
Rural Industrialization in Korea: Policy Program, Performance and Rural Entrepreneurship

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Abstract

From the early seventies the Korean Government has adopted a rural industrialization policy as an important measure for promoting rural development. It has been perceived that through this measure the over-concentration of economic activity would be controlled and dispersed.

Development of rural industrialization has passed through three different phases: i) the period of promoting rural cottage-type industries (1960-80); ii) the period of rural industrial park establishment; and iii) a stagnation period after the early 1990s. Throughout the overall period government policy changed from an individual project-oriented approach to a diversified and comprehensive policy program. The policy programs, such as the development of rural industrial parks, off-farm income source development and vocational training programs for farm youths, have helped in promoting rural industrialization.

On the other hand, policy programs promoting rural out-migration and unbalanced regional development policy have impacted negatively on rural industrialization. Presently one of the serious policy issues facing rural industries is how to secure a young labor force and how to promote rural entrepreneurship. In addition, rural development efforts by local government and authorities are necessary in order to increase investment from urban-based entrepreneur firms.

Keywords: Rural industrialization, farm household, off-farm income, rural development, rural industrial park, rural entrepreneurship.

1. Introduction

Until the early 1960s, the Republic of Korea had remained a typical preindustrial country; half of its gross national product (GNP) was generated by the agricultural sector. A vigorous export-oriented industrialization policy begun in 1962, however, transformed the low income agrarian economy into a middle-income industrialized economy. GNP expanded at an average annual rate of 7 percent during the period 1962-1990: per capita GNP was more than 7,000\$ in the early 1990s and reached more than 20,000\$ in 2010. Although Korea has accomplished successful industrial development, the nation is far behind in rural industrial development compared with Japan and Taiwan. As a result, a large number of Korean rural people have migrated to a few large cities; population has been declining rapidly in many rural areas while explosive population growth has occurred in a few cities. The growth of population was so fast in a few of the largest cities that urban infrastructure could not keep up with the expansion of the urban areas. Korean society could not help in easing a number of urban problems, including housing, traffic, and environmental turmoil.

The income disparity between farm and nonfarm households has been persistent. In 1980 the average farm household income was about 84.0% of its urban counterpart, while Japan and Taiwan were 118.0% and 74.2%, respectively (Table 1). Even more, average farm household income was less than 60 percent in Korea in 2010. There is no prospect for improving this gap with agriculture income in the near future in Korea.

Except for Japan, the problem of income disparity between the agricultural and the non-agricultural sectors is one of the important agricultural policy issues in most rice production countries because the growth rate of the farm sector is not anticipated to surpass that of the nonagricultural sector, and farm household income will be adversely affected by the world trade liberalization in many Asian rice producing countries.

Income disparity between farm and nonfarm households in Japan is partly attributed to the very large proportion of farm household income that comes from off-farm activities. When per capita GNP was about US\$5,000 in current prices, the share of off-farm income out of total farm household income was about 38 percent in Korea, while it was about 60 percent and 58 percent in Japan and Taiwan, respectively (Fig.1). This consideration leads us to the notion that off-farm income is very important for Korean small holders and that the development of rural industry is critically important for their welfare in the future.

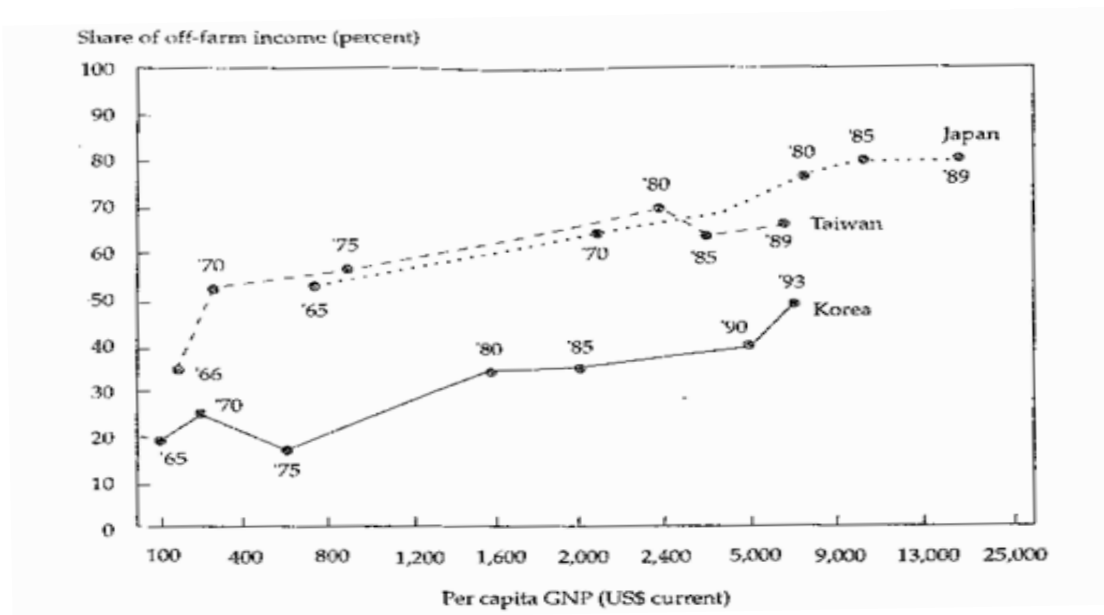
This information raises a basic question: why has rural industry been so underdeveloped in Korea, while Japan and Taiwan have achieved successful rural industrialization in the process of industrial development? This issue has important policy implications for many developing countries as well as Korea. The prevailing answer to this basic question in Korea can be summarized in two assertions. The first is the notion that the government support to rural enterprises was inadequate to promote rural industrialization, and government support should have been substantially increased to promote rural industry (Chose and

**Table 1: Income disparities between farm and nonfarm households in Korea
Japan and Taiwan, selected years**

Year	Household in Korea(1,000won)		Farm-non farm disparity(%)		
	Urban(A)	Farm(B)	Korea(B/A)	Japan	Taiwan
1965	113	112	99.1	99.2	94.8
1970	381	256	67.2	110.1	72.2
1975	859	873	102.0	126.1	79.6
1980	3,205	2693	84.0	118.0	74.2
1985	6,044	5,7363	94.9	110.5	71.3
1990	13,184	1,1026	83.6	111.6	66.4
1992	19,418	14,505	75.8	n.a.	n.a.

