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Innovation and entrepreneurship in aging societies: Theoretical reflection and a case study from Kamikatsu, Japan

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Abstract:

Aging societies are usually interpreted as problem cases. Demographic change suffers first in specific regions, for example, in Japan, in mountainous areas. They face often shrinking and aging populations on the one hand and a missing a linkage to economic dynamics and to innovation on the other hand. A new creative concept is required: Wealth, health and longevity should influence each other positively. The Schumpetarian framework proposes a solution through innovation by entrepreneurship. The case study from Japan suggests that an old age per se is not any handicap to create innovation. Rural communities can create a wealth- and employment-creating innovation just with low-technology. A creative new combination of resources based on an entrepreneurial vision and foresight makes old farmers main participants of the innovation and its effects extends to the whole community also on the well-being and motivation.

Keywords: entrepreneurship, innovation, demographic change, productivity and wellbeing, regional economy

JEL-Code: O22 (Project Analysis), O35 (Social Innovation), J14 (Economics of the Elderly)

1 Introduction and research questions

This contribution interprets the Schumpeterian framework of innovation and entrepreneurship in the context of demographically aging societies experiencing falling birthrates and rising life expectancy. The theoretical foundation of creative solutions through innovation in aging societies is presented and illustrated with a case study from Japan.

Aging societies are usually considered problem cases. Challenges commonly linked to aging societies include the maintenance of social infrastructure, a stagnation of economic dynamics, and the burden of public pensions, medical costs, and nursing care. People live longer, but with more pain and illness. Communities that fail to retain their populations are in a dangerous social and economic situation because they face reduced potential regarding purchasing power and regional development, processes of social and spatial fragmentation, decreasing municipal income taxes, and public and private infrastructure maintenance problems.

Specific regions suffer demographic change before other regions. In Japan, mountain villages are most severely affected by depopulation and aging (Statistics Bureau, n.d.; Matanle & Sato, 2010; Matanle, Rausch & the Shrinking Regions Research Group, 2011). These regions have often lost their linkages to economic dynamics and innovation. The declining economy, depopulation, and aging population influence each other. Population shrinkage through aging is usually interpreted as a determinant for economic decline.

However, if "[t]he qualitative effects are even more problematic with regard to endogenous potentials such as innovation" (Feldhoff, 2013: 100), the issue is about qualitative resource use rather than the amount of resources. A mere increase of the workforce, capital, and infrastructure without entrepreneurial innovative activities cannot create development, or increase the standard of living, or ameliorate the negative impact of demographic aging. A "creative response" (Schumpeter)

to demographic change is necessary to enliven economic development in aging societies.

For a creative response, another concept beyond external and endogenous growth models is required in which wealth, health, and longevity should influence each other positively. Imagination, creativity, and volition (entrepreneurial motivation) resulting in innovation could create wealth and even enable the good health of older people acting as entrepreneurs and/or contributing to innovation, and lengthen their healthy life span (delayed aging). This is a novel hypothesis that has not been yet discussed in the literature on economic development.

Innovation during qualitative and quantitative changes in resources becomes an issue in the question of how an aging population effects economic development and wellbeing via the effects on the supply of innovative ideas, the demand for innovations, the rate of diffusion of new combinations, and the extent of learning by doing (Galor, 2011).

In political practice, however, an entrepreneurial response has been stressed for a long time. Solutions with creative imagination and the autonomous creation of innovation have been postulated. The Mountain Village Promotion Act (Jap.: Sanson shinko hō, 1965) aimed to strengthen local industries and increase employment in mountain areas through measures such as the establishment of modern forest management and farming systems, development of processing industries for agricultural and primary forestry products, introduction of tourism, and the cultivation of markets for unique local products. Furthermore, the Japanese government promoted “the sixth industry” approach for rural revitalization. They expected that rural regions would create new added-value synergistically through the effective use of agricultural, forestry, and fishery products, as well as land, water, and other assets in farming, mountain and fishing villages, by integrating production, processing and distribution activities. However, Feldhoff (2013) has shown that this approach has failed.

Why is it difficult for such aging regions to help themselves in innovative ways, despite the

emigration of younger people? How could an entrepreneurial response work under these conditions? Can these aging communities even keep up with technical progress and innovation? How big would the effect of such innovation on aging communities be? How do regional actors adopt their policies to the changing circumstances caused by depopulation in Japan's regional communities to preserve less favored areas, particularly hilly and mountainous areas? Shrinking cities and villages are a worldwide phenomenon. Could the Japanese case study here give general implications? In discussing the sustainable development of aging rural regions, based on neo-Schumpeterian thinking, a region is considered as being sustainable by innovation, specific types of innovation and the effect of innovation on health and life satisfaction, in particular, for old residents. The main hypothesis is that an economic region or community without innovative activities is a stationary or non developing area.

