Policy Interventions for Industrial Network Formation: Contrasting Historical Underpinnings of the Small Business Policy in Japan and the United States[1]

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ABSTRACT. This article examines the role of policies in promoting inter-firm networks, by contrasting policy frameworks for small businesses in Japan and the United States. While the policies in two countries share similarities in many respects, different historical underpinnings have led small business policies to play different roles in economies of Japan and the United States. This paper analyzes how Japan's small business policy came to encourage inter-firm collaborations over the course of its history, while policies in the United States have not had explicit orientation toward the development of inter-firm networks until the 1990s.

1. Introduction

The formation of dynamic and flexible industrial networks[2] has preoccupied the attention of scholars in regional development since the 1980s. Numerous studies have been conducted on how industrial networks function in various regional economies. Some adopt an transaction cost approach (such as Scott, 1988a), while others attribute the formation of such networks to cultural underpinnings of the region's historical legacy (see Piore and Sabel, 1984; Saxenian, 1994). Yet another group of scholars has focused on the relationship between local political climate influencing the formation of industrial districts (see Becattini, 1978; Brusco, 1982). While policy makers today scramble to find a means to induce successful industrial networks for their regions, much of the research on industrial networks have been done without referring to any role of policies in developing and nurturing such networks. Do policies toward the promotion of inter-firm collaborations actually facilitate the growth of industrial networks? Do such policies result in industrial organization in which small firms prosper?

This article is an attempt to better understand the relationship between policy and industrial networks. There are a variety of programs and policies from various arena, that may facilitate the formation of industrial networks. Local economic development and revitalization programs, employment-creation programs as well as high-tech promotion programs all potentially affect the formation of industrial networks. In this article, I will focus specifically on small business policy and its role in promoting inter-firm collaborations. Small business policy is one of the more prominent and direct means through which government exercises influences over industrial organization, by supporting smaller firms to survive in the market. As in the case of Japan, small business policy has been used to help structure industrial organization in such a way that have brought about economic benefits and sustainable business performance for both large and small firms.

The historical legacy of Japan's small business policy reveals a striking contrast to that of the U.S. policy. Unlike the U.S. policy which lacked sectorally-oriented programs for most of its history, Japan's policy has had a long history of explicit sectorally-based programs and promoted collaborations among small firms as well as relationships between large and small firms. This article will

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show that Japan's policy consistently favored, protected, and promoted the formation of complex industrial hierarchy, in contrast to a more liberal policy exercised in the U.S. government.

2. The state of small businesses and the role of policy in inter-firm networks

Both Japanese and American researchers attribute much of Japan's postwar economic success to effective coordination, collaboration and mutual dependence between large firms and small businesses, particularly in the manufacturing sector (Nakamura, 1983; Miwa, 1990; Dore, 1986; Gerlach, 1992). It has been argued that competition among small businesses for contracts has contributed to quality improvement for many of Japan's industrial products (Best, 1990; Womack et al., 1990). As subcontractors to large firms, superior products of small businesses helped the large firms to eliminate virtually all defects in finished products. In contrast to managers within a large firm whose job security is guaranteed, heads of small businesses are entrepreneurs who are highly motivated in producing superior products for their firms' survival. It has been argued that Toyota's lean production, for instance, would not have been possible without an array of extremely reliable products that Toyota purchases from its subcontractors (Womack et al., 1990). Thus, Japan's large firms clearly benefited most from collaborating, controlling, and taking advantage of the large pool of small firms, and small businesses brought in flexibility in the overall production structure, accruing benefits to both small and large firms.

Although much of Japan's economic organization has been portrayed as one that is driven by large and powerful conglomerates, now widely known as *keiretsu*, it is Japan's numerous small companies that allowed these large firms to function effectively (Friedman, 1988). Although the power may reside at the top of the hierarchy, the figures on small businesses in Japan clearly indicate that Japan's small businesses occupy an important role in the economy. During the postwar period, small businesses in Japan have consistently provided around 80 percent of total private-sector employment. This figure is the highest among the industrialized economies, and is particularly prominent when contrasted with the same figure for the United States, which has fluctuated around 50 percent[3] (Aoyama and Teitz, 1996; Harrison, 1994). The contrast between the two countries for manufacturing employment is even more striking: while more than 70 percent of the Japanese manufacturing employment is currently in small businesses, less than 40 percent of the U.S. manufacturing employment is accounted for small businesses.

What can explain a significantly large role of small businesses in Japan's economy *vis-à-vis* other industrialized economies? And what explains such significant different industrial structure in the manufacturing sector in particular? There are at least two explanations for these differences in theoretical terms. The most traditional economic theories of the left and the right, such as those represented in stage theories of Rostow's, as well as the traditional Marxist theories might venture to attribute such contrasts to different stages of economic development which implicitly states its linear, sequential and often universal developmental path.[4] From these views, Japan's industrial organization can be simply explained as a less developed form of capitalism, and the difference in economic structures would cease to exist as Japan's capitalism moves to a more mature stage. Such view has been widespread, however implicit, among economists and policy makers in the United States in much of the postwar period.[5]

Another argument represents an emerging theoretical trend in political economy, which contests that there is more than one form of capitalist development, and the difference is explained by the ways economic structures and social institutions, values and cultures interact, and that policies play a significant role in influencing the way economies are organized (See Johnson, 1982; Amsden, 1989; Gold, 1989; Putnam, 1993; Evans, 1995). However, when it comes to the role of policy, opinions are divided as to whether policies can function as a principal agent of change. Some argue that the role of policies in shaping industrial structures are minimal, and that industrial organizations are more of a product of historically and politically embedded specificities, rather than policy. For instance, Granovetter (1985) emphasizes the role of historically embedded social institutions affecting economic organization. Others, such as Sabel (1991) and Gerlach (1992), focused specifically on the role of "trust" in the formation of particular types of industrial organization.

