-oriented approach. In the cases of Silicon Valley or the Cambridge Region, private specialists like business consultants, venture capitalists or business angels within their market-driven system have emerged. However, in the case of other regions that do not contain enough actors like these, a governmental body must initiate this role at least until such actors emerge autonomously from the private sector.

We define a few general conditions of the cluster policy as the analytical framework of this study. We assume that the significant points of the public policy, regardless of who plays each role, are the following:

- *Promoting more autonomous development*
- *Pushing innovative and flexible behavior rather than concentrating on specific fields*
- *Building up a closer connection among the various policies or plans by competent authorities (In other words, easy accessibility through a one-stop service for the actors)*

- *Promoting innovative business or technology with market-oriented approach thus stimulating demand factors.*

3. Review of the Current Cluster Policy in Japan

In this section, we review and evaluate the effectiveness of the current Japan's cluster policy. The description derived from interviews with the government officers of Ministry of Economics, Trade and Industry (METI), Ministry of Education, Culture, Sports, Science and Technology (MEXT), 5 prefectures and 4 cities as well as secondary sources such as the series of reports, white papers and publications issued by the government bureaus.

3.1. Fundamental Change of the SMEs and Regions-related Industrial Policies throughout the 1990's

Japanese industrial policy has fundamentally changed during the 1990's. Even though it seems that a more gradual change has been going on institutionally², the two policies of the past and present could still be regarded as quite contrary. In other words, the 1990's might be considered as a period of transition from the old system to a new one. Small and Medium Enterprise Agency (2002) defines the 15 year period from 1985 to 1999 as the 1st Stage of Transition Period between the Stable Growth Period (1973-1984) and the 2nd Stage (2000-).

Actually, under the sudden change of the Japanese industrial structure, the main driving-force of the SMEs' motivation has drastically changed. The most significant factor in the background of such a change was the serious recession striking the Japanese industry. In the past, SMEs were able to survive just by playing in a ground - the hinterland of the Japanese economy. Recently they are struggling in a trial ground for their ability to survive with their own self-support and self-responsibility (SME Agency, 1999). Within some industrial districts agglomerating numbers of manufacturing SMEs such as Hitachi, Suwa or Hamamatsu, this kind of new situation could be observed especially in the last decade. During the 1980's Japanese economy had already slowed down its growth. Moreover, the Plaza Accord brought a striking damage to the SMEs and agglomerations. At the beginning of 1990's Chinese economy started to enhance its industrial capacity and value on a large scale. As a result, serious phenomena of hollowing-out of industry have struck almost all industrial districts in Japan. Since the large companies have transferred their production processes or supplier systems from Japan to China, the managers of Japanese SMEs have recognized that such a situational change seems severe³.

Compared to such a serious situation in the industry, the transition of the Governmental policy has been brought about slowly and gradually. Although some important announcements of new laws could be seen from the second half of the 1980's to the early 1990's, they aimed primarily at protecting the SMEs and the industrial districts against the hollowing-out of industry. However, such series of protective measures had been in the way of SMEs pursuing self-support and self-responsibility rather than making way for them. In Japan, promotion policies for SMEs have tended to fall into misapplied egalitarianism through conventional and hierarchical organization of local industrial associations such as the Local Chamber of Commerce and Industry. While the

² Some prior researchers have suggested that the Japanese government has never taken an extremely strong decision designated as a governmental intervention. Even MITI's peerless ability supporting Japan's high growth was defined as just a "rolling consensus" (US Department of Commerce, 1972) or "minimalist rather than dirigist", "in perfect coordination" (Okimoto, 1989) between the Government (MITI) and the Industry (private parties).

³ These observations about Japan's industrial districts were mainly brought up from our fieldwork as mentioned in part 5.

subsidization based on misapplied egalitarianism caused organizational problems like moral hazard to majority of SMEs, a small number of SMEs trying to take up a more innovative behavior were regarded as eccentrics or outsiders to the local community. These eccentrics or outsiders had to wait until the second half of the 1990's for the emerging new industrial policy to promote such innovative behavior. In 1995, the Temporary Law Concerning Measures for the Promotion of the Creative Business Activities of Small and Medium Enterprises was enacted. This was the explicit opening of the fundamental change. SME Agency (2002) reports the self-review of such a policy change as follows:

“In such circumstances, in order to strengthen support for business innovation, the Small and Medium Enterprise Modernization Law (enacted in 1963), which encouraged industry-wide large-scale benefits (scale merit) and modernization of equipment, and the Temporary Law concerning Measures for Smooth Adaptation to Structural Changes in Economy by Advancement of Specific Small and Medium Enterprises to New Fields, etc. (enacted in 1993), for which the subjects of assistance were limited, were integrated to become the new Law on Supporting Business Innovation of Small and Medium Enterprises (1999).”