2 Theoretical framework

2.1 Innovation management of local government and sustainable development (path dependency)

Effective local government is necessary for development. In regional development, the entrepreneurial approaches of local governments are frequently discussed (e.g., see Bryson, Crosby & Stone, 2006; Vanebo & Murdock, 2012). Public management concepts for regional innovation have been developed since the 1980s.[1] Vanebo & Murdock (2012) have discussed theoretical concepts for local government, and the newest of which is that network governance and partnership can harmonize with evolutionary concepts of economic development through innovation. "To remain efficient, effective and responsive, government managers would have to innovate" (Vanebo &

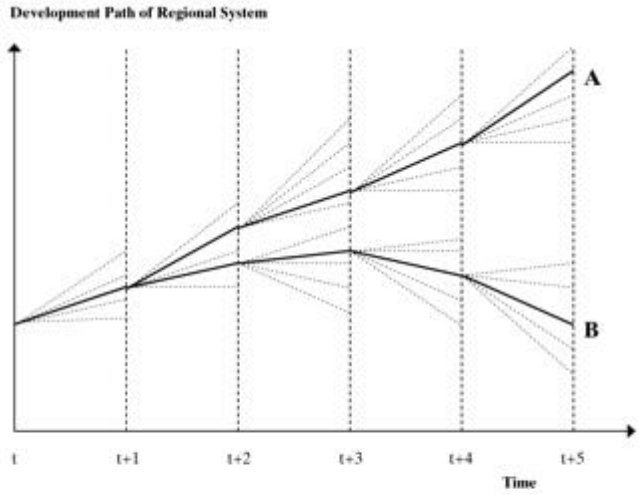
[1] For the historical development of these public management concepts see Vanebo & Murdock (2012).

Murdock, 2012: 140-141)". In the paradigm of network governance and partnership, the focus is on creativity and entrepreneurship. An important aim of creating public value (Moore, 1995) is to focus attention on initiative and innovation as key components of strategic management. The governance structure is a cooperative network, and trust is the dominant coordinating mechanism. However, the contribution of entrepreneurs for innovation remains locked inside a black box. One sees how the presence of innovative companies in a region contributes to growth and development, but a deeper analysis of entrepreneurship fails. The good governance and coordination of an economic stimulus program is one important condition; however, conversely, the success of each enterprise depends on the function (innovation) and competence of each entrepreneur (entrepreneurship). The leadership role of policy makers is to facilitate the translation of new ideas into new forms of action (Vanebo & Murdock, 2012: 143). A good political management for a regional innovation builds an important basis for economic actors. Nevertheless, the political system does not substitute for the economic system. As Luhmann (1998) explains each sub system exists autonomously, and a sub system can influence other subsystems merely indirectly. This attitude would be indicated in the case study about Kamikatsu.[2]

In one approach, evolutionary economics attempted to explain the development of innovations through path dependency. Some paths continue their development in historical time (positive "lock-in") but other paths decline economically (negative "lock-in"). Bassanini & Dosi (2001: 14–15) argue that, actually "many examples from the evolution of institutions, organizations, and technologies suggest a world wherein temporary 'resting' states are 'metastable' in the sense that on longer time scales they are persistently overcome by new developments leading to new 'temporary' resting states". The issue here is, so Martin & Sunley (2006: 417-418), why some regions seem to experience the onset of negative "lock-in" and problems of log-run relative decline, while others

[2] The contribution of this work focuses on economical mechanisms creating innovation rather than on political management.

appear more able to adapt and avoid pronounced negative "lock-in", by undergoing sequential phases of positive "lock-in" (see Figure 1, which compares contrasting regional development paths, A and B).



A – Development path with sequential phases of 'positive 'lock-in''
B - Development path in which 'positive 'lock-in'' becomes 'negative 'lock-in''
Dashed lines represent fields of possible contingent paths, while solid lines are the realised actual paths. Development path here might be measured by innovation rate, or relative economic growth, for example.

Figure 1: Diverse path developments
Source: Martin &Sunley, 2006, p. 418.

Researchers discuss about characteristics and determinants for the ability for breaking through lock-in effects of path dependency. Mainly, geographical conditions, cluster characteristics or/and attributes of firms and industries are discussed. Entrepreneurship in its various functions remains missing.

Several approaches argue that the art of avoiding "lock-in" lies in the recombination and reworking of socio-economic-technological residuals and legacies from preceding rounds and phases of economic growth (Martin & Sunley, 2006: 421). They consider learning as a key capability to avoiding "lock-in," presumably by increasing actors' foresight and their understanding of the benefits of co-ordination. Among different learning types, entrepreneurial learning is important (see

also section 2.4 “Entrepreneurship”).

A regional economy experiencing a long period of relative economic decline will undergo a process of devaluation to restore the conditions for renewed development. This could — given emerging spontaneous or policy-induced entrepreneurial initiatives — lead to the gradual emergence of new economic trajectories of some sort. According to the path dependence model, external shocks of this sort should eventually stimulate a region’s economy to “break free” from its “locked-in” path of development and move to another, more competitive, configuration (Martin & Sunley, 2006: 417), but an endogenous development is necessary in the long run. Exogenous and endogenous forces acting on regional economies mix in some ways, and it may well be impossible to attach priority to endogenous or exogenous causes (Martin & Sunley, 2006: 417).

Two possible forms of regional “de-locking” involve the restructuring of a region’s industries from within, either through diversification from what were once core industries and technologies into related or derived industries and technologies that provide the foundations for a new trajectory of regional development and growth; or by a radical upgrading and enhancement of a region’s industrial base through the infusion of new technologies or the introduction of new products and services (Martin & Sunley, 2006: 423). Some concepts have emphasized the importance of research institutions and human capital and the ability of regions to retain skilled and educated labor even in the immediate aftermath of a major regional recession. (Martin & Sunley, 2006: 419).

Two factors mentioned by Bassanini & Dosi (1999: 24) allow the creation of dynamic transformation processes and are relevant for our Kamikasu case study: the co-evolutionary nature of many processes of socio-economic adaptation and “invasions,” which are new organizational forms originally developed in other contexts.[3]According to van der Ploeg & Renting (2000), the economic

[3] Bassanini & Dosi (1999: 24) note two more factors: 1) the emergence of new technological paradigms and 2) heterogeneity among agents and imperfect adaptation of agents in the variety of lock-in depth. Both factors assume successful technical transfer for rural districts, see also Castaldi & Dosi (2003).

success of some rural areas rely on further diversification, development of clusters and adoption of new technologies.