The discussion on the role of small businesses in shaping industrial networks, particularly in the manufacturing sector, is a relatively recent phenomenon. Traditionally, small businesses have been studied for their roles in innovation and entrepreneurship. Beginning with Schumpeter (1939) and his characterization, small businesses have been considered as entrepreneurs who are the primary source of innovative behavior, inducing economic upturns. More recent debates also focus on whether smaller firms are the primary sources of employment and innovation in the economy. Rothwell (1982) and Audretsch (1995), for instance, presented an analysis of small businesses and their role in the economy as entrepreneurs with innovative capacity. On the side of employment effects, studies conducted by Birch (1983, 1987) brought national attention to a significant job-creating capacity of small businesses in the overall economy in the United States.[6]

It was the rise of interests in institutions in economics that had the most significant impact on the theoretical development on industrial networks.[7] It prompted scholars to explore the role of institutions, including government, firms and inter-firm networks as potential sources of economic growth. In the field of regional development, the pioneering work by Piore and Sabel (1984) on flexible specialization has prompted many scholars to focus on industrial networks as a source of sustained regional growth.

With a deeper understanding of the role of industrial networks, whose functions are not limited to the traditional notion of agglomeration in Marshallian sense, we has advanced our knowledge of production organizations and their impacts on growth.[8] The debate has even progressed into an argument that the concept of inter-firm networks has replaced individual firms as an identifiable scope of research, making the debate on the size of firms effectively obsolete (Teece, 1992). As the boundaries of firms become increasing fuzzy through widespread corporate alliances at various stages of R&D, production, marketing and distribution, the debate over firm-size and its relationship to innovative behavior, technological progress and economic growth has become increasingly complex.

This study will reveal that Japan's policy encouraged such inter-firm collaborations throughout the postwar period. Since the Japanese industrial networks *per se* have been studied extensively, this article focuses on the policy side of industrial network formation. I will examine the case of Japan's small business policy, and evaluate how dominant ideologies, historical legacy and economic beliefs affected policy formation and program objectives. By contrasting the Japanese case with the U.S. case, I argue that policy interventions, in this case at the national level, can in fact help shape certain forms of industrial organization, given certain political and economic contexts. My aim is to demonstrate how policy objectives and actual programs played a major role in shaping industrial organizations and resulting in strikingly different economic structures. The choice over what society considers as the best mechanism for economic growth, in this case free competition for the United States and industrial collaborations for Japan, thus had a significant impact on the way inter-firm networks are formed in these countries.

3. Small Business Policy in Japan: Tools for developing "Industrial Systems"

1) *The origin*

The origin of small business policy in Japan (in early 1930s) lies in the effort to raise productivity for wartime industrial production.[9] The Ministry of Commerce and Industry, the prewar predecessor of the Ministry of International Trade and Industry (MITI), had begun to consider policies to promote subcontracting arrangements between large and small firms before 1935. By 1937, the Ministry initiated programs which included assistance in financing, technical advice and management advice to 13 prefectures. These programs aimed at promoting rapid industrialization in the peripheral areas of Japan, with a purpose of integrating small firms into the national production system in order to mobilize economic activities for the wartime economy.

Policy makers in Japan were already aware of the advantages for subcontracting arrangements: 1) an increase in production capacity without large capital investments by parent firms; 2) economies of scale for small firms by producing for a number of firms, and 3) a better product quality achieved by specialized small firms rather than mass-producing large firms (Toyoda, 1941).

However, it should be noted that subcontracting arrangements were quite chaotic at initial stages; some subcontractors constantly shifted parent firms, and some parent firms refused to nurture, protect and share technologies with subcontractors. The Japanese government responded by urging industries to develop "organic" relationships between parent and subcontractor firms, advising firms to conduct businesses with a single parent firm which would in return be responsible for providing contracts, technology and training for employees. This was done in the context of the wartime period, when administrative interventions were relatively effective in making the private sector comply with government regulations. With the rationale that firms should contribute to the development of an advanced defense-oriented state, firms were exhorted to drop the individual profit-motive for the sake of raising the overall productivity of the Japanese industries (Toyoda, 1941). Thus, the current system of industrial organization and its particular structure in Japan has been the product of a deliberate policy implemented to achieve specific objectives during the period of wartime industrial production.

2) *Postwar policy during the occupation*

Postwar policy toward small businesses began with the programs implemented by the General Headquarters of the Allied Forces, which occupied Japan in the immediate postwar period. In order to neutralize the political and economic powers that facilitated Japan's imperialism, the initial purpose of the Allied Forces was to dismantle the prewar conglomerates, known as *zaibatsu*. The Small and Medium Enterprise Agency (SMEA), which was established under the jurisdiction of MITI in 1949, became the principal instrument to dismantle cartels and assist the functioning of a free market (JETRO, 1989; MITI, 1989a, 1989b). The initial onset of the small business policy in Japan during the postwar period, therefore, was a complete reversal of the previous policy of subcontracting promotion.