Small and Medium Enterprise Agency (2002: p. I-4)

In 1999, under the new Law on Supporting Business Innovation of Small and Medium Enterprises, METI established the JANBO (Japan Association of New Business Incubation Organizations) as a part of its industrial location policy. It was to support and promote regional platforms, which are one-stop coordination systems for various regional actors such as SME managers, university professors, entrepreneurs, business consultants, local officers etc. From 1999 to 2002, a total of 55 local governments (all over the 47 prefectures and 8 cities designated by ordinance) throughout Japan established regional platforms merging public-owned agencies, which previously fulfilled each a different function⁴. Thus the gaps between two policies started to be bridged.

In addition, in December of 1999, Small and Medium Enterprise Basic Law was radically revised (the new version has been commonly called the New Basic Law). The SME Agency (2002) summarizes the points of the revision as follows:

“The new SME Basic Law, which is based on a new philosophy of promoting diverse and vigorous growth and the development of independent SMEs, rather than rectifying the gaps, presents three key factors for SME policies. They are (1) promoting business innovation and new business start-ups, (2) strengthening the management base of SMEs, (3) facilitating adaptation to economic and social changes.”

Small and Medium Enterprise Agency (2002: p. I-5)

Thus the base of the SME promotion policy finally caught up the actual situation of the SMEs at the end of the 1990's. Moreover, METI decided to control the cluster-related policies including SMEs promotion policy.

3.2. The Designation of the Government's Cluster Plans in the 2000's

First of all we should consider why the two governmental plans to promote regional clusters, the Industrial Cluster Plan by METI and the Intellectual Cluster Plan by MEXT, finally came to be implemented in the beginning of the 2000's. Both plans are being implemented since 2001.

In the background, both METI and MEXT started to use the word “Cluster Plan” at the same time. There had been emphasis on the importance of networks within the regional human resources such

⁴ These regional platforms are named generically a “core support center”, *chukakuteki shien kikan* in Japanese.

as collaborative works of SMEs or University-Industry relationships through the 1990's. However, the term "Cluster" tends to catch up the global fashion trend rather than the actual tendency of the past transition of industrial policy. Applying the word Cluster, the national government and the policy-makers have actively started to propagate the new industrial policy to the more general public, not only regional actors but also executives and managers of large companies.

As we mentioned in the last section, the drastic change of the Japanese industrial policy was brought throughout the 1990's. However, both new Cluster Plans don't always share the aim with the series of past reforms of the industrial policy. In parallel with the change of the industrial policy in the 1990's, decentralization of political power has accelerated significantly. In this situation, the necessity of a new policy to establish the national advantage based on the regional advantage has emerged as Porter (1990) suggested.

In the next two sections we will briefly describe how both of the two Cluster Plans can be positioned under the current transition of the industrial (or innovation) policy.

3.2.1. METI's Industrial Cluster Plan: from the "Technopolis Act" of the 1980's, through the "Regional Platform" of the 1990s to Something New in the 2000's

The Industrial Cluster Plan has emerged in the process of transition of METI's industrial location policy. The industrial location policy has changed its objectives adapting to the transition of the industrial situation of Japan. At the beginning of the 1980's the Technopolis Act, which aimed at generating advanced city areas in which technology-oriented industries concentrate based on the region's initiatives, was enacted under the national government's catchphrase "from an industrial nation to a technological nation". However, throughout the implementation process of the 26 Technopolis plans, earnest requirements of promotion policy for networks, platforms or coordination raised among both the formal and informal leaders of policy-makers such as government officials and region's university professors. Responding to such requirements, 55 regional platforms all over the country started to be implemented in 1999 as mentioned above. In the organizing process of these 55 platforms we can observe a wide diversity based on each prefecture's characteristic decisions and behavior rather than on the process of the former 26 Technopolis plans. During the last two decades regional actors have awaked to the importance of self-responsibility and autonomous development of regional economy. In addition, the significant laws, which aimed to enlarge the right of self-government of regions, have been enacted by the Cabinet.

As a result of the whole change, the central government was pressed to reform its past framework of the top-down region's industrial policy toward a new bridge between regional advantage and national advantage. We believe that the Industrial Cluster Plan emerged within such context. The main objectives of the Industrial Cluster Plans are: 1) revitalization of the regional economy, 2) creation of the new business to foster globally competitive industrial clusters and 3) improvement of regional competitiveness. Under the objectives METI designated 19 regional projects all over the country as the first runners of the Industrial Cluster Plan since 2002. While the projects do not involve only high-tech clusters but also traditional industries such as ceramics or metallic cutleries, the common factors are called the "Triple-helix" of strategies, 1) cross-sectoral networks, 2) technology, based on regional advantage, 3) business innovation and incubation.