Krugman (1991) and North & Smallbone (2000) note an increasing emphasis on the role of networks, clustering and innovation to compensate for the smaller scale of enterprises. Though, concerning many cases in rural regions, it should be useful to differentiate between efficient settings between main industrial regions and underdeveloped regions. Rural regions don't have to become a actor of a high tech industry (for a failed example Okinawa see section 2.4 "Entrepreneurship"). The Kamikatsu case study discusses types of diversification that are most efficient for rural regions with a low level of economic dynamics and how new technologies, in particular Information and communications technology (ICT), can be introduced efficiently.[4]

2.2 Typology of innovation during demographic change

As Jones & Weinberg (2011) show, age is not a hindrance for innovation. Without innovation, the regional or local economy follows a circular flow by adapting to given changes in an environment, as Schumpeter (1912) sees in these differences the functional disparities indicated difference between an "entrepreneur" and a "manager". Its internal structure remains the same.

A "new combination" (Schumpeter) of the available resources remains an essential conditions for the creation of new value. Combining innovative entrepreneurship and the decentralized mobilization of local knowledge according to F. A. Hayek (2002), an aging community should and could find and develop their own unique way, which does not require radical innovation or technical progress. Smallbone & North (1999) found that small firms in rural areas tend to be less innovative and slower

[4] Communication technology is often associated with a globalization strategy of SMEs in a rural region. Communication technology is seen as important since it can provide access to global markets for small rural firms (Smallbone & North, 1999). The Kamikatsu case study shows though, that globalization is not a necessary condition for SME in rural circumstances.

to adopt new technology. A rural regional economy needs such innovation to keep its regional society sustainably or prevent the ongoing loss of economic viability. It is different from radical innovation with worldwide impact for a long time ("Kondratieff Waves"). Innovation remains a necessary condition to avoid a negative regional lock-in, i.e. economic stagnation connected with depopulation and socio-cultural impoverishment. The essence of the definition of Schumpeter, a recombination or new combination of resources, and Schumpeter's five types are possible without new high technology. Kim & Mauborgne (2005) provide examples for such new combination of value.

Schumpeter (1993: 100-101**)** distinguished five types of innovation:

1. The introduction of a new good or a new quality of a good,
2. The introduction of a new method of production,
3. The opening of a new market,
4. The conquest of a new source of supply of raw: materials or partially manufactured goods, and
5. The creation of a new organization.

Product innovation creates a new market. There are three types of new markets (Röpke, 2002: 167); 1) articulated/not satisfied needs for products, 2) not articulated/satisfied and 3) not articulated/not satisfied. For regional economy with lost economic dynamics, 1) and 2) are useful.[5] What kind of innovation is effective for a regional economy with a geographical and linkage distance from industry districts? Innovation is a complex endeavor and there are a plethora of definitions for innovation types and innovativeness (Garcia & Calantone, 2002). In this contribution, a typology of radicality/impact in innovation (see Haga, 2013b: 158, Figure 3.1.) seems meaningful. Disruptive innovation is efficient in small rural regions with aging populations. Disruptive innovation should be modified from the sense proposed by Christensen (2000).

[5] Type 3 is often satisfied through radical innovation ("Kondratieff Wave"), which is not discussed here.

Regions must be able to differentiate themselves from other similar regions and must also be able to offer innovativeness that cannot be copied by large industrial districts. Conversely, the impact of innovation should be substantial to provide economic and social benefits to the region and create an example of creative endeavor that may stimulate other regions to become innovators themselves (not necessarily by imitating the pioneers). As these regions are usually small, moderate success is efficient enough and their entrepreneurs and promoters do not need high technology, substantial investment, or even recent scientific knowledge, which is an approach[6] that failed in Okinawa. In reality and theoretically explainable, this type of regional innovation policy through the invitation of high-tech industries, or the establishment of a research center often fails.[7] Okinawa tries to develop a model of clustering by co-evolutionary interaction between universities and industry, so that economic clusters should be built by spin-offs from a university such as in California's Silicon Valley. The Okinawa Institute of Science and Technology (OIST, founded in 2005) was established with this aim. But as the OIST is not linked to the residents in Okinawa, no cluster building can be observed. Most students at OIST come from other regions of Japan and leave the area after their university study without creating links to the local economy other than the consumption of local goods and services.

2.3 Economic development, well-being and work

Relationship between work and well-being is a controversial issue in gerontology, and studies cannot show definitely any strong correlation between them. The happiness-income paradox —the so-called Easterlin paradox— shows that happiness does not increase from a certain economic development

[6] These conditions are relevant for high-tech industry districts such as Silicon Valley. See for example Fuller-Love, Midmore & Thomas (2006).
[7] With Japanese case studies, Haga (2013a) illustrates the differences between both types.

level when the country's income increases (Easterlin, Angelescu McVey, Switek, Sawangfa & Zweig, 2010). However, this does not mean, it wouldn't matter for keeping well-being, and the regional economic standard could decline.

Frey & Stutzer (2002: 65) note that personality and demographic factors influence happiness and are also important factors in the economic and institutional influences on happiness. Graham (2008) analyzes the relationship between health and happiness in the controversial relationship between income and happiness, in particular, the Easterlin paradox and found a great variety of relationships across countries and cohorts. Her implication is that health measures that are optimal from a public health standpoint do not necessarily make people happier (p. 85). The same consequence could be presumed for the relationship between specific economic measures and happiness. Her finding suggests that rational- and subject matter-oriented measures do not always provide positively influence happiness.

