

## Chapter 10

# Economy in the Islands of Kagoshima

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### 1. Introduction

In this study, we first review the English literature pertaining to the economies of the islands of Kagoshima. Second, we highlight some of the important Japanese studies that have dealt with more critical issues in this regard. Third, we outline the contents of this study. Let us take a brief look at the economies of the major remote islands of Kagoshima.

Kagoshima Prefecture has 28 inhabited islands located in the southern and western areas of the central region. These islands vary in terms of environment, history, and social economy. Regarding size, Amami-Oshima Is., Yakushima Is., Tanegashima Is., Tokunoshima Is. and Okinoerabujima Is. are much larger than the other islands, as described in Table 1. Amami-Oshima Is. is the largest and most populated island, with nearly 70,000 inhabitants; it is the only island with a city. The economies of these four islands rely on agriculture. Amami-Oshima Is. is well-known for liquor production. The tourism industry is important to Yakushima Is., which has giant, ancient cedar trees called “Yakusugi”; Yakushima Is. has thus been designated as a World Heritage Site. The headquarters of the Japan Aerospace Exploration Agency, the Tanegashima Space Center spaceport, is located at the southeastern end

of the island. Roots crops and beef are the major products of Tokunoshima and Okinoerabujima Is.

Much research on the economies of the islands of Kagoshima pertains to either Amami or Yakushima; the research topics also tend to be restricted to tourism and environmental economics. Amami, Yakushima, and Okinawa are popular tourism sites; Amami attracts tourists by virtue of its traditional music called *shimauta*, which literally means “island songs”; it is also rich in nature and has mangroves and beautiful beaches. Yakushima is famous for its gigantic Japanese cedar trees, which are more than 1,000 years old and whose location is designated as a World Heritage Site. Many studies address how best to enhance the local economy by leveraging these tourism resources. At the same time, other studies focus on the environmental problems that might arise by promoting the tourism industry. Although the two islands share several characteristics from the economic view point, they are different in other ways. For example, Amami was once occupied by the United States but was later returned to Japan; after that, the Japanese government initiated a special policy to normalize its economy. An Act on the Special Measure Concerning the Promotion and Development of Amami-Oshima Is. played an important role in the normalization process. Most

Table 1. Major islands in Kagoshima Prefecture

Islands	Area (km <sup>2</sup> )	Population (2010)	Distance from Kagoshima city (km)	Main industries
Amami-Oshima	712.38	68,617	450	sugarcane, liquor, tourism
Yakushima	504.88	13,614	135	citrus, tourism
Tanegashima	445.02	34,128	115	rice, sugarcane, tea
Tokunoshima	247.76	27,167	468	root crops, beef
Okinoerabuzima	93.65	14,551	536	potatos, corn, flowers, beef

Source: Kagoshima Prefecture website. <http://www.pref.kagoshima.jp/index.html>

of the remote islands, however, enjoy some special government treatment under the Remote Islands Development Act.

## 2. Tourism and other related topics

Let us examine the studies on tourism in Amami. ISHIKAWA and FUKUSHIGE (2007a) explains that the characteristics of the Amami economy feature both a large number of tourists and high levels of fiscal expenditure. ISHIKAWA and FUKUSHIGE (2007a) also estimates the impact of increasing the number of tourists on cuts in fiscal expenditures. It concludes that each tourist contributes JPY ¥52,000 (about USD \$480 in 2005) toward fiscal expenditures. ISHIKAWA and FUKUSHIGE (2007b) focuses on initiatives related to tourism development and discusses the differences of opinion regarding various socioeconomic statuses and the role of local government. Based on interview surveys, ISHIKAWA and FUKUSHIGE (2007b) concludes that the respondents most likely to expect the municipality to take the lead in policymaking include executive officers or employees of private companies, the unemployed, the self-employed, and part-time workers; government employees, on the other hand, are not likely to hold this expectation. In terms of the funding authority, the likelihood that a resident expects the municipality to undertake an industrial development initiative increases as the annual income per resident increases.

The impact of natural disasters on an economy is much greater in the remote islands of Kagoshima than on Kyushu and the other main islands. ADRIANTO and MATSUDA (2002) argues that the more frequent occurrence of environmental disasters explains the vulnerability of small islands. ADRIANTO and MATSUDA (2002) estimates the negative impact of distress by using the gross island product (GIP) approach and defines disasters that occur as the sea level rises as well as natural disasters such as typhoons and heavy rains. ADRIANTO and MATSUDA (2002) estimates that economic losses related to environmental disasters on the Amami-Oshima Is. are relatively small, ranging from 0.17 % to 2.27 % of the GIP. The results of vulnerability analyses indicate that, in terms of GIP-based value, Kikaijima Is. is the most vulnerable, as it has a compos-

ite vulnerability index (CVI) of 0.737. However, in terms of per-capita value, Okinoerabujima Is. is the most vulnerable, with a CVI of 0.910. The study also found that the inhabitants of these islands have relatively high per-capita incomes, which indicates that they have strong economies (*i.e.*, high resilience). However, the economies of such islands are very much exposed to the impacts of environmental disasters.