Source: Korea: Economic Planning Board, Annual Report of Urban Household Survey; Ministry of Agriculture and Forestry, Report of Farm Household Economy Survey. Japan: Ministry of Agriculture and Fishery, Report of Farm Household Survey, Office of Economic Planning, Annual Report of Household Survey. Taiwan: Taiwan Provincial Government, Survey Report of Household's Income and Expenditure, selected years.

Figure 1: Share of off-farm income in farm household in Korea, Japan and Taiwan



Source: Suh and others (1991: 91).

Lee 1984; Kim 1987). The second notion is that the industrial policy of the Korean government was heavily biased toward large, vertically integrated enterprises and that small enterprises, including rural industry, could barely develop, in spite of government support (Kim and Whang 1987; Lee and others 1995).

These assertions may partly answer the question, but they cannot be reconciled with the substantial effort of the Korean government to promote rural industrialization and the success of rural industrialization in some areas. It remains to be explained why government efforts did not yield good results in every rural area and why industrialization was successful in some rural areas in spite of unfavorable location.

In order to find a coherent answer to the question raised above, macro and micro approaches are taken in this study. In the macro analysis, the initial conditions for rural industrialization, the government industrial development policies, and the condition of rural areas for industrial development will be investigated, based mainly on secondary data and literature surveys. The micro analysis is based on case studies conducted in two successful areas of rural industrialization. This analysis will focus on the factors that contributed to the success of rural industrialization in the study areas.

2. Historical sketch of rural industrialization policy in Korea

The Korean government has made efforts to promote rural industry for decades. At the end of the 1960s, the government began to adopt rural industrial development policies to alleviate the regional disparity between urban and

rural areas. In 1968, The Farm Household Side-business Program (FHSP) was introduced to promote traditional rural manufacturing activities. It is also to be noted that the Agriculture and Fishery Development Corporation was founded in 1967 by the government to increase the processing of agricultural products in rural areas. And in 1973 the Saemaul Factory Program (a program aiming to promote small factories in rural villages) was launched to establish independent factories in rural areas (table 2).

The farm households that participated in the Side-Business Program were encouraged to produce folk crafts, processed agricultural and livestock products, and unsophisticated rural household items such as brooms made of bush clover. About one-third were small-scale factories, while the rest were cottage handicraft operations. Almost all of the farm households participating this program, however, suffered from sales promotion and lack of operating funds. Consequently, almost all of them were closed its business while some of them were joined to the Saemaul Factory policy Program.

The Agriculture and Fishery Development Corporation established twenty-three companies for processing agricultural products in rural areas and tried to export processing products. Most of them suffered from poor management and marketing due to many limitations imposed by the government, thereby they were transferred to private companies by the mid-1970s.

The Saemaul Factory program was designed to stimulate the rural economy and to provide more nonfarm job opportunities to farmers through the establishment of independent fac-

tories in rural areas. Preferential credits were extended to the Saemaul factories for investment in plant and equipment, as well as to provide initial operating funds. Tax reductions or exemptions were also offered to the factories. Six hundred and eighty-six designated factories were active in 1984, when this program was terminated by the government. The program originally planned to establish more than one factory in each township, but less than half the townships received a Saemaul factory. Moreover, more than 50 percent of the factories were located in the vicinity of large cities. More important, many of the Saemaul factories were eventually shut down. In the end the Saemaul Factory Program did not contribute much to creating nonfarm employment in rural areas (Suh and others 1991:6). Since most of the Saemaul factories are labor intensive they cannot survive under the situation of high wage rates in rural areas.

The rural industrialization policy shifted to emphasize the construction of rural industrial estates in order to provide needed infrastructure for rural enterprises. Rural industrialization was conceived as the most important farm-income policy under the on-going trade liberalization of the agricultural market, so that rural industrial estates were strongly emphasized by the government.

In order to accelerate rural industrialization, the government enacted the Rural Income Source Development Act (RISDA) in 1983. Under the provision of this act and the Rural Industrial Estate Program (RIEP), the industrial estates were to be built in the center of the rural areas.

The RIEP aimed to accelerate rural industri-

alization through integrated packages and support; (1) providing cheap and well established industrial parks, (2) providing financial support to firms locating in the estate, and (3) simplifying all government administrative processes, which are usually complicated and tedious jobs to get government permission before factory construction, and to remove unnecessary obstacles at the beginning of enterprises' activities.

The RIEP is designated based on the following criteria; (1) population size of rural county (or city) should be less than 100 thousand and (2) enterprises were screened and selected based on environmental evaluation criteria. Once a firm is selected as being eligible, it can receive favorable government policy loan and tax reduction or exemption from the government.

In the initial phase, the RIEP was carried out under the cooperation of several ministries of the government, including the Economic Planning Board, the Ministry of Commerce, Industry and Energy, the Ministry of Agriculture and Forestry, the Ministry of Construction and Transport, and the Ministry of Environment. Even though it was very difficult, it was necessary to harmonize with many ministries, since rural industrialization is highly related with the relocation of industries, regional economic development, farmers off-farm employment and nonfarm income, and the potential for damage to the rural environment.

The size of each industrial estate was to range from 33,000 to 99,000 square meters. Government support was provided to the firms or farm households participating in this pro-

Table 2: Changes in rural industrialization policy program, 1960-2000

Period	Policy program	Goals and major activities	General economic condition
Initial Stage of Rural Industrialization (1967-71)	<ul style="list-style-type: none"> • Farm Household Side-business Program (FHSP) • Establishment of Agricultural Processing Firms 	<ul style="list-style-type: none"> • rural poverty reduction - individual farm household approach - promote rural cottage industry - promote exportable agricultural products processing 	<ul style="list-style-type: none"> • 1st-3rd five-year economic development period • decreasing absolute number of agr. labor forces
Promotion of Saemaul Factories (1972-83)	<ul style="list-style-type: none"> • Saemaul Factory Promotion Program 	<ul style="list-style-type: none"> • one township-one factory approach • free location of factory in township 	<ul style="list-style-type: none"> • high economic growth rate • narrow income gap between rural and urban household
Establishment of Rural Industrial Parks (1984-present)	<ul style="list-style-type: none"> • Rural Industry Promotion Zone (RIPZ): Rural Industrial Estate Program (RIEP) • Farm Tourism Promotion Program (FTPP) 	<ul style="list-style-type: none"> • collective location approach: • diversification of farm income sources • enacted the Rural Income Source Development Law (RISDW) 	<ul style="list-style-type: none"> • high economic growth rate • start to open agricultural market
Diversification of Rural Industrialization Program (1990-present)	<ul style="list-style-type: none"> • RIEP, FPPP, • Promotion of Traditional Food Processing • Promotion of Specialized Regional Agricultural Products 	<ul style="list-style-type: none"> • development of alternative farm income sources -promote the varieties of farm households' value chain activities 	<ul style="list-style-type: none"> • trade liberalization under the WTO system -opening domestic agricultural market -structural adjustment of farm sector