Moreover, Soto (2014: 1) finds out that "personality traits prospectively predicted change in well-being, and well-being levels prospectively predicted personality change. Specifically, prospective trait effects indicated that individuals who were initially extraverted, agreeable, conscientious, and emotionally stable subsequently showed increased well-being. Prospective well-being effects indicated that individuals with high initial levels of well-being subsequently became more agreeable, conscientious, emotionally stable, and introverted." He refers to various interesting findings. First, life satisfaction and positive and negative affect can be added to the small, but growing list of biological, social, and psychological factors that have been shown to prospectively predict personality change. "A key point is that each prospective effect is potentially cumulative over time" (Soto, 2014: 8). Furthermore personality traits and subjective well-being are tremendously important personal characteristics, and so even small changes to them can be meaningful. "These findings challenge the common assumption that associations of personality traits

with subjective well-being are entirely, or almost entirely, due to trait influences on well-being" (Soto, 2014: 10). These suggest a possibility that individuals in a poor mental setting could change through an accumulation of small positive experiences their mind set positively and revise their well-being gradually.

Not every economic success leads to increase of happiness. In particular, in the relationship between work, health and well-being, psychological and emotional components seem to have an influence (see also section 3.2.2 "Irodori's effect on cooperative farmers".). Empathetic entrepreneurship appears to be a key condition for the fulfilment of well-being in the psychological and emotional setting at work.

2.4 Entrepreneurship

In Schumpeterian thinking innovation and entrepreneurship go hand in hand. These factors could be called the causal movers responsible for development. It is important for sustainable development that the people in the region participate in innovative ventures. A sustainable development fails otherwise,[8] as the example of Okinawa shows (see section 2.2 "typology of innovation concerning demographic change".) Kamikatsu established a project for the processing and marketing of local agricultural products. Regional and subregional dynamics, as in the Kamikatsu case study, are created by the intersection and mutual stimulation of entrepreneurship and innovation. Without entrepreneurial initiatives, innovation does not materialize and without innovation entrepreneurship remains embedded in traditional economic activities. Its idea and its contribution come from the town itself. One more important consequence is that a successful recombination led the townspeople in Kamikatsu to a better well-being. Entrepreneurship seems to combine economic success with

[8] There are many illustrations for this, for instance Southern Italy.

well-being. Their positive effects will be discussed in detail in the case study (see Chapter 3 “Irodori case study”.).

The entrepreneurial participation of people in a regional district, which is often implicitly assumed as existing, is a necessary condition for successful regional development. Feldhoff (2013) refers to the experiences of successful community-building initiatives in hundreds of neighborhoods across the United States. These initiatives are asset-based, internally focused and relationship driven, which implies that any genuine local revitalization project must be citizen-led, with outside actors playing supporting roles. An entrepreneur is needed for such successful community-building initiatives.

Case studies have explored the characteristics of entrepreneurs, in particular by observing their entrepreneurial actions. No generally accepted characterization of entrepreneurs is available. According to innovation theory by Schumpeter (1912, 1939, 1993) everyone can be an innovator (entrepreneur). Schumpeter (1912/2006: 529) argued that entrepreneurs can be characterized by their personalities, and this perspective is gaining gradual acceptance based on recent theories of personality (Rauch & Frese, 2008; Zhao, Seibert & Lumpkin, 2010; Leutner,Ahmetoglu, Akhtara & Chamorro-Premuzic, 2014). Simon (2012) focuses in particular on successful SME called “hidden champions” and describes them as customer focused, with a narrow market focus having clear competitive advantages, ambitious goals, global orientation, selected and motivated employees and continuous innovation. This is one type of innovators in regional circumstance. There is no particular type for these entrepreneurial characteristics, but every type could fulfill these entrepreneurial properties in their own way. Collins & Morten (2011) show several ways to achieve an ambitious entrepreneurial aim. The differences between companies is not shown in the amount of luck, but in the size of their benefit from realizing the opportunities created by their luck. These different attitudes between routine managers and entrepreneurs comes from their vision. According to Rassidakis (2001: 15-18) and Röpke (2002) a vision is based on the value system of an individual,

builds an aim, which is held by the individual until it is achieved or when circumstances have changed so much that a new vision becomes established. An entrepreneur must unite egocentricity and socio-centricity to handle (exogenous) chances (Röpke, 2002: 171). Furthermore, the entrepreneur must handle several challenges from different personal and social subsystems in parallel (Röpke, 2002: 175). The level of radicalness depends furthermore on the energy level of entrepreneurs according to their different functions. Röpke (2002) differs it into four levels; routine, arbitrage, innovation and evolution. Conducting entrepreneurship is a highly complex task. The Irodori case study explores how entrepreneurship is conducted. The case study shows that it is important to note that entrepreneurship can extend into high chronological ages. Entrepreneurial competence in creating and implementing new ideas, which is the function of innovation, does not decline with age, assuming the presence of an active lifestyle or "healthy aging".

3 "Irodori" case study

3.1 Kamikatsu and its challenges: An overview

The city of Kamikatsu is located on Shikoku Island, approximately 40 km from Tokushima City, prefectural capital. Kamikatsu is distant from any important cities. It is 135 km from Osaka, 180 km from Kyoto, and 530 km from Tokyo. Shikoku is as one of the main islands separated from the biggest island, Honshu, where the cities of Tokyo, Osaka, and Kyoto are located. Therefore, it is less conveniently located for access to those big cities. Kamikatsu is a traditional agriculture-based small town in the mountains with 1,767 inhabitants[9] (with a population in 1970 of 4,000). The proportion of residents aged 65 years and older is about 49% (the highest proportion in the prefecture of Tokushima).