Many studies on Yakushima tourism are related to the National Park, while several others provide us with basic industry information. For example, SHIBATA and NAGATA (1999) estimate the number of tourists to the Yakushima islands, and TAKAHASHI (1997) examines the economy and natural environment of Yakushima. HIWASAKI (2007) reviews the government zoning and regulations in Yakushima, insisting that park land should be managed through a system of zoning and regulations in order to preserve “scenic beauty,” regardless of existing ownership and use. According to HIWASAKI (2007), the zoning system in Yakushima faces numerous challenges. She also suggests that more research on stakeholders and the relationships among them is important for understanding the complex dynamism of natural conservation and for establishing effective policies so that the local communities are involved in the sustainable management of the environment. Regarding this issue, MORISHITA and MATSUMOTO (2004) attempt to determine ways to support citizen participation in GIS. We also consider the thesis of CUSICK (2003) - a comparative study of citizen participation in the sustainable development of forests. He conducted field studies in Yakushima and Hawaii to examine the role of protected areas in contemporary societies.

Several other studies pertain to Yakushima. FORBES (2012) discusses how to balance long-term environmental sustainability and economic opportunities. ANDREW (2011) conducted a field study in Yakusugiland, Yakushima Is. By comparing Yakusugiland with Cathedral Grove (Canada), he suggests policies that would help sustain old-growth forests in the face of increased tourism. Usuki (2010) conducted a feasibility study vis-à-vis a “sustainable society” in the context of tourism. These three studies discuss a similar topic

that is relevant to any area where residents need to depend on their natural environment to make a living through tourism. The authors of each study highlight the importance of research on ownership, government regulation, and communities. They assert that if the local people and government want to utilize natural resources in a sustainable way and to benefit both humans and nature, economic agencies such as private owners (individual or business), public owners (national or local government), and common owners (cooperatives) should be identified. Thus, we should examine how these agencies are interrelated, from the viewpoints of economic profits, philosophy, and fairness. This is important for all the agencies and people who are not directly connected to the resources but are interested in the resources, such as islanders, nonresident Japanese, and nongovernmental groups, so that effective and long-lasting efforts can be directed toward sustainable development.

These studies should be interdisciplinary, approached from the perspectives of economics, political science, sociology, and ecology. NAKASHIZUKA *et al.* (2007) examine forest utilization and its impact on biodiversity in Yakushima. This interdisciplinary study warns that the monotonous use of land could lead to a loss of biodiversity. HARAGUCHI (1997) explains the traditional means of forest management in Yakushima. It is valuable to learn from the past in order to determine an effective means of preserving the forest, for both the people and nature. Regarding renewable energy, UEMURA *et al.* (2003) examine whether the potential of renewable energy sources other than hydroelectric power - such as wind, photovoltaic, solar thermal, biomass and waste energy sources - can meet the current energy consumption needs in Yakushima Is.

### 3. Literature in Japanese

The English literature on the Kagoshima Islands is limited in terms of both study sites and topics. While Yakushima and Amami are the main focus in terms of area, the research topics tend to concern tourism and natural resource management. There exist a few comprehensive studies in book form but several in Japanese. One such book, that of MINAMURA (1988), discusses how sugar and

*oshima-tsumugi* (a kimono fabric woven from colored threads that originate in Amami-Oshima) has been the main source of income in the islands of Kagoshima since the Meiji period. The islands' economies still depend on these two industries. However, Japan's free trade policy is threatening the sugar industry, and the increased volume of imported oshima-tsumugi has had an adverse effect on the original production sites. This book deals with common economic problems in areas where only a few industries provide sources of income. These economies should make the traditional industries more competitive in the domestic and international markets and should be diversified in order to develop new industries.