Table 3: Government supports for RIEP classified by the status of estates (as of 1999)

Condition	General Assistance Area	Additional Assistance Area	Special Assistance Area
Industrial density of the targeted county(or city)	0.08 or more	0.01-0.08	less than 0.01
No. of target region (county, city)	24 - cities:17 - counties: 7	48 - cities: 23 - counties: 25	48 - cities: 2 - counties: 46
Maximum size of industrial estates (1,000 m ²)	330	660	990
Government support for constructing industrial park (1,000won/3,3 m ²)			
- central govern't subsidy	15	50	70
- local govern't subsidy	5	10	10
- central govern't concessional loan*	15	20	20
Government support for waste treatment facilities			
- % of subsidy*	(% of total cost) 30	(% of total cost) 50	(% of total cost) 70
- % of concessional loan **	70	50	30

Note:

*: annual interest rate is 5%, equal repayments for 10 years with five year grace period

**: annual interest rate is 5.5%, equal repayments for 10 years with three year grace period

Source: Ministry of Industry and Commerce, 1999

gram. Firms participating in the Rural Industrial Estate Program received direct subsidies for land acquisition, subsidized loans for plant construction and operation, and exemption from income and property taxes for three to five years. Government subsidies and concessional loans differed from the location of industrial estate-based pre-announced government's guidelines (Table 3).

Rural areas were classified into three categories based on the degree of industrial disadvantage and industrial density: (1) general assistance area; (2) additional assistance area, and (3) special assistance area (Table 3). Government subsidy and maximum size of industrial estates differ in each of the three categories. For example, an industrial estate located in a special assistance area, the most disadvantaged area, receives total amounts of 70,000 won (US\$ 64) from the central government and 10,000 won from local government, whereas a general assistance area receives 15,000 won and 5,000 won, respectively. Moreover, an enterprise located in a special assistance area receives a concessional loan of 20,000 won per square meter of industrial estate size, and 70 % of total waste treatment facility cost, received from central government, while it is 15,000 won and 30 % in a general assistance area.

The size of the industrial estate was to range from 33,000 to 99,000 square meters. Government support was provided to the firms or farm households participating in this program. Firms participating in the Rural Industrial Estate Program received direct subsidies for land acquisition, subsidized loans for plant construction and operation, and exemp-

tion from income and property taxes for three to five years.

During 1984-90, a total of 201 billion won (US\$ 258 million) in direct subsidies was provided to the rural enterprises participating in the government programs. During the same period, about 837 billion won (US \$ 1,074 million) in concessional policy loans was provided to participating firms or households. A large portion of these direct subsidies and concessional policy loans was allocated to the Rural Industrial Estate Program (RIEP). About 94 percent of direct subsidies and 86 percent of concessional government loans was allocated to firms or entrepreneurs in this program.

3. Performance of rural industrialization policy

Although the Korean government has operated these rural industrial development programs over the last 30 years, the results were not satisfactory. In other words, some policy programs contributed to relocation of urban industry and generated new employment opportunity to industrially advantageous rural areas, but did not contribute to remote areas.

The number of rural firms has more than doubled during the 1980-91 period, but their share in the total number of enterprises has substantially decreased. The percentage of rural firms out of the total number of firms was 28.7 percent in 1980, but about 24 percent in 1991, meaning that urban concentration has increased (Table 4).

There are 386 rural industrial estates under operation as of 2011. Most of them were designated during the period 1985-91, and their locations were near large cities and in the

Table 4: The number of firms and employees in rural industry

Year	Total		Share of rural area	
	No. of firms	No. of employees (1,000s)	Firms	Employees
1955	8,810	N.A.	44.0	n.a.
1958	12,971	260	38.2	24.2
1970	24,114	861	32.5	17.2
1975	22,787	1,420	26.7	16.1
1980	30,823	2,015	28.7	20.8
1985	44,047	2,438	21.2	20.1
1990	68,872	3,020	23.3	21.0
1991	72,213	2,918	24.0	28.2

Source: *Survey of Mining and Manufacturing Firms, Ministry of Commerce and Industry (1993)*

vicinity of national or provincial industrial parks that were different from the rural industrial policy and designated based on a higher level of national industrial location policy.

According to one survey conducted by the Ministry of Industry and Commerce in 2006, there are 4,516 factories located and operated in the rural industrial estates, and 116,191 workers are employed. These figures are not insignificant compared to the numbers before 1984 when rural industrial estates were initiated and constructed by the government.

Ninety-four percent of the enterprises located in the industrial estates were migrated from urban cities, and only six percent were newly established. This means that the policy contributes to relocation of many enterprises already located in urban areas, and not much

contribution to develop entrepreneurs in rural areas, even though various incentives were given to them by the government. Also the policy program has contributed to the areas where rural counties and cities were located near big cities or large national industrial parks. In other words, most rural areas situated in remote and industrially disadvantageous places were by-passed by the policy program.

Even though central as well as provincial governments provided much special and preferential support to the disadvantaged areas, it was far short of what was expected. Many rural industrial estates suffered from under-utilization of their capacity for a long time after construction because few enterprises actually moved into the estates – especially in unfavorable locations – and a substantial number of

Table 5: Numbers of rural industrial estates constructed under the RIEP

Year or period	1984	1985-1991	1992-1997	1998-2000	2001-2010	Total
Numbers of designated rural industrial estates	7	236	32	19	92	386

Source: *Ministry of Knowledge and Industry, 2011*

the enterprises that did move to rural areas have gone bankrupt. Even in rural areas, manufacturing activities are not evenly distributed. As mentioned, most rural enterprises are located in the vicinity of large cities and industrial zones, mainly Seoul, Ulsan, Taegu, and the southeastern coastal heavy industrial areas.