[9] As of August 2014. Source: City of Kamikatsu.

Geographically, Kamikatsu is a typical constellation of a problematic, aging rural district as described by Feldhoff (2013) and is confronted with the following conditions: emigration of its young population; an increasing proportion of elderly residents; agriculture as the primary industrial sector for employment; and geographic conditions of its mountainous district. The third conditions became disadvantages in the Japanese post-war phase. The emigration of young population has occurred since the 1970s, when the competitive advantage of forestry became a comparative disadvantage because of cheaper imported wood. The main agricultural product, mandarins, faced massive price competition with other regions; furthermore, the mandarin crops were completely destroyed in 1981 by strong cold weather (Yokoishi 2007: 18). The decline of forestry and agriculture accelerated the departure of young people, particularly because parents advised their children to choose alternative careers to farmimg.

The Kamikatsu municipality tried to overcome these challenges while reestablishing the autonomy and sustainability of the community. One of the issues is competent human capital. The municipality searched competent entrepreneurial minded persons in and outside of Kamikatsu. So the recruiting of Tomoji Yokoishi[10], the initiator of the Irodori project, followed a very long search for human capital.

3.2 Irodori

3.2.1 Outline of Irodori

The Irodori company created a market for decorative leaves (Jap.: tsumamono) to garnish traditional, Japanese cuisine, and established the “Irodori” brand[11]. Farmers, an agricultural cooperative, the “Irodori” company are engaged in this enterprise together. The “Irodori” company coordinates

[10] Yokoishi does not come from Kamikatsu, but from Tokushima City.
[11] The brand name is the same as the company name.

farmers, promotion, marketing, communication with customers, management of orders, and offers training and coaching to farmers. Independent farmers supply leaves, and the Kamikatsu branch office of the agricultural cooperative of East Tokushima operates the sales. 197 farmers,[12] mainly those living near the agricultural cooperative,[13] work for Irodori. This number corresponds to 10% of the population of Kamikatsu. Their average age is 70 years old. 90% are women (Kasamatsu & Sato, 2008: 53).

The total sales volume of the market for decorative leaves as part of the traditional Japanese cuisine amounts to 1,000 million yen (9.6 million dollar).[14] The "Irodori"brands cover 70% of the market (see also Figure 2).[15] In the beginning Irodori offered merely 20-30 types of garnish, but now offers 320 types of decorative leaves branded as Irodori.

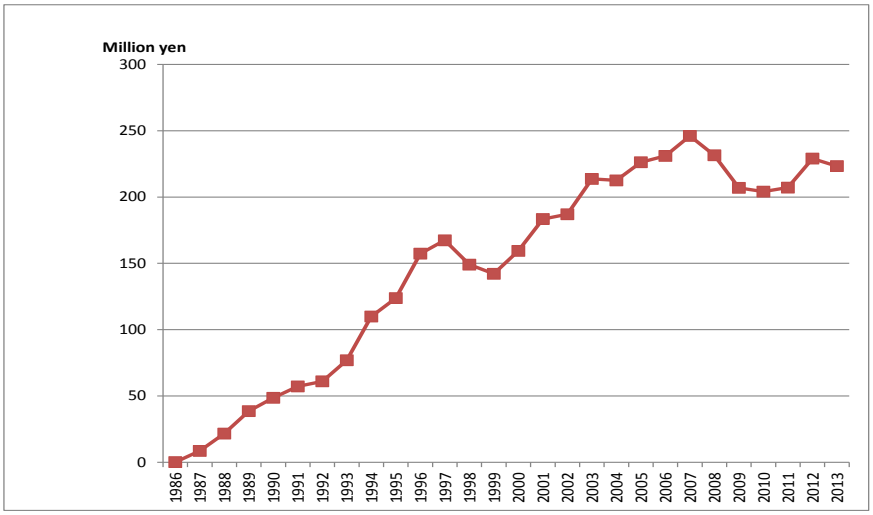


Figure 2: Sales volume of "Irodori" leaves (tsumamono) (of selected products)

Note: These are the volume of sales through agricultural cooperative Tokushima East.

Source: Irodori.

[12] As of August, 2014. Source: Irodori.

[13] Farmers must deliver the leaves in a short time after taking orders at 10 o'clock in the morning. They have until 13 o'clock. Farmers who live far from the agricultural cooperative in Kamikatsu are therefore disadvantaged.

[14] In a broader sense, the market for "tsumamono" is much bigger and the total sales volume amounts to 10,000 million yen. This is still a small market. For example the market volume of the Japanese automobile industry amounts to 50 trillion yen annually (Japan Automobile Manufacturers Association, n.d.).

[15] The numbers are sales amounts from the Kamikatsu branch of agricultural cooprerative East Tokushima, which is also responsible for shipping.

In 1986, Irodori's business began with only four female farmers, who used to harvest leaves and branches for flower arrangements (Jap.: ikebana). In 1987, Irodori started as a project of the agricultural cooperative of Kamikatsu. Since 1999, Irodori has been an independent semi governmental corporation (Yokoishi, 2007: 125-127).

3.2.2 Irodori's effect on cooperative farmers

Cooperative farmers receive money from the Irodori enterprise. Top farmers earn 10 million yen (around 10,000 dollar) per year (Yokoishi, 2007: 152).[16] They received a pension also before the Irodori enterprise, though the effect of the earning from Irodori on emotions and the incentive to engage is different, since the profit from Irodori is linked to their participation in the economy and not retirement. Furthermore, for female farmers in particular, it was the first time they could earn their own money. This gave them self-confidence and satisfaction (Yokoishi, 2007: 163-164). In agriculture, men are the main workers and women traditionally worked merely as their assistants with their performance not acknowledged.