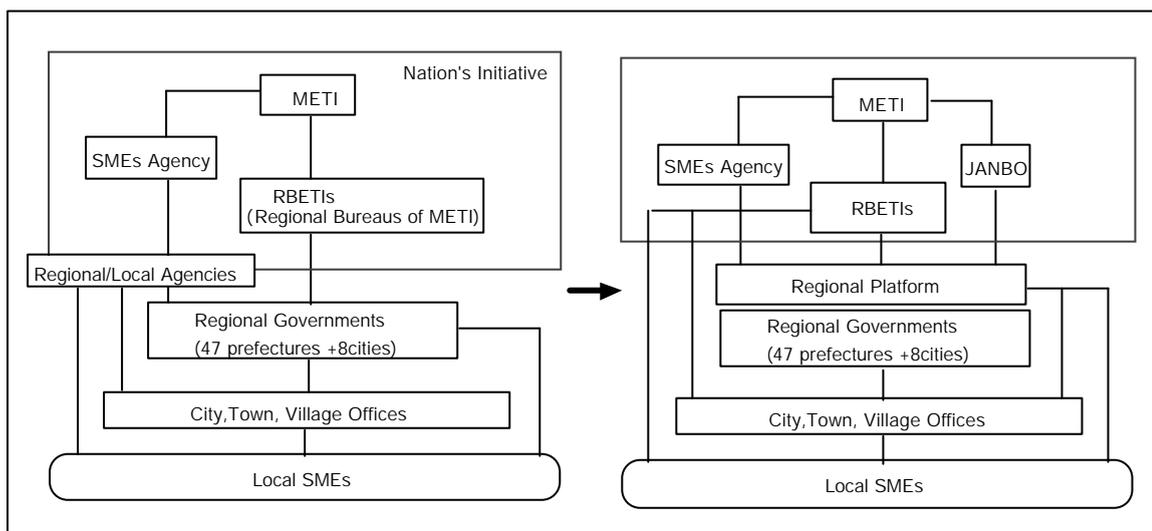
In other words, at present, the Industrial Cluster Plan could be regarded as the recombination of the past promotion policy for the industrial districts and the Technopolis plans. However, what is very important and interesting is the organizational changes that took place within METI. The significant points of this change are following:

- Newly organized Regional Economy and Industrial Groups - one of the bureaus of METI

- Mission of RBETIs (the Regional Bureau of METI; 9 branches all over the country) was revised to node regional/local networks
- Over 20% of local bureaucrats (480 of total 2200) of RBETIs were assigned a new role of “salespersons” providing one-to-one and face-to-face services for the local SMEs.

Before, the main role of RBETIs was to act as a node, which transmits the commands from the central government toward the regional governments. RBETIs never opened their doors, they never went to the doorsteps of the regions, had nothing to say to local SMEs. They always called regional/local actors to their meetings that were hold only at the location of their offices. Now the situation has drastically changed. Thus we could say the METI’s organizational behavior has been undergoing a Copernican change. The reversal of information asymmetry is the major underlying condition of such a change. We present a conceptualization model of the organizational change in figure 1. Before, SME promotion policy was mainly implemented within the framework of the SME Agency. The access routes to industrial policy for the local SMEs were very limited and there were large information gaps within the hierarchical structure. Policy-makers and technocrats of METI recognized that if they could not get the information of local actors they would never be able to make effective policies.

Figure 1. Organizational change model of METI's regional economy and industrial policy



On the other hand the local platforms have formally designated the regional government as organizations for one-stop coordination. Even though there are differences in efficiency among the regions, at least the local officers have been motivated to contact local actors within the framework of the industrial policy in the past decades. Moreover, the regional governments have learned how they should apply the central policies and grants more wisely.

Thus the SMEs can be directly promoted and supported both by the central government and by the regional government. Such a “salesperson” project was implemented within METI’s governance, as if a new competition between the regional governance and the METI’s governance emerged.

3.2.2 MEXT’s Intellectual Cluster Plan: Targeting Innovation Networks and Government-University-Industry Relationships

Regarding the MEXT’s Intellectual Cluster Plan we will not present it in detail in this paper, we will just mention the important points. This plan was implemented within the wave of the

university-industry-government relationship (U-I-G) policy from the second half of the 1980's. In this context MEXT had mainly worked to expand the budget for universities, which at first aimed at improving facilities and human resources for technology transfer and patent strategy. However, the framework of the U-I-G policy has broadened for almost the same reasons as the objectives of the Industrial Cluster Plan. In 2001 the Science and Technology Basic Plan, which targets the strengthening of the Japanese advantage of science and technology in the next 5 years including the Intellectual Cluster Plan, was adopted by the Cabinet. 10 projects were designed and have started since 2002.

Under the catchphrase of the plan, "Creation of Japanese versions of Silicon Valley", the Intellectual Cluster Plan aims at creating the regional advantages based on advanced research and technology organizing U-I-G networks around the universities. This aim overlaps with the Industrial Cluster Plan of METI so that MEXT and METI are just starting to organize the cooperation and liaison strategy between two plans.

3. 3. Evaluations of the Cluster Policy

In comparison with the analytical framework presented in part 2, how can we evaluate Japan's policy change and its new approach? How can we draw the implications of the government's cluster policy from the comparative analysis?