4. Macro perspectives on the reasons for partly successful rural industrialization

There was little basis for entrepreneurship in rural areas in the initial stage of industrialization in Korea. Throughout its long history, Korea had been an agrarian society in which agriculture was perceived as a fundamental sector in the national economic structure. Therefore the status of farmers is higher than industrial manufacturers and merchants. Scholars and government officers are the most respectable jobs, while farmers, manufacturers and merchants are considered as second, third and fourth classes, respectively. Thus, except in a few cases, there had not been any industrialization policies during Korea's long king-

dom history. Moreover any local administrators appointed by the central government were not very much interested in the development of industrial infrastructure in the areas of their mandate because their job security was not guaranteed. Historical records indicated that, on the average, local administrators served in a position for less than two years.

Similarly, local entrepreneurs were not interested in developing specialized manufacturing products because a special commodity tax was charged whenever a new commodity was developed (Kang, 1984). At the same time, as mention above, any individual entrepreneur was not regarded as a respectable class in the traditional kingdom society. Such social status customs continued until the early twentieth century. Thus, most educated and capable persons were not willing to engage in commercial and industrial activities.

Moreover, the Korean War of 1950-1953 thoroughly destroyed the industrial basis: few industrial facilities and little infrastructure

Table 6: Length and share of paved highway

Year	Length of highway(km)		Share of paved way(%)		
	Total	Paved	Total	National way	Provincial
1936	24,283	538	2.2	4.8	0.4
1947	24,433	1,061	4.3	14.1	0.7
1953	26,033	611	2.3	5.1	0.3
1961	27,169	1,122	4.1	12.6	0.5
1967	34,799	2,092	6.0	17.6	0.5
1975	44,905	10,000	22.3	44.0	0.5
1980	46,951	15,599	33.2	67.4	12.6
1990	56,715	40,545	71.5	89.1	63.6

Source; Ministry of Construction and Commerce, Statistical Yearbook, 1960 and thereafter

Table 7: Net off-farm migration and migration Rates

Period	1960-1966	1967-1970	1971-1975	1976-1980	1981-1984
Net off-farm migration (1,000s)	1,133	2,516	2,561	3,350	2,449
Migration rate (annual percentage)	1.22	4.05	3.60	5.39	5.95

Source: Park(1989)

remained after the war. For example, about 40 percent of paved roads were destroyed between 1947 (Table 6). In addition, social as well as human relationships in rural communities, which were very important factors for the development of rural entrepreneurship, were seriously disrupted during the war period.

Because the initial conditions for industrialization were so poor, the Korean government took strong incentives in industrial development by introducing a series of ambitious five-year economic development plans.

To accelerate industrial development, from the beginning the industrial policy concentrated on the strategic sector and relatively advantageous areas—large enterprise, export-oriented and heavy industrials, and a few urban areas (Choe and Kim, 1986). For example, from the mid-1960s to the early 1980s, the government

developed industrial estates in a few local growth poles and strongly promoted new modern industries in big cities. Large numbers of preferential loans were provided to these enterprises. As a result, very few funds and little effort was available from the government to develop rural enterprises.

The strong bias of the government's industrial policy toward new, modern enterprises in large cities triggered a massive out-migration from rural areas beginning in the mid-1960s. Until that time, the annual net out-migration rate was only 1.22 percent, as shown in Table 6. The rate increased to 4.05 percent in the late 1960s, however, and to more than 5 percent in the late 1970s. Most migrants were young and educated. For example, the migration rate was around 8-11 percent for those younger than thirty (see Table 8). It is also worthwhile to

Table 8: Net off-farm migration rates by age and gender (annual percentage)

Age	1966 - 1970		1975 - 1980	
	Male	Female	Male	Female
13-17	7.8	9.9	11.0	11.7
18-22	6.5	10.2	7.2	10.4
23-27	8.9	9.4	8.3	9.9
28-32	7.1	2.9	3.3	2.2
33-37	1.7	1.1	1.8	1.5

Source: Sloboda (1982)

note that the migration rate of young women was much higher than for their male counterparts.

As a result, for industries located in rural areas, acquiring young and/or female labor became more difficult, and the advantage of cheap labor faded in rural areas after the early 1980s. This change is partly revealed by the wage ratios between the rural and urban sectors in the 1970s and 1980s (Table 9). Because of tight labor supply conditions in rural areas, about 42 percent of rural enterprises pointed out that acquiring young and/or qualified labor was the most difficult problems they faced (Suh and others, 1991: 229-31).

Another cause of unsuccessful industrialization can be seen in misdirected government efforts to promote rural industrialization. First, government efforts were directed to the provision of direct incentives to rural enterprises,

and the importance of preconditions for industrial development in rural areas was neglected. As a result, transportation facilities, electrification, and credit markets were barely developed in rural areas. For example, almost all provincial roads were unpaved until the late 1970s as shown in Table 10. The density of paving was 76.4 km per thousand square kilometers in 1962 and 214.5 in 1972, while in Korea it was only 10km in 1960 and fewer than 50km in 1975. At the same time, only 12.6 percent of Korean farm households had electricity in 1964 and 61.1 percent by 1974, while in Taiwan, electrification of farm households had reached 70 percent by 1960 (Ho, 1982; Keidel, 1982).

Because of the poor infrastructure and unfavorable labor supply condition, many enterprises preferred to locate in urban or suburban areas. Many kinds of pecuniary and non-pecuniary incentives, as mentioned earlier, were

Table 9: Wage ratio between rural and urban sector by gender

Year	Male	Female	Average
1972	0.78	1.17	0.97
1975	0.79	1.16	0.98
1978	0.77	1.15	0.96
1981	0.90	1.37	1.13
1984	0.82	1.19	1.01
1987	0.74	0.99	0.86
1990	0.76	0.96	0.86

Note: Rural wages includes all payment of cash and in kind for farm workers. Urban wage denotes all payment including overtime and bonus for production and related workers.

Source: Suh, C. H. (1998)

provided by the government to newly established enterprises in rural areas and/or relocating migrant enterprises from big cities. This had only a marginal influence on attracting entrepreneurs to rural areas. It was still risky, in spite of many incentives to start a business in rural areas; the only advantage in rural areas was cheap industrial land prices.