SMEA initially functioned to provide much like an agency with offering economic relief to distressed small business sectors with programs that provided better accessibility to capital (Arita, 1990, 1997). Several financial institutions were established to facilitate this process, including the National Finance Corporation in 1949, which was created specifically to fund small businesses (JETRO, 1989; MITI, 1989a, 1989b; Kurose, 1997). Also, in 1951, a variety of regulations were established to assist loans by private banks, such as trust banks and mutual banks (Small Business Corporation of Japan, 1986).

3) *The post-occupation policy*

As the occupation came to an end however, the initial postwar objective of small business policies was altered (Chusho kigyo dan chusho kigyo kenkyujo, 1987; Arita, 1990). MITI announced target industry policy as the backbone of national economic policy in 1951. The primary objective of MITI's industrial policy was the improvement of Japan's international competitiveness. To achieve this objective MITI opted for programs that targeted mainly heavy industrial sectors, such as steel, coalmining, electric power generation and shipbuilding. Through this target industry policy, MITI aimed at achieving rapid industrialization by increasing productivity and reducing the cost of raw materials, energy and transportation. In conjunction with these policies, MITI developed programs which are designed to promote facility modernization and technological advancement in these sectors (MITI, 1989a: Arita, 1990). Mainly, there were three major strategies identified in these programs:

1) protectionism with strict control of trade, currency exchange and technology transfer;
2) provision of capital through various quasi-public bank channels (such as the Japan Import-Export Bank, the Japan Development Bank, and the Industrial Bank of Japan) and provision of tax incentives for facility modernization; and
3) loosening of antitrust regulations to facilitate concentration of capital and close coordination among large firms.

As part of the overall program change, small business policy was also transformed to supplement Japan's industrial policy. The primary purpose of small business policy thus shifted from promotion of free competition to establishment of a complex industrial structure that could bring about rapid industrial growth. As part of the overall industrial policy, the main elements in Japan's small business policy also shifted from relief-oriented measures to the promotion of subcontracting arrangements between large and small firms with the primary purpose of raising overall productivity.

Thus, MITI enacted small business policies that directly contradicted the initial postwar objective. The Law on the Organization of Small Business Associations of 1957 explicitly and actively promoted cartel arrangements through provisions of tax and financial incentives (Arita, 1990; Kurose, 1997). Small firms were encouraged to form cooperatives, which played an active role in the exchange of market information within an industry, thereby increasing stability among desperate small firms during this period.

In addition, the National Federation of Small Business Associations was established (MITI, 1989a). As an umbrella organization for small businesses in all sectors, the Federation took an active role in encouraging closer relationships among firms through both formal and informal networks. As a result of these policies, a variety of industry cooperatives and associations were established. In general, these industry associations today exert a strong control over many Japanese industries, and have considerable influence over Japan's economic planning.

Despite the major reversal in Japan's economic policies, the allied forces did not intervene to stop this reversal in major policy orientations. Most likely, it was because of the changing political economy of East Asia, as the threat of communism spread in the region at the time. Instead of dismantling the economic source of prewar Japanese imperialism, the priority of the Allied Forces on Japan shifted to the promotion of rapid economic recovery in order to contain the threat of communism.

4) *The foundation of Modern Small Business Policy*

The basis for Japan's small business policy today was laid out in the Small and Medium Enterprise Basic Law of 1963 (MITI, 1989a). This law established a framework for a variety of measures that had previously been enacted without coordination, and consolidated all programs with application to small businesses.

In this law, it was explicitly stated that the promotion of small businesses is a component of overall industrial policy, aimed at improving Japan's industrial competitiveness. The role of small businesses in the economy was thus defined as contributing to the improvement of the industrial structure and to achieve balanced national economic growth by improving Japan's international industrial competitiveness.[10]

> "The targets set in this law, in short, are to promote the growth and development of small and medium enterprises in coordination with that of the national economy, and to contribute to the betterment of the economic and social status of persons working there." (MITI, 1989a).

In addition to the programs that facilitate collaboration among firms, the Law on the Promotion of Subcontracting Small and Medium Enterprises was enacted in 1969. This law provided additional incentives for smaller firms to establish subcontracting arrangements with larger corporations. Under this law, a comprehensive program was developed, which packaged financial assistance with training as well as consulting specifically for facility modernization in every stage of production.

The changing international economic environment in the 1970s caused MITI to consider the necessity of yet another industrial restructuring in order to adjust to slower economic growth. An advisory committee established by MITI in 1979 urged that the Japanese economy should to shift its basis from heavy industries to energy efficient, high-technology industries (MITI, 1989a). In response to this shift in national industrial policy, Japan's small business policy took on another feature, namely, the promotion of business conversion. Although it has been considered largely taboo in Japan to implement a policy that encourages firms to change their line of business, two new laws were enacted in order to better facilitate business conversion among small businesses from relatively traditional, labor-intensive industries to new high-tech industries with more promising future.[11]

Small business policy in Japan distinguishes various sectoral activities, and tailor policies accordingly.[12] Small business policy in Japan was largely part of the restructuring of industrial organization to promote efficiency in the overall system.[13] Facility modernization and business conversions have been actively promoted, not only to streamline the production process from small to large firms, but also to increase productivity and improve small business survival rates. It is evident that policy makers are conscious of sectoral differences and needs, and have a decided priority toward small businesses in certain sectors, especially manufacturing.