The health effects from working for Irodori are interesting. Irodori farmers have relatively few diseases, but the causality is not clear. Are the fewer diseases the consequence of working for Irodoroi or is good health a condition for working for Irodori (Inaba, 2013: 465-466)? Irodori farmers work more, but feel more tired than other old farmers in Kamikatsu who do not work for Irodori (Fujii, Tada, Okahisa & Matsushita, 2011: 22). This may be because Irodori farmers work longer hours - despite their higher ages. Another interesting finding is that the subjective well-being of Irodori farmers is high (Yamaguchi, Kondo & Shibata, 2012: 65). Yamaguchi, Kondo & Shibata

[16] Amounts differ greatly between the farmers, who work with different intensities for Irodori, depending also on their conditions and interest.

(2012) also examined working farmers in Kamikatsu who are engaged in other tasks. Unlike Irodori farmers, no stochastic correlation between their occupation and well-being was identified. Irodori farmers have said that through their work or other activities, they made other people happy. This can be considered as "interdependent happiness" (Hitokoto & Uchida, 2014). They can work highly motivated, even enthusiastically. The positive correlation between working for Irodori and well-being is because of those two factors (Yamaguchi, Kondo & Shibata, 2012: 65).

The effects on communication are unique. Irodori pulls visitors due to their uniqueness not only from other Japanese regions, but also from abroad. Thanks to the communication with them Irodori farmers are interested in the world beyond their town. Furthermore, one spin-off enterprise is an internship program at Irodori. The interaction with young trainees keep farmers' interest for the outside world and furthermore, it contributes to having feeling that they make other people happy.

One interesting derivative effect is the development of a mentality of solidarity for a sustainable development of Kamikatsu. Irodori farmers consider the good conditions for a sustainable development in Kamikatsu as a factor of success of their own business of Irodori (Yokoishi, 2007: 173). There is no stochastic evidence, but residents of Kamikatsu consider this solidarity as an important reason for success in cooperative services such as the voluntary organized taxi service, which is an important transport option in Kamikatsu. Irodori demonstrates what can be achieved through entrepreneurial initiative even under conditions considered harmful by many observers and experts. There seems no doubt that the residents of Kamikatsu have subjectively shown that Irodori has positive influences on the whole city including its political management, although evidence for positive causality is hard to show because of the complexity of the issue. An indication is the decline of medical expenses of people of 65 years or older. This amounts to 732,000 yen per capita in Kamikatsu while the Japanese average amounts about 833,000 yen per capita (Kasahara & Sato, 2008). Although Kamikatsu has the third highest population of people aged over 65 years in

Tokushima, the medical expenses ranks 32nd of 48 municipalities in Tokushima Prefecture (Takahashi, 2007).

3.3 Evaluation of Irodori as innovation

Innovation is the critical dimension – and according to Schumpeter necessary and sufficient – of economic development. Also at the regional and communal level, change revolves around innovative entrepreneurship. Regional economic resilience is not characterized by a return to equilibrium after an external shock. Instead it is qualified by the capacity to evolve, change, and adapt, mainly by new firms and industries that replace those destroyed by external shocks (Huggins, Izushi &Thompson, 2013). Arthur (1994) suggests that exit and escape from "lock-in" are more difficult in cases where learning effects and specialized fixed costs are the sources of self-reinforcement.

The innovation by Irodori was the creation of a new market. Until the founder of Irodori, Tomoji Yokoishi, had the idea to supply leaves commercially, no-one had traded this natural resource commercially. From a technological perspective, the commercialization of "tsumamono" is an incremental innovation. The existing technology for floriculture is applied partly for "tsumamono". However, from a social change perspective, the radicalness and disruptiveness[17] of this innovation is high. Preparing the leaves was traditionally one task for apprentices in Japanese restaurants. They had picked the leaves, which was not a comfortable task. Lifestyle changes since the 1970s caused apprentices cooks to have a growing dislike for this task. Customer need for the supply of leaves for Japanese cuisine was still latent, but was articulated at this time. Therefore, the creation of a market for "tsumamono" would be classified as the creation of a new market for which these needs were articulated, but not served. Irodori leaves are products for a commercial market; therefore, the

[17] Disruptiveness is not used here in the sense of disruptive innovation of Christensen (2000).

traditionally noncommercial goods, “tsumamono”, became a commercial good. In this sense, it was also a product innovation. Kamikatsu used its geographical advantage because it is located near Osaka and Kyoto where the art of Japanese cuisine is highly developed and popular.

The creation of a new market serving the latently articulated needs of Japanese cooks differentiate Irodori from other projects in similar rural communities. The Japan Center for Regional Development (2011) described successful communities. Eleven rural communities were introduced for their regional economic projects, which were in agriculture, tourism, and work skills for SME. These projects are all incremental modifications of existing domains. Furthermore, the economic reflexion about the demands for the (new) products seems to be missing. For example, buckwheat noodles, which are a popular project object in many regions, is illustrative of products in a mature market, which means that it is difficult to establish the regional value of their product and to win more market share.

One characteristic of Irodoris innovation is the participation of various stakeholders. The Irodori company has good relationships with agricultural cooperatives, the municipality, and farmers. They are loosely tied together and cooperate with each other. For example, Irodori and the agricultural cooperative share the tasks according to the comparative advantage of each harmonically. To mobilize the resources successfully in a new innovation is generally difficult also because of the uncertainty and risk.[18] The incremental character of Irodoris innovation and its cooperation with other agents did help to get the necessary access to resources, which Irodori learned to successfully recombine.