Second, the rural industrialization policy emphasized industrialization in rural areas rather than industrialization of rural areas (Suh, 1994). In other words, central as well as local governments have neglected the importance of rural entrepreneurship rooted in rural communities, instead emphasizing the relocation or transplanting of urban entrepreneurs or urban enterprises to rural areas by providing direct incentives. All of these direct incentives were provided only to enterprises involved in government programs. In order to be involved in government programs, enterprises needed to pass the selection procedure of the government-nominated institute. It is likely that the selection procedure was biased toward external conditions, including funding capacity, because the government was unaware of the rural entrepreneurship rooted in the rural communities, and could not wait for a long time to establish a local-based entrepreneurship. Moreover, most rural entrepreneurs were likely to be too small and too new to meet the criteria. As a result, the suffocation of rural entrepreneurship was even greater under the policy to move to urban enterprises into rural areas than it had been before government intervention. Meanwhile, transplanted enterprises faced serious difficulties in adapting to new and unfamiliar business environments and

failed to take root.

5. Entrepreneurship and successful rural industrialization in unfavorable areas

To confirm the broad perspective mentioned above, two successful cases are introduced that focus on the role of rural entrepreneurs and their relationship to industrial development in three unfavorable rural areas. The Punggi Township and the Sangju City, very remote but very successful in industrialization were selected as the case study sites.

Case 1: Weaving industry in Punggi township

Beginning of the Industries and Evolution

Punggi is a typical small township located in Young Poong County, in the northern part of Kyongsang Book-Do Province. This area does not have a locational advantage for industrial activities because it is mountainous and far from large cities. Nevertheless, this area is a very successful example of rural industrial development. As shown in table 9, there were 170 manufacturing enterprises in this city in 1994, which contrasts greatly with the neighboring areas of Bongwha County and YoungJoo City.

Young Poong County's success in rural industrial development is mainly attributed to the growth of the weaving industry in Punggi Township. Of the 170 manufacturing factories, 145 are engaged in weaving synthetic cloth using rayon, nylon, and polyester yarn. The product is mainly used for lining cloth, and 80 percent of the total national production of lining cloth is produced in this area (Table 10).

In 1993, the total value of cloth production was about 53 billion won (US\$ 66 million)

Table 10: Number of weaving factories in Punggi area, selected years

Year	1938	1945	1948	1951	1968	1985	1988	1994
Number	2	5	31	120	48	76	100	160

Source: Taegu-Kyungbook Weaver's Industrial Cooperative(1994)

which was equivalent to one-third of the total regional production of the county. About 1,000 local employees work in the weaving industry and receive about 600 million won (US\$ 750,000) monthly in wages. The weaving industry contributes substantially to the employment and nonfarm income of rural households in this area.

The weaving industry in Punggi area has a long history (Table 11). About sixty years ago, silk weaving was established by an immigrant from Pyungannam Do Province, in the north-eastern part of North Korea. Before he came to Punggi, he had operated a weaving factory in his home town. In the late 1940s, the weaving industry in the Punggi area began to produce rayon cloth instead of silk, and the number of weaving factories increased dramatically from 5 in 1945 to 120 in 1951 as shown in Table 10. This expansion was attributed in part to the many migrants from northern Korea who moved into the Punggi area and started to work in the weaving businesses. The expansion, however, was accelerated by The Korean War. Most weaving industries, as well as infrastructure in other regions, were destroyed during the war, while the Punggi area was untouched. Punggi rushed to fill domestic demand for rayon cloth. Punggi had good initial conditions compared with other areas because it received the input of new entrepreneurs and its industrial basis was preserved.

Punggi's weaving industry faced its first depression at the end of the 1950s. By this time, most industrial facilities – including weaving facilities – in other areas had recovered from the war, and industrial production regained its pre-war level. Moreover, rayon cloth produced in the Punggi area was inferior in quality because weaving industries in urban areas had adopted electric machinery, while those in Punggi still used handlooms.

Therefore, Punggi weavers lost in the competition with urban weavers because of the low quality of their products and their production costs. To make matters worse, nylon cloth began to be produced by the urban weaving industry. Demand for the rayon cloth produced in the Punggi area decreased rapidly because most customers substituted nylon for rayon cloth in garment production.

Yet Punggi producers could not adopt electric weaving machinery because there was no electricity in their area. They tried using gas engines as a source of power for weaving machinery, but these could not provide sufficient power to produce high-quality rayon as well as synthetic cloth. As a result, Punggi's weaving industry faced a serious depression.

The situation changed at the end of the 1960s, when the government constructed an electric railroad through the Punggi area. With this electricity, electric looms could be intro-

Table 11: Historical changes of the Punggi weaving industry

Stage of industrial development	Period	Production	Technology	Machines operated by a worker	Social situation
Starting stage	1934-1947	Cottage	Hand loom	1	Japanese colonial time
1 st expansion stage	1948-1959	Cottage	Hand loom	1	Before & after Korean War
1 st depression stage	1960-1967	Cottage	Hand loom	1	Introduction of nylon yarn
2 nd expansion stage	1968-1985	Cottage & factory	Electric weaving loom	2	Adoption of electric power
3 rd expansion stage	1986-1999	Cottage & factory	Air & water-jet weaving loom	14-20	Spread of labor union

Source: Lee, J. H and Suh, C, H. 1998

duced, and many factories began to use nylon and polyester yarn. To reduce the large amount of investment needs for machinery, they bought secondhand looms from urban weaving enterprises in Taegoo, and Mokpo. Labor productivity increased as much as two to six times.

Along with adopting electric looms, weavers also began to change their final products. Instead of rayon cloth for garments, they began to produce nylon and polyester cloth for lining garments and bags. It must be noted that electrification played a critical role in Punggi's weaving industry.

Fortunately, weavers in Punggi area could use bank loans instead of private credit to finance this new investment. This was made possible when a formal financial institution, the Citizen's Bank, was established in a neighboring city, Youngjoo city, in 1983 and the government urged the bank to provide loans to weaving enterprises. This was a great opportunity for the enterprises because the annual interest rate for those loans was about 25 percent, while the rate for private loans was about 60 to 70 percent. The introduction of this credit institution was another contributing factor in the second expansion of the weaving industry.

In 1986, many enterprises began to adopt labor-saving technologies because of labor shortage in rural areas. They tried to replace labor with new machinery. Air-jet and water-jet weaving machinery and a shuttle-change system were adopted to increase labor productivity. Also, many skilled laborers began to establish their own weaving enterprises with the aid of the previous employers. As a result, the number of weaving factories increased rap-

idly after 1986, although most have remained small-scale, cottage-style factories.