The emphasis on the manufacturing sector is also evident in the objectives of the Small and Medium Enterprises Modernization Law, enacted simultaneously with the Basic Law in 1963, which specifies industrial sectors to which financial, informational and training assistance would be channeled (MITI, 1989a). The primary purpose of this law was to encourage modernization of facilities among small firms within sectors identified as particularly important for Japan's economic growth. The Law was later criticized for its bias toward larger small businesses with lower investment risks. This bias is also an indication that the primary concern of the policy was not to provide assistance for disadvantaged small businesses, but rather to modernize firms so that they would become efficient subcontractors to larger firms.

The approach taken by SMEA to remedy this bias toward larger small businesses was to provide more subcontracting opportunities for very small businesses. The Law on the Promotion of Subcontracting Small and Medium Enterprises, enacted in 1969, aimed to help smaller firms by providing additional incentives to establish subcontracting arrangements with larger corporations. The implementation of this subcontracting law further clarified the position of MITI and its views on small business policies. With this Law, small business policy officially became part of national *industrial* policy. In 1969, MITI officials publicly declared that achieving maximum production efficiency among small businesses was a priority for industrial policy, precisely because inefficiency among small businesses was considered to have direct consequences for the entire Japanese economy (Arita, 1990; Tsuchiya and Miwa, 1989).

In summary, small business policies in Japan have been a part of an overall industrial development policy, which began in the prewar period and continues to the present. As a scholar in small business theory contended, "small business policy in Japan is an industry systems policy," policies encouraged continuous restructuring for the purpose of improving international competitiveness.[14] Specific and sector-based measures were taken to encourage modernization of production processes, and facilitate small businesses to enter subcontracting arrangements, which, as a result, better integrated them with the rest of the economy and formed a tight nexus between large and small firms. The fact that the Small and Medium Enterprise Agency is within the jurisdiction of MITI reflects a strong orientation of SMEA toward industrial development.

4. Small Business Policy in the United States: The guardian of free competition

1) *The Origin*

In contrast to the Japanese case, the U.S. small business policy has a very different historical root. The institutionalization of modern capitalism in the United States began with, and is still firmly embedded in, the belief in the functioning of free markets. Also, it is perhaps not a coincidence that the societal values in America have traditionally placed a considerable value on economic independence and individual autonomy. Undeniably, economic independence, individualism and equal opportunity for access to ownership and control over income has been an integral part of the American democracy[15] (Kaysen and Turner, 1958; Brock and Evans, 1986; Bruchey, 1990).

Reflecting these economic as well as societal commitments to independence, small business policy in the United States began with antitrust regulations. Since the Sherman Act of 1890, policies have consistently sought to ensure competitive markets, in order for firms to maximize economic benefits.

2) *The depression and the rise of big businesses*

Small business policy became actively implemented particularly during the 1930s. This was a response to the Great Depression, and policies were formulated to protect small businesses that were believed to be disproportionately affected by economic downturns. Also, the depression coincided with the period of rapid growth for franchises and chain-stores, which were perceived as a major threat to the functioning of competitive markets. Furthermore, during this period we saw the onset of large-scale economic management schemes such as the New Deal, whose benefits were mostly captured by larger firms. Therefore, small business policy was implemented also to balance policy benefits between large and small firms. The Robinson-Patman Act and Miller-Tydings Act, passed in 1936 and 1937 respectively, were both intended to protect small businesses and merchants against large manufacturers and retail chains.

3) *Postwar policy development*

The principal preoccupation of small business policy acting as a guardian of free markets was carried onto the postwar period. The Small Business Administration (SBA), established in 1953 for a fixed five year term, but made into a permanent agency later in 1958, was created with a specific objective of delivering programs that complemented antitrust regulations.[16]

> "The act . . . serves to complement the U.S. antitrust statutes. By promoting the welfare of the small competing units, the act is aimed at strengthening the very enterprises without whose contribution the ideal of free competition would most surely wither." (U.S. Senate, 1958a).

It should be noted, however, that the enforcement of antitrust regulations has fluctuated over the years, and it has been in general decline since the early 1960s. While enforcement was strict during the 1950s,[17] it became lax during the late 1960s as mergers and acquisitions became more prevalent. Also, policy makers became concerned with introducing too many government regulations, which were considered to be rigidities in the market, preventing it from functioning efficiently. For small businesses in particular, it was claimed that the burden of complying with various governmental regulations was disproportionately high compared to large firms.[18] In order to reduce the burden, a number of acts were passed through Congress. For instance, the Toxic Substance Control Act, enacted in 1976, exempted small chemical companies from certain testing and reporting requirements. Also, the Regulatory Flexibility Act of 1980 was designed to exempt small business from complying with certain government regulations required for business activities. The Office of Federal Contract Compliance exempted very small firms from filing affirmative action plans, and the Occupational Safety and Health Administration exempted very small firms from its regulations (Blackford, 1991). Thus, selective deregulation rather than antitrust regulations has become the dominant theme since the late 1970s.

Nevertheless, the underlining assumptions for policy interventions in the United States have not changed dramatically. The policy makers still believe most of their economic policies should assist in ensuring the operation of the market.[19] Therefore, policy makers consider it best to create an economic environment that enhances the growth of small businesses, which is seen as a "natural" phenomenon (Hull, 1986).