A direct cooperation with other enterprises for a cluster building is difficult due to the uniqueness of Irodori, though they get a profit of the reputation of Irodori. It has a good PR-effect also for other enterprises in Kamikatsu. A loose management of the municipality seems to assist the effect.

[18] To legitimately mobilize resources and cooperation successfully in a new innovation is difficult. For a discussion of this issue, see Takeishi, Aoshima & Karube (2012).

When focusing on well-being, the development of Irodori can provide us with some insights. Rural agricultural communities have traditionally aimed to develop the underdeveloped well-being in such communities.[19] Irodori appears to have adopted this tradition and seems to be an example, that through combining innovation and entrepreneurship, well-being and income of the residents in a small community can be ensured. Even if the sales volume is not significantly large and the "tsumamono" market does not change living standards much, Kamikatsu residents gain advantages from it.

The innovation at Irodori hardly influences the national economy in new Kondratieff Waves (6th wave for the near future). Connections using modern technology do not have much influence for fundamental changes at Irodori. One example is a corporation with a big mobile phone operator, NTT Docomo, developing a useful usage of a new tablet computer for the specific needs of Irodori. It enlarged the network communication between Irodori and farmers, but it did not change Irodori's practices and innovation strategy only marginally; tablet computers still remained as an optional communication tool for farmers. Merely an incremental technical improvement is observed. Irodori supports the national economy in a unique way, but its contribution just partially covers Kamikatsu's economy. Irodori freed young apprentice cooks from having to gather leaves. It certainly decelerated their aversion for working as an apprentice cooks and, to an extent, contributed to Japanese gastronomy. Traditional Japanese cuisine is relatively small (3,655 million yen in year 2007) and is a stable, matured branch.

A declining population did not affect Kamikatsu's role as a vibrant community (see Figure 3). The declining number of residents is compensated for by good communication between townspeople and their children in other cities. They visit their parents frequently and contribute towards the tasks needed to keep the community active. This is also a consequence of the innovation realized by

[19] Soda (2004: 233-236) explores this character of regional communities with Japanese case studies from the Atsumi Peninsula, Fukuoka, and the Saku area in Nagano Prefecture.

Irodori. Evidently, Irodori alone does not cover all of the conditions for a sustainable development of the community.

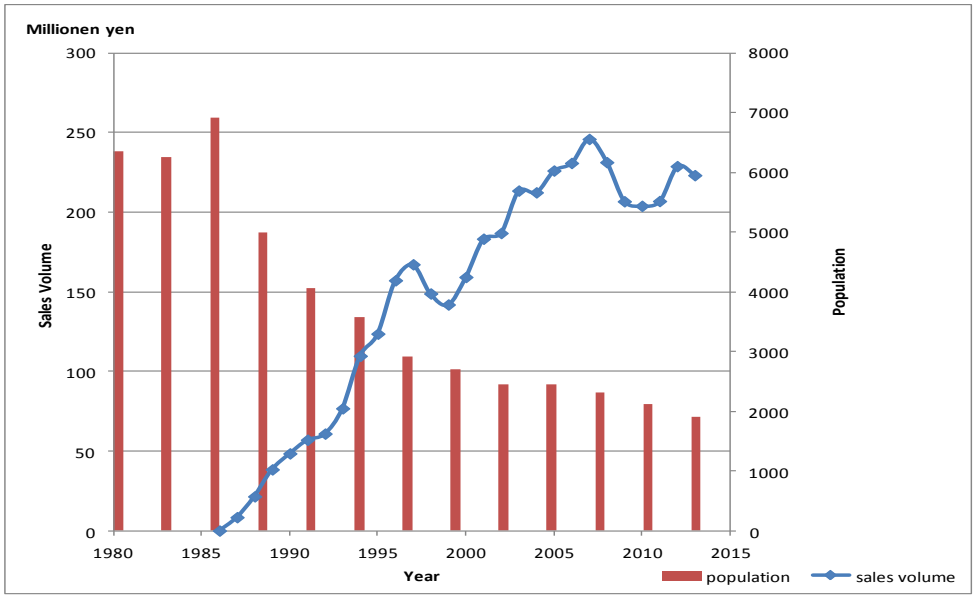


Figure 3: Sales volume of Irodori leaves and the population of Kamikatsu

Source: Irodori.

Further success depends on the evolutionary ability of Irodori. A creative response to a further decline of population and aging is not a one-time-event. It is continuously required, Irodori needs to change continuously and entrepreneurial learning is therefore required in permanence. However, Irodori contributed substantially to it and seems to prove, that a declining and aging population cannot be equated with economic and socio-cultural stagnation. Demographic change can provide opportunities that enable the mobilization of innovative entrepreneurship. The next section will discuss this in more detail.

3.4 Entrepreneurship at Irodori

An important question is why Irodori succeeded in adapting to the industrial and social changes that

comparatively disadvantaged Kamikatsu since the 1970s. Other communities have also tried this type of entrepreneurship, but most failed. This contribution focuses on entrepreneurship as a factor for Irodori's success.

Karlsson (2012) described two kinds of competencies linked to entrepreneurship for sustaining regional economic development: to understand potential threats and risks through scanning their business environment and to anticipate and to develop potential new markets.