Factor-1: Autonomous Developments

Japan's policy has just mentioned its importance and instructed the SMEs and regions to be modeled on the best practices such as Silicon Valley. Not only in Japan but also in many developed countries the best practice-oriented approaches have been implemented because of the difficulty to support the autonomous evolution system of the economy. Due to that problem the governments rather pursue the role of a pilot boat for the industries watching and observing carefully what direction they wish to go or should go. However, we need to discuss if such an objective should be the government's matter or not. In the developed countries it is the industry rather than the government that takes a more proactive attitude. Thus the role of the government has to be restricted and rather regional coordination is required. On the other hand, the government still desires to get the information in different fields in order to justify its new role which aims to enhance clusters both for the regional and for the national advantage. As a result of these tendencies the most crucial point could be how to reduce the gap between top-down implementation and bottom-up emergence. We shall consider this point from the bottom-up point of view of SMEs later.

Factor-2: Innovation and Flexibility

It has been consistently emphasized that both innovation and flexibility need "networks". This point is deeply related to the first point. Deep analysis and vision how to enhance the networks within clusters, seem to be still lacking. However, the most valuable and particular results of the Japanese government (METI) seem to be the organizational change to reform the system of policy implementation as shown in figure 1. Such a flexible change of the formation must be the proper function of METI. In addition, the implementation of a one-stop coordination system such as the regional platform has succeeded in leaving the best distribution of policies or grants to each region's discretion. While the results are depending on each region's ability, we can observe that such an organizational change within a superstructure of industrial policy has directly brought influences on each actor's organizational behavior. For example, entrepreneurs who were once regarded as outsiders or eccentrics now tend to be regarded as new leaders enhancing the networks within the cluster.

Factor-3: Closer Connection and Easy Accessibility to Various Policies for the Local Actors

The gradual but fundamental change throughout the 1990's could succeed in implementing each region's one-stop platform. While the level of efficiency is depending on each region's ability, the basis for such a change was already implemented at least institutionally in all regions. It is needless to say that such a change of regional policy could already be seen in the 1980s in the United States and European countries (OECD, 1988). In the case of Japan even though a tendency to catch up such a stream with around 15 years delay could be observed, endogenous emergence within its own historical background could also be observed parallelly.

Factor-4: Market-Oriented Approach

This last point is probably the most difficult factor for the government. In case of Japan, while the "Salesperson Project" has been implemented in advance, a more crucial factor of policy measurement seems to be lacking. The appropriate measurement system in implementing the competitive approach is required to judge which region, which university or which company should get the huge subsidies provided with the national cluster policy. Such a measurement has to include broader knowledge in various disciplines such as corporate finance, marketing, patent, innovation, venture incubation etc. While each regional government is to pursue its own way to integrate such knowledge, Japan's new "Salesperson Project" has not indicated the new way to solve this problem.

4. Actual Behavior of Bottom-Level Actors, Local SMEs and their Networks

4.1. Nature of SMEs and Regions in Japan: Heterogeneity and Diversity as Common Characters

First of all we will present the basic elements that characterize "SMEs" and "regions" within the Japanese economy. The simple conceptualizations will be set for the analytical framework for the fieldwork.

During the last century of industrialization times of Japan, heterogeneity and diversity have consistently been common characters both of SME actors⁵ and of industrial districts. Regarding regions there are 47 prefectures more or less based on the territory of feudal domains of the Edo period in Japan. Each prefecture has a great deal of specificity: nature, climate, culture, food, people, industry etc. Besides, there are no less than 550 industrial districts (>500 million yen of output) (MITI, 1999) in industries such as textile, machinery, metal, and ceramics.⁶ Regarding SMEs there are 4,837,000 SMEs (<300 of the number of employees) accounting for no less than 99.7% of the total number of enterprises (SME Agency, 2002). SMEs account for 72% of number of employees and more than 50% of value of shipments and the value-added production.

The well-known role of Japanese SMEs' agglomerations is the formation of hierarchical subcontractor networks as a part of the so-called *Keiretsu* system. In the industrial districts of "Company-castle-town type" (SME Agency, 2000) such as Toyota-city or Hitachi-city, we could

⁵ Since the 1980's, in the global society, there has been a rise of attention to SMEs' advantages, their particular efficiency in innovation or cooperative activities (Piore and Sabel, 1984; Best, 1990). OECD (2001) has indicated that the SMEs as "a very heterogeneous population" are enhancing their importance toward the twenty-first century. In Japan such heterogeneity and diversity have been the points of dispute since before the war (Yamanaka, 1939; Kiyonari, 1970).

⁶ Though we don't refer to the Japanese proto-industrialization in this paper, some academicians such as Hoshino (1995) and Smith (1989) argue that various kinds of handicraft manufacturing which emerged as side businesses of peasants in rural areas in the late Edo period had formed the unique diversities of regional economies and outstanding diligence of the Japanese labor.

observe how geographical networks formed such hierarchical structures. However, subcontractor networks of large firms have formed not only geographical agglomerations but also non-spatial networks. In the case of industrial districts of "City type" (SME Agency, 2000) such as Ota ward in Tokyo, Higashi Osaka or Hamamatsu, geographical agglomerations form many-to-many supplier networks not depending on a single large company. In such agglomerations, particular SMEs seem to be playing an important role as coordinators between external clients and internal local SMEs. In agglomerations characterized by a mixture of various leading industries, such many-to-many networks tend to be embedded naturally and historically in the region.