MINAMURA (2003) discusses the social economy of Amami after World War II. The author identifies several important factors that have formed the social economy of the Amami islands: occupation rule by the United States, public spending on Amami improvement projects, rapid economic growth, and globalization. He explains that the external influences on economic development have led to the decay of local communities; consequently, the economy's dependence on exogenous factors has increased. The dilemma of development and independence are described well in the book. NISHIMURA (2007) focuses on the efficiency of government spending on the islands. He explains the presence of large-scale public enterprises in the Kagoshima and Amami Islands. In the case of Amami, the author uses detailed data to examine the costs as well as benefits of improvement projects. He concludes that some of the spending is not effective or that over spending is taking place. Most of the islands' economies often need to rely upon the spending of the central government or international agencies, including nongovernmental organizations. The influence of their spending on local economies should be estimated in a clear and scientific manner, unless the status quo does not bring about negative economic effects. YAMADA *et al.* (2005) illustrate the economic problems faced by the Amami islands in various industries. They explain the characteristics of the social economy of the Amami Islands with a focus on the structural reformation of the public sector and their geographical features. The authors

consider the perspectives of various disciplines such as economics, political science, and sociology and cover several important topics such as agriculture, financial problems, and family structure. This type of study is valuable in making concrete policy suggestions from an interdisciplinary viewpoint.

Among the studies pertaining to the Amami islands, there are even fewer comprehensive studies in book form. KURIYAMA *et al.* (2000) is one such example as the authors deal with the environmental problems in Yakushima Is., from the viewpoint of environmental economics. They attempt to pinpoint the environmental value quantitatively and make suggestions about how to utilize and protect the nature of Yakushima Is. based on the analytical results. Because that study makes use of several standard measures - such as environmental value - it could serve as a reference for those who attempt to make similar environmental assessments in other areas.

#### 4. Literature of economy and industry in this book

This section of this book reviews studies that deal with industry-related issues in the Kagoshima islands. Some of the topics have been covered by many scholars - even in Japanese - including tourism and the Act on Special Measures for the Amami Islands Promotion and Development. The structure and influence of the Act is examined deeply by MINAMURA, one of the specialists in this field. Regarding tourism, HAGINO describes the characteristics and challenges inherent in island tourism, from the viewpoints of business management and geographical economics - neither of which has predominated in discussions. Other papers focus on subjects that have not been adequately addressed in English studies. NAGASHIMA addresses the Remote Islands Development Act which is applied to other than Amami. Although not enormous, the impacts of the Act are very important with respect to the future of the islands. The important industries - such as fisheries, agriculture, and food-processing - are also described here. TORII examines the fishery industry in the islands, while TOMINAGA, ONJO, and PARK examine the citrus industry. A new topic is also being studied - renewable energy. One study that has examined this topic is ICHIKAWA, who examines the

possibilities inherent in the generation of renewable energy forms and how they promise a better future for the islands' economies. Some Kagoshima islands are suitable sites for the generation of renewable energy; for example, Yakushima is suitable for the generation of hydroelectric power, as its mountainous areas get adequate rainfall. The additional use of sustainable energy might lower the expense burden associated with other energy sources, which are more expensive in the Kagoshima islands than in other parts of Japan, owing to transportation costs (*e.g.*, as oil and liquefied petroleum gas).

We are certain that the readers will learn a lot from these studies, which provide basic information on the various island industries. At the same time, those with some knowledge of these industries can expand their knowledge, as these studies address new topics and conduct in-depth analyses.

#### 5. Conclusions

Studies that address the economies of Kagoshima's islands deal with common issues that other islands experience, such as economic vulnerability, efficiency of fiscal policy or aid use, and strong external influences. Especially, the history of the Amami Islands resembles that of the islands of Micronesia, given the influence of the United States in both locales. The main topic at hand has much to do with economic independence and development. For economic and geographical reasons, transaction costs are usually much higher in the smaller islands than in the main continent or the main islands. The islands' economies are forced to shape their economic development through the help of government and other aid agencies.

The main research topics are tourism, environmental problems, natural disasters, and fiscal policies; these are also common topics in other disciplinary studies of island economies. One thing that is unique about the studies on the Kagoshima islands' economies is the analysis of the influence of renewable energy diffusion. Yakushima gets adequate rainfall and has a rich mountainous topography, which makes the generation of hydroelectric energy more feasible there than on other islands. Therefore, Kagoshima University has undertaken a feasibility study of clean energy and the introduc-

tion of the electric car.

By undertaking comparative studies of the islands' economies while addressing common themes, we can derive some theoretical frameworks that will enable us to understand the economies and industries of small islands, both quantitatively and qualitatively. Although only issues pertaining to tourism and the natural environment in Yakushima Is. have attracted research attention in the Kagoshima island region, other islands should also be studied by researchers interested in the economy and industries of islands. In cooperation with both domestic and international academic agencies, Kagoshima University is ready to disseminate research resources globally to initiate interdisciplinary and comparative studies.

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