This fundamental orientation of U.S. small business policy as part of the antitrust regulations is also reflected in the actual programs implemented by SBA. Most of the major programs available from the SBA deal with the provision of capital and loans, which are otherwise unavailable from the market. The lack of availability of funds for small businesses is considered a form of market failure, since transaction costs and other market impediments prevent banks and venture capitalists from making funds available to smaller businesses with potential for high return.[20] Because of the incidence of market failure, policies are designed to intervene and create additional opportunities for small businesses.

4) *Modern Small Business Policy in the United States*

Since the late 1960s, small business policies in the U.S. have also begun to serve as a redistributive instrument. U.S. small business policies began to take the characteristics of social policy,[21] as their role grew in ensuring equal access to capital for economically disadvantaged segments of the population, targeted particularly toward the ethnic minorities and women. This is partly a result of the influence of the civil rights movement in policy making, and partly because of the relative strengths of minority lobbying groups over generally unorganized small business groups. The Section 8(a) program was established in 1968 to specifically assist the development of small businesses by socially and economically disadvantaged groups. Special programs were also launched in 1979 and 1980 to provide additional credits for those businesses that were owned by women or individuals in certain minority groups. These credits usually take the form of loans made wholly by SBA-provided funds. More recently, the Minority Business Development Act of 1987 established the Minority Business Development Administration within the Department of Commerce, in order to provide additional support for socially and economically disadvantaged groups.

Unlike the Japanese policy, the SBA generally avoids sectorally-based programs, as they are viewed as lacking flexibility.[22] It should be noted, however, that sectorally-oriented policies exist in the United States. Agricultural extension programs implemented at the state level are prime examples of sectoral policy. Also, the defense industry and government involvement in nurturing small contractors in this particular industry is in a sense a sectoral policy. Yet, the same approach toward the manufacturing sector has largely been a failure; despite numerous attempts, manufacturing extension programs never caught momentum until very recently.

Thus, the U.S. small business policy began with antitrust regulation, followed by the strong influence of neoclassical and Keynesian economics during the postwar period. It was also grounded by a strong ideological belief in economic independence and equal access to economic opportunities. Thus, small business policy in the U.S. is primarily a corrective measure to sustain competitive markets and offset discriminatory behavior. As a result, policy had a minimum impact on the formation of industrial networks. Inter-firm collaborations were permitted to the extent that did not threaten principles of the antitrust regulations, and production organizations were left to be shaped by the forces of the market.

5. Small Business Policy in Japan and the United States in the 1990s: Policies at Crossroads?

A curious process of crossing each other's path is under way in the 1990s. Despite the different historical underpinnings, both Japan and the United States have undergone fundamental shifts in the ways small business are viewed. These shifts have resulted in subtle yet distinct changes in policy directions, which require some attention. In sum, there has been a significant learning and mutual-influences between the two countries, which prompted U.S. policies to move toward a more sectorally conscious sets of programs, while Japanese policies have moved toward programs which promote free-competition, with emphasis on innovation, entrepreneurship and deregulations.

Until the late 1980s, the U.S. lacked a coordinated and sectorally-based policy toward technological development, which amounts to an industrial policy. Today, numerous initiatives with sectoral focus have been developed at national as well as regional levels. These programs are, however, largely intended to develop a network of collaborations between small businesses and the public sector, such as federally-funded laboratories, rather than promoting collaborations among businesses. At the federal level, these programs include, for example, the Department of Defense Manufacturing Technology Program (ManTech), which funds projects with potential defense-related technology advancement.[23] The Department of Commerce, designated under the Omnibus Trade Competitiveness Act of 1988, administers the National Institute of Standards and Technology (NIST), which oversees seven Manufacturing Technology Centers (MTCs) providing assistance for the transfer of manufacturing technologies from federal laboratories to private businesses. Similar in scope to the MTCs, NIST currently administers 60 Manufacturing Extension Partnerships (MEPs) in 42 states, which includes 18 new centers designated in 1995.

Congress has also enacted legislation in an attempt to upgrade the technological capacity of small businesses through technology transfers from federal laboratories. They include Stevenson-Wydler Technology Innovation Act of 1980, the Federal Technology Transfer Act of 1986, and the National Competitiveness Technology Transfer Act of 1989. The Federal Technology Transfer Act designated the Federal Laboratory Consortium (FLC) to promote technology transfer to the private sector in order to encourage commercialization of innovations from federal laboratories. Similar tasks are conducted by the National Technology Transfer Center (NTTC), which was established in 1989 as a more deliberate effort to improve the competitiveness of the U.S. economy. NTTC serves as a "one-stop shop" for firms to acquire information regarding projects in process at federal laboratories. Most recently, in 1992, NASA established six Regional Technology Transfer Centers across the U.S. These centers are created to facilitate technology transfers to private businesses. The Clinton Administration also added the TAP-IN program (Technology Access for Product Innovation) as a joint effort that complements other programs. It is notable that these programs are not coordinated with SBA.

Numerous technology transfer programs also exist at the state and regional levels, which are targetted specifically for the manufacturing sector. New York's Corporation for Innovation Development (CID), for example, provides financial assistance and technical services to stimulate the development of new, innovative, technology-based businesses. Also, in conjunction with NIST, state and local agencies have initiated State Technology Extension Programs (STEPs) and the Clearinghouse for State and Local Initiatives on Productivity, Technology and Innovation. These programs aim to provide additional support in technological transfers at local and regional levels through funding information dissemination, workshops and training.