Thus, each region has generated its own characteristic formation of networks of SMEs. This suggests that after all, there is a third factor – “networks” of each region, which also shares the common characters of heterogeneity and diversity.

4.2. The Field Study: Objectives and Methodology

We shall now focus on the evidence from the field study conducted in Japan during the six-month period from October 2002 to April 2003. The field study was conducted in nine different places: Hitachi-city (Ibaraki prefecture), Musashi Murayama (Tokyo metropolitan region), Ota ward (Tokyo), Higashi Osaka (Osaka prefecture), Kiryu (Gunma prefecture), Taito ward (Tokyo), Hamamatsu (Shizuoka prefecture), Suwa (Nagano prefecture) and Fukui (Fukui prefecture). These nine agglomerations have various industrial and organizational structures and are characterized by different industries such as textile, musical instruments, machine and metal, automobiles, precision machining, plastic etc. Some of these industrial districts were developed during the Edo period, others in the twentieth century. These nine places, representing nine case studies were chosen because they represent adequately the variety of the Japanese industry and of the phenomenon of “industrial concentration”⁷ or the industrial district.

The objectives of the field study were to examine how the cluster policies are being implemented in different regions and what results could be observed. We also hoped to distinguish some key factors that determine whether the implementation of the policy is successful or not. Parallely, we concentrated on the most proactive phenomena among the SMEs in industrial agglomerations regardless of whether these phenomena were the result of the institutional efforts and incentives or whether they emerged within the grassroots entrepreneurs’ networks independently. We believed that it was necessary to examine the independent efforts in order to discern the factors pushing SMEs to undertake them. We also believed that these “outside”⁸ activities provide interesting elements to explain the failure of official policy implementation in some regions.

We chose to apply qualitative methodology based on interviews with SME managers and local government officials. We estimated that it was the only appropriate way to grasp the phenomenon and to include as much of the local context as possible. As we mentioned earlier, Japanese regions differ significantly one from the other in many aspects and it was therefore necessary to include the local characteristics in this study. Moreover, the theme of clusters is a rather new one and it could be best apprehended using the techniques of the qualitative methodology.

A total of 42 semi-structured interviews were conducted with the SMEs⁹ and local government officials. We took care to interview at least three companies per industrial district, although in at least half of the districts we could interview 4 or more SME managers. Interviews lasted from 45

⁷ In Japanese, the term is *sangyo shuseki*, meaning “industrial concentration” or “industrial agglomeration”

⁸ Outside meaning “outside the official framework of the cluster policies”.

⁹ In most cases we interviewed the presidents-owners of small companies.

minutes to around two hours, with an average of one hour and 15 minutes. An interview guide was developed before the field study. However, it went under considerable change as the field study advanced. Some questions were omitted and some new ones were added to the list. Thus, new interesting elements were included in the study, as they emerged and the focus of the study could change flexibly in the necessary directions. Interviews were conducted in Japanese and all of them were recorded and later transcribed. The data was then analyzed using the techniques proposed by Miles and Huberman (1991).

In addition to interviews, we were able to make observations, within SMEs¹⁰ and around them. We also visited some parts of towns in which the enterprises are located. These visits proved to be valuable for our comprehension of the atmosphere in which the SMEs work and create networks. We also took a significant number of photographs. The third source of evidence was the secondary data contained in all kinds of brochures, official statistics, articles, books, magazines etc. Most of the companies interviewed provided the “Company Profile” brochure, and some of them other written materials on their activities. The three data sources: interviews, observations and documents were useful for the process of “triangulation”, which upgrades the validity of our research.

4.3. The Proactive Phenomena within the SMEs Networks

The field study was designed in such a way as to cover all types of industrial agglomerations. Both traditional districts and technologically oriented ones (JSBRI, 1998) were studied. However, the most interesting case proved to be the one of town factories’ agglomerations in places such as Higashi Osaka, Hitachi-city or Ota-ward. We shall present the proactive attitudes found in these industrial districts. Agglomerations of town factories (*machi koba*) have characterized Japan for several decades. Within them, SMEs that concentrate in relatively limited areas are engaging in cooperative relationships forming inter-firm networks. The organization and functioning of such networks are in many ways influenced by the characteristics of the space in which they emerge.