Role of Government

The policy of establishing rural industrial estates played a critical role in transforming the weaving industry from a cottage industry to a modern factory industry. Based on the Farm Household Income Source Development Act, a rural industrial estate of 105,000 square meters was constructed in the Punggi area by the government in 1989. A total amount of 1,267 million won (US\$1.6 million) was subsidized by the central government to construct the industrial estate. Government support provided about 34 percent of the total investment, which included land procurement, construction, and infrastructure development. Twenty-four weaving enterprises moved into this industrial estate and were able to make the transition from cottage industry to modern factory operation.

Special loans were provided to the enterprises for their investment. Each enterprise could receive a maximum of 500 million won (US\$ 32,000) for its physical investment. The interest rate for this loan was 7.5 percent yearly, with the condition of a ten-year repayment period and a grace period of five years. In addition, each enterprise was eligible to borrow a maximum of 200 million won (US\$ 353,000) in operating funds. The interest rate for these loans was also 7.5 percent yearly, with a three-year repayment period, including a one-year grace period.

It should be noted, however, that the privileges provided to the Punggi area were available for all rural areas and enterprises established by the government supporting rural

Table 12: Origin of entrepreneurs in the weaving industries in Punggi area, 1994

Origin	Number	Percent
Immigrants from North Korea	15	9.4
Second generation of immigrants	30	18.8
Local origin	115	71.8
Total	160	100.0

Source: Lee, J. H and Suh, C. H., 1998

estates in many other places, but they were not always as successful as they were in Punggi's case. For example, two industrial estates were designated by the government in a neighboring county and city. Nevertheless, 35 and 40 percent of the total enterprises of two estates, respectively, went bankrupt, while only 8 percent (just two enterprises) went bankrupt in the Punggi estate.

There may be several reasons the Punggi industrial estate has been so successful compared with the other two rural industrial estates. The most important factor was that most enterprises in Punggi were owned by local entrepreneurs, while the enterprises of the other two estates were mostly transplanted enterprises of urban origin (Table 12).

According to Lloyd and Mason (1985: 77), local entrepreneurs have substantial advantages. Entrepreneurs who start their own business usually encounter a lot of risk and uncertainty, and they are likely to face serious difficulty in adapting to a new environment if they establish their enterprises in an unfamiliar place (Kim and Cha 1994). The enterprises that moved from urban areas faced many unanticipated problems, including difficulty in acquiring qualified and reliable workers, problems in marketing their products, and difficul-

ty in adapting in rural areas. In contrast, the local entrepreneurs of Punggi estate did not have to make a new effort to acquire reliable workers and market channels, and they could gain support and cooperation from the local community because they had a long, personal relationship with the community.

Case 2: Persimmon processing industry in Sangjoo city area

Beginning of the industry and its evolution

Sangjoo is a typical rural city located in the north-eastern part of Kyongsang Book-Do Province. This area does not have a locational advantage for industrial activities because it is located in a mountainous area and far from big cities. Historically, this city is famous for white color agricultural products, rice, cocoon and processed dry persimmons. Because of its white color, Sangjoo has been called as a three-white color agricultural region in Korea. Nevertheless, this area had remained a typical agricultural region because it is located far from the major industrial growth poles during the rapid industrialization period of the 1960s-1980s. Agriculture had been a major industry until the early 1990s.

Traditionally, there had not been professional persimmon orchards in Korea, especially bitter persimmon orchards. It was because bit-

ter persimmon was not considered as a high quality fruit and most persimmon varieties were indigenous with low productivity. Instead, sweet persimmon has been recognized as an improved variety and of high quality in Korea. Unfortunately, in the Sangjoo area, farmers could not grow sweet persimmon because of low temperatures during the winter season.

There are two types of persimmon growers in the Sangjoo area; traditional-type, non-commercial farming, and modern commercial orchard farming. The former, which comprises the majority of farming in the Sangjoo area, grows persimmon trees at the perimeter of his agricultural fields of his farm land, while the latter grows the trees in a regular orchard field. At present, young farmers try to operate large-size commercial persimmon orchards. Before modernizing the persimmon industry most fresh persimmons were sold either fresh or processed as completely dried hard persimmons. Since the quality was not good, the market demand for Sangjoo persimmons was not high enough for the farmers to sell their products. As a result, the farmer's selling price was not high enough compared to their production costs, thus many farmers could not cover their production costs. That was why many farmers sometimes did not harvest fresh persimmons even in the harvest season. Until now, in the Sangjoo area, almost all persimmon trees are more than 30 years old, and have not been pruned since planting time. Most persimmon trees are too tall to harvest by hand from the ground. That was why many farmers did not harvest fresh persimmons whenever persimmon prices were below production cost.

This situation changed when the local government started to participate in the rural industrialization policy programs of the central government. After participating in the government policy program aiming to develop indigenous traditional local industry, new processed persimmon products were developed with support from a local university, the city agricultural extension office and the government persimmon experimental station located in Sangjoo City. Half-dried soft persimmons, ice persimmons and persimmon vinegar were developed under the cooperation of these organizations. Since technical support from local institutions was successful, many farmers took part in the value – add policy program, and started to produce half-dried persimmon products. Thereafter the acreage of persimmon production area increased year by year. The area of persimmon production was 692 ha in 2006, whereas in 2000 it was 370 ha. Presently, Sangjoo City produces about 60 percent of the national persimmon production, and has become an area of high quality processed persimmon production in Korea.

Persimmon processing farmers organized the Sangjoo Persimmon Development Federation in the late 1990s. They also established a multi-purpose persimmon trading center in which post-harvest process activities including cleaning, grading and packaging the products were conducted. Before the Federation and five professional processing enterprises were established, some fresh persimmon producers sold their products in the local farmers market. Sometimes they didn't sell their products when the market price was low.

Since new products were designed for high quality consumer goods by processing experts, a new market and value chain system was created. The value of fresh persimmons was 23.6 billion won (US\$ 21.5 million) in 2007, but after processing, the value of the processed products was about 200 billion won (US\$ 181.8 million) which was almost 8.5 times the value of the fresh product.