Although most of these state level programs facilitate links between small businesses and the public sector, there are some programs which also promote collaboration among small businesses. For example, the Ben Franklin Partnership programs established by Pennsylvania offer assistance in linking applied research and development efforts in selected areas of activities (robotics, biotechnology and CAD-CAM), and facilitate entrepreneurs by linking research, financial and human resources. This Partnership was established specifically to promote advanced technology in order to make traditional industry more competitive in international markets and to spin off new small businesses on the leading edge of technological innovation.[24]

In sum, there appears to be a turn in U.S. small business policy toward achieving manufacturing efficiency. At present, the actual effectiveness of the programs is yet to be determined, particularly in terms of promoting business-to-business collaborations. It may nonetheless be a historic shift for the U.S. small business policy to adopt a more systematic, industrial approach.

In Japan, changes in policy may also be in progress. Evidence suggests that present recession has in some cases altered the traditional relationship between large and small businesses. Traditionally, small firms have been considered as a buffer against recession by large firms.[25] However, there also existed a certain degree of supportive reciprocity nurtured by long-term business relationships. It has been reported that such mutual support between large and small firms may be wearing thin under the stress of globalization. During the *endaka* (high "yen") period in 1986, 60 percent of subcontractors surveyed responded that they would seek salvation from their parent companies. A recent survey shows that over 20 percent of firms did not know what to do; and over 40 percent said they would try to diversify business relationships (Financial Times, 1993).

Up to the mid-1990s, Japanese scholars in university and research institutes have argued that small businesses in Japan do possess a strong technological productive capacity which cannot be displaced by foreign competitors.[26] These new stresses on traditional relationships, initially caused by globalization, is now further exacerbated by current decade-long recession.

Policy-makers are responding to revive Japan's small businesses with two major policy changes, one is to restructure the industrial systems,[27] and another is to encourage more independence and autonomy among small businesses, which the Anglo-American model of free competition. The latter represents a set of new programs enacted after 1995 and involves a series of initiatives which are designed to encourage independence and autonomy among small businesses. This is a departure from most postwar policies which promoted inter-dependence among firms, yet it is a more realistic approach in the context of current Japanese industrial hierarchy, in which reliance on keiretsu has been gradually declining.[28]

As part of these policies, SMEA launched an Initiative to Promote and Assist Innovative Small and Medium Enterprises in 1995. During the same year, MITI gave permission to allow employers to offer limited stock-options to their employees, applicable only to startups (SMEA, 1997). In conjunction with SMEA's initiative, programs have also been implemented at the regional level. Okayama prefecture started a program called "Young Edison Development Assistance Initiative" which aims at promoting entrepreneurship and local economic development. The program was named after the famous American inventor, and it provides assistance with an annual budget of approximately $1 million to young researchers and graduate students who are interested in commercializing innovative ideas (Nihon Keizai Shimbun, 1998a). The program was launched in 1995, and so far it has funded 5 projects. Saga Prefecture as well as Fukuoka Prefecture have also launched similar programs with similar budgetary commitments. These programs have age limitations (35 years or younger), and all are specifically geared toward researchers in sciences and engineering, generally at local universities.

Additional initiatives have been developed to strengthen traditionally weak ties between university research and the private sector. Numerous universities have launched courses and seminars which are designed to promote entrepreneurship as a viable option to corporate career.[29] This is quite a dramatic reversal of the previously dominant trends of the postwar era, in which the elites sought employment in the largest and the most stable corporations for stability, prestige and social acceptance. Particularly since the 1970s, entrepreneurs had been considered reckless mavericks, and have been regarded largely with some level of suspicion.

The promotion of entrepreneurship in Japan has also taken its unique course, ranging from a planned entrepreneurship summer-camp for elementary school children to "entrepreneur within an enterprise" program by corporations, which promotes entrepreneurial spirit from within the firm.[30] Many corporate giants have set up their own entrepreneurship office to promote spin-offs and new business ideas.

While these entrepreneurship promotion programs aimed at regenerating growth dynamism in the Japanese economy, the current recession has hampered the success of these initiatives. Recently, it has been reported that newly established venture capital companies have been forced to reorient their policies for lending in 1998 as bankruptcies rose among startups.[31] Public-sector initiatives are abundant, but the shortage of entrepreneurs have led these programs into lack. Thus, policy makers in Japan are also faced with new challenges.

6. Conclusions

In contrasting small business policy between Japan and the United States, the most fundamental difference is Japan's policy as part of the industrial policy with a specific promotion of inter-firm alliances and collaborations, while that in the United States has been used largely as an instrument for promoting individual competition. In the United States, free competition as the predominant framework in policy making has made small business policy a relief effort when the market fails to serve the needs of small businesses. The commitment in free competition in the United States led the government to focus increasingly on equality in business opportunities, particularly for economically and socially disadvantaged groups such as women and ethnic minorities. Only recently have the U.S. policy began to reorient itself toward a more sectorally-specific policy and inter-firm network promotion. Japan's small business policy served as an instrument that shaped its unique industrial systems. Active promotions of inter-firm collaborations, along with sectorally targeted policies facilitated the development of tight-knit industrial networks.