Case-1: The Higashi Osaka Satellite Project

The Higashi Osaka district is at the borders of historically the most mercantile city in Japan, Osaka. At the beginning the cotton industry emerged there as a local industry in the Edo period. Then twisted yarn, *Tabi* (Japanese traditional socks) and towel industries were introduced in the Meiji period. Even after, entrepreneurs continued to show a tendency toward producing various end products, such as iron wires or nettings, tools, toothbrushes, toys, stationery and so on. When the local industries transformed into metal or machinery manufacturing industries, such a way merchant thinking seems to be inherited by modern entrepreneurs. Since several decades ago, especially from the after war time to the high growth period, a very characteristic agglomeration of numberless micro companies, sharing terrace house type factories partitioned into more or less than 5 units, has emerged. As the second largest city in Japan various leading companies such as Matsushita, Sharp or Sanyo were located in the vicinity and the agglomeration has expanded as a hinterland of such a megalopolis. While there were 2,053 factories in the administrative territory of Higashi Osaka-city in 1955, the number increased to 9,479 in 1975.

The district’s wider area including two cities and three wards¹¹ has not shown drastically decreasing of the number of factories, from 22,540 in 1975 to 21,650 in 1998. This data shows the local strength within entrepreneurs of Higashi Osaka district. However, the serious recession stroke Japan

¹⁰ We could visit production facilities, showrooms, R&D facilities etc.

¹¹ Generally the industrial district named ‘Higashi Osaka’ designates the area composed of five administrative districts, Higashi Osaka-city, Yao-city, Higashinari-ward, Ikuno-ward and Hirano-ward. While the core area is Higashi Osaka-city, it has expanded its territory little by little.

as mentioned above and almost all SME factories have been suffering a serious decrease in sales. Even though a lot of companies have diminished or disappeared completing their roles of the modernization era, new leaders within new spatial networks have recently emerged, especially in the last decade. The most symbolic case among a number of projects is the Higashi Osaka Satellite Project.

The satellite project of Higashi Osaka is a plan to design, develop and produce a satellite by joining forces of around 40 SMEs, mostly based in Higashi Osaka. The idea for this project came from an entrepreneur whose company makes airplane parts. He saw the potential in the SMEs of Higashi Osaka, many of which are narrowly specialized in their fields and which have developed distinctive competencies. Most of the companies produce metal and machine parts and work for numerous clients. This group of entrepreneurs, under the leadership of the airplane parts manufacturer has searched a partnership with some researchers in the neighboring universities. However, there seemed to be major discrepancies in mentalities between the two sides and the relationship could not take a successful route. While the regional government mainly promoted technology transfer from the government-owned institutions such as Osaka university, Osaka branch of the National Institute of Advanced Industrial Science and Technology or the Technology Research Institute of Osaka Prefecture, the SMEs could not get the opportunities to meet the human resources they required. Nevertheless, the SMEs continue to seek support and have recently obtained a grant from the government.

This is an example of a proactive attitude, which originated from the entrepreneurial spirit of SMEs regardless of the government efforts to promote innovation, research and development within the framework of new cluster policies. In Higashi Osaka we can observe an emergence of relationships between SMEs and private universities rather than national universities or institutes as mentioned above. Such relationships were naturally organized within very autonomous activities among the local entrepreneurs and the local private universities or the individual professors.

Case-2: From Subcontracting to Original Equipment Manufacturing - Evidence from Hitachi-city

SMEs in Hitachi, the city of Hitachi enterprise have been particularly hurt by the hollowing-out process in the Japanese economy. Many subcontractors of Hitachi have thus completely lost orders and have passed, as one of entrepreneurs told us “from only Hitachi to zero Hitachi”¹². In such circumstances a large number of SMEs have ended their operations and perished. In the case of Hitachi-city, local SMEs’ activities were always passive and the majority of SMEs never cared about their technological competences. However, there are others that do not wish to give up and that try to find other ways to survive. One possible strategy is to look for new clients and sell the same kind of products, but this is not an easy task for a company that is based in Hitachi-city. In fact, most large companies do not wish to enter the “territory” of this company-town, so, getting orders from new clients proves to be complicated.

In order to help the Hitachi-city SMEs to “reinvent” themselves, the government established an “Industry support center”¹³, which provides help to local SMEs during the transition process. The officials of the center build close links with the enterprises and also promote U-I-G relationships,

¹² This means that many SMEs in Hitachi-city that subcontracted exclusively for Hitachi Co. have been left without any orders from their “parent” company - Hitachi. This is mostly due to the delocalization of subcontracting to the South-East Asia and especially to China.

¹³ Several smaller cities or wards which have large industrial concentration such as Hitachi-city, Ota-ward or Taito-ward established such centers with their initiatives.

between the universities of Ibaraki and neighboring prefectures and local SMEs. A young coordinator from the city office of Hitachi is playing an active part to tie local actors together. An understanding of the region's crisis is clearly shared among the local government, industry and universities.

During the last decade, several work groups composed of local SMEs have been formed with an objective to develop and commercialize new original products. One of the groups gathered nine local SMEs, once subcontractors of Hitachi that belonged to the same Subcontracting association¹⁴. These SMEs developed an original product, a bioreactor called Bioclean, which transforms garbage into water. During the innovation process this group benefited from the help of the local government and the Industry promotion center and from the university researchers.