Structure of the persimmon processing industry

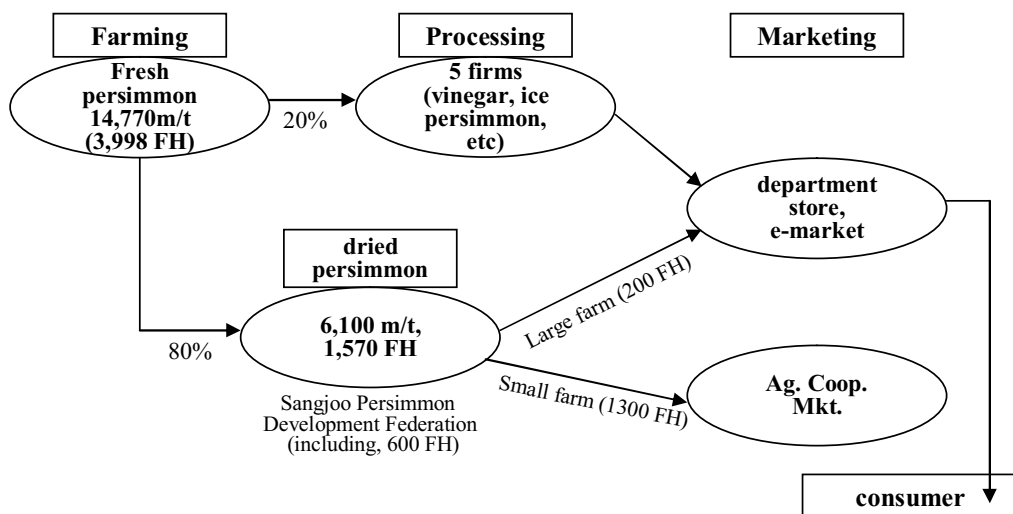
In 2007, the number of fresh persimmon producers was 3,998 farms. Among them, 1,570 farms produce half-dried and soft persimmons, and sell their products either to the regional agriculture cooperative or big marketing channels such as department stores. Out of 1,570 persimmon processing farms, about 200 farms sold more than 100 thousands won (US\$ 180 thousand) per year. They sell their processed persimmons directly to the department stores and big super market channels.

Smallholders sell their products to the local agricultural cooperative. Other processed products such as persimmon vinegar and ice persimmons are produced by five processors (Fig. 2).

The Sangjoo Persimmon Development Federation consists of 600 farmers and plays a role as an innovator. As mentioned earlier, the Federation developed a common brand for processed persimmon and adopted production traceability and a geographical certification system. Moreover, they established a multi-purpose persimmon trading center in which post-harvest process activities including cleaning, grading and packaging the products were conducted. Before the Federation and five professional processing enterprises were established, some fresh persimmon producers sold their products in local farmers markets. Sometimes they didn't sell their products when the market price low.

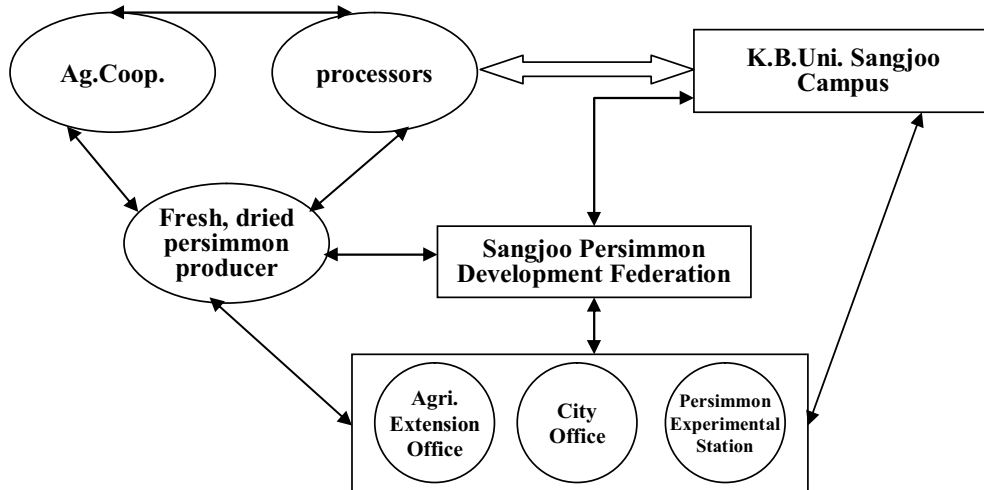
Professional large-scale persimmon produc-

Figure 2: Market structure of sangjoo persimmon industry



Source: Lee, D. P. and others (2008)

Figure 3: Cluster of Sangjoo persimmon industry



Source: Lee, D. P. and others(2008)

ers and processing enterprises sell their products either to the big supermarket chains or to the on-line markets. Small-scale processing farmers sell their products to the local agriculture cooperative since they cannot meet the regular order from big supermarket chains.

Sangjoo area has a unique industrial cluster. Each component of the cluster plays an independent role and they cooperate with each other. The local agriculture cooperative provides funds for farming, purchases fresh persimmons from farmers, and sells them to processors. Sometimes the cooperative plays a role as a middleman in the transaction of fresh and processed persimmons. The university, the persimmon experimental station, and the city extension office play their roles as technology development innovators and provide new technology to the farmers as well as processors. Because all of these institutions are public organizations, there is no need to pay for their services. Even though farmers need to pay for their technical assistance, usually the city gov-

ernment pays the costs, especially training and technology transfer costs.

Sangjoo city office plays a role as an industrial development planner and policy program implementer at the local sites. The city office always applies the central government policy program, whenever, it is appropriate and necessary for city agriculture development. However, the city office has to provide part of the program budget, usually 20 to 30%, and has to monitor the projects. In the case of the Sangjoo persimmon development program, the city government has paid the construction cost of the persimmon post-harvest and trade center.

Performance of the persimmon industry and role of government

Modernization of the persimmon industry has contributed so much to the Sangjoo's economy in several aspects. First, it has contributed to an increase in the number of fresh persimmon and dried persimmon producers. The

number of persimmon growers was 3,988 in 2007, whereas it was 3,076 in 2004. On the other hand, the number of dried persimmon producers increased to 1,570 in 2007 whereas it was 1,000 in 2004. Second, the modern persimmon industry created new employment, especially farm household members. Usually, farmers harvest fresh persimmons from early October to mid-November, and thereafter, process them until end of the February of the next year. During the three-month processing period, about 150,000 man-days of employment, which is equivalent to 500 full-time employment, are provided. Moreover, most of the workers are farmer household members whose ages are more than 50 years.