These differences in policy orientations exhibit strengths and weaknesses depending on economic contexts. As recent events have shown, the Japanese economy is currently undergoing a dramatic transformation, and its political, social, and economic institutions, which supported its rapid-growth of the postwar era, are facing serious challenges. Clearly, its institutions are currently at cross-roads. While new initiatives have been launched to jump-start the economy, it is questionable whether Japan's industrial networks from the previous era will fully survive with the new economic circumstances.[32]

From historical and comparative perspectives, Japan's industrial policy model, which encourages modernization, business conversion and collaborations between large and small firms, functioned more efficiently in developing industrial networks than the free competition model of the United States, which generally involved relief-oriented or more recently redistributive programs. While redistributive policies fulfill important social objectives, economic efficiency may to some extent be sacrificed. The industrial policy model has its problems however. In case of Japan, it has resulted in gaps in wages and working conditions between large and small firms.[33] The way in which Japan's policies tended to emphasize coordination among firms during the past several decades also seems to have had a negative effect on the entrepreneurial aspect of the small business sector. The Japanese policy makers began focusing on entrepreneurship as a policy objective only very recently. The U.S. economy, on the other hand, has been more successful in nurturing entrepreneurship.

The Japanese case study show that policies have in part played a role in the development of prosperous small businesses in the economy. Policies can then influence industrial networks to have certain shapes, forms and types, if given an appropriate economic circumstance that allows policies to be effective. Granted, the same policies successful in Japan will most likely to be ineffective in the United States due to the different circumstances. This is mostly due to the difference in business-government relations in the United States which, despite some observed changes since the late 1980s, still remain relatively belligerent. Yet, the business-government relations in Japan have been undergoing some major transformations as the Japanese economy globalizes. The role of government is much smaller compared with the period of rapid economic growth of the 1950s and 1960s. Furthermore, more companies are faced with heightened international competition, and are moving overseas along with their parent firms, beyond the reach of Japanese government policy. These changes will mean that existing policy may not function as well for the new Japanese economy for the coming decade. The indicators for the health of small businesses so far in the 1990s have not been favorable. For the first time in the postwar history, more numbers of Japanese firms are going out of business compared with the number of start-ups in the 1990s.[34] This trend also applies to Japan's dominant manufacturing small businesses.

Notes

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[2] The notion of industrial networks have been equally inspiring as well as confusing, as to what the term actually represents. In this article, industrial networks and inter-firm networks are used interchangeably. They refer to business relationships between firms, in forms of subcontracting, strategic alliances, research alliances and any other kind of collaborations which involve exchange of goods, services and information.

[3] It should be noted that definitions of small businesses differ between Japan and the U.S. I adopted the definitions defined by each country in this article. Japan's Ministry of International Trade and Industry defines small business by sectoral basis, while there is no single agreed-upon definition by the U.S. Small Business Administration. In the U.S. however, the most commonly used definition of small businesses is firms with less than 500 employees. In Japan, the most widely applied definition of small businesses is firms with less than 300 employees. This definitional difference should be taken into account when comparing these figures. Since Japanese definition is narrower than the U.S. one, the actual contrast between Japan and U.S. figures is larger than these figures represent in the article.

[4] See Rostow, 1952 for his analysis on the "take-off" stage of economic development. For a discussion on the analysis of "backwardness" from a Marxist perspective, see Gerschenkron, 1962.

[5] Historical legacy, institutional structure and social networks have not traditionally been a concern for economists in analyzing an economy. Views from policy makers were shared by a former chief economist of SBA (interview on November 1st, 1993, Washington, D.C.).

[6] However, Birch's studies have also been targets of much

criticism. Most recently, Harrison (1994) argued that Birch's work overemphasized the capability of small businesses in creating sustainable employment.

[7] The institutional economics is represented by transaction-cost analysis by Williamson (1985). Also, it had been affected by Marxist theory, particularly of labor economics. The work by the French Regulations School, represented by the work of Aglietta (1979) and Boyer (1990), also had an impact on the debate on industrial networks.

[8] See Scott (1988), whose attempt included bring together French Regulations School and transaction cost analysis into regional development theory. Also see work by Saxenian (1994), which represents a view that networks among firms play a major role in innovative behavior and thus results in dynamic and prosperous regional economy.

[9] While concerns for small businesses traces back to the Meiji period, active policymaking from a social policy perspective started in 1918. However, active policies towards small business were first introduced in the early 1930s. (Toyoda, 1941; Whittaker, 1997).

[10] The policy measures can be classified into four categories:1) measures for structural upgrading and other corporate revamping measures for small businesses; 2) measures for rectifying disadvantages in business activities; 3) measures specifically targeted for very small enterprises; and 4) measures in finance and taxation (Aoyama and Teitz, 1996).

[11] The Temporary Law on Business Conversion and Adjustment Measures for Small and Medium Enterprises was enacted in 1986, and the Law on Extraordinary Measures for Business Conversion of Small and Medium Enterprises was enacted in 1988 (MITI, 1989a).

[12] The term, small business (*chusho kigyo*), generally refers to small manufacturers, predominantly represented by inner city, craft work shops (*machikoba*). Retail small businesses are not generally referred to as *chusho kigyo*, but rather as *kouri ten*, a specific term that means independent retail stores.