The case of Bioclean project is an example of a successful alliance of local SMEs, local government and university researchers. It shows that the implementation of the cluster policy, through the establishment of a new Industry promotion center, can have positive results, which are due to close links between local officials and the industry. In other words, these local officials have shown motivation and interest in helping the SMEs to overcome the crisis. In addition, they have proved to have good knowledge of firms and their capacities.

Case-3: Skill Coordinating - the Case of Ota Industrial Network Group (O-ING)

In the Ota-ward in Tokyo, there are around 6000 manufacturing SMEs narrowly specialized in metal and machine processing. Some authors claim that this ward houses the foundation or the base of the entire Japanese industry. This is probably because a huge amount of particular molds is produced in this place, and these molds are used to produce thousands of parts in different industries. SMEs in Ota, many of which are micro-enterprises have developed distinctive competencies in these fields and are able to produce molds with the precision that can be obtained nowhere else in Japan.

Compared with Higashi Osaka, there is less merchant thinking in Ota and the majority of SMEs care exclusively about their technological competences. However, such competences were not intended for developing new products but for deepening their performances or techniques for their clients, larger companies. As a result they could not survive the sudden change of market environment flexibly. The number of SMEs in Ota has been constantly decreasing due to many different factors among which the delocalization of industry to China and the high prices of land in Tokyo. While there were 8,311 factories in 1975, it decreased by 6,038 in 1998.

In such circumstances four SMEs have come up with an idea to promote and commercialize the unique skills found in the ward, by creating a network called Ota Industrial Network Group. Each of these four companies act as skills coordinators and have formed their own groups of around 150 companies each, all of which are based in Ota-ward. This means that each of four coordinators has perfect knowledge of competencies of all companies within his group and can combine them to meet the requirements of the client. The network is based on competition and cooperation, because four groups compete to get the order placed by the client and then, once the order is obtained, the members of the group cooperate to offer the best service to the client. Competencies and skills are constantly upgraded through the continuous process of competition and cooperation. Such a well

¹⁴ In Hitachi-city there are several subcontracting associations composed of firms that subcontract for Hitachi Co. These associations have basically served to transfer the payments from Hitachi Co. to each individual subcontractor, member of the association. Apart from this, enterprises members of the association did not build any other kinds of ties until recently, i.e. since the beginning of the restructuring period.

coordinated network across the district had not been observed before even though there are both vertical and horizontal networks among companies within small groups of firms scattered all over the district.

This case is an example of intelligent leadership, based on the profound knowledge of skills that can be found in companies of the industrial agglomeration. The group did not benefit extensively from the local bureaucratic structures, although at least one of the four leaders has close ties with the Industrial Promotion Organization of the ward. While the city officers started to emphasize their initiatives to coordinate such new emergence of networks, it seems difficult to make both closer and impartial relationships between more than 6,000 SMEs. Like in the case of Higashi Osaka, the initiative rather came from the enterprises, thus witnessing on the proactive bottom-up emergence.

4.4. General Patterns

As we mentioned at the beginning of this section, heterogeneity and diversity are the common characters of Japanese regions and SMEs. These features could also be seen during the study of the cluster policy implementation and results. However, a few common characteristics as crucial elements seem to be present in all regions studied.

Innovation as Survival Strategy

In all regions SMEs seem to realize that their survival depends on their innovation capacity. Naturally, the degree and the type of innovation required vary according to the type of industry, the size of the firm, its specialization etc. Thus, in the textile districts innovation is oriented toward a better understanding of consumer needs and tastes and toward developing of easy to wear materials. Conversely, SMEs in metal and machine industries are in search of upgrading of their competencies and skills and finding ways of producing ever cheaper parts for their clients.

The variety of innovation forms observed is great. Nevertheless, the important thing to note is that SMEs seem to be trying to free themselves from the illusion that they can live up to the globalization process by simply continuing to produce the same products they had been producing in the last decades.

From One-to-Many to Many-to-Many Networks

SMEs subcontracting for only one client are fewer and fewer. Most SMEs have been understanding that belonging to hierarchical one-to-many supplier networks puts them in a dangerous position of depending on the will of their client. Therefore, they have put efforts to diversify the sources of their orders and thus decrease the degree of their dependency. These developments can especially be observed in the former pyramid-like structures in districts such as Hitachi, Suwa and Hamamatsu.

On the other hand many-to-many networks have existed in districts such as Higashi Osaka and Otawara for a long time. However, such many-to-many networks tended to become rigid as a result of pursuing merits of long-range trading. Recently, SMEs opt for more flexible many-to-many networks rather than the former forms.

U-I-G Liaison Strategies

Although the creation of liaison strategies between the university, industry and government (U-I-G) is taking place at a different pace, almost all regions seem to be working on developing such

relationships. Even though regional governments started to emphasize initiatives to coordinate such relationships, it seems to be extremely difficult. Many regional governments tend to contact a limited number of SMEs which have enough competences to communicate with university professors. However, such SMEs with technological competences can globally access even to more prestigious universities without help of local governments.