Initiator of Irodori, Tomoji Yokoishi, developed his idea combined with a change in values by young apprentice cooks after hearing a woman's comment praising a colored maple leaf. What was previously done by young cook apprentices in restaurants, he perceived as an opportunity for a product innovation realized by local peasants and organized in a cooperative-like enterprise. In pursuing this idea, he omitted other possibilities and succeeded in his selection, otherwise he could not have discovered such a sustainable market. Hamel & Prahalad (1994) also saw the importance of foresight. Yokoishi's foresight appears to have come from his job experience at the agricultural cooperative in Kamikatsu. He was able to anticipate the scale of various opportunities. Hamel & Prahalad (1994: 128) distinguish between foresight and vision, which are both needed by entrepreneurs. Yokoishi's Vision is that elderly female farmers could get opportunities to apply their experience and skills. The commercialization of "tsumamono" was a logical consequence of his vision, foresight, and imagination that was triggered by a comment about a maple leaf.

To realize a vision and foresight, one needs a careful strategy and the ability to accomplish the strategy. Röpke (2002; see also Röpke & Xia, 2007: 121-134) identifies three components for establishing successful entrepreneurship: competency, motivation and property rights. Vision, foresight and imagination are deeply involved in these components. Moreover, experience helps in the decision-making process for innovation. As an example, several points are exhibited.

An example is establishing product quality. As a guest Yokoishi visited Japanese restaurants and

observed and learned about the quality of dishes, their process of cooking, and decoration arts. He could not have learned their secrets through a normal approach and without the advice of the society of Japanese cuisine. He was unusually committed and did much work at his own cost. His approach both to restaurants (market side) and to farmers in Kamikatsu (supply side) was performed with empathy and intensity. He transferred his knowledge immediately in detail and personally to the farmers, e.g. the symbolic meanings of leaves in Japanese cuisine[20] or that leaves have to be packaged accurately according to their size. He also took his farmers to expensive, fancy Japanese restaurants that were buying their leaves because he believed that if the farmers knew how their products were being used, they would be more motivated (Takahara, 2008).

A second example is exploring a strategy for the promotion of the sales. Yokoishi ensured the security of the "tsumamono" business by ensuring that orders are received from restaurants first, before the leaves are harvested. This is unlike the usual sales flow of agricultural products, so that unsold leaves or a price collapse at an auction in the wholesale market are avoided (Yokoishi, 2007: 85, 101).

A third example is the incentive system for farmers. Yokoishi knew the mentality of village farmers. He installed computers for all contract farmers and sent daily information on orders for the next day, as well as on their ranking of supplies of the day based on the amount they brought for preparation and sales on each day. His focus was on creating a feedback system so that farmers would be encouraged to produce more high quality products and give them enough information so they would understand the demand (Takahara 2008). Feedback on success and failure is a critical component in motivating for success according to the achievement motiving theory of David McClelland.

Yokoishi's Decisions are based on his own experiences in Kamikatsu, reflecting the three components of success of Röpke. At the present point in the development, Irodori can be considered

[20] "For instance, a 'yuzuriha' leaf is a symbol of rebirth used for New Year's cuisine to celebrate the start of a new year" (Takahara, 2008).

as a positive development of a path dependency. Yokoishi had had other experimental projects at the agricultural cooperative, and Irodori is the most success among them. A large number of trials and errors was a precondition for the successful innovation with Irodori.

3.5 A summary of Irodori and implications

1. "Irodori" developed the new product, leaf decoration for Japanese cuisine. An important point is the intensive application of IT-technology at "Irodori" to develop an operating system. Unlike traditional rural regions with longevity[21] such as Sardinia and Okinawa, there is a consistent alignment with modern technology.
2. As enterprise in a small town, "Irodori" requires such innovation for its niche market.
3. "Irodori" differs from common regional projects dedicated to the stimulation of a community such as summer festivals or one-time events.
4. "Irodori" protects itself from competition by continually improving its products and exploring new markets and customers.
5. Irodori's innovative contribution is several fold: product innovation (creation of a new market), management for motivation of co-workers, order processing using a fax and computer network, and an application of new technologies requiring the improvement of capacities of older co-workers or continuous learning. The continuous competence building of older people is a core characteristic of Irodori with far- reaching wellbeing and health effects.
6. This positive psychological system with positive stress has a fundamental role for "Irodori", resulting in interactions of psyche with the working environment. Elderly farmers experience feelings of being needed and having worth with a lot of small successes in profitable business

[21] For regions where residents become older than usual, see e.g. Poulain et al. (2004) and Buettner (2008).

gives them confidence again. This is the trigger for their lifelong joyful work for “Irodori”.

7. Reputation of Irodori extends to other enterpreises in Kamikatsu as good PR.

What could other rural communities learn from Kamikatsu?

The Kamikatsu case study shows the possibility of identifying solutions to address demographic change through the community’s own strengths. The Kamikatsu community developed unique products for a comparative advantage and occupy a monopoly position in a newly created market.

When social aspects, such as life satisfaction, are considered positively for a regional development, the heterogeneity between communities tends to be high. These differences in different regions arise in different degrees of regional economic resilience (Simmie, 2012).

Foresight and the analysis of key competencies and comparative advantages of the community are also essential factors for other communities. This holds generally, for example also for bigger cities in the United States with declining populations as St. Louis or Detroit, Cleveland or Buffalo, all characterized with a creative destruction of their traditional industries (Gordon, 2014).

As Martin & Sunley (2006) consider, the process of a discovery and development is unique in each community and it is impossible to standardize specific answers applicable to all. So still much effort remains at the communities to find their own creative way. Nevertheless, Irodori shows exemplarily, how innovation even in declining communities and regions by those people, which are conventionally seen as the main cause of economic decline, that is an older and declining population, allows not only the production of value added and rising incomes, even the improvement of health, but demonstrates for others to explore themselves how new ways for “recombining their resources” (Schumpeter) contribute to wealth, economically and psychologically (wellbeing).

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