[13] However, this does not mean to imply that Japan lacks policies for small businesses in the service sector. In fact, Japan's policy covers virtually all sectors. Yet, the core of the policy, and research conducted on those policies, largely deal with the manufacturing sector.

[14] Interview by author, with Professor Koichi Okada, Faculty of Business Administration, Meiji University, Tokyo, January 12, 1994.

[15] As the Commissioners of the 1980 White House Conference on Small Business stated: "Small business is, in a deep sense, our Birthright Economy. It is through individual enterprise that we seize those rights of liberty and opportunities that we cherish – the freedom to take our lives into our own hands and pursue prosperity by our own lights; the chance to take risks in our own behalf. And the more citizens who assume risk and responsibility, the more citizens there will be with a direct stake in fortifying democratic government." (U.S. SBA, 1980).

[16] There was economic rationale as well as political motivation that were behind the creation of SBA. Eisenhower created SBA first as a temporary agency in 1953. As a Republican president, Eisenhower considered it important, at least in rhetoric if not in substance, to maintain support for small businesses after the Democratic New Deal. He sought to abolish the scandal-ridden Reconstruction Finance Corporation (RFC) established by Hoover in 1932, and replace much of its functions with SBA (Berthoff, 1990; Blackford, 1991).

[17] Until early 1960s, stringent enforcement of antitrust regulations was in place. For instance, the Cellar-Kefauver Act of 1950 gave the Justice Department the permission to use market share as proof against firms. The Eisenhower Administration recommended in 1955 that the antitrust laws stay intact. By the early 1960s, the Antitrust Division of the Justice Department had grown to include 300 lawyers prosecuting 92 cases (Blackford, 1991).

[18] According to the survey conducted by Sommers and Cole (1988) on a sample of small businesses in Georgia and Massachusetts, small businesses bear the disproportionately high burden from various governmental regulations. However, it should be noted that research findings exist contesting this argument. Yet, there is also evidence that indicates that the burden of regulation is high among small businesses seeking to maintain certain programs for their employees. For instance, increasing complexities and constantly changing regulations make it very costly for small businesses to maintain pension plans for employees. Pension plan applications have been declining considerably since their peak in 1982. Meanwhile, pension plan terminations almost tripled between 1980 and 1990 (SBA, 1991). The current debate over employer contributions for medical care reveals a similar concern among small businesses.

[19] This is also apparent in SBA's annual publications, *The State of Small Business*, which publicly supports such argument.

[20] Interview by author with a former chief economist of SBA, November 1st, 1993, Washington, D.C.

[21] Here I use the term social policy in the most generic sense; a policy that ensure the well-being of the population through primarily redistributive measures.

[22] The former chief economist of SBA argued, "SBA funds good business ideas, regardless of what sector that idea happens to belong to. Sector-based programs prevent us from providing resources to the best business ideas." Interview by authors, November 1st, 1993, Washington, DC.

[23] It should be noted, however, that programs that supported small businesses existed prior to these deliberate programs, under the guise of defense policy.

[24] See The 12th National Legislative Conference on Small Business Issues, 1992.

[25] See Arita, 1990; Kurose, 1997; Whittaker, 1997.

[26] See The Economist, 1994. Also interviews by author, at Meiji University Faculty of Business Administration, and at Japan Small Business Research Institute, Tokyo, January 10 and 12, 1994.

[27] The Restructuring Law (*ristora-ho*) passed in late 1993, for instance, represents such efforts.

[28] With heightened competition and the pressure from globalization, reliance on keiretsu and for parts and supplies among Japanese firms have been gradually declining in the past few decades. For example, in the electronics industry, reliance on keiretsu relationships for parts and suppliers typically run around 20-30 percent.

[29] The Economics Deparment at Rikkyo University, Tokyo, for example, have started a seminar on entrepreneurship and managing business start-ups called "creating a company" from 1998. The seminar is co-sponsored by Japan Development Bank's new business promotion division, Tokyo Small and Medium Enterprise Investment Development, as well as private-sector research institutes such as Nikko Research (Nihon Keizai Shimbun, 1998b). Numerous other examples exist.

[30] Also coined as "intrapreneurship" (Wittaker, 1997), these initiatives promote entrepreneurial behavior among workers within the safety-net of the lifetime employment. Managers in Japanese companies are also encouraged to convert "window-side" office workers to enterprising as an effort to find commercially beneficial talents among them. "window-side" office workers refer to those who have been socially alienated from the rest of the workforce due to lack of performance records, but have been nominally retained under the lifetime employment scheme, and are usually moved to the window-side, away from the center of office activity.

[31] Reported in Nihon Keizai Shimbun (1998c, 1998d).

[32] It should be noted, however, that the major source of the current economic problems in Japan centers around its financial sector, and not the industrial sector. While the industries are undeniably affected by the financial crisis within Japan and elsewhere in Asia, Japan's industrial system itself and its technological capability are largely expected to survive through the recession. The current issues lie in the ways in which the economy pulls itself out of the recession when domestic demand remain stagnant (Krugman, 1998).

[33] See Takada (1989) for an extended discussion on Japan's dual-industrial structure. The average wage rate of small businesses in Japan by the late 1980s was approximately 60 percent of that of large firms. The wage rates of small businesses in the United States during the same period was slightly higher. Workers in small businesses earn 74 percent of the wage of large firms.

[34] See SMEA, 1998; Whittaker, 1997.

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