Real targets of regional U-I-G liaison strategies must be the remaining SMEs such as small town factories, storing huge technological resources and the tacit knowledge of artisans rather than the specific knowledge of engineers. In some of the most successful relationships of Hitachi-city, a key person within the local government structure seems to be playing an important role of linking the three parties. The capacity of such persons to promote U-I-G relationship seems to depend on their commitment to this task and on their ability to guide smoothly the “networking” process, respecting and understanding differences in mentalities and interests of those in the university and those in the industry camps.

Spatial Networks

In many industrial districts, firms as well as government officials agree that there is a potential of “space” to be exploited. Undoubtedly, working together with firms that share the same space has numerous advantages (Porter, 1990). This could be observed in the cases discussed in the part 2 of this paper. It seems as if Japanese SMEs are only beginning to realize that creating networks with firms in their surroundings is to be one of the key determinants of their success and survival in the years to come. This is especially true for spatial networks that collectively own all the necessary competencies in a certain field (Seki, 1994).

On the other hand, some SMEs have been changing their vision or their perception of space in which they are supposed to operate. One entrepreneur told us: “We are released from the gold fish bowl. We, the goldfish, now have to swim in the open sea”. The goldfish bowl represents the *keiretsu* system and the open sea refers to the market. Thus, for example, some firms that have belonged to a *keiretsu* system until recently are now in search of a new space in which they could build their new existence.

5. What Can We Learn from the Japanese Case: Suggestions to Policy-makers

Each country has its characteristics and a distinctive institutional structure. Accordingly, cluster policies should strive to fit these elements as much as possible. However, we believe that there are some points that apply to all countries, and we shall present them here. They are the result of what we have learned from the Japanese case.

Importance of the “Policy Design”

The cluster policy is not only an industrial policy but also a socio-cultural policy. It requires policy design with fair value judgment. Policy-makers should have a clear vision about the objectives of the cluster policy and directions to which the cluster policy should lead. In addition, they should determine which place the cluster policy should take in the overall economic policy of the country. This is particularly important since considerable financial aid needs to be allocated to the projects, and the capacity of each country to do so varies significantly. Thus, too ambitious policies will prove difficult to achieve and will lead to a waste of resources. Conversely, policies, which lack incentives, will show little result and will attract little interest from the industry and research

institutions. To summarize, policy-makers should be able to answer the fundamental questions: Where do we wish to go?, What objectives do we wish to achieve? and How can we achieve them?

In case of Japan we can observe that many regional governments started to struggle to establish each unique interpretation of the central government's top-down policy. At least we can say that each industrial district requires each original institution to promote their competences to innovative ones.

Solid Knowledge of the “Field”

Our experience in Japan has shown that the policy-makers at the top level lack the knowledge of the situation, capacities and the industrial structure in the field.¹⁵ This is the reason why in many places the policy can not be implemented as it should be. To put it simply, policy-makers design something that has no link what so ever with the reality of the field. In such circumstances, two types of phenomena can be observed. First, the resources are wasted to put into work something that had no chance to succeed in the first place. Second, there are some actions that are taken by entrepreneurs that do not benefit from the governmental support and they should. The result is that many projects that could have led to results are abandoned due to the lack of resources and the others that should have not been undertaken in the first place are wasting the resources and will be abandoned some time in the future.

In any case the crucial point for policy-makers is sharing experiences with local actors within long-term relationships. The knowledge without experience can never be effective.

Placing “Key” Persons, Detecting Leaders

The human factor proved to be a key element for the success of the cluster policy. We have seen that in regions in which the key person is pushing the implementation of the policy and smoothly conducting the establishment of U-I-G relationships, all parties are prepared to put efforts to attain the objectives designed by policy-makers. It is therefore crucial to assign the right people to the right positions. Choosing local people that have sustainable knowledge of the situation in the region is one possible strategy. Another one is to appoint persons that show enthusiasm and are ready and capable to act as leaders. However, the role of the “leader” should be performed delicately in order not to hurt the sensibilities of a large number of entrepreneurs that prefer to engage in “equal to equal” relationships.

Recently there have been some cases where persons who were regarded as outsiders or eccentrics have started to take the places as new leaders. Policy-makers should carefully observe what kind of persons are actually playing key roles within SMEs networks.

Conclusion

In this paper we presented and discussed the Japanese cluster policies designed mainly by the Ministry of Economics, Trade and Industry (METI). We also presented some of the results of the field study that we conducted in 9 industrial agglomerations in Japan, focusing on the most proactive phenomena that attracted our attention. The examples of such phenomena show us that there are different elements to be considered when designing and implementing the cluster policy. We tried to propose an answer to what direction the cluster policy should take. We hope that the elements presented in this paper provide at least a partial answer to that question.

¹⁵ Many entrepreneurs and local officials that we interviewed told us: “Those people do not know anything about us.”, “The government people do not understand us and our needs.”, “They never come to talk to us.” etc.

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