The policy of promoting value-chain agricultural production played a critical role in transforming the persimmon industry from a raw material-oriented industry to a modern value-added industry. Based on the government's Forestry and Mountain Area Development Program, persimmons became a

target value-chain product in the Sangjoo area by the central government in 1998. From the central government, Sangjoo persimmon growers received 2 billion won of subsidy (USD 1.82 million) to develop infrastructure for persimmon processing. With these funds, persimmon growers established the processing facilities, including automatic peeling machinery, drying houses, low-temperature storage houses and packaging facilities. After the successful undertaking of the subsidized government program, the central government supported additional subsidies to this city under the name of the New Vitalization Program for the Unfavorable Rural Area.

With additional subsidies, persimmon growers adopted the traceability and geographical certification system and established a multi-purpose persimmon processing and trading complex. Moreover, the central government designated several villages as specialized persimmon production areas.

Modernization of rural indigenous tradition-

Table 13: Profiles of rural industrial estates in Sangjoo city (as of Dec. 2008)

Estate name	Oe-dap	Gong-sung	Ham-chang	Wha-seo	Wha-dong	Total
Size(m ²)	245,000	111,000	119,000	102,000	88,000	665,000
Established years.	1988	1991	1994	1995	1991	
No. of firms(A)	30	10	17	5	6	68
Operating firms(B)	26	9	16	5	4	60
B/A(%)	86.7	90.0	94.1	100.0	66.7	88.2
No. of employees(ps)	325	128	241	95	64	853
From local farms(ps)	20	2	13	22	3	60
From local non-farms	207	71	130	35	27	470
From outside	62	41	98	26	9	236
Foreign country laborers	36	14	0	12	25	87

Source: Lee, D. P. and others (2009)

al industries like persimmon production in the Sangjoo area contributed a great deal to mobilize rural entrepreneurship compared to the policy program aiming to construct rural industrial estates. In the Sanjoo area, there are five rural industrial estates. Sixty-eight enterprises have moved into these estates, but only sixty are under operation. Moreover, out of 853 employees, only 60 are farm household members, whereas the majority of employees are outside migrants or local non-farm household members. This means that rural industrial estates do contribute to generate regional employment and economic development, but not much to increase farm households' non-farm employment and income.

Rural entrepreneurship was generated and developed through supporting local indigenous industry by institutional building. Local fresh persimmon producers were encouraged to join the value-add processing activities by many related institutions including the extension office, the persimmon experimental station, the university and the agricultural cooperative. With their support leaders of persimmon growers established a self-organized federation. Because of this commodity-specific self-organization, farmers can share their technology and market information. Even more, they can have bargaining power with local government and persimmon traders. Also, they could actively participate in industry innovation such as new product development and marketing promotion.

6. Conclusion

Although Korea has accomplished successful industrial development, it is far behind in Rural industrial development compared with

Japan and Taiwan. Because of this, explosive population growth has taken place in a few large city areas, while the population has fallen drastically in many rural areas. A basic question is raised: Why has rural industry not been much developed in Korea, while Japan and Taiwan have achieved successful rural industrialization in the process of economic development?

As implied by the two successful cases, Punggi and Sangjoo, the initial conditions should be considered as a basic factor, especially in unfavorable areas remote from big cities. Korea inherited a very poor entrepreneurship in rural areas because of its long history of a strong central political system and Confucianism. Moreover, the poor industrial base was almost completely destroyed by the Korean War.

Because the initial conditions of industrialization were so poor, the Korean government adopted a strong industrial policy toward the strategic urban sector. As a result, very little room was left in the government program for the development of rural industries. It should be noted, however, that, the Korean government has made efforts to develop rural industry since the end of the 1960s through the farm Household Side Business Program, the Agriculture and Fishery Development Corporation Project, the Saemaul Factory Program, and the Rural Industrial Estate Program.

These efforts have partly contributed to achieve the original policy objectives because more than half of rural industrialization areas, as counted based on administrative unit – which was slightly more than 140 target areas

including all counties and rural cities in the early 1980s – were not much affected by government rural industrial development programs. This means that government rural industrial policies bypassed the unfavorable rural areas, and it had worked in the vicinity of large cities and/or big industrial park areas.

Sometimes government efforts were however misdirected, and made things worse. First, government efforts were made to provide direct incentives to rural enterprises to create individual successes, and preconditions for industrial development in rural areas such as transportation facilities, electrification, and a credit market, were neglected. As a result, poor infrastructure conditions prevailed until the end of the 1970s, which created difficulties for rural enterprises, as illustrated in the cases of Punggi and Sangjoo.

Second, government support was directed to transplanting urban enterprises to rural areas and neglected the importance of rural entrepreneurs rooted in rural communities. Government provided subsidies, preferential loans, and tax exemptions or reductions in order to attract urban enterprise to rural areas. Transplanted enterprises, however, failed to adapt to the new environment in rural areas.

Third, Government concern was only directed at the physical dimension of rural industry and ignored the importance of institutional and entrepreneurial development. As shown in the cases of two successful rural areas, a marketing system, organized by various forms of contracts to establish links in the marketing chain, is essential for the success of rural small industry. The marketing system organized by subcontractors not only links the

marketing chain but also generates new entrepreneurs. The subcontracting system is made workable by personal ties and mutual credibility, and by the existence of many small enterprises and a subcontracting system to provide rural employees with the chance to learn business management and to become new entrepreneurs through the process of patron-client relationships with previous employers.

The Policy implications for rural industrialization derived from this analysis is as follows. First, government efforts should be made to improve infrastructure, not to provide direct incentives to rural enterprises for individual successes. In this regard, government policy programs aimed to establish rural industrial estates was an appropriate approach to induce enterprises to locate in rural areas. Second, government policy should be directed to rural entrepreneurs, and not to transplanting urban entrepreneurs to rural sites, especially in unfavorable locations for large-scale industrial activities. Third, government should focus on the development of institutions and entrepreneurship, not only on the physical side of building rural industry.

How to promote the development of institutions and entrepreneurs in rural areas is a critical question. Local government initiatives with support from agriculture extension offices, universities as well as agriculture cooperatives is necessary, as shown in the Sangjoo case, to develop high quality product and a new market. Also a well a designed entrepreneurship training program is effective to formulate local entrepreneurs and enterprises rooted in rural areas.

Acknowledgements

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